City of Kennewick

WATER COMPREHENSIVE PLAN

Prepared By

RH2 ENGINEERS PLANNERS SCIENTISTS

AGENCY REVIEW DRAFT

August 2016

VOLUME 2 of 2

City of Kennewick Water Comprehensive Plan

August 2016

VOLUME 2 OF 2

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WATER RIGHTS CERTIFICATES AND PERMITS

WATER RIGHTS

GWC 093-D

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

October 3, 2013

City of Kennewick
Attn: Gary Deardorff
PO Box 6108
Kennewick, WA 99336-0198

RE: Water Right Change Application No. CG4-GWC093-D (BENT-12-03)

This Modification Order **SUPERSEDES** the previous Order of the Department of Ecology (Ecology) related to the above-referenced water right change application, dated December 20, 2012.

This Modification Order is the result of settlement between the parties in the Pollution Control Hearings Board (PCHB) case No. 13-009, which includes the above-referenced water right change. The original Order issued in accordance with RCW 90.80.080, which reversed the Benton County Water Conservancy Board's (Board) Record of Decision (ROD) and Report of Examination (ROE) dated October 1, 2012, and denied the water right change application, leading to the referenced appeal.

Summary of Department of Ecology's Superseding Order

MAXIMUM CUB FT/ SECOND	MAX GAL/MIN	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE			
	400	70	Municipal and Domestic Use, Year-Round Use			
SOURCE: Three (3) Points of Diversion			TRIBUTARY OF (IF SURFACE WATER) Columbia River			
¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
(1) NE	SW	6	8N	30 EWM		Benton
(2) SW	SE	31	9N	30EWM		Benton
(3) Government Lots 1 & 2		35	9N	29EWM		Benton

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AND further described as: (1) Existing Point of Withdrawal (2) Water Treatment Plant (3) Ranney Well No. 5
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD
The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

The Department of Ecology (Ecology) has **MODIFIED** the decision of the Board as follows:

1) Ecology has determined that the well draws from Columbia River Basalt Group rocks in hydraulic continuity to the Columbia River, and not in the same body of water as the ASR well which applicant had intended to designate as the changed point of diversion. Accordingly, and pursuant to a Settlement Agreement between the parties, the proposed point of diversion at the ASR well will instead be changed to the above points of diversion (2) and (3) which constitute existing water diversion facilities of the City. Accordingly, the above summary of the Superseding Order is substituted for the Water Board Decision.

2) Ecology removes from the Board's ROE all references related to the ASR well, including but not limited to the following:

   (a) Paragraph 4 of the FINDINGS AND CONCLUSIONS is replaced by:

   "The Water Board has determined that impairment is not an issue affecting this change request; the changed points of diversion are within the same body of water for management purposes."

   (b) Paragraph 7 of the RECOMMENDED PROVISIONS is omitted.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Rd SW Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

If you have any questions or concerns on the above information, please call Mark Schuppe at the Department of Ecology at (509) 454-4238.

Sincerely,

Mark C. Schuppe
Department of Ecology

MCS:gh
131001

Enclosure: *Your Right To Be Heard*

By certified mail: 7010 0290 0000 7126 4865

cc: Dr. Darryll Olsen, Benton County Water Conservancy Board
Stephen North, Office of the Attorney General (e-copy)
Philip Rigdon, Yakama Nation

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

December 20, 2012

Gary Deardorff
City of Kennewick
P.O. Box 6108
Kennewick, WA 99336

RE: Water Right Change Application No. CG4-GWC093-D (BENT-12-03)

In accordance with RCW 90.80.080, the Department of Ecology has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Benton County Water Conservancy Board (the Board) for the above referenced application for change.

The Department of Ecology (Ecology) **REVERSES** the decision of the Board and the subject change is **DENIED**.

1) The ROD does not include adequate information to show that the two existing Layton Park wells (the current points of withdrawal) and the ASR well (the proposed point of withdrawal) will withdraw water "from the same body of public groundwater" as required under RCW 90.44.100(2)(a). The memo from Western Groundwater Services LLC, dated February 28, 2012 indicates that the ASR well will produce groundwater from the Wanapum Formation. It includes some suggestion that the existing Layton Park wells also might withdraw water from the Wanapum Formation, but this is not sufficient or conclusive. To the contrary, Ecology has data that demonstrates the Layton Park wells withdraw water from the Saddle Mountain Aquifer rather than the Wanapum. The ROE does not include adequate information to show that the Wanapum is connected to the Saddle Mountain Aquifer. Without adequate evidence that all wells withdraw from the same body of public groundwater, Ecology is unable to affirm the proposed change in points of withdrawal for Certificates 93D and 94D because compliance with RCW 90.44.100(2)(a) has not been shown.

2) The ROD does not include sufficient evidence to make a tentative determination as to the extent and validity of water right Certificates 93D and 94D. The ROD does not demonstrate that the Layton Park wells have been used since 1946. A memorandum from the City of Kennewick's consultant, Western Groundwater Services (WGS), dated February 28, 2012, describes the existing Layton Park wells as being plugged and no longer in use. This indicates that the wells are not in use and cannot be used without further action. Other than the WGS memo, stating the Layton Park wells are plugged, Ecology has received no other documentation

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that the wells have been used since 1946. Page 6, second paragraph of the ROD does reference the City of Kennewick Water System Plan, dated February 2010, and attached Water Rights Self Assessment 6 and 20 Year Forecast. Certificates 93D and 94D are listed as existing rights, and the water rights are projected to be used in the next 20 years. This includes no information on use. In light of clear evidence that the actual wells are plugged, indicating abandonment, this listing is not sufficient evidence that the rights have been used between 1946 and the date of the ROD.

3) An impairment analysis is also required as part of the transfer application under RCW 90.03.290. The sections Hydraulic Analysis and Existing Wells of the memorandum provided by WGS address part of the required analysis, but are incomplete. An assessment of the general aquifer behavior is provided, but it is based on operational assumptions that are not substantiated by any additional evidence. The surrounding wells shown on Figure 7 of the memorandum are not identified as to owner and screened depth. A complete analysis would also include an assessment of transient water level conditions that may be present during the irrigation season and the impact that pumping on the ASR well would have on identified nearby wells. To concur that no impairment would result from this change, Ecology needs additional information and analysis.

4) In addition to the above reasons for reversal, a number of technical deficiencies must be remedied before approval. Mr. Mark Cunnane of Western Groundwater Services LLC is a Hydrogeologist licensed in the state of Washington. However, the report (memo) received with the ROD did not bear Mr. Cunnane's stamp as required by WAC 308-15-075. Further, the Technical Memorandum included with the ROD dated March 31, 2009 from Golder is incomplete as it appears to be missing pages as well as a geologist or hydrogeologist stamp required by WAC 308-15-075.

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Pollution Control Hearings Board 1111 Israel Road SW, Suite 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

If you have any questions or concerns on the above information, please call Mark Dunbar at the Department of Ecology at (509) 575-2024.

Sincerely,

Mark Kemner, LHG, Section Manager
Water Resources Program/CRO

MK:MD:ss/121274
Enclosure: *Your Right To Be Heard*

By Certified Mail: 7010 0290 0000 7131 1576

cc: Dr. Darryll Olsen, Benton County Conservancy Board
Keith Stoffel, Department of Ecology, ERO (email/pdf)

7010 0290 0000 7131 1576

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Street, Apt. No.; or PO Box No.: CG4-GWC093-D

City, State, ZIP+4

PS Form 3800, August 2006 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

GARY DEARDORFF
CITY OF KENNEWICK
P.O. BOX 6108
KENNEWICK, WA 99336
WR/ss CB Reversal 12/20/12 CG4-GWC093-D

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Steve Galloway ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) STEVE GOLLADAY — C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7010 0290 0000 7131 1576

PS Form 3811, February 2004 — Domestic Return Receipt — 102595-02-M-1540

For Ecology Use Only
Received:
Date Stamp

DEPT OF ECOLOGY Received OCT 09 2012 CENTRAL REGION OFFICE

Benton County
WATER CONSERVANCY BOARD

BENT-12-03

Record of Decision

Applicant: City of Kennewick Application Number: CG4-GWC093-D for Claim 131

The attached Report of Examination has been reviewed by the BCWCB members; and this Record of Decision was made at an open public meeting of the Benton County Water Conservancy Board held on October 1, 2012, with any changes to ROE/ROD based on information received from the applicant and WADOE staff.

(X) Approval:

The Benton County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination and submits this record of decision and report of examination to the Department of Ecology for final review or consideration.

( ) Denial:

The Benton County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination and submits this record of decision to the Department of Ecology for final review or consideration.

Signed Original Date: 10/01/2012
Darryll Olsen, Ph.D., Chairman
Benton County Water Conservancy Board

Approves
Denies
Recused
Abstains
Excused Absence

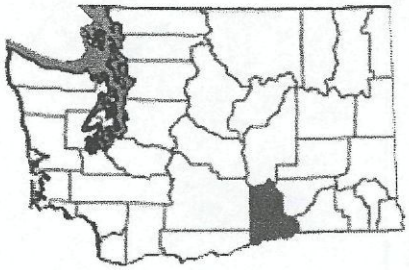
Signed Original Date: 10/01/2012
Scott Revell, Appointed Board Member
Benton County Water Conservancy Board

Approves
Denies
Recused
Abstains
Excused Absence

Signed Original Date: 10/01/2012
Matt Berg, Treasurer
Benton County Water Conservancy Board

Approves
Denies
Recused
Abstains
Excused Absence

Final ROE/ROD Mailed to the Department of Ecology, Regional Office of Ecology, via tracked mail, and other interested parties on or before 10/16/2012.



BENTON COUNTY
WATER CONSERVANCY BOARD

Application/Review for Change/Transfer

OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

DEPT OF ECOLOGY
Received
OCT 09 2012
CENTRAL REGION OFFICE

Report of Examination

Prepared by Members of the Benton County Water Conservancy Board

☒ Surface Water Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
(April 2012)	CG4-GWC093-D For Claim 131	November 4, 1944	BENT-12-03

NAME
Attention: Mr. Gary Deardorff, City of Kennewick

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 6108 City of Kennewick	Kennewick	WA	99336

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☒ Change point of diversion/withdrawal

☐ Other (Temporary, Trust, Interties, etc.) X No Change to Place of Use, City of Kennewick Water Service Territory.

SEPA

The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☒ Exempt (water right) Not exempt (proposed project)

The direct water right change/transfer described herein is exempt from SEPA review, as the water amount involved is under the SEPA threshold criteria.

BACKGROUND AND DECISION SUMMARY

Prepared by Members of the Benton County Water Conservancy Board

Existing Water Right

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400 gpm	70	Municipal and Domestic Use, Year-Round Use
SOURCE Groundwater			TRIBUTARY OF (IF SURFACE WATER)

AT A POINT LOCATED: PARCEL NO. (See Attachments)	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Diversion Point(s): (and as described on certificate).	SW1/4	SW1/4	6	8N	29 EWM		Benton

AND: As stated on Existing claim/certificate

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

All within: As stated on Existing Certificate and all within:
All within the municipal service area of City of Kennewick, and as described on claim/certificate—originally for the Layton Park Addition area (used within City of Kennewick Service Territory).

Proposed Use Under Change Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400 gpm	70	Municipal and Domestic Supply (Municipal Water Supply Purposes), Year-Round Use
SOURCE Groundwater—Kennewick ASR Well			TRIBUTARY OF (IF SURFACE WATER)

AT A POINT LOCATED: PARCEL NO. (See Attachments)	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Diversion Point(s): (and as described on certificate)	NE1/4	SE1/4	17	8N	29 EWM		Benton

AND:
See parcel number: 117894000001004

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

All within:
City of Kennewick Water Service Area as Described by City of Kennewick Water Supply and Conservation Plan.

Water Board Decision

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400 gpm	70	Municipal and Domestic Supply (Municiapl Water Supply Purposes), Year-Round Use
SOURCE Groundwater—Kennewick ASR Well			TRIBUTARY OF (IF SURFACE WATER)

AT A POINT LOCATED: PARCEL NO. (See Attachments) Diversion Point(s): (and as described on certificate)	¼ NE1/4	¼ SE1/4	SECTION 17	TOWNSHIP N. 8N	RANGE 29 EWM	WRIA	COUNTY. Benton

AND:
See parcel number: 117894000001004

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

All within:
City of Kennewick Water Service Area as Described by City of Kennewick Water Supply and Conservation Plan.

DESCRIPTION OF PROPOSED WORKS

The existing claim/certificate is/has been used for general operations within the City of Kennewick. The water right is in good standing and subject to the municipal water use provisions of the water code.

The water right change would involve changing the point of diversion; this new well site is being used under the City of Kennewick-Office of Columbia River (OCR), Ecology, ASR Project. The new well services the Kennewick municipal service territory.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Immediately	By January 1, 2016	By January 1, 2017

NOTE: The Water Board establishes the development schedule, as required under RCW 90.80.070, 90.80.080, and WAC 173-153-130. The schedule may be extended by WADOE if diligence is demonstrated in the completion of this project.

REPORT OF EXAMINATION

Prepared by Members of the Benton County Water Conservancy Board

BACKGROUND

A change/transfer application for claim/certificate CG4-GWC093-D was received and accepted by the Water Board in April 2012, with further information provided during May-July. Beneficial use of the water right is based on previous use history documented by the City of Kennewick staff; and as noted within the City's Water Supply and Conservation Plan.

The existing certificate/claim has been/is being used for general water service within the City's municipal service territory—originally for the Layton Park addition within Kennewick.

The applicant seeks to consolidate the water right point of withdrawal with a new ARS Project well, allowing for greater flexibility toward the overall water service for the City.

The existing water right is in good standing.

Attributes of the water right as currently documented:

Name on certificate, claim, permit: Pacific Power & Light Company.

Water right document number: GWC00093-D for Claim 131

As modified by permit change number: CG4-GWC093-D for Claim 131

Priority date, first use: November 4, 1944

Water quantities: Qi: 400 gpm.

Qa: 70 acre-ft./year.

Source: Groundwater.

Point of diversion/withdrawal: See above and attachments

Purpose of use: Domestic and Municipal Use (Municipal Water Supply Purposes).

Period of use: Year-Round Use.

Place of use: See above and attachments

Existing provisions: See attached certificate.

Tentative determination of the water right:

See Water Board's Decision Above; water right is in certificate stage, in good standing.

History of water use:

The certificate has been used in conjunction with other water rights to service the City of Kennewick Municipal Water Service Area.

Previous changes:

No previous change/transfers noted in the Ecology file.

SEPA:

As noted above, the water right change request is exempt, under the threshold criteria.

COMMENT AND PROTESTS

Public notification for the applicant's request was filed in the Tri-City Herald. A copy is provided in the Public Notice attachments. The WADOE/Water Board did not receive a protest notice, or comments, from a third party. The application has been distributed to several state resources agencies, tribes, and interested parties. No comments have been received from these parties concerning the application.

Issues Raised by WADOE:

The Water Board has provided the WADOE CRO with the change/transfer application and public notice, and a Water Board representative has discussed the change request with CRO-WADOE staff, and requested an explicit identification of any issues of concern related to the change request or the Water Board's preparation of the ROE/ROD.

Protests:

Date: None Received.

This was recognized by the board as a ☐ Protest ☐ Comment

Name/address of protestor/commenter:

Issue:

Board's analysis:

Other:

INVESTIGATION

The following information was obtained from site inspections, technical reports and documents, research of department records, and discussions with the applicant's technical representative/consultant and other interested parties; as well as discussions with the CRO-WADOE staff.

Proposed project plans and specifications:

As noted above, the applicant will continue to use this water right to provide water service within the City of Kennewick Municipal Service Area. The water right will involve the use of one new groundwater well that is being used as part of the Office of Columbia River, Ecology, ARS project (see attachment).

The applicant's intent is to continue the use of the water right per the change/transfer noted above and discussed below.

A. Key Technical Issues—Water Right Review:

This investigation has included several issues:

Tentative Determination:

In order to make a water right change decision, the Water Board must make a tentative determination on the extent and validity of the right. The Water Board has made the tentative determination as displayed upon the first section of this report. There are several circumstances that can cause the Board's tentative determination to differ from the stated extent of the water right within water right documentation. Water right documents attempt to define a maximum limitation to a water right, rather than the actual extent to which a water right has been developed and maintained through historic beneficial use. Additionally, except for a sufficient cause pursuant to RCW 90.14.140, water rights, in whole or in part, not put to a beneficial use for five consecutive years since 1967 may be subject to relinquishment under Chapter 90.14.130 through 90.14.180 RCW. Water rights may additionally be lost through abandonment. The Board's tentative determination was based upon the following findings.

First, the water right applicant holds a valid water right certificate in good standing, and it is on file with the WADOE. The water right is subject to the groundwater code provisions under 90.44, and including RCW 90.14.140, 90.03.615, and 90.03.380.

The certificate is valid as stands, subject to subsequent change actions by the Water Board and any WADOE administrative changes affecting development.

Second, the change/transfer request must be consistent with RCW 90.44.100 and 90.03.380, and related water code statutes 90.14.140 and 90.03.615. As discussed below, the Water Board has reviewed in detail this change/transfer per the applicable statutes and determined compliance thereof.

Third, under the change request, the t[illegible] amount of water withdrawal from th[illegible]isting right and proposed change cannot exceed the amount within the currently certificated water right. The change/transfer request must not exceed the existing water right limits; no enlargement of the water right is allowed.

The Water Board notes that this request requires no Qa or Qi expansion of the water right, as designated under the existing certificate. The applicant is actively using the water right, taking into account development along with other water rights within its service territory portfolio (see attached Table to application), and the change request would not directly affect other water rights owned by the applicant.

Fourth, the allowed amount (baseline) of water available for change/transfer for this municipal supply water right is subject to RCW 90.03.015, 90.03.560, 90.14.140(2)(d) and associated provisions related to RCW 90.03.380. Per this statutory direction and the water right/use information reported by the City of Kennewick under their Water Supply Plan, the Water Board concludes that:

- The water right is held by a municipal entity.
- The water right purpose conforms to definitions of municipal water supply.
- The existing certificate is in good standing per the water resources program file information.
- Per the water right's legal status, it is subject to exemption from relinquishment.
- The combined statutes and empirical conditions noted above allow for the change in point of diversion (and broader use within the existing municipal service territory) without change to the existing certificate Qi and Qa: 400 gpm, and 70 acre-ft.

And fifth, based on the above information and analyses (and Attachments), the Water Board has determined that the full amount of the said water right for change/transfer is presented within the above "Board Decision" summary, and should be the amount not exceeded by the applicant within the proof of appropriation filing and within the superseding certificate issued by WADOE.

Hydrologic, and other technical investigations:

First, based on a review of the water right and area well logs, the requested change/transfer will divert water from the same body of water (management area) as that allowed under the existing water right; and per the water management conditions/agreement of the OCR-Kennewick ASR Project.

Second, the change request cannot create impairment. The Water Board has reviewed with the applicant, and with a qualified professional engineer, information on potential impairment, along with the WADOE point of diversion and water right records, and concludes that impairment is not an issue for this change request. Per review with a qualified professional of the new withdrawal site, the location of any nearby wells, and the operations anticipated by the ASR project, the Water Board has not required a separate, formal (engineering) impairment analysis for this change/transfer review. The Water Board is relying on the technical work completed by OCR-Ecology and the City of Kennewick to justify non-impairment conditions.

Third, the point of withdrawal is consistent with the impairment standards under RCW 90.03.380, as a perfected water right.

Fourth, it further is noted that:

1) For this immediate area, no record/affirmation of impairment has been noted by the Water Board or WADOE.

2) The Water Board has required the applicant to review impairment issues for the applicant's change request. This review indicates that the change action will not impair other water rights.

3) Based on the public notice of this change request, the Water Board has received no impairment issue comments from other existing water right holders, including those who withdraw water from nearby sites.

And Fifth, the change will not increase water use relative to the existing allowed use, create impairment, or detrimental environmental impacts—subject to the OCR-Ecology and City of Kennewick Project agreement.

Given the above review, the Water Board concludes that the proposed action will not create impairment to other water rights per the provisions and conditions established under the existing certificate and the conditions provided within this ROE/ROD.

B. Water Right Adjudication Process:

Water right adjudication does not affect this application.

C. Verification of Existing Water Right:

As noted above, the existing water use retains a certificate of water right granted by the Washington State Dept. of Ecology. The Water Board has reviewed the water right documentation, reviewed the applicant's technical information concerning the water right, is familiar with the existing water use and land operations, and has conducted its own review of the water right relative to change/transfer conditions as discussed above. It is concluded that the water right is in good standing, and subject to the conditions contained within this ROE/ROD for change/transfer.

D. Field Examination:

The field examination was conducted by Dr. Darryll Olsen, Chairman, BCWCB, with on-site visits during the months of May-June 2012. Further, the Water Board is familiar with this area having recently reviewed the area with the land owner and applicant.

The field examination confirmed the information within the application request and technical information, which is more fully elaborated upon in this Report of Examination.

The field examination consisted of viewing the existing/proposed water use sites, existing pumping site, and the surrounding area. A visual examination of the site water use area was conducted, along with a review of the applicant's maps. In essence, the field investigations confirmed information provided by the applicant through personal communications and supporting application materials.

E. Technical Information, Investigations, or Reports Reviewed:

The Water Board has reviewed the applicant's WADOE file and records contained therein, including any reports/comments submitted by WADOE staff, and pertinent WADOE water right records.

The applicant has provided technical information, personal communications, and technical references requested by the Water Board, including data to verify the existing and proposed use areas; and the applicant has communicated extensively with individual Water Board members to answer specific questions about the change/transfer request. The Water Board has conducted a field examination to verify the information contained within the applicant's current water rights and supporting technical information. The Water Board has requested and received supplemental information from the applicant and has discussed future water usage needs with the applicant.

The Water Board has reviewed the s[illegible]ing of the water right, documentatio[illegible]ovided by the water right holder concerning land holdings and management, and aerial photography for the existing and proposed water right place of use and purpose.

The Water Board has forwarded copies of the application change/transfer request and public notice to the state Dept. of Fish & Wildlife, the Dept. of Health, the Tribes, and to all parties requesting such copies. No comments were received by these parties during the formal, and informal, public comment period for the change/transfer application.

The Water Board has reviewed this change request in detail with WADOE and Attorney General Office staff (concerning upstream changes under RCW 90.03.380).

The Water Board has reviewed the applicant's SEPA compliance needs.

F. Associated Rights and Uses:

The subject certificate is being beneficially used and developed, and it is being used along with several other water rights in the nearby area by the applicant. The other water rights are not affected by the proposed change/transfer.

The Water Board has identified nearby water rights adjacent to the existing and proposed place of use, as indicated within the WRATS database; and identified nearby wells and surface water pump stations, as indicated on the WADOE website and data bases (and Columbia River Water Management data sites).

G. Review of Potential Impairment:

Because the proposed action will not increase the existing certificated water use (with change modifications), or increase the water amount put to allowed beneficial use, or likely affect other existing water rights (or applications for new water rights), no impairment is perceptible. The applicant's technical information has been reviewed on water use within the same body of water for management purposes and potential impairment.

The proposed change/transfer will be beneficial in the conservation and management of water resources from existing practices for the following reasons: 1) there will be no increase in diversion/withdrawal on an annual basis after the change/transfer, compared to existing permitted withdrawals; and 2) better controls and monitoring on the quantity of water pumped will help ensure that the authorized quantity is not exceeded, as required under a metering and development plan.

The Water Board has published public notice of the proposed action and reviewed any potential technical issues concerning impairment.

Existing water rights located within the nearby area--within the same section and adjacent sections--were noted according to information contained within the WADOE WRATS data base system and visual inspection, and ongoing Water Board review within this area.

As noted above based on the applicant's technical information and the Water Board's review, it is concluded that no impairment would occur related to the water right change/transfer request.

The field investigation revealed that the applicant's request for change/transfer is consistent with existing land and water use practices within the immediate area, reflecting the development of and consistency with the Benton County Comprehensive Land Use Plan.

The change/transfer request is consis[illegible] with net beneficial use and return fl[illegible] considerations contained in RCW 90.03.380 and other applicable statutes. The change will not increase water diversions or net depletions from the surface water source. More specifically, the subject application for change is consistent with public policy objectives of the state to provide for efficient use of water resources, to encourage supply of new or expanding uses through change/transfer of existing water rights, and to provide greater operational control to water managers.

Given the fact that no increase in water withdrawal from the existing surface water management source will occur relative to that permitted and allowed for beneficial use, there is no reason to expect any impairments to other water sources, consistent with the conditions and provisions provided under the existing water right modification order granted by the WADOE. Also, because the change/transfer proposed by the applicant does not affect withdrawals from new water sources—without regulation--or increase existing allowed net annual withdrawals/diversions from that currently permitted, the change/transfer request does not affect local conditions surrounding the status quo for water use, as permitted by WADOE.

This application decision has no impact on WADOE's existing water right decisions, the condition of local surface water or groundwater resources based on empirical data, or the priority for water rights between junior and senior water right holders within the local area. The Water Board does include conditions within this ROE to ensure that the public interest affecting water use is protected, and that they are consistent with actions that would be pursued by WADOE to avoid future or potential impairment problems or regulation actions.

H. Effect or Benefit to Public Interest:

A recent Washington State Supreme Court ruling has stated that "...a 'public interest' test is not a proper consideration when Ecology acts on a change application under RCW 90.03.380." PUD No. 1 of Pend Oreille County v. Dep't of Ecology, 70372-8 (2002). By extension, neither does the Water Board have authority to apply a public interest test when evaluating a change in water right request under RCW 90.03.380. This Court decision involved a surface water right.

Nevertheless, the Water Board concludes that the requested change/transfer is not contrary to the public interest governing water use, in complying with groundwater statutes under the RCW 90.44 title.

To the extent review of public interest is applicable, the Water Board finds that the application for change is consistent with public policy objectives of the state to provide for efficient use of water resources, to encourage supply of new or expanding uses through change/transfer of existing water rights, to provide greater operational control to water managers, and to ensure no impairment exists.

Because the proposed action will not increase the existing allowed annual water use, or increase the water put to actual beneficial use, or result in an impact on other existing water rights or applications for new water rights, it does not negatively change the existing status quo for water use impacts. Thus, no impairment is perceived, because of the change/transfer requested in the application. Water use is provided consistent with statutory requirements for beneficial use.

The proposed action does provide for a continuation of the existing beneficial use as stated within the certificate of water right, increasing the economic benefits to the state and local area by allowing for continued use and development within the Municipal Service Territory. The development is taking place in the land-use management area of Benton County.

This action is consistent with the intent of RCW 90.03.380, 90.44.100, and 90.80 (amended May 10, 2001) and other applicable statutes; and it is consistent with Benton County's Comprehensive Land-Use Plan. No impairment is consistent with the public interest; all pertinent water right issues are addressed above; conditions are recommended within this ROE to further protect the public interest consistent with state water law.

The application for change/transfer is consistent with the public interest requirements for beneficial water use, and consistent with the procedural, technical, and legal review requirements by the state.

This action is consistent with the intent of RCW 90.44, 90.03.380, and 90.80 (amended May 10, 2001) and other applicable statutes; and it is consistent with Benton County's Comprehensive Land-Use Plan. No impairment is consistent with the public interest; all pertinent water right issues are addressed above; conditions are recommended within this ROE to further protect the public interest consistent with state water law.

The application for change/transfer is consistent with the public interest requirements for beneficial water use, and consistent with the procedural, technical, and legal review requirements by the state.

I. Consideration of Pending Applications:

The applicant's request will not affect the priority for action on pending new water rights or change/transfer applications filed with the Washington State Department of Ecology, for Benton County. Existing applications for Benton County were noted (WADOE data base); and no infringement on priority for action for these applications is perceived by (WADOE or the Water Board).

This application review also is consistent with legislative changes made in 2001 affecting the processing of change/transfer applications by the WADOE, as well as the amendments made to RCW 90.03.380.

Public notice has been provided for requesting all water right holders within the Benton County to submit existing or new water right change/transfer applications to the Benton County Water Board—or the WADOE. Applications received by the WADOE or Water Board are first reviewed for accuracy, completeness, and purpose to ensure they fall within the purview of the agency's and Board's jurisdiction. Those that are found wanting are referred back to the applicant for re-submittal or withdrawal. The remaining ones are acted on by a first-come, first-serve basis, taking into account received application's priority date and the technical/legal review requirements thereof.

FINDINGS AND CONCLUSIONS

1. The certificate of water right and beneficial use are verified.

2. The proposed change/transfer will result in no increase in the annual quantity of water authorized and is consistent with the requirements of RCW 90.03.010, 90.03.380, 90.03.560, 90.14.140, 90.03.615 and other provisions of the groundwater code. The change/transfer request will not increase the allowed water right; the change/transfer will not increase allowed consumptive use from the designated sources, as allowed by the water code per RCW 90.44.

3. There will be no increase in water withdrawal on an annual basis. In addition, continued monitoring of the quantity of water pumped will help ensure that allowed water withdrawals are not exceeded, for the changes requested.

4. The Water Board has determined that impairment is not an issue affecting this change request; the change is within the same body of water for management purposes per the subject operations/agreements pertaining to the OCR-Ecology and City of Kennewick ASR project.

5. Public notice has been provided for the proposed action, and any public concerns have been reviewed by the Water Board. Public notice and application submittal has been forwarded to several state resource agencies/tribes/interested parties for comment; the agencies have provided no direct comments to the application.

6. The Water Board has reviewed the proposed project for SEPA compliance.

7. The proposed action creates no perceived detrimental impacts or impairments to other water right holders or permit applicants; adequate data and information exists to make this determination with confidence.

8. No protests have been made by third parties on this application.

9. The proposed action is consistent with the intent of RCW 90.03.010, 90.03.380, 90.03.560, 90.14.140, 90.03.615, 90.44, and 90.80 (as amended May 10, 2001) and recent case reviews by the Washington State Supreme Court.

10. The proposed action supports the public interest concerned with the direct use of water rights, is consistent with allowed beneficial uses, and is consistent with local area economic development needs and land uses.

11. The Water Board has provided for specific conditions and provisions affecting the use of the water right, as identified below.

RECOMMENDED PROVISIONS

A. Provisions:

The applicant's water right change for a new point of withdrawal are conditioned by the following provisions:

1. The point of withdrawal, place(s) of use, and purpose of use for the water right are designated in the summary table above (under Water Board Decision).

2. Use of water under this authorization shall be contingent upon the water right holder's utilization of up-to-date water conservation practices, and taking into account cost-effectiveness for operations and economic viability.

3. Per an issued superseding certificate for CG4-GWC093-D for Claim 131, water withdrawal shall not exceed 400 gpm, 70 acre-ft., for year-round domestic and municipal water supply (municipal water supply purposes).

4. By January 1, 2016, the applicant will notify the Water Resources Program, Central Region Office, WADOE, that project construction—with ASR operations--is completed, unless further extended for good cause.

5. Proof of appropriation (for actual beneficial use of water) is due to the Water Resources Program, Central Region Office, WADOE by January 1, 2017, unless further extended for good cause.

6. The WADOE shall undertake a proof inspection to certify actual development of the water right amended within this ROE.

7. Provisions for well construction and water use development, per the existing certificate and the provisions of the OCR-Ecology and City of Kennewick ASR Project, are maintained under this change/transfer determination. All water wells constructed (modified) within the state shall meet the minimum standards for construction and maintenance, as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (minimum Standards for Construction and Maintenance of Water Wells). Installation and maintenance of an access port as described in Groundwater Bulletin No.1 is required. An air line and gage shall be installed in addition to the access port.

8. An approved measuring device(s) shall be installed and maintained for the sources (all points of withdrawal) identified herein in accordance with the rule "Requirements for Measuring and Reporting Water Use," Chapter 173-173 WAC. Water use will be measured and recorded for municipal water supply use. Water use data shall be recorded weekly and shall be submitted annually to Ecology by January 31st of each calendar year typically.

9. The rule above describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed or available from Ecology as a document entitled "Water Measurement Device Installation and Operation Requirements."

10. At a minimum, the following information shall be included with each submittal of water use data: owner, contact name if different, mailing address, daytime phone number, WRIA, Permit or Certificate No., source name, annual quantity used including units, maximum rate of diversion including units, period of use, weekly meter readings including units, and peak flow including units for each month. In the future, Ecology may require additional parameters to be reported or more frequent reporting.

11. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

12. Department of Ecology personnel, upon presentation of proper credentials and prior notification, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions, but only to the extent otherwise allowed by law.

B. Mitigation Requirements:

None are required.

DECISION

Approvals:

The Benton County Water Conservancy Board hereby APPROVES the water right change/transfer described within this record of examination and record of decision, and submits this certificate for conditional approval to the Director of the Washington State Department of Ecology. If the Director takes no action within forty-five days of receipt of this ROE/ROD, then the Water Board's decision, as written, is final.

Approved Unanimously by the BCWCB
Kennewick, Washington
This 1st day of October 2012

Approved and Signed on Behalf of the Water Board By:

Signed _____

Darryll Olsen, Ph.D., Chairman
Benton County Water Conservancy Board

Date Mailed to WADOE Director: on or before 10/16/2012

STATE OF WASHINGTON

APPLICATION FOR CHANGE/TRANSFER OF WATER RIGHT

DEPARTMENT OF ECOLOGY State of Washington

For filing with the Department of Ecology or with County Conservancy Boards

A NON-REFUNDABLE MINIMUM FEE OF $50.00 PAYABLE TO THE DEPARTMENT OF ECOLOGY MUST ACCOMPANY THIS APPLICATION

BENT-12-03

(Check all that apply.)

- ☐ Change purpose(s) of use
- ☐ Add purpose(s) of use
- ☒ Change point(s) of diversion/withdrawal
- ☐ Add point(s) of diversion/withdrawal
- ☐ Change/transfer place of use
- ☐ Other (i.e. consolidation, intertie, trust water)

Explain: One new well is to replace two older wells.

FOR OFFICE USE ONLY

CHANGE No. C64-6WC093-D WRIA 31 BENT

DATE ACCEPTED 07 / 09 / 12 BY S

FEE $ 0 REC'D 06 / 15 / 2012

CHECK No. 0

ECY Coding: 001-002-WR10285-000011

SEPA: ☐ Exempt ☐ Not exempt

DEPT OF ECOLOGY Received JUN 15 2012 CENTRAL REGION OFFICE

IF MORE SPACE IS NEEDED, ATTACH ADDITIONAL SHEETS (PLEASE PRINT OR TYPE CLEARLY)

1. Applicant Information:

APPLICANT/BUSINESS NAME	PHONE NO.	FAX NO.
City of Kennewick	(509) 585-4313	(509) 585-4407
ADDRESS		
PO Box 6108		
CITY	STATE	ZIP CODE
Kennewick	WA	99336-0108

CONTACT NAME (IF DIFFERENT FROM ABOVE)	PHONE NO.	FAX NO.
Gary Deardorff	(509) 585-4301	( )
ADDRESS		
City of Kennewick, PO Box 6108		
CITY	STATE	ZIP CODE
Kennewick	WA	99336-0108

2. Water Right Information:

WATER RIGHT OR CLAIM NUMBER	RECORDED NAME(S)
GWC00093-D, GWC00094-D	Pacific Power and Light Company

DO YOU OWN THE RIGHT TO BE CHANGED? ☒ YES ☐ NO

IF NO, PROVIDE OWNER(S) NAME and ADDRESS:

HAS THE WATER BEEN PUT TO BENEFICIAL USE IN THE LAST FIVE (5) YEARS? ☐ YES ☒ NO

Please attach copies of any documentation that demonstrates consistent, historical use of water since the right was established. Also, if you have a water system plan or conservation plan, please include a copy with your application.

64-*00131SWR15

FOR OFFICE USE ONLY

APP. NO. 00131 PERMIT NO. — CERT. NO 00093 CERT. OF CHANGE NO. _____

BENT-12-03 C64-6WC093-D

3. Point(s) of Diversion/Withdrawal:

A. Existing

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Layton Park Well	**#1**	**SW**	**SW**	**6**	**8N**	**29E**	106803040005001	NA
Layton Park Well	**#2**	**SW**	**SW**	**6**	**8N**	**29E**	106803040005001	NA

B. Proposed

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Kennewick ASR Well	**#1**	**NE**	**SE**	**17**	**8N**	**29E**	117894000001004	ALM 112

DO YOU OWN THE EXISTING AND PROPOSED POINT(S) OF DIVERSION/WITHDRAWAL?

EXISTING: ☒ YES ☐ NO PROPOSED: ☒ YES ☐ NO – IF NO, PROVIDE OWNER(S) NAME:

Please include copies of all water well reports involved with this proposal. Also, if you know the distances from the nearest section corner to the above point(s) of diversion/withdrawal, please include that information in Item No. 6 (remarks) or as an attachment.

4. Purpose of Use: MUNICIPAL

A. Existing

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Municipal	400 GPM	70	1/1 - 12/31
Municipal	1000 GPM	450	1/1 - 12/31

B. Proposed

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Muncipal	1400 GPM	520	1/1 - 12/31

5. Place of Use: CITY OF KENNEWICK

A. Existing

LEGAL DESCRIPTION OF LANDS WHERE WATER IS PRESENTLY USED:

Place of use coincides with City Limits. Please see attached map.

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES

DO YOU OWN ALL THE LANDS IN THE EXISTING PLACE OF USE? ☐ YES ☒ NO – IF NO, PROVIDE OWNER(S) NAME: City of Kennewick landowners.

B. Proposed

LEGAL DESCRIPTION OF LANDS WHERE NEW USE IS PROPOSED:

Place of use coincides with City Limits. Please see attached map.

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES

DO YOU OWN ALL THE LANDS IN THE PROPOSED PLACE OF USE? ☐ YES ☒ NO – IF NO, PROVIDE OWNER(S) NAME: see above.

Attach a detailed map of your proposed change/transfer. The map should show existing and proposed point(s) of diversion/withdrawal, place of use and any other features involved with this application. If platted property, please include a certified copy of the plat map.

Are there any ADDITIONAL WATER rights OR CLAIMS RELATED to the same property as the ONE PROPOSED FOR CHANGE/TRANSFER?
☒ YES ☐ NO – IF YES, PROVIDE THE WATER RIGHT/CLAIM NUMBER(S): Please see attached water right list for the city of Kennewick.

6. Remarks and Other Relevant Information:

As per RCW 90.14.140(2)(d), municipal water rights are exempt from relinquishment.
Please see attached Technical Memo regarding well locations, water use, and finding of no potential to impair existing water users.

IF FOR SEASONAL OR TEMPORARY, START DATE __/__/____ END DATE __/__/____

Certain applications may incur a Real Estate Excise Tax liability for the seller of the water rights. The Department of Revenue has requested notification of potential taxable water right related actions and therefore may be provided with a copy of this request.

Please contact the State Department of Revenue for further information. The phone number is (360) 570-3265. The address is: Department of Revenue, Real Estate Excise Tax, PO Box 47477, Olympia, WA 98504-7477.

7. Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I am hereby granting staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in the preparation of the above application, I understand that all responsibility for the accuracy of the information rests with me.

Peter M. Beaudry — 3/21/2012
(Applicant) — *(Date)*

City of Kennewick — ***3/21/2012***
(Water Right Holder) — *(Date)*

City of Kennewick — ***3/21/2012***
(Land Owner(s) of Existing Place of Use) — *(Date)*

IMPORTANT! APPLICATION FILING INFORMATION IS PROVIDED ON THE NEXT PAGE.

WE ARE RETURNING YOUR APPLICATION FOR THE FOLLOWING REASON(S):

☐ APPLICATION FEE NOT ENCLOSED ☐ MAP NOT INCLUDED or INCOMPLETE

☐ ADDITIONAL SIGNATURES REQUIRED ☐ SECTION _____ IS INCOMPLETE

☐ OTHER/EXPLANATION:_____

STAFF: _____ ***DATE:*** ____/____/____

WATER RIGHTS

GWC 094-D

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

October 3, 2013

City of Kennewick
Attn: Gary Deardorff
PO Box 6108
Kennewick, WA 99336-0198

RE: Water Right Change Application No. CG4-GWC094-D (BENT-12-04)

This Modification Order **SUPERSEDES** the previous Order of the Department of Ecology (Ecology) related to the above-referenced water right change application, dated December 20, 2012.

This Modification Order is the result of settlement between the parties in the Pollution Control Hearings Board (PCHB) case No. 13-010, which includes the above-referenced water right change. The original Order issued in accordance with RCW 90.80.080, which reversed the Benton County Water Conservancy Board's (Board) Record of Decision (ROD) and Report of Examination (ROE) dated October 1, 2012, and denied the water right change application, leading to the referenced appeal.

Summary of Department of Ecology's Superseding Order

MAXIMUM CUB FT/ SECOND	MAX GAL/MIN	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE			
	1000	450	Municipal and Domestic Use, Year-Round Use			
SOURCE: Three (3) Points of Diversion			TRIBUTARY OF (IF SURFACE WATER) Columbia River			
¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
(1) NE	SW	6	8N	30 EWM		Benton
(2) SW	SE	31	9N	30EWM		Benton
(3) Government Lots 1 & 2		35	9N	29EWM		Benton

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AND further described as: (1) Existing Point of Withdrawal (2) Water Treatment Plant (3) Ranney Well No. 5
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD
The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

The Department of Ecology (Ecology) has **MODIFIED** the decision of the Board as follows:

1) Ecology has determined that the well draws from Columbia River Basalt Group rocks in hydraulic continuity to the Columbia River, and not in the same body of water as the ASR well which applicant had intended to designate as the changed point of diversion. Accordingly, and pursuant to a settlement agreement between the parties, the proposed point of diversion at the ASR well will instead be changed to the above points of diversion (2) & (3) which constitute existing water diversion facilities of the City. Accordingly, the above summary of the Superseding Order is substituted for the Water Board Decision.

2) Ecology removes from the Board's ROE all references related to the ASR well, including but not limited to the following:

   (a) Paragraph 4 of the FINDINGS AND CONCLUSIONS is replaced by:

   "The Water Board has determined that impairment is not an issue affecting this change request; the changed points of diversion are within the same body of water for management purposes."

   (b) Paragraph 7 of the RECOMMENDED PROVISIONS is omitted.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Rd SW Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

If you have any questions or concerns on the above information, please call Mark Schuppe at the Department of Ecology at (509) 454-4238.

Sincerely,

Mark C. Schuppe
Department of Ecology

MCS:gh
131002

Enclosure: *Your Right To Be Heard*

By certified mail: 7010 0290 0000 7126 4865

cc: Dr. Darryll Olsen, Benton County Water Conservancy Board
Stephen North, Office of the Attorney General (e-copy)
Philip Rigdon, Yakama Nation

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

December 20, 2012

Gary Deardorff
City of Kennewick
P.O. Box 6108
Kennewick, WA 99336

RE: Water Right Change Application No. CG4-GWC094-D (BENT-12-04)

In accordance with RCW 90.80.080, the Department of Ecology has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Benton County Water Conservancy Board (the Board) for the above referenced application for change.

The Department of Ecology (Ecology) **REVERSES** the decision of the Board and the subject change is **DENIED**.

1) The ROD does not include adequate information to show that the two existing Layton Park wells (the current points of withdrawal) and the ASR well (the proposed point of withdrawal) will withdraw water "from the same body of public groundwater" as required under RCW 90.44.100(2)(a). The memo from Western Groundwater Services LLC, dated February 28, 2012 indicates that the ASR well will produce groundwater from the Wanapum Formation. It includes some suggestion that the existing Layton Park wells also might withdraw water from the Wanapum Formation, but this is not sufficient or conclusive. To the contrary, Ecology has data that demonstrates the Layton Park wells withdraw water from the Saddle Mountain Aquifer rather than the Wanapum. The ROE does not include adequate information to show that the Wanapum is connected to the Saddle Mountain Aquifer. Without adequate evidence that all wells withdraw from the same body of public groundwater, Ecology is unable to affirm the proposed change in points of withdrawal for Certificates 93D and 94D because compliance with RCW 90.44.100(2)(a) has not been shown.

2) The ROD does not include sufficient evidence to make a tentative determination as to the extent and validity of water right Certificates 93D and 94D. The ROD does not demonstrate that the Layton Park wells have been used since 1946. A memorandum from the City of Kennewick's consultant, Western Groundwater Services (WGS), dated February 28, 2012, describes the existing Layton Park wells as being plugged and no longer in use. This indicates that the wells are not in use and cannot be used without further action. Other than the WGS memo, stating the Layton Park wells are plugged, Ecology has received no other documentation

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that the wells have been used since 1946. Page 6, second paragraph of the ROD does reference the City of Kennewick Water System Plan, dated February 2010, and attached Water Rights Self Assessment 6 and 20 Year Forecast. Certificates 93D and 94D are listed as existing rights, and the water rights are projected to be used in the next 20 years. This includes no information on use. In light of clear evidence that the actual wells are plugged, indicating abandonment, this listing is not sufficient evidence that the rights have been used between 1946 and the date of the ROD.

3) An impairment analysis is also required as part of the transfer application under RCW 90.03.290. The sections Hydraulic Analysis and Existing Wells of the memorandum provided by WGS address part of the required analysis, but are incomplete. An assessment of the general aquifer behavior is provided, but it is based on operational assumptions that are not substantiated by any additional evidence. The surrounding wells shown on Figure 7 of the memorandum are not identified as to owner and screened depth. A complete analysis would also include an assessment of transient water level conditions that may be present during the irrigation season and the impact that pumping on the ASR well would have on identified nearby wells. To concur that no impairment would result from this change, Ecology needs additional information and analysis.

4) In addition to the above reasons for reversal, a number of technical deficiencies must be remedied before approval. Mr. Mark Cunnane of Western Groundwater Services LLC is a Hydrogeologist licensed in the state of Washington. However, the report (memo) received with the ROD did not bear Mr. Cunnane's stamp as required by WAC 308-15-075. Further, the Technical Memorandum included with the ROD dated March 31, 2009 from Golder is incomplete as it appears to be missing pages as well as a geologist or hydrogeologist stamp required by WAC 308-15-075.

YOUR RIGHT TO APPEAL

You have a right to appeal this Decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Decision:

- File your appeal and a copy of this Decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

FILE COPY

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Suite 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

If you have any questions or concerns on the above information, please call Mark Dunbar at the Department of Ecology at (509) 575-2024.

Sincerely,

Mark Kemner, LHG, Section Manager
Water Resources Program/CRO

MK:MD:ss/121273
Enclosure: *Your Right To Be Heard*

By Certified Mail: 7010 0290 0000 7131 1569

cc: Dr. Darryll Olsen, Benton County Conservancy Board
Keith Stoffel, Department of Ecology, ERO (email/pdf)

7010 0290 0000 7131 1569

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12/20/12

Sent To Kenwewick, City of

Street, Apt. No.; or PO Box No. CG4-GWC094-D

City, State, ZIP+4

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

GARY DEARDORFF
CITY OF KENNEWICK
P.O. BOX 6108
KENNEWICK, WA 99336
WR/ss CB Reversal 12/20/12 CG4-GWC094-D

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name) STEVE GOLLADAY
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7010 0290 0000 7131 1569

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

For Ecology Use Only
Received:
Date Stamp

Benton County
WATER CONSERVANCY BOARD

BENT-12-04

DEPT OF ECOLOGY Received OCT 09 2012 CENTRAL REGION OFFICE

Record of Decision

Applicant: City of Kennewick Application Number: CG4-GWC094-D for Claim 132

The attached Report of Examination has been reviewed by the BCWCB members; and this Record of Decision was made at an open public meeting of the Benton County Water Conservancy Board held on October 1, 2012, with any changes to ROE/ROD based on information received from the applicant and WADOE staff.

(X) Approval:

The Benton County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination and submits this record of decision and report of examination to the Department of Ecology for final review or consideration.

( ) Denial:

The Benton County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination and submits this record of decision to the Department of Ecology for final review or consideration.

Signed Original Date: 10/01/2012
Darryll Olsen, Ph.D., Chairman
Benton County Water Conservancy Board

Approves
Denies
Recused
Abstains
Excused Absence

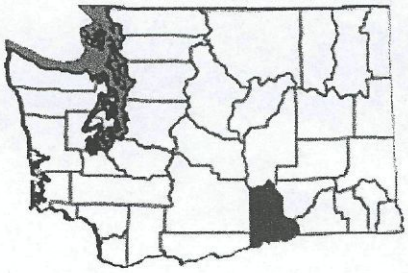
Signed Original Date: 10/01/2012
Scott Revell, Appointed Board Member
Benton County Water Conservancy Board

Approves
Denies
Recused
Abstains
Excused Absence

Signed Original Date: 10/01/2012
Matt Berg, Treasurer
Benton County Water Conservancy Board

Approves
Denies
Recused
Abstains
Excused Absence

Final ROE/ROD Mailed to the Department of Ecology, Regional Office of Ecology, via tracked mail, and other interested parties on or before 10/16/2012.



BENTON COUNTY
WATER CONSERVANCY BOARD

Application/Review for Change/Transfer

OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

DEPT OF ECOLOGY
Received
OCT 09 2012
CENTRAL REGION OFFICE

Report of Examination

Prepared by Members of the Benton County Water Conservancy Board

☒ Surface Water Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
(April 2012)	CG4-GWC094-D For Claim 132	March 19, 1945	BENT-12-04

NAME
Attention: Mr. Gary Deardorff, City of Kennewick

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 6108 City of Kennewick	Kennewick	WA	99336

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☒ Change point of diversion/withdrawal

☐ Other (Temporary, Trust, Interties, etc.) X No Change to Place of Use, City of Kennewick Water Service Territory.

SEPA

The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☒ Exempt (water right) Not exempt (proposed project)

The direct water right change/transfer described herein is exempt from SEPA review, as the water amount involved is under the SEPA threshold criteria.

BACKGROUND AND DECISION SUMMARY

Prepared by Members of the Benton County Water Conservancy Board

Existing Water Right

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	1,000 gpm	450	Municipal and Domestic Use, Year-Round Use
SOURCE Groundwater			TRIBUTARY OF (IF SURFACE WATER)

AT A POINT LOCATED: PARCEL NO. (See Attachments)	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Diversion Point(s): (and as described on certificate).	SW1/4	SW1/4	6	8N	29 EWM		Benton

AND: As stated on Existing claim/certificate

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

All within: As stated on Existing Certificate and all within:
All within the municipal service area of City of Kennewick, and as described on claim/certificate—originally for the Layton Park Addition area (used within City of Kennewick Service Territory).

Proposed Use Under Change Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	1,000 gpm	450	Municipal and Domestic Supply (Municipal Water Supply Purposes), Year-Round Use
SOURCE Groundwater—Kennewick ASR Well			TRIBUTARY OF (IF SURFACE WATER)

AT A POINT LOCATED: PARCEL NO. (See Attachments)	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
Diversion Point(s): (and as described on certificate)	NE1/4	SE1/4	17	8N	29 EWM		Benton

AND:
See parcel number: 117894000001004

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

All within:
City of Kennewick Water Service Area as Described by City of Kennewick Water Supply and Conservation Plan.

Water Board Decision

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	1,000 gpm	450	Municipal and Domestic Supply (Municiapl Water Supply Purposes), Year-Round Use
SOURCE Groundwater—Kennewick ASR Well			TRIBUTARY OF (IF SURFACE WATER)

AT A POINT LOCATED: PARCEL NO. (See Attachments) Diversion Point(s): (and as described on certificate)	¼ NE1/4	¼ SE1/4	SECTION 17	TOWNSHIP N. 8N	RANGE 29 EWM	WRIA	COUNTY. Benton

AND:
See parcel number: 117894000001004

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

All within:
City of Kennewick Water Service Area as Described by City of Kennewick Water Supply and Conservation Plan.

DESCRIPTION OF PROPOSED WORKS

The existing claim/certificate is/has been used for general operations within the City of Kennewick. The water right is in good standing and subject to the municipal water use provisions of the water code.

The water right change would involve changing the point of diversion; this new well site is being used under the City of Kennewick-Office of Columbia River (OCR), Ecology, ASR Project. The new well services the Kennewick municipal service territory.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Immediately	By January 1, 2016	By January 1, 2017

NOTE: The Water Board establishes the development schedule, as required under RCW 90.80.070, 90.80.080, and WAC 173-153-130. The schedule may be extended by WADOE if diligence is demonstrated in the completion of this project.

REPORT OF EXAMINATION

Prepared by Members of the Benton County Water Conservancy Board

BACKGROUND

A change/transfer application for claim/certificate CG4-GWC094-D was received and accepted by the Water Board in April 2012, with further information provided during May-July. Beneficial use of the water right is based on previous use history documented by the City of Kennewick staff; and as noted within the City's Water Supply and Conservation Plan.

The existing certificate/claim has been/is being used for general water service within the City's municipal service territory—originally for the Layton Park addition within Kennewick.

The applicant seeks to consolidate the water right point of withdrawal with a new ARS Project well, allowing for greater flexibility toward the overall water service for the City.

The existing water right is in good standing.

Attributes of the water right as currently documented:

Name on certificate, claim, permit: Pacific Power & Light Company.

Water right document number: GWC00094-D for Claim 132

As modified by permit change number: CG4-GWC094-D for Claim 132

Priority date, first use: March 19, 1945

Water quantities: Qi: 1,000 gpm.

Qa: 450 acre-ft./year.

Source: Groundwater.

Point of diversion/withdrawal: See above and attachments

Purpose of use: Domestic and Municipal Use (Municipal Water Supply Purposes).

Period of use: Year-Round Use.

Place of use: See above and attachments

Existing provisions: See attached certificate.

Tentative determination of the water right:

See Water Board's Decision Above; water right is in certificate stage, in good standing.

History of water use:

The certificate has been used in conjunction with other water rights to service the City of Kennewick Municipal Water Service Area.

Previous changes:

No previous change/transfers noted in the Ecology file.

SEPA:

As noted above, the water right change request is exempt, under the threshold criteria.

COMMENT AND PROTESTS

Public notification for the applicant's request was filed in the Tri-City Herald. A copy is provided in the Public Notice attachments. The WADOE/Water Board did not receive a protest notice, or comments, from a third party. The application has been distributed to several state resources agencies, tribes, and interested parties. No comments have been received from these parties concerning the application.

Issues Raised by WADOE:

The Water Board has provided the WADOE CRO with the change/transfer application and public notice, and a Water Board representative has discussed the change request with CRO-WADOE staff, and requested an explicit identification of any issues of concern related to the change request or the Water Board's preparation of the ROE/ROD.

Protests:

Date: None Received.

This was recognized by the board as a ☐ Protest ☐ Comment

Name/address of protestor/commenter

Issue:

Board's analysis:

Other:

INVESTIGATION

The following information was obtained from site inspections, technical reports and documents, research of department records, and discussions with the applicant's technical representative/consultant and other interested parties; as well as discussions with the CRO-WADOE staff.

Proposed project plans and specifications:

As noted above, the applicant will continue to use this water right to provide water service within the City of Kennewick Municipal Service Area. The water right will involve the use of one new groundwater well that is being used as part of the Office of Columbia River, Ecology, ARS project (see attachment).

The applicant's intent is to continue the use of the water right per the change/transfer noted above and discussed below.

A. Key Technical Issues—Water Right Review:

This investigation has included several issues:

Tentative Determination:

In order to make a water right change decision, the Water Board must make a tentative determination on the extent and validity of the right. The Water Board has made the tentative determination as displayed upon the first section of this report. There are several circumstances that can cause the Board's tentative determination to differ from the stated extent of the water right within water right documentation. Water right documents attempt to define a maximum limitation to a water right, rather than the actual extent to which a water right has been developed and maintained through historic beneficial use. Additionally, except for a sufficient cause pursuant to RCW 90.14.140, water rights, in whole or in part, not put to a beneficial use for five consecutive years since 1967 may be subject to relinquishment under Chapter 90.14.130 through 90.14.180 RCW. Water rights may additionally be lost through abandonment. The Board's tentative determination was based upon the following findings.

First, the water right applicant holds a valid water right certificate in good standing, and it is on file with the WADOE. The water right is subject to the groundwater code provisions under 90.44, and including RCW 90.14.140, 90.03.615, and 90.03.380.

The certificate is valid as stands, subject to subsequent change actions by the Water Board and any WADOE administrative changes affecting development.

Second, the change/transfer request must be consistent with RCW 90.44.100 and 90.03.380, and related water code statutes 90.14.140 and 90.03.615. As discussed below, the Water Board has reviewed in detail this change/transfer per the applicable statutes and determined compliance thereof.

Third, under the change request, the [illegible]al amount of water withdrawal from t[illegible]xisting right and proposed change cannot exceed the amount within the currently certificated water right. The change/transfer request must not exceed the existing water right limits; no enlargement of the water right is allowed.

The Water Board notes that this request requires no Qa or Qi expansion of the water right, as designated under the existing certificate. The applicant is actively using the water right, taking into account development along with other water rights within its service territory portfolio (see attached Table to application), and the change request would not directly affect other water rights owned by the applicant.

Fourth, the allowed amount (baseline) of water available for change/transfer for this municipal supply water right is subject to RCW 90.03.015, 90.03.560, 90.14.140(2)(d) and associated provisions related to RCW 90.03.380. Per this statutory direction and the water right/use information reported by the City of Kennewick under their Water Supply Plan, the Water Board concludes that:

- The water right is held by a municipal entity.
- The water right purpose conforms to definitions of municipal water supply.
- The existing certificate is in good standing per the water resources program file information.
- Per the water right's legal status, it is subject to exemption from relinquishment.
- The combined statutes and empirical conditions noted above allow for the change in point of diversion (and broader use within the existing municipal service territory) without change to the existing certificate Qi and Qa: 1,000 gpm, and 450 acre-ft.

And fifth, based on the above information and analyses (and Attachments), the Water Board has determined that the full amount of the said water right for change/transfer is presented within the above "Board Decision" summary, and should be the amount not exceeded by the applicant within the proof of appropriation filing and within the superseding certificate issued by WADOE.

Hydrologic, and other technical investigations:

First, based on a review of the water right and area well logs, the requested change/transfer will divert water from the same body of water (management area) as that allowed under the existing water right; and per the water management conditions/agreement of the OCR-Kennewick ASR Project.

Second, the change request cannot create impairment. The Water Board has reviewed with the applicant, and with a qualified professional engineer, information on potential impairment, along with the WADOE point of diversion and water right records, and concludes that impairment is not an issue for this change request. Per review with a qualified professional of the new withdrawal site, the location of any nearby wells, and the operations anticipated by the ASR project, the Water Board has not required a separate, formal (engineering) impairment analysis for this change/transfer review. The Water Board is relying on the technical work completed by OCR-Ecology and the City of Kennewick to justify non-impairment conditions.

Third, the point of withdrawal is consistent with the impairment standards under RCW 90.03.380, as a perfected water right.

Fourth, it further is noted that:

1) For this immediate area, no record/affirmation of impairment has been noted by the Water Board or WADOE.

2) The Water Board has required the applicant to review impairment issues for the applicant's change request. This review indicates that the change action will not impair other water rights.

3) Based on the public notice of this change request, the Water Board has received no impairment issue comments from other existing water right holders, including those who withdraw water from nearby sites.

And Fifth, the change will not increase water use relative to the existing allowed use, create impairment, or detrimental environmental impacts—subject to the OCR-Ecology and City of Kennewick Project agreement.

Given the above review, the Water Board concludes that the proposed action will not create impairment to other water rights per the provisions and conditions established under the existing certificate and the conditions provided within this ROE/ROD.

B. Water Right Adjudication Process:

Water right adjudication does not affect this application.

C. Verification of Existing Water Right:

As noted above, the existing water use retains a certificate of water right granted by the Washington State Dept. of Ecology. The Water Board has reviewed the water right documentation, reviewed the applicant's technical information concerning the water right, is familiar with the existing water use and land operations, and has conducted its own review of the water right relative to change/transfer conditions as discussed above. It is concluded that the water right is in good standing, and subject to the conditions contained within this ROE/ROD for change/transfer.

D. Field Examination:

The field examination was conducted by Dr. Darryll Olsen, Chairman, BCWCB, with on-site visits during the months of May-June 2012. Further, the Water Board is familiar with this area having recently reviewed the area with the land owner and applicant.

The field examination confirmed the information within the application request and technical information, which is more fully elaborated upon in this Report of Examination.

The field examination consisted of viewing the existing/proposed water use sites, existing pumping site, and the surrounding area. A visual examination of the site water use area was conducted, along with a review of the applicant's maps. In essence, the field investigations confirmed information provided by the applicant through personal communications and supporting application materials.

E. Technical Information, Investigations, or Reports Reviewed:

The Water Board has reviewed the applicant's WADOE file and records contained therein, including any reports/comments submitted by WADOE staff, and pertinent WADOE water right records.

The applicant has provided technical information, personal communications, and technical references requested by the Water Board, including data to verify the existing and proposed use areas; and the applicant has communicated extensively with individual Water Board members to answer specific questions about the change/transfer request. The Water Board has conducted a field examination to verify the information contained within the applicant's current water rights and supporting technical information. The Water Board has requested and received supplemental information from the applicant and has discussed future water usage needs with the applicant.

The Water Board has reviewed the [illegible]ding of the water right, documentati[illegible]provided by the water right holder concerning land holdings and management, and aerial photography for the existing and proposed water right place of use and purpose.

The Water Board has forwarded copies of the application change/transfer request and public notice to the state Dept. of Fish & Wildlife, the Dept. of Health, the Tribes, and to all parties requesting such copies. No comments were received by these parties during the formal, and informal, public comment period for the change/transfer application.

The Water Board has reviewed this change request in detail with WADOE and Attorney General Office staff (concerning upstream changes under RCW 90.03.380).

The Water Board has reviewed the applicant's SEPA compliance needs.

F. Associated Rights and Uses:

The subject certificate is being beneficially used and developed, and it is being used along with several other water rights in the nearby area by the applicant. The other water rights are not affected by the proposed change/transfer.

The Water Board has identified nearby water rights adjacent to the existing and proposed place of use, as indicated within the WRATS database; and identified nearby wells and surface water pump stations, as indicated on the WADOE website and data bases (and Columbia River Water Management data sites).

G. Review of Potential Impairment:

Because the proposed action will not increase the existing certificated water use (with change modifications), or increase the water amount put to allowed beneficial use, or likely affect other existing water rights (or applications for new water rights), no impairment is perceptible. The applicant's technical information has been reviewed on water use within the same body of water for management purposes and potential impairment.

The proposed change/transfer will be beneficial in the conservation and management of water resources from existing practices for the following reasons: 1) there will be no increase in diversion/withdrawal on an annual basis after the change/transfer, compared to existing permitted withdrawals; and 2) better controls and monitoring on the quantity of water pumped will help ensure that the authorized quantity is not exceeded, as required under a metering and development plan.

The Water Board has published public notice of the proposed action and reviewed any potential technical issues concerning impairment.

Existing water rights located within the nearby area--within the same section and adjacent sections--were noted according to information contained within the WADOE WRATS data base system and visual inspection, and ongoing Water Board review within this area.

As noted above based on the applicant's technical information and the Water Board's review, it is concluded that no impairment would occur related to the water right change/transfer request.

The field investigation revealed that the applicant's request for change/transfer is consistent with existing land and water use practices within the immediate area, reflecting the development of and consistency with the Benton County Comprehensive Land Use Plan.

The change/transfer request is consistent with net beneficial use and return flow considerations contained in RCW 90.03.380 and other applicable statutes. The change will not increase water diversions or net depletions from the surface water source. More specifically, the subject application for change is consistent with public policy objectives of the state to provide for efficient use of water resources, to encourage supply of new or expanding uses through change/transfer of existing water rights, and to provide greater operational control to water managers.

Given the fact that no increase in water withdrawal from the existing surface water management source will occur relative to that permitted and allowed for beneficial use, there is no reason to expect any impairments to other water sources, consistent with the conditions and provisions provided under the existing water right modification order granted by the WADOE. Also, because the change/transfer proposed by the applicant does not affect withdrawals from new water sources—without regulation--or increase existing allowed net annual withdrawals/diversions from that currently permitted, the change/transfer request does not affect local conditions surrounding the status quo for water use, as permitted by WADOE.

This application decision has no impact on WADOE's existing water right decisions, the condition of local surface water or groundwater resources based on empirical data, or the priority for water rights between junior and senior water right holders within the local area. The Water Board does include conditions within this ROE to ensure that the public interest affecting water use is protected, and that they are consistent with actions that would be pursued by WADOE to avoid future or potential impairment problems or regulation actions.

H. Effect or Benefit to Public Interest:

A recent Washington State Supreme Court ruling has stated that "...a 'public interest' test is not a proper consideration when Ecology acts on a change application under RCW 90.03.380." PUD No. 1 of Pend Oreille County v. Dep't of Ecology, 70372-8 (2002). By extension, neither does the Water Board have authority to apply a public interest test when evaluating a change in water right request under RCW 90.03.380. This Court decision involved a surface water right.

Nevertheless, the Water Board concludes that the requested change/transfer is not contrary to the public interest governing water use, in complying with groundwater statutes under the RCW 90.44 title.

To the extent review of public interest is applicable, the Water Board finds that the application for change is consistent with public policy objectives of the state to provide for efficient use of water resources, to encourage supply of new or expanding uses through change/transfer of existing water rights, to provide greater operational control to water managers, and to ensure no impairment exists.

Because the proposed action will not increase the existing allowed annual water use, or increase the water put to actual beneficial use, or result in an impact on other existing water rights or applications for new water rights, it does not negatively change the existing status quo for water use impacts. Thus, no impairment is perceived, because of the change/transfer requested in the application. Water use is provided consistent with statutory requirements for beneficial use.

The proposed action does provide for a continuation of the existing beneficial use as stated within the certificate of water right, increasing the economic benefits to the state and local area by allowing for continued use and development within the Municipal Service Territory. The development is taking place in the land-use management area of Benton County.

This action is consistent with the intent of RCW 90.03.380, 90.44.100, and 90.80 (amended May 10, 2001) and other applicable statutes; and it is consistent with Benton County's Comprehensive Land-Use Plan. No impairment is consistent with the public interest; all pertinent water right issues are addressed above; conditions are recommended within this ROE to further protect the public interest consistent with state water law.

The application for change/transfer is consistent with the public interest requirements for beneficial water use, and consistent with the procedural, technical, and legal review requirements by the state.

This action is consistent with the intent of RCW 90.44, 90.03.380, and 90.80 (amended May 10, 2001) and other applicable statutes; and it is consistent with Benton County's Comprehensive Land-Use Plan. No impairment is consistent with the public interest; all pertinent water right issues are addressed above; conditions are recommended within this ROE to further protect the public interest consistent with state water law.

The application for change/transfer is consistent with the public interest requirements for beneficial water use, and consistent with the procedural, technical, and legal review requirements by the state.

I. Consideration of Pending Applications:

The applicant's request will not affect the priority for action on pending new water rights or change/transfer applications filed with the Washington State Department of Ecology, for Benton County. Existing applications for Benton County were noted (WADOE data base); and no infringement on priority for action for these applications is perceived by (WADOE or the Water Board).

This application review also is consistent with legislative changes made in 2001 affecting the processing of change/transfer applications by the WADOE, as well as the amendments made to RCW 90.03.380.

Public notice has been provided for requesting all water right holders within the Benton County to submit existing or new water right change/transfer applications to the Benton County Water Board—or the WADOE. Applications received by the WADOE or Water Board are first reviewed for accuracy, completeness, and purpose to ensure they fall within the purview of the agency's and Board's jurisdiction. Those that are found wanting are referred back to the applicant for re-submittal or withdrawal. The remaining ones are acted on by a first-come, first-serve basis, taking into account received application's priority date and the technical/legal review requirements thereof.

FINDINGS AND CONCLUSIONS

1. The certificate of water right and beneficial use are verified.

2. The proposed change/transfer will result in no increase in the annual quantity of water authorized and is consistent with the requirements of RCW 90.03.010, 90.03.380, 90.03.560, 90.14.140, 90.03.615 and other provisions of the groundwater code. The change/transfer request will not increase the allowed water right; the change/transfer will not increase allowed consumptive use from the designated sources, as allowed by the water code per RCW 90.44.

3. There will be no increase in water withdrawal on an annual basis. In addition, continued monitoring of the quantity of water pumped will help ensure that allowed water withdrawals are not exceeded, for the changes requested.

4. The Water Board has determined that impairment is not an issue affecting this change request; the change is within the same body of water for management purposes per the subject operations/agreements pertaining to the OCR-Ecology and City of Kennewick ASR project.

5. Public notice has been provided for the proposed action, and any public concerns have been reviewed by the Water Board. Public notice and application submittal has been forwarded to several state resource agencies/tribes/interested parties for comment; the agencies have provided no direct comments to the application.

6. The Water Board has reviewed the proposed project for SEPA compliance.

7. The proposed action creates no perceived detrimental impacts or impairments to other water right holders or permit applicants; adequate data and information exists to make this determination with confidence.

8. No protests have been made by third parties on this application.

9. The proposed action is consistent with the intent of RCW 90.03.010, 90.03.380, 90.03.560, 90.14.140, 90.03.615, 90.44, and 90.80 (as amended May 10, 2001) and recent case reviews by the Washington State Supreme Court.

10. The proposed action supports the public interest concerned with the direct use of water rights, is consistent with allowed beneficial uses, and is consistent with local area economic development needs and land uses.

11. The Water Board has provided for specific conditions and provisions affecting the use of the water right, as identified below.

RECOMMENDED PROVISIONS

A. Provisions:

The applicant's water right change for a new point of withdrawal are conditioned by the following provisions:

1. The point of withdrawal, place(s) of use, and purpose of use for the water right are designated in the summary table above (under Water Board Decision).

2. Use of water under this authorization shall be contingent upon the water right holder's utilization of up-to-date water conservation practices, and taking into account cost-effectiveness for operations and economic viability.

3. Per an issued superseding certificate for CG4-GWC094-D for Claim 132, water withdrawal shall not exceed 1,000 gpm, 450 acre-ft., for year-round domestic and municipal water supply (municipal water supply purposes).

4. By January 1, 2016, the applicant will notify the Water Resources Program, Central Region Office, WADOE, that project construction—with ASR operations--is completed, unless further extended for good cause.

5. Proof of appropriation (for actual beneficial use of water) is due to the Water Resources Program, Central Region Office, WADOE by January 1, 2017, unless further extended for good cause.

6. The WADOE shall undertake a proof inspection to certify actual development of the water right amended within this ROE.

7. Provisions for well construction and water use development, per the existing certificate and the provisions of the OCR-Ecology and City of Kennewick ASR Project, are maintained under this change/transfer determination. All water wells constructed (modified) within the state shall meet the minimum standards for construction and maintenance, as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (minimum Standards for Construction and Maintenance of Water Wells). Installation and maintenance of an access port as described in Groundwater Bulletin No.1 is required. An air line and gage shall be installed in addition to the access port.

8. An approved measuring device(s) shall be installed and maintained for the sources (all points of withdrawal) identified herein in accordance with the rule "Requirements for Measuring and Reporting Water Use," Chapter 173-173 WAC. Water use will be measured and recorded for municipal water supply use. Water use data shall be recorded weekly and shall be submitted annually to Ecology by January 31st of each calendar year typically.

9. The rule above describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed or available from Ecology as a document entitled "Water Measurement Device Installation and Operation Requirements."

10. At a minimum, the following information shall be included with each submittal of water use data: owner, contact name if different, mailing address, daytime phone number, WRIA, Permit or Certificate No., source name, annual quantity used including units, maximum rate of diversion including units, period of use, weekly meter readings including units, and peak flow including units for each month. In the future, Ecology may require additional parameters to be reported or more frequent reporting.

11. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

12. Department of Ecology personnel, upon presentation of proper credentials and prior notification, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions, but only to the extent otherwise allowed by law.

B. Mitigation Requirements:

None are required.

DECISION

Approvals:

The Benton County Water Conservancy Board hereby APPROVES the water right change/transfer described within this record of examination and record of decision, and submits this certificate for conditional approval to the Director of the Washington State Department of Ecology. If the Director takes no action within forty-five days of receipt of this ROE/ROD, then the Water Board's decision, as written, is final.

Approved Unanimously by the BCWCB
Kennewick, Washington
This 1st day of October 2012

Approved and Signed on Behalf of the Water Board By:

Signed _____

Darryll Olsen, Ph.D., Chairman
Benton County Water Conservancy Board

Date Mailed to WADOE Director: on or before 10/16/2012

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON

APPLICATION FOR CHANGE/TRANSFER OF WATER RIGHT

For filing with the Department of Ecology or with County Conservancy Boards

A NON-REFUNDABLE MINIMUM FEE OF $50.00 PAYABLE TO THE DEPARTMENT OF ECOLOGY MUST ACCOMPANY THIS APPLICATION

BENT-12-04

DEPT OF ECOLOGY Received JUN 15 2012 CENTRAL REGION OFFICE

(Check all that apply.)

- ☐ Change purpose(s) of use
- ☐ Add purpose(s) of use
- ☒ Change point(s) of diversion/withdrawal
- ☐ Add point(s) of diversion/withdrawal
- ☐ Change/transfer place of use
- ☐ Other (i.e. consolidation, intertie, trust water)

Explain: One new well is to replace two older wells.

FOR OFFICE USE ONLY Bent
CHANGE No. C64-6WC094-D WRIA 31
DATE ACCEPTED 07/09/12 BY
FEE $ 0 REC'D 06/15/2012
CHECK No.
ECY Coding: 001-002-WR10285-000011
SEPA: ☐ Exempt ☐ Not exempt

IF MORE SPACE IS NEEDED, ATTACH ADDITIONAL SHEETS (PLEASE PRINT OR TYPE CLEARLY)

1. Applicant Information:

APPLICANT/BUSINESS NAME	PHONE NO.	FAX NO.
City of Kennewick	(509) 585-4313	(509) 585-4407
ADDRESS		
PO Box 6108		
CITY	STATE	ZIP CODE
Kennewick	WA	99336-0108

CONTACT NAME (IF DIFFERENT FROM ABOVE)	PHONE NO.	FAX NO.
Gary Deardorff	(509) 585-4301	( )
ADDRESS		
City of Kennewick, PO Box 6108		
CITY	STATE	ZIP CODE
Kennewick	WA	99336-0108

2. Water Right Information:

WATER RIGHT OR CLAIM NUMBER	RECORDED NAME(S)
GWC00093-D, GWC00094-D	Pacific Power and Light Company

DO YOU OWN THE RIGHT TO BE CHANGED? ☒ YES ☐ NO

IF NO, PROVIDE OWNER(S) NAME and ADDRESS:

HAS THE WATER BEEN PUT TO BENEFICIAL USE IN THE LAST FIVE (5) YEARS? ☐ YES ☒ NO

Please attach copies of any documentation that demonstrates consistent, historical use of water since the right was established. Also, if you have a water system plan or conservation plan, please include a copy with your application.

64-*00132 SWRD

FOR OFFICE USE ONLY

APP. NO. 00132 PERMIT NO. – CERT. NO. 00094 CERT. OF CHANGE NO.

C64-6WC094-D

BENT-12-04

3. Point(s) of Diversion/Withdrawal:

A. Existing

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Layton Park Well	#1	SW	SW	6	8N	29E	106803040005001	NA
Layton Park Well	#2	SW	SW	6	8N	29E	106803040005001	NA

B. Proposed

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Kennewick ASR Well	#1	NE	SE	17	8N	29E	117894000001004	ALM 112

DO YOU OWN THE EXISTING AND PROPOSED POINT(S) OF DIVERSION/WITHDRAWAL?

EXISTING: ☒ YES ☐ NO PROPOSED: ☒ YES ☐ NO – IF NO, PROVIDE OWNER(S) NAME:

Please include copies of all water well reports involved with this proposal. Also, if you know the distances from the nearest section corner to the above point(s) of diversion/withdrawal, please include that information in Item No. 6 (remarks) or as an attachment.

4. Purpose of Use: MUNICIPAL

A. Existing

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Municipal	400 GPM	70	1/1 - 12/31
Municipal	1000 GPM	450	1/1 - 12/31

B. Proposed

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Muncipal	1400 GPM	520	1/1 - 12/31

5. Place of Use: CITY OF KENNEWICK

A. Existing

LEGAL DESCRIPTION OF LANDS WHERE WATER IS PRESENTLY USED:

Place of use coincides with City Limits. Please see attached map.

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES

DO YOU OWN ALL THE LANDS IN THE EXISTING PLACE OF USE? ☐ YES ☒ NO – IF NO, PROVIDE OWNER(S) NAME: City of Kennewick landowners.

B. Proposed

LEGAL DESCRIPTION OF LANDS WHERE NEW USE IS PROPOSED:

Place of use coincides with City Limits. Please see attached map.

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES

DO YOU OWN ALL THE LANDS IN THE PROPOSED PLACE OF USE? ☐ YES ☒ NO – IF NO, PROVIDE OWNER(S) NAME: see above.

Attach a detailed map of your proposed change/transfer. The map should show existing and proposed point(s) of diversion/withdrawal, place of use and any other features involved with this application. If platted property, please include a certified copy of the plat map.

Are there any ADDITIONAL WATER rights OR CLAIMS RELATED to the same property as the ONE PROPOSED FOR CHANGE/TRANSFER?
☒ YES ☐ NO – IF YES, PROVIDE THE WATER RIGHT/CLAIM NUMBER(S): Please see attached water right list for the city of Kennewick.

6. Remarks and Other Relevant Information:

As per RCW 90.14.140(2)(d), municipal water rights are exempt from relinquishment.
Please see attached Technical Memo regarding well locations, water use, and finding of no potential to impair existing water users.

IF FOR SEASONAL OR TEMPORARY, START DATE ___/___/_____ END DATE ___/___/_____

Certain applications may incur a Real Estate Excise Tax liability for the seller of the water rights. The Department of Revenue has requested notification of potential taxable water right related actions and therefore may be provided with a copy of this request.

Please contact the State Department of Revenue for further information. The phone number is (360) 570-3265. The address is: Department of Revenue, Real Estate Excise Tax, PO Box 47477, Olympia, WA 98504-7477.

7. Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I am hereby granting staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in the preparation of the above application, I understand that all responsibility for the accuracy of the information rests with me.

Peter M. Brandy — 3/21/2012
(Applicant) — *(Date)*

City of Kennewick — ***3/21/2012***
(Water Right Holder) — *(Date)*

City of Kennewick — ***3/21/2012***
(Land Owner(s) of Existing Place of Use) — *(Date)*

IMPORTANT! APPLICATION FILING INFORMATION IS PROVIDED ON THE NEXT PAGE.

WE ARE RETURNING YOUR APPLICATION FOR THE FOLLOWING REASON(S):

☐ APPLICATION FEE NOT ENCLOSED ☐ MAP NOT INCLUDED or INCOMPLETE

☐ ADDITIONAL SIGNATURES REQUIRED ☐ SECTION _____ IS INCOMPLETE

☐ OTHER/EXPLANATION:_____

STAFF: _____ ***DATE:*** ____/____/____

WATER RIGHTS

GWC 1805-A

S.P. No. 7361-2-23-3M. 54100.

1805

CERTIFICATE RECORD NO. 4 PAGE NO. 1805-A

STATE OF WASHINGTON, COUNTY OF Benton

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY *That* CITY OF KENNEWICK

of Kennewick, Washington, *has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of* four wells and infiltration trench

located within Government Lot 2 of Section 31, Twp. 9 N., Rge. 30 E.W.M.

for the purpose of municipal water supply

under and subject to provisions contained in Ground Water Permit No. 1248 *issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume* 4 *at page* 1805-A; *that the right hereby confirmed dates from* February 23, 1950; *that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed* 420 gallons per minute; 480 acre-feet per year to be used for municipal water supply.

A description of the lands to which such ground water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

City of Kennewick and Suburbs, Benton County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 23th *day of* April, 19 54.

Thos. F. Gorrhouse
State Supervisor of Water Resources.

ENGINEERING DATA
O.K. [illegible]

S. F. [illegible]5—9-52—75C. 32559.

Proof of Appropriation of Water

Application No. 1390 Permit No. 1248

1. Name of Permittee City of Kennewick
2. Postoffice address Kennewick, Washington
3. Source of appropriation Columbia River
4. Name or number of works (if any) Clover Island
5. For what purpose or purposes is water used? Municipal Water Supply
6. Give date of beginning of construction Aprox. March 1950
7. Give date of completion of construction work, including water distribution system Aprox Nov. 1953
8. Give date when water was completely applied to proposed use 1950
9. If used for irrigation:

   Give number of acres described in permit

   Give number of acres actually irrigated
10. If used for power: HP actually developed
11. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED:

    City of Kennewick & Suburbs

12. During what months is water used? Year round
13. Does map filed with your application show correctly the location of well or point of diversion for withdrawal of water, and area of land where water is used? New Diversion Map enclosed
14. If the dimensions, location or type of structure do not correspond to those described in your permit, state what changes have been made, giving dimensions, etc. See Diversion map of Carry & Kramer Drawing # 5204-01
15. Actual measured discharge or diversion of permanent system: 58,000 Max (gpm or ~~cfs~~)

(Sign certification on reverse side)

STATE PRINTING PLANT OLYMPIA, WASHINGTON

ok as per permit

STATE OF WASHINGTON,
County of Benton } ss.

I, W. F. Hagerman, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 10 day of February, 19 54

W. F. Hagerman

Subscribed and sworn to before me this 10th day of February, 19 54

Marjorie A. Nielsen
Notary Public.

S. F. No. 7354—4-49—26C. 21531.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
DIVISION OF HYDRAULICS

Permit to Appropriate Public Ground Waters of the State of Washington

Book No. 3 of Ground Water Permits, on page 1248 under Application No. 1390

CITY OF KENNEWICK

of Kennewick, Washington

is hereby granted a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights, and to the limitations and provisions set out herein.

Priority date of this permit is February 23, 1950

Source of the proposed ground water appropriation is wells and infiltration galleries

within ..... area, ... sub-area

..... zone. Name or number of works is .....

Quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed 4950 gallons per minute; 4800 acre-feet per year, to be used for the following purposes: municipal water supply

.....,

as more definitely set out below.

Location of the well, tunnel, or infiltration trench is .....

2300 feet North 21° East from Southwest corner of Sec. 31,

being within Government lot 2 of Sec. 31, Twp. 9 N., Rge. 30 E.W.M.,

county of Benton

Use, or uses to which water is to be applied:

For municipal supply: 4950 gallons per minute; 4800 acre-feet per year,

to supply city of Kennewick and suburbs

For irrigation: ..... gallons per minute; ..... acre-feet per year,

for the irrigation of ..... acres.

For miscellaneous uses: ..... gallons per minute; ..... acre-feet per year,

for .....

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

DESCRIPTION OF WORKS FROM WHICH WATER IS TO BE WITHDRAWN

The well will be drilled and have a diameter of 12 inches, and depth of 80 feet.
(Dug or drilled)

Description of tunnel or infiltration trench:

(Please read carefully provisions below)

Particular specifications required by the Supervisor of Hydraulics for the purpose of preventing waste of public waters:

Construction work shall begin on or before already started

and shall thereafter be prosecuted with reasonable diligence and completed on or before

January 1, 1951 Extended 1-1-53

and complete application of water to proposed use shall be made on or before

January 1, 1952

Given under my hand and the seal of this office at Olympia, Washington, this 23rd day of

June, 1950

Chas J Barthout

State Supervisor of Hydraulics.

REPORT OF FINDINGS ON GROUND WATER Appli. #1390

NAME City of Kennewick ADDRESS Kennewick, Washington

TYPE OF WORKS: wells and / infiltration galleries Date of Examination 5-10-50

Dimensions: 12" x 80' Progress of Works Started

QUANTITY ~~xxxxxxxxxx~~
Applied for: 4950 g.p.m. 5000 acre-feet per year

LEGAL SUB. Govt. Lot 2 Sec. 31 Twp. 9 N. Rge. 30 E. County Benton

USE: municipal

Irrigation - acreage: Present _____ Planned _____ Feasible _____

Municipal: Population 30,000 as of 1975

Industrial: _____

Time Pump Will be Operated: _____

Other Water Rights of Applicant: Water rights now held by Kennewick Irrig. Dist. and Pacific Power & Light Co.

Proximity to existing works, springs or streams: 500 ft. from the Columbia River. Ground Surface at Elevation 340 ft. to be raised to elevation 355 ft., stream bed approx. 310 ft.

Area _____ Sub-Area _____ Zone _____

RECOMMENDATIONS

Approved for 4950 g.p.m. 4800 acre-feet per year, subject to existing water rights. (1 acre-foot = 325,850 gallons)

The amount of water to be used under this application is based on 30,000 people using 200 gallons a day each person during five warmer months and 100 gallons daily during seven colder months. At this rate 4,800 acre-feet annually will be used.

Signed this 5th day of June, 1950.

FBR

FRED B. ROBERTS
Ground Water Geologist

~~10.00~~
22.00

AFFIDAVIT OF PUBLICATION

State of Washington } ss.
County of Benton, }

Richard W. Gay, being first duly sworn on oath, deposes and says; that he is the publisher (Editor) of the PROSSER RECORD-BULLETIN, a weekly newspaper, which has been established and approved as a legal newspaper pursuant to the laws of the State of Washington, by order of the Superior Court for Benton County, Washington, made, entered and filed on the 23rd day of July, 1941, and which is the county wherein said newspaper is published, and that the annexed is a true copy of

Notice of Ground Water Right Application 1390

as it appeared in the regular and entire issue of said paper itself and not in a supplement thereof, for a period of 2 consecutive weeks, commencing on the 23 day of Mar, 1950, and ending on the 30 day of Mar, 1950, and that said newspaper was regularly distributed to its subscribers during all of said period. That the full amount of $3.96 has been paid in full, for such publication which is at the regular rate required by law.

Richard W. Gay

Subscribed and sworn to before me this 1st day of April, 1950

B. E. McCreary

Notary Public in and for the State of Washington, residing at Prosser.

NOTICE OF GROUND WATER RIGHT APPLICATION NO. 1390

TAKE NOTICE: That City of Kennewick, Washington, on February 23, 1950, filed application for permit to withdraw public ground waters through wells and infiltration galleries situated within Govt. Lot 2, Sec. 31, Twp. 9 North, Range 30 E.W.M., Benton County, in the amount of 4950 gallons per minute, to the extent of 5000 acre-feet, subject to existing rights continuously each year for the purpose of municipal supply.

Any objections must be filed with the State Supervisor of Hydraulics, within thirty (30) days from March 30, 1950.

Witness my hand and official seal this 14th day of March, 1950.

CHAS. J. BARTHOLET,
State Supervisor of Hydraulics.

First publication March 23, 1950.
Last publication March 30, 1950.

RECEIVED
APR 8 - 1950
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

S. F. No. 370-B—4-47—2M. 15032.

$5.00 examination fee should accompany each application.

STATE OF WASHINGTON

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

Division of Hydraulics

RECEIVED FEB 23 1950 DIVISION OF HYDRAULICS

APPLICATION FOR A PERMIT

To Appropriate Public Ground Waters

OF THE STATE OF WASHINGTON

Application No. G. W. 1390

1390

I, City of Kennewick
(Name of applicant)

of Kennewick, Benton County, Washington
(Complete postoffice address)

do hereby make application for a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights. This application is made under the provisions of Chap. 263 of the Session Laws of 1945 of the State of Washington and subject to the rules and regulations of the Department of Conservation and Development, Division of Hydraulics.

1. *The proposed appropriation will be from* Wells and infiltration galleries.
(Well, tunnel, infiltration trench)

located on Clover Island in Kennewick, Washington
(Give approximate distance and direction from nearest city or town)

Area ..... (Leave blank) *Sub-area* ..... (Leave blank)

Zone ..... (Leave blank)

Applicant's name or number of well or other works, if any 3 to 5 Wells and infiltration galleries.

2. *The quantity of water which applicant intends to apply to beneficial use is* 4950 *gallons per minute;* -- 5000 *acre feet per year.*

3. *The use or uses to which water is to be applied* Municipal Water Supply

(Domestic, commercial and industrial)
(Domestic supply, irrigation, municipal, manufacturing, industrial use, etc.)

4. *The time during which water will be required each year* Full year

5. *Location of well or other works for withdrawal of water: In county of* Benton

(a) 2300 ft. N 21° E from SW corner of Sec. 31 T9N, R30E
(Give distance and bearing from nearest corner of section or legal subdivision)

being within the Gov. Lot 2 *of Sec.* 31, *Twp.* 9 *N., Rge.* 30E (E. or W.)
(Give smallest legal subdivision)

or *(b) If within limits of recorded platted property, town or city: Lot* ....., *Block* .....,

of .....
(Give name of plat or addition) (If within town or city, give name)

(c) Show this location on accompanying section plat, in triplicate. Other adequate maps or drawings will be acceptable.

6. *Name and address of owner of land on which well or works are located:*

Port of Kennewick
(Name)

Kennewick, Washinton.
(Address)

7. DESCRIPTION OF WORKS:

(a) Well will be drilled *and have a diameter of* 12 *inches and an estimated depth of* 80 *feet.*
(Dug or drilled)

(b) Tunnels or trenches to be described: (Attach additional sheets if needed for full description.)

none

(c) Distribution system to be described:

Reservoir on high ground south of the city; 3 Transmission mains from wells to storage; distribution piping branching from the distribution mains.

(d) If pumps are to be used, give size and type:

3 or 4 - 1000 to 1500 gpm turbine type pumps in wells.

(e) Give capacity and type of motor or engine to be used:

Electric motors - capacity as required.

(f) If the location of the well, tunnel, or other works is less than one-fourth mile from a natural stream or stream channel, give the distance to the nearest point on each of such channels and the difference in elevation between the stream bed and the ground surface at the source of development:

500-ft from the Columbia River.
Ground surface at Elev. 340 (to be raised to Elrv 355)
Stream bed Elev 310 (approx.)

(g) Ownership of each existing well or other works from which ground water is withdrawn within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:

none

(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)

(On accompanying plat show location of the existing wells or works.)

8. SUPPLY THE FOLLOWING INFORMATION ACCORDING TO USE PROPOSED:

(a) For Municipal Supply: *To supply the city, town, or community of* Kennewick and suburbs *in the county of* Benton, *having a present population of* 12,200, *and an estimated population of* 35,000 *in 19*75

(b) For Irrigation: *The land to be irrigated has a total area of* none *acres.*

(c) Legal Description of Property *on which water is to be used for all purposes other than municipal supply:* (If more space is required, attach separate sheet.)

none

(d) Do you have any other water rights appurtenant to the above described property? yes

If so, from what source all rights for domestic water for the area now held by the Kennewick Irr. District and the Pacific Power and Light Co.

9. *Construction work will begin on or before* October 1 949.

10. *Construction work will be completed on or before* April 1950

11. *Water will be put to complete beneficial use on or before* April 1950

U. L. Keolker
(Signature of applicant)

U. L. Keolker
Mayor, City of Kennewick

Signed in the presence of us as witnesses:

E. Hopkins, Water Supt. — (Name)
714 West 5th Ave., Kennewick, Wash. — (Address of witness)

R. C. Dalton — (Name)
19 N. Kent Kennewick Wash. — (Address of witness)

STATE OF WASHINGTON,
COUNTY OF THURSTON. } *ss.*

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for correction or completion as follows:

In order to retain its priority, this application must be returned to the State Supervisor of Hydraulics, with corrections, on or before ....., *19*.....

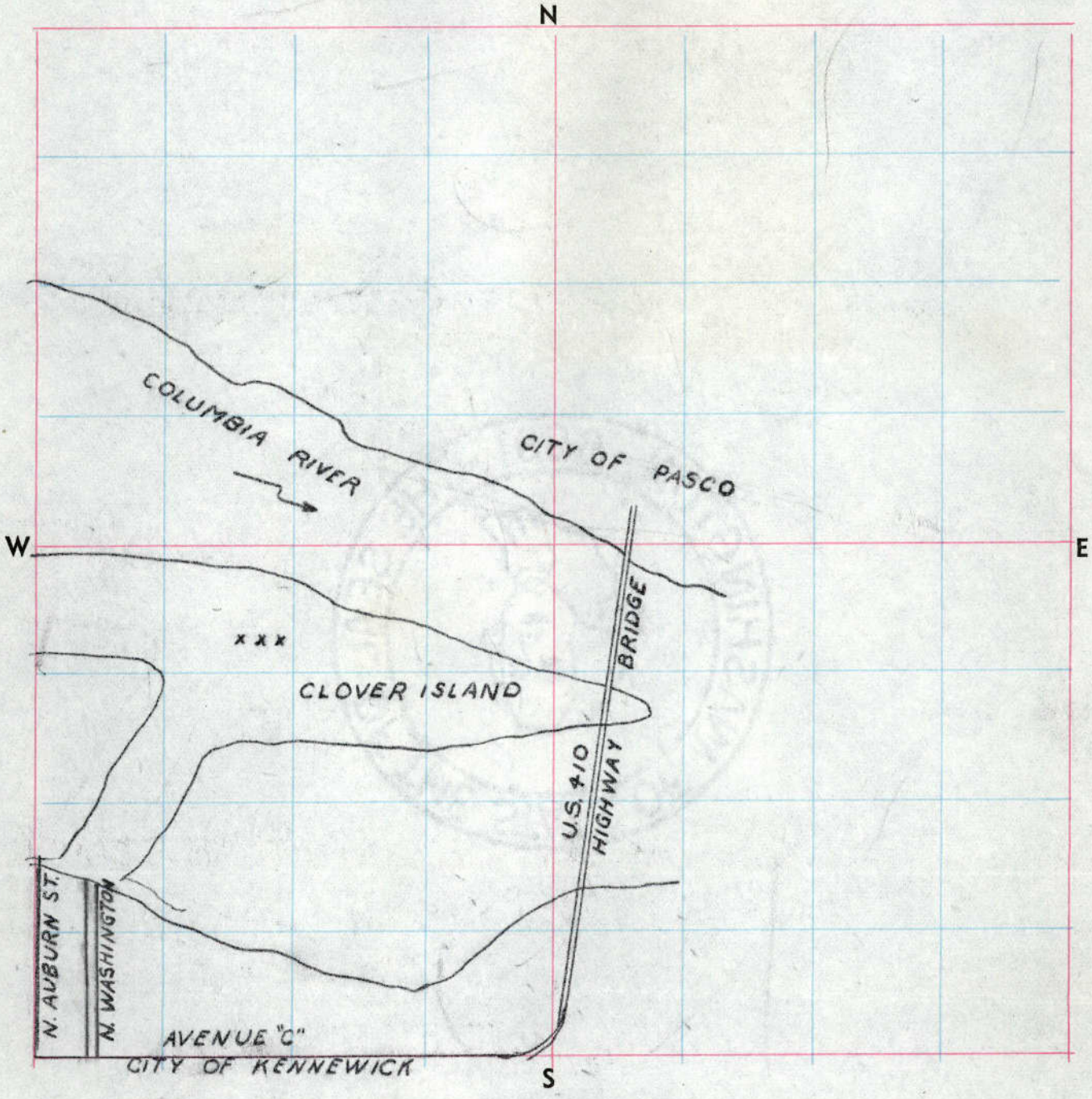
WITNESS my hand this ..... *day of* ....., *19*.....

State Supervisor of Hydraulics.

S. F. No. 1854-B—7-47—6M. 15856

SECTION PLAT

Sec. 31 Twp. 9 N. R. 30 E



Show by a cross (X) the location of the well or other works covered by the application or declaration. Show by circle (O) the locations of other wells or works within a quarter of a mile. Also traveling directions from nearest town on main highway.

Scale: 1 inch = 800 feet.

RECEIVED FEB 28 1950 DIVISION OF HYDRAULICS

1-1-54

PROGRESS SHEET - GROUND WATER APPLICATION

NAME: Edward D. Hopkins, Water supt.
City of Kennewick
Kennewick , Wn.

Assigned to:

G.W. APPLI. NO. 1390 PERMIT NO. 1248 CERT. NO. 1805 A

AMENDED CANCELLED

wrong fee sent... $11.00 in all

Appli. received 2-23-50 Initial $5.00 fee received 3-23-50
Statement of Additional Examination Fee $ 6.00 Sent
Received

Application returned for completion or correction
Received

TEMPORARY PERMIT: Approved by G.V.B. Issued 4-13-50

PUBLICATION:
O.K'd by JBR Date 3-8-50 Notice sent 3-12-50
Protests filed

Affidavit received and checked 4-8-50 · 4-10-50 Time Expires 4-30-50

GAME REPORT:

EXAMINATION:
Made 5-10-50 by JBR
O.K'd for Permit 6/21/50 by MDW

Statement of Permit Fee sent 6-5-50 Amount $ 10.00
Received 6-17-50

PERMIT NO. 1248 Issued 6-23-50

BEGINNING OF CONSTRUCTION: Notice sent ~~6-23-50~~ started Filed
Extension fee $ Extended to
Extended to

WELL DRILLER'S REPORT: Sent ~~6-23-50~~ Filed 4-8-54

COMPLETION OF CONSTRUCTION: Notice sent 6-23-50 Filed 1-14-53
Time extended to 1-1-53

~~COMPLETE APPLICATION OF WATER: Notice sent 6-23-50 Filed~~
~~Time extended to~~

PROOF OF APPROPRIATION: Sent ~~6-23-50~~ 1-15-53 Filed 9-10-54

Statement of Certificate Fee sent ~~6-23-50~~ 1-15-53 Received 9-10-54

CERTIFICATE OF GROUND WATER RIGHT NO. 1805-A Issued 4-13-54

MAP TOO LARGE TO FILM RETAINED IN NUMBERED

FILE IN DEPARTMENT OF ECOLOGY

1390

City of Kennewick ,

zzz Washington February 23, 1950

wells and infil/tration galleries Govt. Lot 2, Sec. 31, Twp. 9 N., Rge. 30 E.W.M.

Benton

4950 5,000

continuously

municipal supply

14th

March 50

CHAS. J. BARTHOLET

AFFIDAVIT OF PUBLICATION

State of Washington } ss.
County of Benton, }

Richard W. Gay, being first duly sworn on oath, deposes and says; that he is the publisher (Editor) of the PROSSER RECORD-BULLETIN, a weekly newspaper, which has been established and approved as a legal newspaper pursuant to the laws of the State of Washington, by order of the Superior Court for Benton County, Washington, made, entered and filed on the 23rd day of July, 1941, and which is the county wherein said newspaper is published, and that the annexed is a true copy of

Notice of Ground Water Right Application 1390

as it appeared in the regular and entire issue of said paper itself and not in a supplement thereof, for a period of 2 consecutive weeks, commencing on the 23 day of Mar, 1950, and ending on the 30 day of Mar, 1950, and that said newspaper was regularly distributed to its subscribers during all of said period. That the full amount of $3.96 has been paid in full, for such publication which is at the regular rate required by law.

Richard W. Gay

Subscribed and sworn to before me this 1st day of April, 1950

B. E. McCreary

Notary Public in and for the State of Washington, residing at Prosser.

NOTICE OF GROUND WATER RIGHT APPLICATION NO. 1390

TAKE NOTICE: That City of Kennewick, Washington, on February 23, 1950, filed application for permit to withdraw public ground waters through wells and infiltration galleries situated within Govt. Lot 2, Sec. 31, Twp. 9 North, Range 30 E.W.M., Benton County, in the amount of 4950 gallons per minute, to the extent of 5000 acre-feet, subject to existing rights continuously each year for the purpose of municipal supply.

Any objections must be filed with the State Supervisor of Hydraulics, within thirty (30) days from March 30, 1950.

Witness my hand and official seal this 14th day of March, 1950.

CHAS. J. BARTHOLET,
State Supervisor of Hydraulics.

First publication March 23, 1950.
Last publication March 30, 1950.

RECEIVED
APR 8 - 1950
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

REPORT OF FINDINGS ON GROUND WATER Appli. #1390

NAME City of Kennewick ADDRESS Kennewick, Washington

TYPE OF WORKS: wells and / infiltration galleries Date of Examination 5-10-50

Dimensions: 12" x 80' Progress of Works Started

QUANTITY ~~xxxxxxxxxx~~
Applied for: 4950 g.p.m. 5000 acre-feet per year

LEGAL SUB. Govt. Lot 2 Sec. 31 Twp. 9 N. Rge. 30 E. County Benton

USE: municipal

Irrigation - acreage: Present _____ Planned _____ Feasible _____

Municipal: Population 30,000 as of 1975

Industrial: _____

Time Pump Will be Operated: _____

Other Water Rights of Applicant: Water rights now held by Kennewick Irrig. Dist. and Pacific Power & Light Co.

Proximity to existing works, springs or streams: 500 ft. from the Columbia River. Ground Surface at Elevation 340 ft. to be raised to elevation 355 ft., stream bed approx. 310 ft.

Area _____ Sub-Area _____ Zone _____

RECOMMENDATIONS

Approved for 4950 g.p.m. 4800 acre-feet per year, subject to existing water rights. (1 acre-foot = 325,850 gallons)

The amount of water to be used under this application is based on 30,000 people using 200 gallons a day each person during five warmer months and 100 gallons daily during seven colder months. At this rate 4,800 acre-feet annually will be used.

Signed this 5th day of June, 1950.

FBR

FRED B. ROBERTS
Ground Water Geologist

~~10.00~~
22.00

S. F. No. 7354—4-49—26C. 21531.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
DIVISION OF HYDRAULICS

Permit to Appropriate Public Ground Waters of the State of Washington

Book No. 3 of Ground Water Permits, on page 1248 under Application No. 1390

CITY OF KENNEWICK

of Kennewick, Washington

is hereby granted a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights, and to the limitations and provisions set out herein.

Priority date of this permit is February 23, 1950

Source of the proposed ground water appropriation is wells and infiltration galleries

within ..... area, ... sub-area

..... zone. Name or number of works is .....

Quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed 4950 gallons per minute; 4800 acre-feet per year, to be used for the following purposes: municipal water supply

.....,

as more definitely set out below.

Location of the well, tunnel, or infiltration trench is .....

2300 feet North 21° East from Southwest corner of Sec. 31,

being within Government lot 2 of Sec. 31, Twp. 9 N., Rge. 30 E.W.M.,

county of Benton

Use, or uses to which water is to be applied:

For municipal supply: 4950 gallons per minute; 4800 acre-feet per year,

to supply city of Kennewick and suburbs

For irrigation: ..... gallons per minute; ..... acre-feet per year,

for the irrigation of ..... acres.

For miscellaneous uses: ..... gallons per minute; ..... acre-feet per year,

for .....

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

DESCRIPTION OF WORKS FROM WHICH WATER IS TO BE WITHDRAWN

The well will be drilled and have a diameter of 12 inches, and depth of 80 feet.
(Dug or drilled)

Description of tunnel or infiltration trench:

(Please read carefully provisions below)

Particular specifications required by the Supervisor of Hydraulics for the purpose of preventing waste of public waters:

Construction work shall begin on or before already started

and shall thereafter be prosecuted with reasonable diligence and completed on or before

January 1, 1951 Extended 1-1-53

and complete application of water to proposed use shall be made on or before

January 1, 1952

Given under my hand and the seal of this office at Olympia, Washington, this 23rd day of

June, 1950

Chas J Barthout

State Supervisor of Hydraulics.

Notice of Completion of Construction

RECEIVED
JAN 14 1953
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

I, City of Kennewick, *the holder of Ground Water Permit No.* 1248 *issued by the State Supervisor of Water Resources of the State of Washington for the appropriation of ground waters withdrawn from a* well (Well, tunnel or infiltration trench), *in accordance with the tenor of such permits and the limitations endorsed therein by the State Supervisor of Water Resources, have completed the construction of the works described therein, on the* ..... *day of* July 3, *19* 52

If construction has been abandoned: Date ..... *Reason* .....

Remarks: .....

IN WITNESS WHEREOF, I have hereunto set my hand this 12 *day of* January, *19* 53

R. C. Rector
(Signature of applicant)

City Hall, Kennewick, Washingt on
(Present address)

R. C. RECTOR, City Superintendent

S. F. No. 378—4-51—3M. 27804.

S. F. No. 7356—1-53—5M. 33599.

RETURN TO:
DIV. OF WATER RESOURC
406 TRANSPORTATION BLDG. OLYMPIA

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. 1248

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

RECEIVED APR DEPARTMENT OF CONSERVATION & DEVELOPMENT

1. City of Kennewick Water Dept., Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Clover Island
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started 1950

4. Date on which work was completed 1953

5. If work on well or other structure was abandoned, give date .....

and reason for abandonment .....

6. DESCRIPTION OF WORKS: Well drilling & testing log attached

(a) WELL: Depth ..... ft. Diameter ..... in. or ft. Dug or drilled .....

Flowing or pump well .....

IF PUMP WELL: Type and size of pump is .....

Type and size of motor or engine is .....

Depth from ground surface to water level before pumping ..... feet

After continuous operation for ..... hours, the measured discharge of the pump is
(At least four)

..... g.p.m., and the drawdown of water level is ..... feet

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*

Date of test .....

IF FLOWING WELL: Measured discharge ..... g.p.m. on .....
(Date)

Shut-in pressure at ground surface ..... lbs. per sq. in. on .....
(Date)

Water is controlled by .....
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.)

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

The wells were used only a short time and are now abandoned, and all available information "which is not enough to complete the this standard form" is sown on the attached Clover Island Wells Drilling & test Log. This drawing is included for your records.

OK
RAS see enclosed logs of 4 wells

Perforated casing or screen:

..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)

..... from ..... to ..... ft.

..... from ..... to ..... ft.

..... from ..... to ..... ft.

..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

MATERIAL	Thickness (Feet)	Depth to bottom (Feet)

(b) INFILTRATION TRENCH OR TUNNEL: Type .....

Dimensions: .....
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width ..... ft. Discharge ..... g.p.m. Date of test .....

Position of water bearing stratum with reference to portal of tunnel .....

.....

Signiture not aveilable

.....
(Signature of well driller or other constructor)

.....
(Address)

STATE OF WASHINGTON,
County of ..... } *ss.*

I, ..., *being first duly sworn, do hereby certify that I am the driller or constructor of the aforesaid well or tunnel or trench who furnished the foregoing statement of facts; that I have read said statement and each and all of the items therein contained are true to the best of my knowledge and belief.*

.....
(Signature)

NOTARIZATION NOT NECESSARY.

Subscribed and sworn to before me this ..... *day of* ....., *195*.....

.....
Notary Public

S. F. [illegible]5—9-52—75C. 32559.

Proof of Appropriation of Water

Application No. 1390 Permit No. 1248

1. Name of Permittee City of Kennewick
2. Postoffice address Kennewick, Washington
3. Source of appropriation Columbia River
4. Name or number of works (if any) Clover Island
5. For what purpose or purposes is water used? Municipal Water Supply
6. Give date of beginning of construction Aprox. March 1950
7. Give date of completion of construction work, including water distribution system Aprox Nov. 1953
8. Give date when water was completely applied to proposed use 1950
9. If used for irrigation:

   Give number of acres described in permit

   Give number of acres actually irrigated
10. If used for power: HP actually developed
11. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED:

    City of Kennewick & Suburbs

12. During what months is water used? Year round
13. Does map filed with your application show correctly the location of well or point of diversion for withdrawal of water, and area of land where water is used? New Diversion Map enclosed
14. If the dimensions, location or type of structure do not correspond to those described in your permit, state what changes have been made, giving dimensions, etc. See Diversion map of Carry & Kramer Drawing # 5204-01
15. Actual measured discharge or diversion of permanent system: 58,000 Max (gpm or ~~cfs~~)

(Sign certification on reverse side)

STATE PRINTING PLANT OLYMPIA, WASHINGTON

ok as per permit

STATE OF WASHINGTON,
County of Benton } ss.

I, W. F. Hagerman, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 10 day of February, 19 54

W. F. Hagerman

Subscribed and sworn to before me this 10th day of February, 19 54

Marjorie A. Nielsen
Notary Public.

STATE OF WASHINGTON

Department of Conservation and Development

W. A. GALBRAITH, DIRECTOR

TRANSPORTATION BUILDING
OLYMPIA

ARTHUR B. LANGLIE
GOVERNOR

DIVISIONS:
FORESTRY
RECLAMATION
FLOOD CONTROL
WATER RESOURCES
MINES AND GEOLOGY
COLUMBIA BASIN PROJECT
PROGRESS AND INDUSTRY DEVELOPMENT

April 13, 1954

County Auditor
Benton County
Prosser, Washington

Dear Sir:

Enclosed is Certificate of Water Right No. 1805-A and a check or money order in the amount of $1.25 to cover the cost of recording in your office.

When this has been done, please forward the certificate to: City of Kennewick, Kennewick, Washington.

Yours very truly,

Chas J Bartholet

CHAS. J. BARTHOLET, Supervisor
Division of Water Resources.

CJB: cle
Enc.

HUGH B. HORTON
ATTORNEY AT LAW
P. O. BOX 432
KENNEWICK, WASHINGTON

JOHN A. WILKINS
ASSOCIATE

TELEPHONE
JUSTICE 2-5162

October 8, 1956

RECEIVED
OCT 10 1956
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

State of Washington
Supervisor of Water Resources
Department of Conservation & Development
Olympia, Washington

Dear Sir:

Reference is made to the Clover Island water wells system of the City of Kennewick.

This office is representing the City of Kennewick in a matter involving The United States of America, specifically the effect of the construction of McNary Dam and the creation of Wallula Lake on the water supply of the City of Kennewick.

In connection with the City's wells on Clover Island, we are wondering if the records in your office disclose whether any permit was sought for the drilling of different wells on Clover Island and whether your records have any indication as to any communications from The United States of America concerning the effect of the construction of the Dam and creation of the Lake upon the water supplies of the City of Kennewick.

Any information you may furnish the undersigned will be greatly appreciated.

Very truly yours,

HORTON & WILKINS

by: John A. Wilkins

JAW/mw

October 10, 1956

Horton & Wilkins
Attorneys at Law
P. O. Box 432
Kennewick, Washington

Attention: Mr. John A. Wilkins

Gentlemen: Re: Certificate of Water Right #1805

Reference is made to your letter of October 8, 1956 relative to water rights held by the City of Kennewick for wells constructed on Clover Island. Please be advised that on February 23, 1950 the City of Kennewick submitted an application for permit to construct from three to five wells and an infiltration gallery on Clover Island to appropriate 4950 g.p.m. to be used as a municipal supply for the City of Kennewick. Permit #1248 was issued on June 23, 1950 and a final certificate of water right numbered 1805 was issued April 13, 1954 for the appropriation of 4950 g.p.m., 4800 acre-feet per year.

There is no correspondence in our file from the United States of America concerning the possible effect that raising the water level behind McNary Dam would have upon the water supply for the City of Kennewick.

If we can be of further service to you please feel free to ask.

Yours very truly,

DIVISION OF WATER RESOURCES

ROBERT H. RUSSELL
Assistant Supervisor

RHR/io

FRED MERRYFIELD - HOLLY A. [redacted]NELL - JAMES C. HOWLAND - THOMAS B. H[redacted] - ARCHIE H. RICE - RALPH E. RODERICK

CORNELL, HOWLAND, HAYES & MERRYFIELD
Consulting Engineers

1600 WESTERN AVENUE CORVALLIS, OREGON TELEPHONE PLaza 3-6638

SANITARY
STRUCTURAL
HYDRAULIC
ELECTRICAL
MECHANICAL
FOUNDATION

BOISE OFFICE:
IDAHO BUILDING
TELEPHONE 3-5221
BOISE, IDAHO

RECEIVED
FEB 1 1957
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

January 31, 1957

Division of Water Resources
406 Transportation Building
Olympia, Washington

Attn: Water Rights Section

Gentlemen:

Record No. 1230

The City of Kennewick is planning the installation of a number of Ranney type collectors on Clover Island in the Columbia River. The amount of water to be taken by this new method will, at present, be essentially the same as that now being taken by another method.

Will it be necessary for the City to effect any change in present water rights?

Will you also please send this firm two complete sets of forms necessary for future increase of amount of water to be taken from this or other public water courses throughout the State.

Very truly yours,

CORNELL, HOWLAND, HAYES & MERRYFIELD

Holly A. Cornell

Holly A. Cornell

HAC/g

cc: City of Kennewick

February 1, 1957

Cornell, Howland, Hayes & Merryfield
Consulting Engineers
1600 Western Avenue
Corvallis, Oregon

Attention: Holly A. Cornell

Gentlemen: Re: Ground Water Certificate #1805

This is in reply to your letter of January 31, 1957 advising that the City of Kennewick intends to install a number of Ranney type collectors on Clover Island to replace the present well field furnishing the City of Kennewick with municipal water and asking whether it will be necessary for the City to effect any changes in the present water right.

The City enjoys authority under the above certificate to appropriate water from a gallery of wells in the amount of 4950 g.p.m., 4800 acre-feet per year. An equal amount of water could be developed by Ranney type infiltration wells under the above certificate, however if the Ranney intercepters are to be constructed outside of Govt. Lot 2, sec.31, T.9N., R.30 E.W.M., it will require that the city petition for and receive a change of place of withdrawal. In addition, we would like to receive logs and hydrologic data for any test wells drilled and a complete description of the Ranney collectors constructed together with drawings of same.

For your use we are enclosing a petition for change of place of withdrawal of ground water should it be required. Even though it proves not necessary to request a change of place of withdrawal, we would like the logs and drawings of test wells and Ranney collectors.

Yours very truly,

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

EARL COE, Director

By: ROBERT H. RUSSELL, Assistant Supervisor
Division of Water Resources

RHR/io
encl.

HOLLY A. CORNELL • JAMES C. HOWLAND • THOMAS B. HAYES • FRED MERRYFIELD • ARCHIE H. RICE • RALPH E. RODERICK

CORNELL, HOWLAND, HAYES & MERRYFIELD
Consulting Engineers

1600 WESTERN AVENUE CORVALLIS, OREGON TELEPHONE PLAZA 3-6638

SANITARY
HYDRAULIC
ELECTRICAL
STRUCTURAL
MECHANICAL
FOUNDATION

BOISE OFFICE:
IDAHO BUILDING
BOISE, IDAHO
TELEPHONE 3-5221

RECEIVED
FEB 19 1957
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

February 15, 1957

IN REPLY PLEASE REFER TO:

Record No. 1230

State of Washington
Dept. of Conservation and Development
Division of Water Resources
335 General Administration Building
Olympia, Washington

Attention: Mr. Robert H. Russel

Re: Ground Water Certificate #1805

Gentlemen:

Reference your letter of February 1, 1957, regarding water rights for the City of Kennewick, Washington.

We have received information from the City indicating that all sites for the proposed collectors, easements for which have been completed, lie within Government Lot 2, Sec. 31, T 9N, R 30 E. W. M. and, therefore, no change of place of withdrawal petition is required.

The City desires, however, to increase the amount of water which it is authorized to appropriate at this location from the present 4950 gpm to 8350 gpm to care for increased water demand by the expanding City.

It is requested, therefore, that two complete sets of proper application forms for such additional withdrawal at this site or other sites in the State be forwarded to this office so that action on this matter may be completed as soon as possible.

Very truly yours,

CORNELL, HOWLAND, HAYES & MERRYFIELD

Warren S. Staton

Warren S. Staton

WSS/g

February 18, 1957

Cornell, Howland, Hayes & Marryfield
Consulting Engineers
1600 Western Avenue
Corvallis, Oregon

Attention: Mr. Warren S. Staton

Gentlemen: Re: G. W. Certificate #1805 - City of Kennewick

In response to your letter of February 15, 1957 we are sending you two ground water application forms with which the City of Kennewick may request a permit to appropriate additional water for municipal supply. Also, as previously stated, we would like to receive copies of the logs and pump test data of any test wells constructed and a copy of the report and development of the Ranney type or infiltration well actually constructed.

Yours very truly,

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

EARL COE, Director

By: ROBERT H. RUSSELL, Assistant Supervisor
Division of Water Resources

RHR/io
encl. 2

December 19, 1960

Tim deJong, City Manager
P. O. Box 576
Kennewick, Washington

Dear Sir:

Re: Ground Water Permit No. 4372 and
Certificate No. 1805

Receipt is acknowledged of your letter of December 13 containing proof of appropriation and vouchers to be signed for obtaining necessary filing and recording fees. Also acknowledged is an addendum to the proof of appropriation pointing out that two additional horizontal collectors were constructed at a location in Columbia Park along the south bank of the Columbia River.

Our record now shows that the city has constructed three collectors on Clover Island and two collectors along the south bank of the Columbia River in Columbia Park from which a total of 13,500 gallons of water per minute are pumped. Of this amount, 4,950 gallons per minute are authorized under Certificate 1805 from wells located on Clover Island.

Permit No. 4372 authorizes the appropriation of 3400 gallons per minute from horizontal collectors in Govt. Lot 2, Sec. 31, T. 9 N., R. 30 E. which also places those wells on Clover Island.

Your letter of December 13 points out that insufficient water was obtained on Clover Island and that two Ranney-type collectors were constructed in Columbia Park. We are wondering just how much of the total 13,500 gallons per minute was obtained from each of the well sites.

As previously pointed out, the two above numbered water rights authorize a total withdrawal of 8,350 gallons per minute; whereas, you have installed for a capacity of 13,500 gallons per minute. It will, therefore, be necessary to publish an amended notice to include the additional rate of withdrawal.

Upon receipt of the information requested about the yield of each collector, we will prepare an amended notice for publication. The vouchers for

payment of the recording fees are returned and will be requested later after the permit has been brought up to date.

Yours very truly,

DEPARTMENT OF CONSERVATION
EARL COE, DIRECTOR

ROBERT H. RUSSELL, Asst. Supervisor
Division of Water Resources

RHR:asr
Enclosures

WATER RIGHTS

GWC 3897-A

S. P. No. 1331—5-CO—3M. 62303.

CERTIFICATE RECORD No. 8 PAGE No. 3897-A

STATE OF WASHINGTON, COUNTY OF Benton

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY *That* CITY OF KENNEWICK, WASHINGTON

~~of~~, *has made proof*

to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of ~~a~~ two horisontal collectors

located within Government Lot 1

Sec. 35, *Twp.* 9 *N., R.* 29 *E. W. M.*

for the purpose of municipal water supply

under and subject to provisions contained in Ground Water Permit No. 6372 *issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume* 8 *at page* 3897-A; *that the right hereby confirmed dates from* February 27, 1957; *that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed* 13,500 gallons per minute; 5600 acre-feet per year for municipal water supply.

Special provisions required by the Supervisor of Water Resources:

A description of the lands to which such ground water right is appurtenant:

City of Kennewick, Benton County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 10th *day of* May, 1961.

State Supervisor of Water Resources.

S. F. No. 7355—7-57—5M. 49757. O.S.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 15 1960
A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

Proof of Appropriation of Water

Application No. 4539 Permit No. 4372

1. Name of Permittee City of Kennewick
2. Postoffice address City Hall, Kennewick, Washington
3. Source of appropriation Horizontal collector
4. Name or number of works (if any) 5 horizontal collectors
5. For what purpose or purposes is water used? Municipal water supply
6. Give date of beginning of construction February 27, 1957
7. Give date of completion of construction work, including water distribution system December 6, 1960
8. Give date when water was completely applied to proposed use within 1 year
9. If used for irrigation:

   Give number of acres described in permit

   Give number of acres actually irrigated
10. If used for power: HP actually developed
11. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED:

    City of Kennewick, Benton County, Washington

12. During what months is water used? Continually
13. Does map filed with your application show correctly the location of well or point of diversion for withdrawal of water, and area of land where water is used? See attached sheet
14. If the dimensions, location or type of structure do not correspond to those described in your permit, state what changes have been made, giving dimensions, etc. See attached sheet
15. Actual measured discharge or diversion of permanent system: 13,500 (gpm or cfs)

OK ~~when amended notice~~ ~~is received~~
OK. E.T.W.

(Sign certification on reverse side)

STATE PRINTING PLANT OLYMPIA, WASHINGTON

STATE OF WASHINGTON,
County of Benton } ss.

I, Tim de Jong, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 14 day of Dec, 1960

Tim de Jong

Subscribed and sworn to before me this 14 day of December, 1960

Virginia A. Miller
Notary Public.

S. F. No. 7354—8-54—5M. 39179.

STATE OF WASHINGTON

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

DIVISION OF WATER RESOURCES

Permit to Appropriate Public Ground Waters of the State of Washington

Book No. 9 of Ground Water Permits, on page 4372 under Application No. 4539

CITY OF KENNEWICK, WASHINGTON

~~of~~

is hereby granted a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights, and to the limitations and provisions set out herein.

Priority date of this permit is February 27, 1957

Source of the proposed ground water appropriation is 2 horizontal collectors

within ..... area, ... sub-area

..... zone. Name or number of works is .....

Quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed ~~3400~~ 13,500 gallons per minute; ~~3300~~ 5600 acre-feet per year, to be used for the following purposes: municipal water supply

as more definitely set out below.

(see attachment to Proof form for locations)

Location of the well, tunnel, or infiltration trench is ~~along north and east end of Clover Island~~ 1. 1150' N of SW Cor. Govt Lot 1 2. 1300' N & 350' E of SW Cor. Govt Lot 1

being within Government Lot ~~2~~ 1 & 2, sec. ~~31~~ 35, T.9 N., R. ~~30~~ 29 E.W.M.

county of Benton

Use, or uses to which water is to be applied:

For municipal supply: ~~3400~~ 13,500 gallons per minute; ~~3300~~ 5600 acre-feet per year, to supply the City of Kennewick

For irrigation: ..... gallons per minute; ..... acre-feet per year, for the irrigation of ..... acres.

For miscellaneous uses: ..... gallons per minute; ..... acre-feet per year, for .....

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

City of Kennewick, Benton County, Washington.

DESCRIPTION OF WORKS FROM WHICH WATER IS TO BE WITHDRAWN

The well will be ..... and have a diameter of ..... inches, and depth of ..... feet.
(Dug or drilled)

Horizontal "Ranney" type collectors, cassions for which will be 13 ft. inside diameter and 45 ft. depth.

Description of tunnel or infiltration trench:

(Please read carefully provisions below)

Particular specifications required by the Supervisor of Water Resources:

Construction work shall begin on or before Started

and shall thereafter be prosecuted with reasonable diligence and completed on or before

December 1, 1958 -12-1-59

and complete application of water to proposed use shall be made on or before

1960

December 1, 1959

Given under my hand and the seal of this office at Olympia, Washington, this 19th day of November, 1957.

M G Walker

State Supervisor of Water Resources

AMENDED

Report of Examination on Ground Water

Received date 2-27-57 Date of exam. 9-12-57 Appli. No. 4539

Name City of Kennewick Address City Hall, Kennewick, Wash.

Type of works 2 horizontal collectors ~~Dimensions~~ Horizontal "Ranney" type collectors, cassions for which will be 13' inside diameter and 45' depth.

Progress of works under construction

Quantity applied for 13,500 g.p.m. 5600 acre-feet per year

Legal sub. Govt/ Lots 1 & 2 Sec. 35 Twp. 9 N. Rge. 29 E. County Benton

Use municipal water supply

Irrigation-acreage: Present Planned Feasible

Municipal: Population 25,000 as of 1960

Industrial

Time pump will be operated continuously

Other water rights appurtenant to this land

Proximity to existing works, springs, wells, or streams located on bank of Columbia River.

Diff. in elevation as shown on attached sheet 2 of 2, date 2-11-57

Area Sub-area Zone

RECOMMENDATIONS

Approved for 13,500 g.p.m. 5600 acre-feet per year, subject to existing water rights. (1 acre-foot 325,850 gallons.) The original permit was issued for construction of three horizontal collectors in Section 31, Township 9 N., Range 30 E. W. M. on Clover Island. However, they did not produce sufficient water so the locations were changed to Section 35, Township 9 N., Range 29 E. W. M. in Columbia Park where test drilling showed favorable sub-surface conditions. Two horizontal collectors at the new site produced a total of 13,500 g.p.m.

The water requirement for the City of Kennewick is based on a requirement of 200 gallons per day per person or a total annual requirement of 5600 acre-feet per year for a population of 25,000 persons.

Robert H. Russell

Signed this 21st day of March, 1961. ROBERT H. RUSSELL, Asst. Supervisor

Division of Water Resources

Permit 4372

RECEIVED
DEPARTMENT OF CONSERVATION

FEB 20 1961

A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

AFFIDAVIT OF PUBLICATION

STATE OF WASHINGTON)
)ss.
COUNTY OF Benton)

Bertha Mae Wright, being first duly sworn on oath deposes and says she is the principal clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Benton County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a true copy of a Notice of amended ground water right application No. 4539 Take Notice:

as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, for a period of two (2) consecutive weeks, commencing on the 6th day of January 1961, and ending on the 13th day of January, 1961, and that said newspaper was regularly distributed to its subscribers during all of this period. That the full amount of $5.00 has been paid in full, also at the rate of $1.00 per col in per ins.

Bertha Mae Wright

Subscribed and sworn to before me this 16th day of January, 1961

Notary Public in and for the State of Washington, residing at Pasco

STATE OF WASHINGTON
OFFICE OF SUPERVISOR OF
WATER RESOURCES
Olympia
NOTICE OF AMENDED GROUND WATER RIGHT APPLICATION NO 4539
TAKE NOTICE:

That CITY OF KENNEWICK, WASHINGTON on February 27, 1957 filed application for permit to withdraw public ground waters through two horizontal collectors situated within Government Lots 1 and 2 of Section 35, Township 9 N., Range 29 E. W.M., in Benton County, in the amount of 13,500 gallons per minute, subject to existing rights continuously, each year for the purpose of municipal water supply.

Any objections must be accompanied by a two dollar ($2.00) recording fee and filed with the State Supervisor of Water Resources within thirty (30) days from January 6, 1961.

Witness my hand and official seal this 28th day of December, 1960.

M. G. WALKER
State Supervisor of Water Resources.

No. 3227 Jan. 6, 13, 1961

Report of Examination on Ground Water

Received date 2-27-57 Date of exam. 9-12-57 Appli. No. 4539

Name City of Kennewick Address City Hall, Kennewick, Wash.

Type of works horizontal collectors ~~Dimensions~~ Horizontal "Ranney" type collectors, cassions for which will be 13' inside diameter and 45' depth.

Progress of works under construction

Quantity applied for 3400 g.p.m. 3300 acre-feet per year

Legal sub. Govt. Lot 2 / Sec. 31 Twp. 9 N. Rge. 30 E. County Benton

Use municipal water supply

Irrigation-acreage: Present Planned Feasible

Municipal: Population 25,000 as of 1960

Industrial

Time pump will be operated continuously

Other water rights appurtenant to this land

Proximity to existing works, springs, wells, or streams located on bank of Columbia River.

Diff. in elevation as shown on attached sheet 2 of 2, dated 2-11-57

Area Sub-area Zone

RECOMMENDATIONS

Approved for 3400 g.p.m. 3300 acre-feet per year, subject to existing water rights. (1 acre-foot 325,850 gallons.)

The system will be infiltrating water from the Columbia River. The applicant will furnish this office with a copy of constructors report showing the project as constructed. Issue as requested.

Signed this 30th day of October, 1957.

Robert H Russell

ROBERT H. RUSSELL, Asst. Supervisor
Division of Water Resources

S. F. No. 370-B—11-55—75C. 43714.

$10.00 examination fee should accompany each application.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Water Resources

RECEIVED FEB 27 1957 DIV. OF WATER RESOURCES

APPLICATION FOR A PERMIT

To Appropriate Public Ground Waters
OF THE STATE OF WASHINGTON

Application No. G. W. ~~1805 (Additional)~~ 4539

I, City of Kennewick
(Name of applicant)

of City Hall, Kennewick, Washington
(Complete post office address)

do hereby make application for a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights. This application is made under the provisions of Chap. 263 of the Session Laws of 1945, and amendments thereto of the State of Washington and subject to the rules and regulations of the Department of Conservation and Development, Division of Water Resources.

1. *The proposed appropriation will be from* Horizontal Collectors
(Well, tunnel, infiltration trench)

located near N. Washington Street at Columbia River, Kennewick, Washington
(Give approximate distance and direction from nearest city or town)

Area (Leave blank) *Sub-area* (Leave blank)

Zone (Leave blank)

Applicant's name or number of well or other works, if any City of Kennewick

2. *The quantity of water which applicant intends to withdraw for beneficial use is* 3400 ~~(Additional)~~ *gallons per minute;* 3300 (Additional) *acre feet per year.*

3. *The use or uses to which water is to be applied* Municipal Water Supply (Public)
(Domestic supply, irrigation, municipal, manufacturing, industrial use, etc.)

4. *The time during which water will be required each year* ~~12 months per year~~ Continuously

5. *Location of well or other works for withdrawal of water: In county of* Benton

(a) ~~As shown on attached location map.~~ ALONG N & E END CLOVER ISLAND
(Give distance and bearing from nearest corner of section or legal subdivision)

being within the ~~Southwest Quarter~~ GOVT. LOT 2 *of Sec.* 31, *Twp.* 9 *N., Rge.* 30 E. (E. or W.)
(Give smallest legal subdivision)

or (b) *If within limits of recorded platted property, town or city: Lot* ....., *Block* .....,

of .....
(Give name of plat or addition) (If within town or city, give name)

(c) *Show this location on accompanying section plat, in duplicate. Other adequate maps or drawings will be acceptable.*

As shown on attached sheet 1 of 2, dated February 11, 1957

OK. request ~~add. exam fee~~
OK JDH total exam fee due $16.00

6. DESCRIPTION OF WORKS: Horizontal "Ranney" type collectors, caissons for which will be 13 feet inside diameter and 45-foot depth.

(a) Well will be ..... *and have a diameter of* ..... *inches and an estimated depth of* ..... *feet.*
(Dug or drilled)

(b) Tunnels or trenches to be described: (Attach additional sheets if needed for full description.)

as shown on attached sheets.

(c) Distribution system to be described:

Two pressure-zone piped distribution system

(d) If pumps are to be used, give size and type:

2 ea. 1750 gpm vertical turbine type.
2 ea. 1400 gpm vertical turbine type.

(e) Give capacity and type of motor or engine to be used:

30-50 HP electric motors

(f) If the location of the well, tunnel, or other works is less than one-fourth mile from a natural stream or stream channel, give the distance to the nearest point on each of such channels and the difference in elevation between the stream bed and the ground surface at the source of development:

Located on bank of Columbia River. Difference in elevations as shown on attached Sheet 2 of 2, dated February 11, 1957

(g) Ownership of each existing well or other works from which ground water is withdrawn within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:

(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)
(Name)	(Direction)	(Distance)

SUPPLY THE FOLLOWING INFORMATION ACCORDING TO USE PROPOSED:

7. *For Municipal Supply: To supply the city, town, or community of* Kennewick, *in the county of* Benton, *having a present population of* 20,000, *and an estimated population of* 25,000, *in 19*60.

8. *For Irrigation: Number of acres to be irrigated* ..... *acres.*

9. *Legal Description of Property on which water is to be used for all purposes other than municipal supply:*

(Copy legal description from deed)
(If more space is required, attach separate sheet)

(On accompanying plat show location of the existing wells or works)

10. *What interest do you have in the above described property?*.....

.....
(Owner, lessee, contract buyer, etc.)

11. *Do you have any other water rights appurtenant to the above described property?*.....

If so, from what source?.....

12. *Construction work will begin on or before* Feb. 15, 1957

13. *Construction work will be completed on or before* July 15, 1957

14. *Water will be put to complete beneficial use on or before* September, 1957

.....
(Signature of applicant)

15. *Name and address of owner of land and holder of easements on which well or works are located:*

City of Kennewick (Name) — City Hall, Kennewick, Wash. (Address)

City of Kennewick (Signature of legal landowner)
William E. Kanney City Mgr.

Signed in the presence of us as witnesses:

M. B. Ulmer (Name) — City Hall, Kennewick, Wn. (Address of witness)

Esther L. Sinclair (Name) — City Hall, Kennewick, Wn. (Address of witness)

STATE OF WASHINGTON,
COUNTY OF THURSTON. } *ss.*

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for correction or completion as follows:

.....

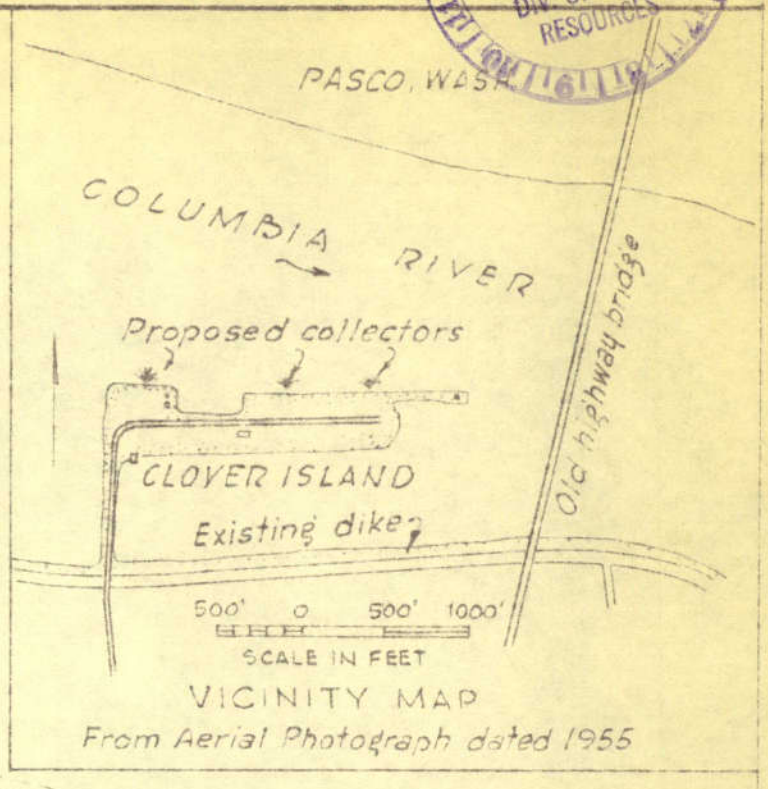
.....

In order to retain its priority, this application must be returned to the State Supervisor of Water Resources, with corrections, on or before....., *19*.....

WITNESS my hand this.....*day of*....., *19*.....

.....
State Supervisor of Water Resources.

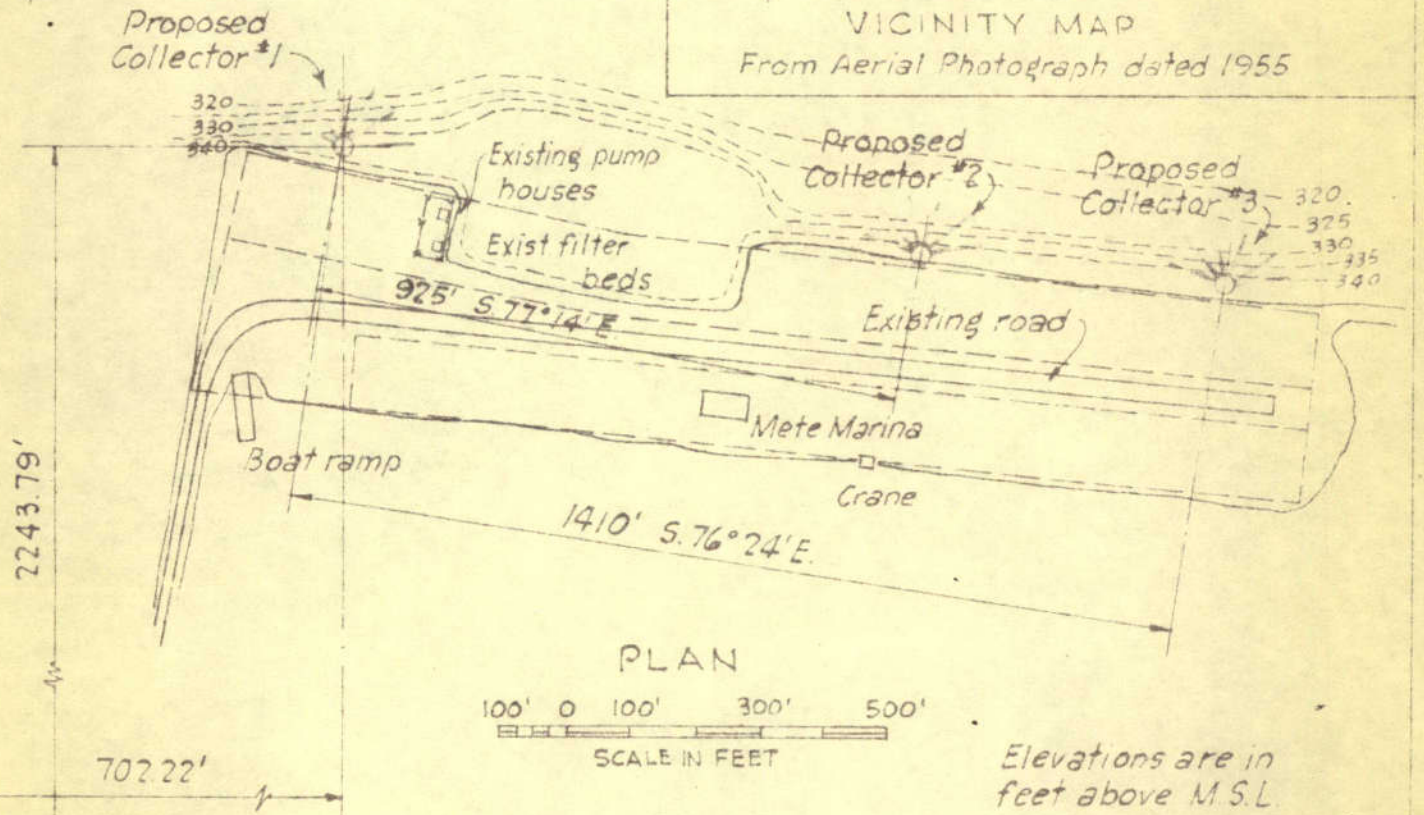
RECEIVED
FEB 27 1957
DIV. OF WATER
RESOURCES



VICINITY MAP
From Aerial Photograph dated 1955

N

Property Ownership:
Collector #1: City of Kennewick, Washington.
Collectors #2 & 3: Port Commission.



PLAN

Elevations are in feet above M.S.L.

36 31 T.9N., R30E.
1 6

4539

PROPOSED HORIZONTAL WATER COLLECTORS ON CLOVER ISLAND, COLUMBIA RIVER AT KENNEWICK, WASHINGTON.
APPLICATION BY CITY OF KENNEWICK WASHINGTON FEB. 11, 1957 SH. # 2

1/3

RETURN TO:
DIVISION OF WATER RESOURCES
335 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

S. F. No. 7356—4-57—5M. 48912.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 3 1957
A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W.....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started February 13, 1957

4. Date on which work was completed October 11, 1957

5. If work on well or other structure was abandoned, give date .....

and reason for abandonment .....

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 58 ft. Diameter 13' I.D. ~~inner~~ ft. Dug or drilled Dug

Flowing or pump well pump Water Temp. 65° (varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 15 feet

After continuous operation for 72 hours, the measured discharge of the pump is
(At least four)

4830 g.p.m., and the drawdown of water level is 31 feet
(Pumping level minus static water level)

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
NO RECOVERY DATA			

Date of test Sept. 19 to Sept. 22, 1957

IF FLOWING WELL: Measured discharge --- g.p.m. on ---
(Date)

Shut-in pressure at ground surface --- lbs. per sq. in. on ---
(Date)

Water is controlled by ---
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13' I.D., 16' O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

OK/DM

Perforated casing or screens:

10 horizontal laterals varying in length from 19 ft. to 61 ft., projected at depths of 47.5 and 52.5 below ground surface. Total length horizontal laterals 393 ft., slot size 3/8 X 2-1/2" with 52 slots per foot. from ..... to ..... ft.

(Number per foot and size of perforations, or describe screen)

from ..... to ..... ft.

from ..... to ..... ft.

from ..... to ..... ft.

from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Fill, sand and gravel	16'	16'
Sandy clay	8'	24'
Sand, gravel and boulders	28'	52'
Clay	6'	58'

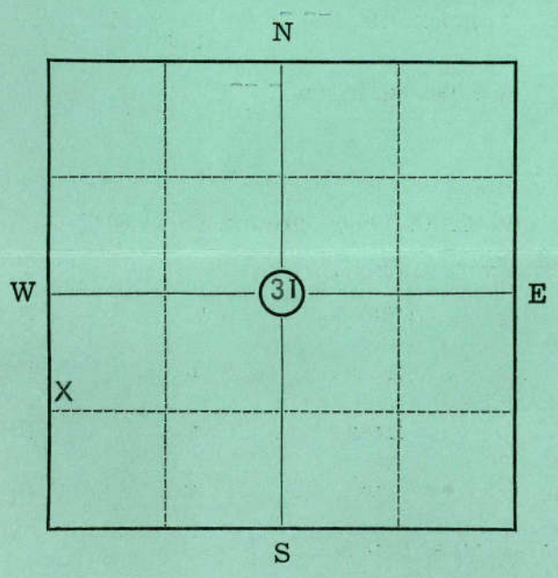
(b) INFILTRATION TRENCH OR TUNNEL: Type - -

Dimensions: - -

(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width - - ft. Discharge - - g.p.m. Date of test - -

Position of water bearing stratum with reference to portal of tunnel .....



Scale: 1" = 2000'

Sec. 31 Twp. 9N Rge. 30E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels

(Signature of well driller or other constructor)

Frederick C. Mikels, Vice President and Technical Director

2015 J St., Suite 30-Sacramento 14, California

Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

2/3

RETURN TO:
DIVISION OF WATER RESOURCES
335 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

S. F. No. 7356—4-57—5M. 48912.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 3 1957
A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W.....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick — Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started February 13, 1957

4. Date on which work was completed October 11, 1957

5. If work on well or other structure was abandoned, give date .....

and reason for abandonment .....

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 46 ft. Diameter 13' I.D. ~~in. or~~ ft. Dug or drilled dug

Flowing or pump well pump Water Temp. 65° (varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 14 feet

After continuous operation for 64 (At least four) hours, the measured discharge of the pump is 1160 g.p.m., and the drawdown of water level is 23 (Pumping level minus static water level) feet

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
	NO RECOVERY DATA		

Date of test September 19 to September 22, 1957

IF FLOWING WELL: Measured discharge -- g.p.m. on -- (Date)

Shut-in pressure at ground surface -- lbs. per sq. in. on -- (Date)

Water is controlled by -- (Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13' I.D., 16' O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

OK/DM

Perforated casing or screens:

8 horizontal laterals varying in length from 16' to ..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)
53' projected at depths of 42'. Total length horizontal ..... from ..... to ..... ft.
laterals 257', slot size 3/8 x 2-1/2" with 52 slots per ..... from ..... to ..... ft.
foot ..... from ..... to ..... ft.
..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

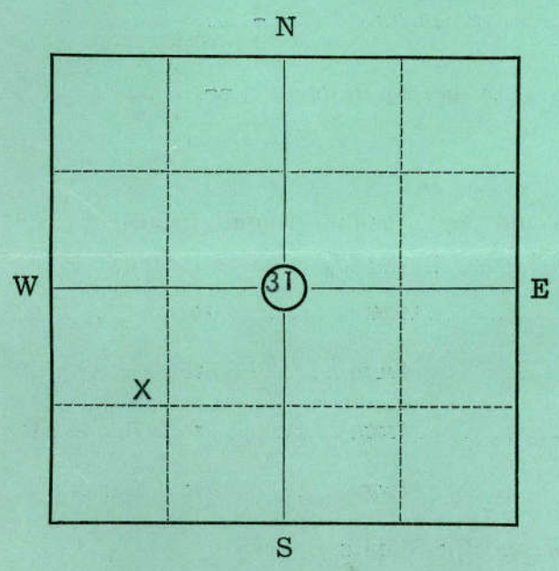
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Fill, gravel, boulders	13'	13'
Sand, Gravel	31'	44'
Clay	2'	46'

(b) INFILTRATION TRENCH OR TUNNEL: Type --

Dimensions: --
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width -- ft. Discharge -- g.p.m. Date of test --

Position of water bearing stratum with reference to portal of tunnel --



Scale: 1" = 2000'

Sec. 31 Twp. 9 N Rge. 30 E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels

Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J St., Suite 30-Sacramento 14, California

Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

RETURN TO:
DIVISION OF WATER RESOURCES
335 GENERAL ADMINISTRATION BLD
OLYMPIA, WASHINGTON

3/3

S. F. No. 7356—4-57—5M. 48912.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 3 1957
A. M. P. M.
7 8 9 10 11 12 1 2 3 4 5 6

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W.....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started February 13, 1957

4. Date on which work was completed October 11, 1957

5. If work on well or other structure was abandoned, give date .....
and reason for abandonment .....

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 47 ft. Diameter 13' I.D. in. or ft. Dug or drilled Dug

Flowing or pump well Pump Water Temp. 64°(varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 12.3' feet

After continuous operation for 69 hours, the measured discharge of the pump is
(At least four)

7470 g.p.m., and the drawdown of water level is 17 feet
(Pumping level minus static water level)

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
	NO RECOVERY DATA		

Date of test Sept. 19 to Sept. 22, 1957

IF FLOWING WELL: Measured discharge -- g.p.m. on --
(Date)

Shut-in pressure at ground surface -- lbs. per sq. in. on --
(Date)

Water is controlled by --
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13' I.D., 16' O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

OK/DM

Perforated casing or screens:

5 horizontal laterals varying in length from 32' to 85' from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)
projected at depths of 40'. Total length horizontal from ..... to ..... ft.
laterals 277 ft., slot size 3/8 x 2-1/2" with 52 slots from ..... to ..... ft.
per foot. from ..... to ..... ft.
..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

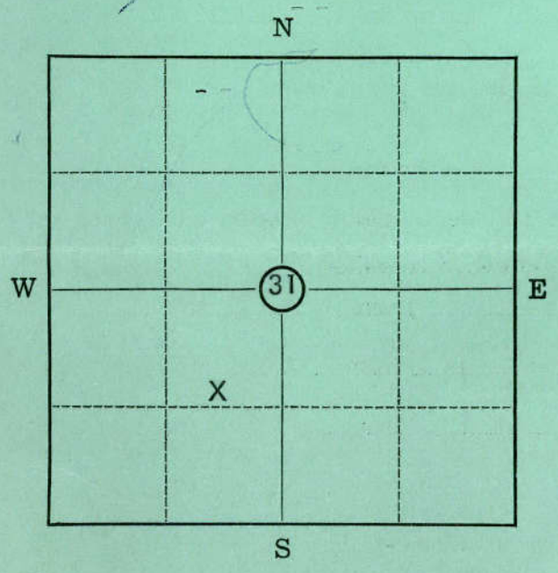
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Fill	16'	16'
Clay and gravel	16'	32'
Sand, gravel and boulders	15'	47'

(b) INFILTRATION TRENCH OR TUNNEL: Type --

Dimensions: --
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width -- ft. Discharge -- g.p.m. Date of test --

Position of water bearing stratum with reference to portal of tunnel .....



Scale: 1" = 2000'

Sec. 31 Twp. 9N Rge. 30E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels

Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J St., Suite 30-Sacramento 14, California
Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

RETURN TO:
DIVISION OF WATER RESOURCES
GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

RECEIVED
DEPARTMENT OF CONSERVATION
JAN 1961
8 9 10 11 12 1 2 3 4 5 6 P.M.

S. F. No. 7356—4-57—5M. 48912.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. 4372

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector No. 4
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started March, 1959

4. Date on which work was completed June, 1959

5. If work on well or other structure was abandoned, give date —

and reason for abandonment —

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 43.5 ft. Diameter 13' ID in. or ft. Dug or drilled dug

Flowing or pump well pump Water Temp. 57°F. (varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 4.0 feet

After continuous operation for 72 (At least four) hours, the measured discharge of the pump is 2125 g.p.m., and the drawdown of water level is 31.0 (Pumping level minus static water level) feet

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
	NO RECOVERY DATA		

Date of test

IF FLOWING WELL: Measured discharge — g.p.m. on — (Date)

Shut-in pressure at ground surface — lbs. per sq. in. on — (Date)

Water is controlled by — (Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13 foot I.D., 16 foot O.D., reinforced concrete caisson

in. diameter from to ft.

in. diameter from to ft.

in. diameter from to ft.

in. diameter from to ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

04 RMR

Perforated casing or screens:

8 horizontal laterals varying in length from ..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)
18 feet to 57 feet, projected at a depth of 39 feet ..... from ..... to ..... ft.
below ground surface. Total length of horizontal ..... from ..... to ..... ft.
laterals 301.5 feet, slot size 3/8"x2" with 50 slots ..... from ..... to ..... ft.
per foot ..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

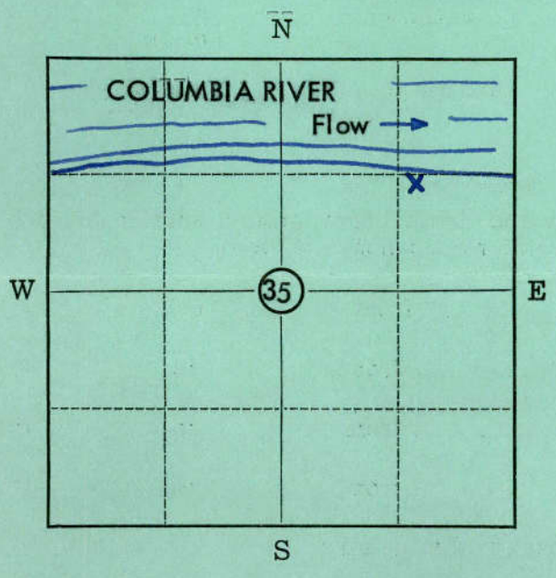
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Top soil, mud, and silt	15	15
Boulders and silt	6	21
Dirty sand and gravel	7	28
Clean coarse sand and gravel	6	34
Fine sand, medium gravel	5	39
Very fine sand, fine gravel	5	44
Very fine sand, fine gravel, clay balls	1.5	45.5
Clay		45.5

(b) INFILTRATION TRENCH OR TUNNEL: Type —

Dimensions: —
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width — ft. Discharge — g.p.m. Date of test —

Position of water bearing stratum with reference to portal of tunnel —



Scale: 1" = 2000'

Sec. 35 Twp. 9N Rge. 29E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels
Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J Street, Suite 30 -- Sacramento 14, California
Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

RETURN TO:
DIVISION OF WATER RESOURCES
35 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

S. F. No. 7356—4-57—5M. 48912.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. .....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector No. 5
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started September, 1960

4. Date on which work was completed November, 1960

5. If work on well or other structure was abandoned, give date —

and reason for abandonment —

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 44 ft. Diameter 13' I.D. in. or ft. Dug or drilled dug

Flowing or pump well pump Water Temp. 61°F.

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 12.4 feet

After continuous operation for 113 hours, the measured discharge of the pump is
(At least four)

7060 g.p.m., and the drawdown of water level is 9.0 feet
(Pumping level minus static water level)

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
0	22.7	8 hours	15.0
1/2 hr.	17.0	24 hours	14.5
1 hour	16.5	48 hours	14.1
4 hours	15.5	96 hours	13.8

Date of test —

IF FLOWING WELL: Measured discharge — g.p.m. on —
(Date)

Shut-in pressure at ground surface — lbs. per sq. in. on —
(Date)

Water is controlled by —
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13 feet I.D., 16 foot O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

04
DWR

Perforated casing or screens:

7 horizontal laterals varying in length from 50 feet to ..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)

63 feet, projected at a depth of 39 feet below ground sur- from ..... to ..... ft.

face. Total length of horizontal laterals 390 feet, ... from ..... to ..... ft.

slot size 3/8" x 2" with 60 slots per foot ..... from ..... to ..... ft.

..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

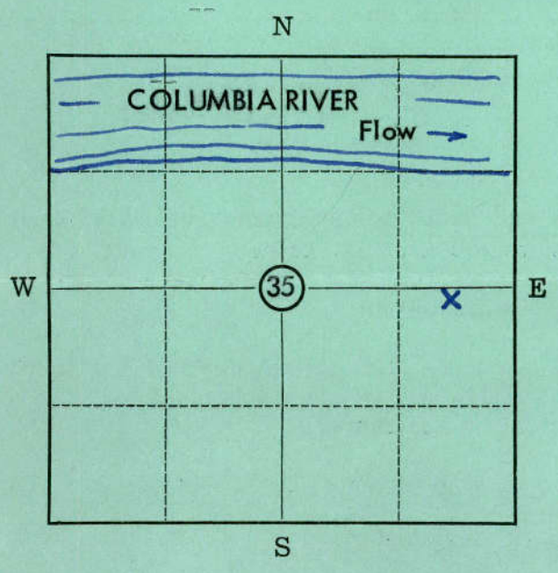
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Silt and boulders	20	20
Clean sand and gravel	26	46
Clay		46

(b) INFILTRATION TRENCH OR TUNNEL: Type ---

Dimensions: ---
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width --- ft. Discharge --- g.p.m. Date of test ---

Position of water bearing stratum with reference to portal of tunnel ---



Scale: 1" = 2000'

Sec. 35 Twp. 9N Rge. 29E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels
Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J Street, Suite 30-Sacramento 14, California
Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

M.B. ~~Winegar, City Engineer~~

12-1-60

Progress Sheet—Ground Water Application

NAME City of Kennewick, P.O.Box 576 Assigned to

G. W. APPLI. NO. 4539 PERMIT NO. 4372 CERT. NO. 3897 A

AMENDED 2-13-61 CANCELLED

Application received 2-27-57 Initial $10.00 fee received addl. exam. fee of $6.00 3-8-57

Statement of additional examination fee $ 6.00 Sent 3-01-57 Received

~~Application returned for completion or correction~~ Received 3-15-61

~~add. exam fee $44.00~~

TEMPORARY PERMIT: Approved by Issued

PUBLICATION:

O.K.'d by SDH Date 3-26-57 Notice sent 3-27-57

Protests

Filed

Affidavit received and checked 4-29-57 Time expired 5-15-57

Amended notice sent 12-28-60 Affidavit received 2-20-61

Time expires 2-13-61

DEPT. OF GAME REPORT

EXAMINATION Made 9-12-57 by

O.K.'d for permit 11-5-57 ~~(4-24-58~~ 3-31-61 by 4-24-61

Statement of permit fee sent 10-31-57 Amount $32.00 Received 11-8-57

~~additional exam fee due 44.00 sent 3-28-61~~ 4-24-61 $88.00 EFW

PERMIT NO. 4372 ISSUED 11-19-57

BEGINNING OF CONSTRUCTION: Notice sent started Filed

Extension fee $ Extended to

Extended to

WELL DRILLER'S REPORT: Sent 3-27-57 Filed 12-3-57 1-17-61

COMPLETION OF CONSTRUCTION: Notice sent 11-19-57 Filed 4-14-60

$2.00 extension fee Extended to 12-1-59

To

PROOF OF APPROPRIATION: Sent 4-14-60 Filed 12-15-60

$2.00 extension fee Extended to

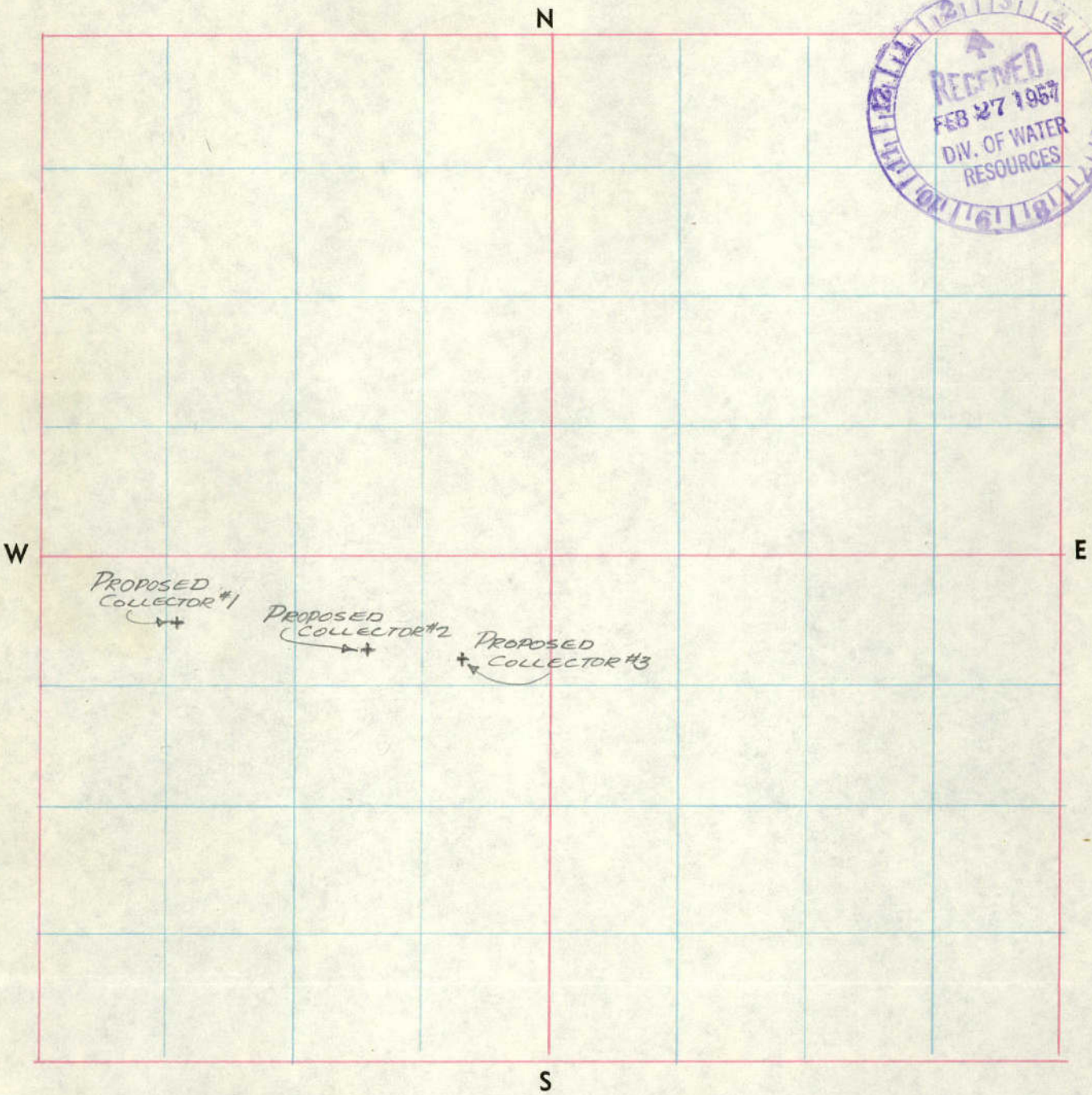
Statement of certificate fee sent 4-14-60 $ 3.00 Received 5-5-61

CERTIFICATE OF GROUND WATER RIGHT NO. 3897 A ISSUED 5-10-61

S. F. No. 1854-B—3-56—10M. 44775.

SECTION PLAT

Sec. 31 Twp. 9 N. R. 30 E. W. M.



RECEIVED FEB 27 1957 DIV. OF WATER RESOURCES

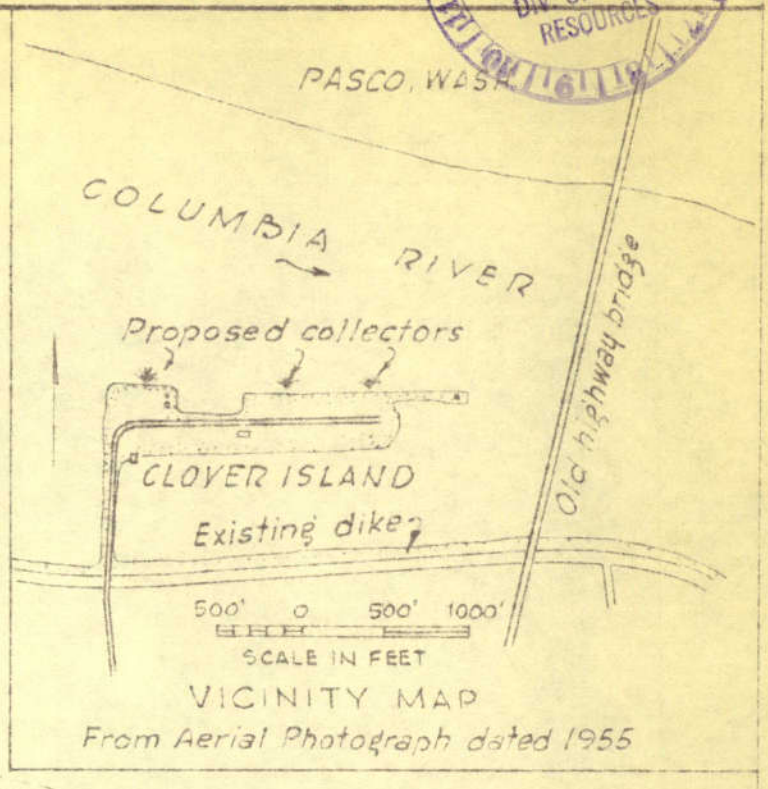
Show by a cross (X) the location of the well or other works covered by the application. Show by circle (O) the locations of other wells or works within a quarter of a mile. Also indicate traveling directions from nearest town on main highway.

Scale: 1 inch = 800 feet.

Access to the Clover Island Collector site is from the north extension of North Washington Street, Kennewick, Washington.

4539

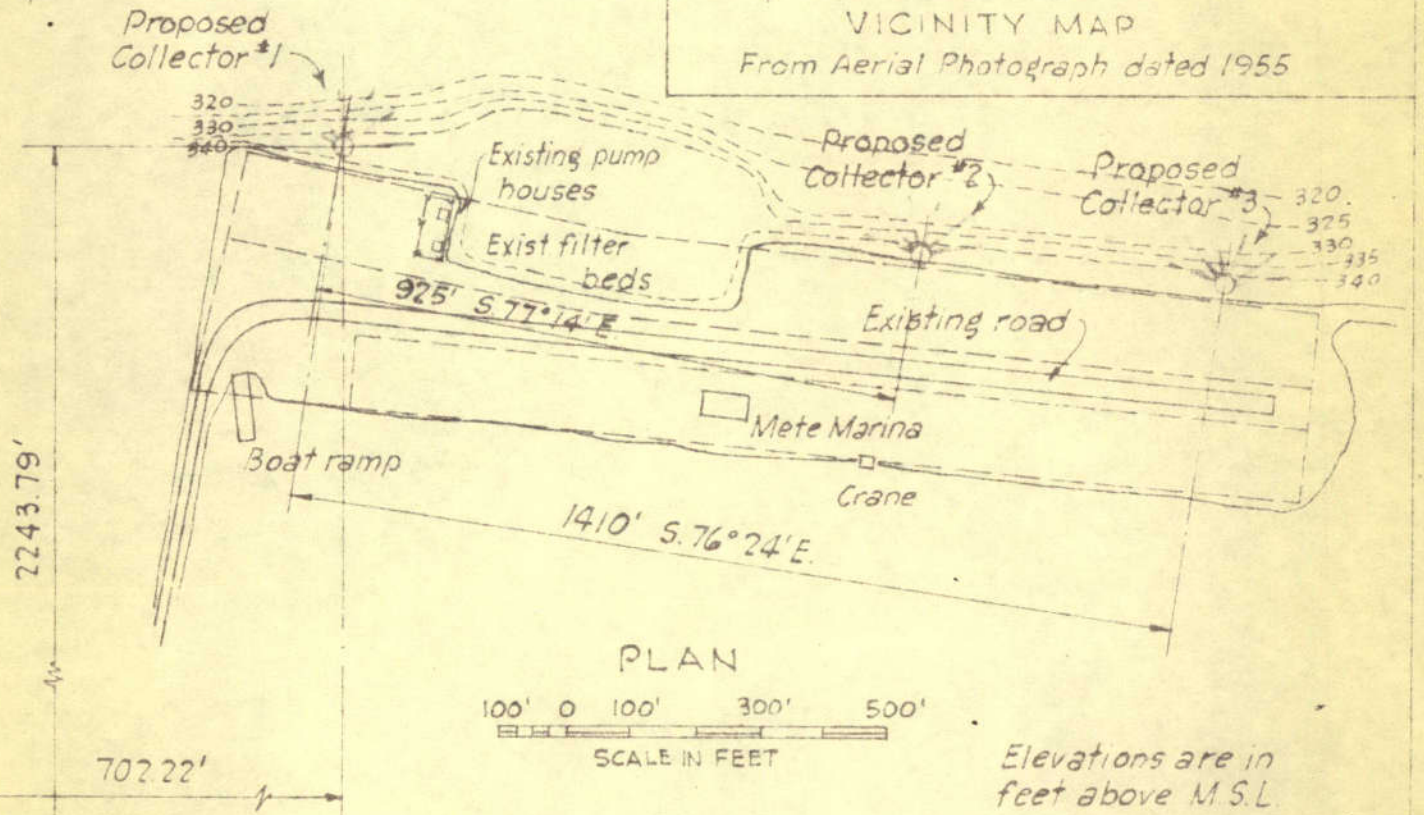
RECEIVED
FEB 27 1957
DIV. OF WATER
RESOURCES



VICINITY MAP
From Aerial Photograph dated 1955

N

Property Ownership:
Collector #1: City of Kennewick, Washington.
Collectors #2 & 3: Port Commission.



PLAN

Elevations are in feet above M.S.L.

36 31 T.9N., R30E.
1 6

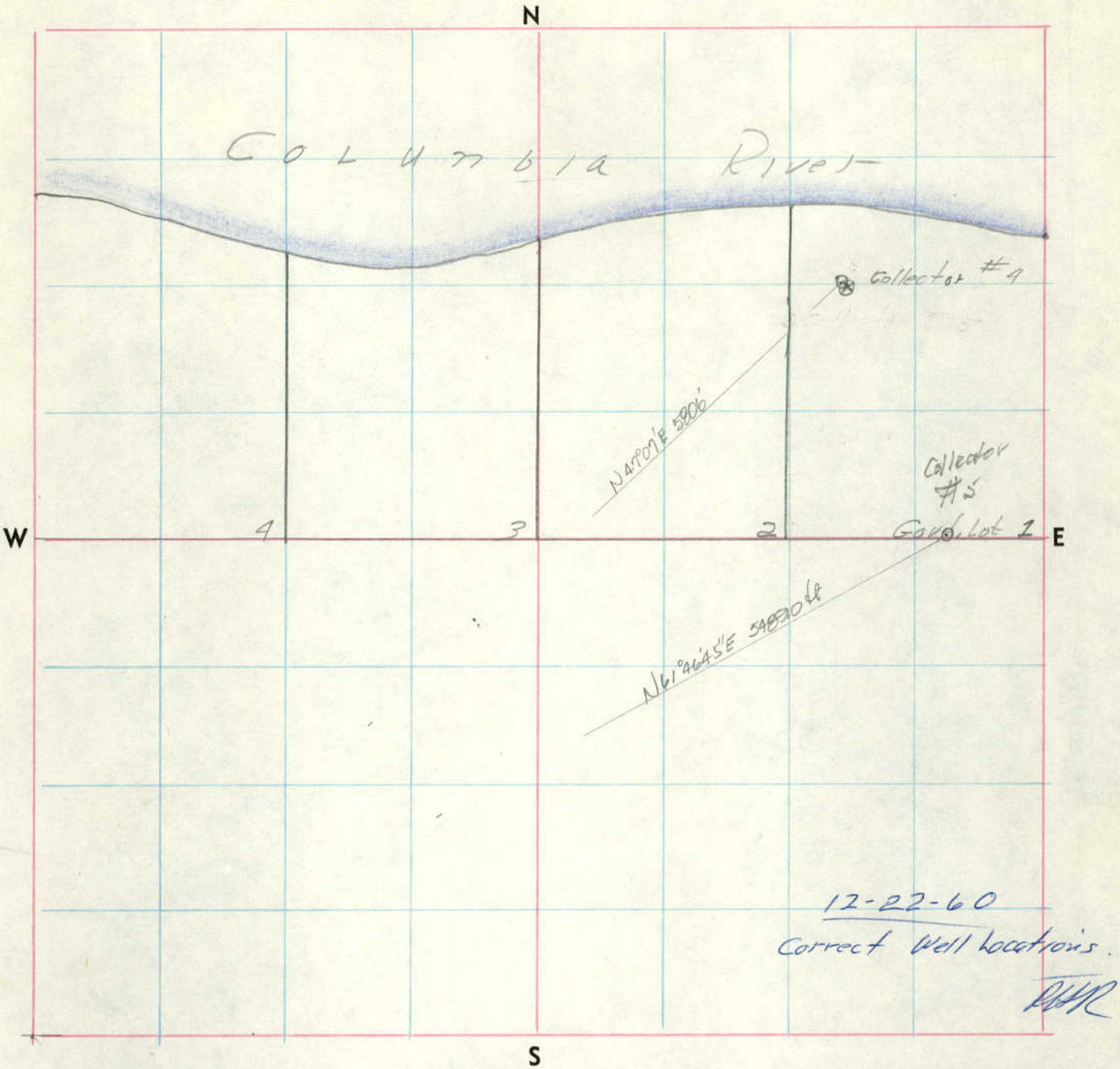
4539

PROPOSED HORIZONTAL WATER COLLECTORS ON CLOVER ISLAND, COLUMBIA RIVER AT KENNEWICK, WASHINGTON.
APPLICATION BY CITY OF KENNEWICK WASHINGTON FEB. 11, 1957 SH. # 2

S. F. No. 1854-B—3-56—10M. 44775.

SECTION PLAT

Sec. 35 **Twp.** 9 **N. R.** 29 E



Show by a cross (X) the location of the well or other works covered by the application. Show by circle (O) the locations of other wells or works within a quarter of a mile. Also indicate traveling directions from nearest town on main highway.

Scale: 1 inch = 800 feet.

4539

CITY OF KENNEWICK, WASHINGTON

xxx February 27, 1957

horizontal collectors

Government Lot 2

31 9 30 E. Benton

3400 xxxxxxxxxxxxxxxxxxxxxxxxxxxx

continuously municipal water

supply.

(date of last publication).

27th March 57.

M. G. WALKER

AMENDED
/

4539

CITY OF KENNEWICK, WASHINGTON

xx February 27, 1957

two horizontal collectors

Government Lots 1 and 2

35 9 29 E. Benton

13,500 xxxxxxxxxxxxxxxxxxxxxxxxxxxxx

continuously municipal water

supply.

28th December 60.

M. G. WALKER

RECEIVED
APR 29 1957
DEPARTMENT OF
CONSERVATION & DEVELOPMENT

OFFICE OF SUPERVISOR OF
WATER RESOURCES
OLYMPIA

NOTICE OF GROUND WATER RIGHT
APPLICATION NO. 4539
TAKE NOTICE:

That CITY OF KENNEWICK, WASHINGTON on February 27, 1957 filed application for permit to withdraw public ground waters through horizontal collectors situated within Government Lot 2 of Section 31, Township 9 N., Range 30 E. W. M., in Benton County, in the amount of 3400 gallons per minute, subject to existing rights continously, each year for the purpose of municipal water supply.

Any objections must be accompanied by a two dollar ($2.00) recording fee and filed with the State Supervisor of Water Resources within thirty (30) days from (date of last publication).

Witness my hand and official seal this 27th day of March, 1957.

M. G. WALKER
State Supervisor of Watar Recources

No. 1834 April 5, 12, 1957.

AFFIDAVIT OF PUBLICATION

STATE OF WASHINGTON)
)ss.
COUNTY OF Benton)

Bertha Mae Wright, being first duly sworn on oath deposes and says she is the principal clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Benton County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a true copy of a Notice of ground water right

as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, for a period of two (2) consecutive weeks, commencing on the 5th day of April 19 57, and ending on the 12th day of April, 19 57, and that said newspaper was regularly distributed to its subscribers during all of this period. That the full amount of $ 4.50 has been paid in full, also at the rate of $1. per col. in. per ins.

Bertha Mae Wright

Subscribed and sworn to before me this 19th day of April, 19 57

Ella C. Galbraith

Notary Public in and for the State of Washington, residing at Pasco

Permit 4372

RECEIVED
DEPARTMENT OF CONSERVATION

FEB 20 1961

A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

AFFIDAVIT OF PUBLICATION

STATE OF WASHINGTON)
)ss.
COUNTY OF Benton)

Bertha Mae Wright, being first duly sworn on oath deposes and says she is the principal clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Benton County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a true copy of a Notice of amended ground water right application No. 4539 Take Notice:

as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, for a period of two (2) consecutive weeks, commencing on the 6th day of January 1961, and ending on the 13th day of January, 1961, and that said newspaper was regularly distributed to its subscribers during all of this period. That the full amount of $5.00 has been paid in full, also at the rate of $1.00 per col in per ins.

Bertha Mae Wright

Subscribed and sworn to before me this 16th day of January, 1961

Notary Public in and for the State of Washington, residing at Pasco

STATE OF WASHINGTON
OFFICE OF SUPERVISOR OF
WATER RESOURCES
Olympia
NOTICE OF AMENDED GROUND WATER RIGHT APPLICATION NO 4539
TAKE NOTICE:

That CITY OF KENNEWICK, WASHINGTON on February 27, 1957 filed application for permit to withdraw public ground waters through two horizontal collectors situated within Government Lots 1 and 2 of Section 35, Township 9 N., Range 29 E. W.M., in Benton County, in the amount of 13,500 gallons per minute, subject to existing rights continuously, each year for the purpose of municipal water supply.

Any objections must be accompanied by a two dollar ($2.00) recording fee and filed with the State Supervisor of Water Resources within thirty (30) days from January 6, 1961.

Witness my hand and official seal this 28th day of December, 1960.

M. G. WALKER
State Supervisor of Water Resources.

No. 3227 Jan. 6, 13, 1961

Report of Examination on Ground Water

Received date 2-27-57 Date of exam. 9-12-57 Appli. No. 4539

Name City of Kennewick Address City Hall, Kennewick, Wash.

Type of works horizontal collectors ~~Dimensions~~ Horizontal "Ranney" type collectors, cassions for which will be 13' inside diameter and 45' depth.

Progress of works under construction

Quantity applied for 3400 g.p.m. 3300 acre-feet per year

Legal sub. Govt. Lot 2 / Sec. 31 Twp. 9 N. Rge. 30 E. County Benton

Use municipal water supply

Irrigation-acreage: Present Planned Feasible

Municipal: Population 25,000 as of 1960

Industrial

Time pump will be operated continuously

Other water rights appurtenant to this land

Proximity to existing works, springs, wells, or streams located on bank of Columbia River.

Diff. in elevation as shown on attached sheet 2 of 2, dated 2-11-57

Area Sub-area Zone

RECOMMENDATIONS

Approved for 3400 g.p.m. 3300 acre-feet per year, subject to existing water rights. (1 acre-foot 325,850 gallons.)

The system will be infiltrating water from the Columbia River. The applicant will furnish this office with a copy of constructors report showing the project as constructed. Issue as requested.

Signed this 30th day of October, 1957.

Robert H Russell

ROBERT H. RUSSELL, Asst. Supervisor
Division of Water Resources

AMENDED

Report of Examination on Ground Water

Received date 2-27-57 Date of exam. 9-12-57 Appli. No. 4539

Name City of Kennewick Address City Hall, Kennewick, Wash.

Type of works 2 horizontal collectors ~~Dimensions~~ Horizontal "Ranney" type collectors, cassions for which will be 13' inside diameter and 45' depth.

Progress of works under construction

Quantity applied for 13,500 g.p.m. 5600 acre-feet per year

Legal sub. Govt/ Lots 1 & 2 Sec. 35 Twp. 9 N. Rge. 29 E. County Benton

Use municipal water supply

Irrigation-acreage: Present Planned Feasible

Municipal: Population 25,000 as of 1960

Industrial

Time pump will be operated continuously

Other water rights appurtenant to this land

Proximity to existing works, springs, wells, or streams located on bank of Columbia River.

Diff. in elevation as shown on attached sheet 2 of 2, date 2-11-57

Area Sub-area Zone

RECOMMENDATIONS

Approved for 13,500 g.p.m. 5600 acre-feet per year, subject to existing water rights. (1 acre-foot 325,850 gallons.) The original permit was issued for construction of three horizontal collectors in Section 31, Township 9 N., Range 30 E. W. M. on Clover Island. However, they did not produce sufficient water so the locations were changed to Section 35, Township 9 N., Range 29 E. W. M. in Columbia Park where test drilling showed favorable sub-surface conditions. Two horizontal collectors at the new site produced a total of 13,500 g.p.m.

The water requirement for the City of Kennewick is based on a requirement of 200 gallons per day per person or a total annual requirement of 5600 acre-feet per year for a population of 25,000 persons.

Robert H. Russell

Signed this 21st day of March, 1961. ROBERT H. RUSSELL, Asst. Supervisor

Division of Water Resources

S. F. No. 7354—8-54—5M. 39179.

STATE OF WASHINGTON

DEPARTMENT OF CONSERVATION AND DEVELOPMENT

DIVISION OF WATER RESOURCES

Permit to Appropriate Public Ground Waters of the State of Washington

Book No. 9 of Ground Water Permits, on page 4372 under Application No. 4539

CITY OF KENNEWICK, WASHINGTON

~~of~~

is hereby granted a permit to appropriate the following described public ground waters of the State of Washington, subject to existing rights, and to the limitations and provisions set out herein.

Priority date of this permit is February 27, 1957

Source of the proposed ground water appropriation is 2 horizontal collectors

within ..... area, ... sub-area

..... zone. Name or number of works is .....

Quantity of water appropriated shall be limited to the amount which can be beneficially applied and not to exceed ~~3400~~ 13,500 gallons per minute; ~~3300~~ 5600 acre-feet per year, to be used for the following purposes: municipal water supply

as more definitely set out below.

(see attachment to Proof form for locations)

Location of the well, tunnel, or infiltration trench is ~~along north and east end of Clover Island~~ 1. 1150' N of SW Cor. Govt Lot 1 2. 1300' N & 350' E of SW Cor. Govt Lot 1

being within Government Lot ~~2~~ 1 & 2, sec. ~~31~~ 35, T.9 N., R. ~~30~~ 29 E.W.M.

county of Benton

Use, or uses to which water is to be applied:

For municipal supply: ~~3400~~ 13,500 gallons per minute; ~~3300~~ 5600 acre-feet per year, to supply the City of Kennewick

For irrigation: ..... gallons per minute; ..... acre-feet per year, for the irrigation of ..... acres.

For miscellaneous uses: ..... gallons per minute; ..... acre-feet per year, for .....

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

City of Kennewick, Benton County, Washington.

DESCRIPTION OF WORKS FROM WHICH WATER IS TO BE WITHDRAWN

The well will be ..... and have a diameter of ..... inches, and depth of ..... feet.
(Dug or drilled)

Horizontal "Ranney" type collectors, cassions for which will be 13 ft. inside diameter and 45 ft. depth.

Description of tunnel or infiltration trench:

(Please read carefully provisions below)

Particular specifications required by the Supervisor of Water Resources:

Construction work shall begin on or before Started

and shall thereafter be prosecuted with reasonable diligence and completed on or before

December 1, 1958 -12-1-59

and complete application of water to proposed use shall be made on or before

1960

December 1, 1959

Given under my hand and the seal of this office at Olympia, Washington, this 19th day of November, 1957.

M G Walker

State Supervisor of Water Resources

1/3

RETURN TO:
DIVISION OF WATER RESOURCES
335 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

S. F. No. 7356—4-57—5M. 48912.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 3 1957
A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W.....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started February 13, 1957

4. Date on which work was completed October 11, 1957

5. If work on well or other structure was abandoned, give date .....

and reason for abandonment .....

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 58 ft. Diameter 13' I.D. ~~inner~~ ft. Dug or drilled Dug

Flowing or pump well pump Water Temp. 65° (varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 15 feet

After continuous operation for 72 hours, the measured discharge of the pump is
(At least four)

4830 g.p.m., and the drawdown of water level is 31 feet
(Pumping level minus static water level)

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
NO RECOVERY DATA			

Date of test Sept. 19 to Sept. 22, 1957

IF FLOWING WELL: Measured discharge --- g.p.m. on ---
(Date)

Shut-in pressure at ground surface --- lbs. per sq. in. on ---
(Date)

Water is controlled by ---
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13' I.D., 16' O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

OK/DM

Perforated casing or screens:

10 horizontal laterals varying in length from 19 ft. to 61 ft., projected at depths of 47.5 and 52.5 below ground surface. Total length horizontal laterals 393 ft., slot size 3/8 X 2-1/2" with 52 slots per foot. from ..... to ..... ft.

(Number per foot and size of perforations, or describe screen)

from ..... to ..... ft.

from ..... to ..... ft.

from ..... to ..... ft.

from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Fill, sand and gravel	16'	16'
Sandy clay	8'	24'
Sand, gravel and boulders	28'	52'
Clay	6'	58'

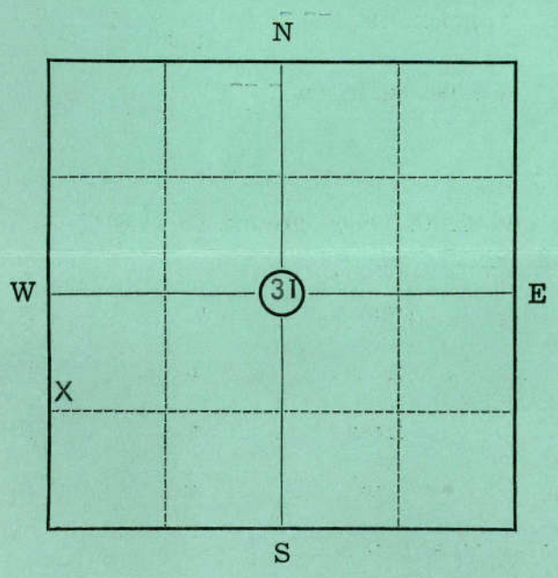
(b) INFILTRATION TRENCH OR TUNNEL: Type - -

Dimensions: - -

(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width - - ft. Discharge - - g.p.m. Date of test - -

Position of water bearing stratum with reference to portal of tunnel .....



Scale: 1" = 2000'

Sec. 31 Twp. 9N Rge. 30E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels

(Signature of well driller or other constructor)

Frederick C. Mikels, Vice President and Technical Director

2015 J St., Suite 30-Sacramento 14, California

Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

2/3

RETURN TO:
DIVISION OF WATER RESOURCES
335 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

S. F. No. 7356—4-57—5M. 48912.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 3 1957
A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W.....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick — Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started February 13, 1957

4. Date on which work was completed October 11, 1957

5. If work on well or other structure was abandoned, give date .....

and reason for abandonment .....

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 46 ft. Diameter 13' I.D. ~~in. or~~ ft. Dug or drilled dug

Flowing or pump well pump Water Temp. 65° (varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 14 feet

After continuous operation for 64 (At least four) hours, the measured discharge of the pump is 1160 g.p.m., and the drawdown of water level is 23 (Pumping level minus static water level) feet

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
	NO RECOVERY DATA		

Date of test September 19 to September 22, 1957

IF FLOWING WELL: Measured discharge -- g.p.m. on -- (Date)

Shut-in pressure at ground surface -- lbs. per sq. in. on -- (Date)

Water is controlled by -- (Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13' I.D., 16' O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

OK/DM

Perforated casing or screens:

8 horizontal laterals varying in length from 16' to ..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)
53' projected at depths of 42'. Total length horizontal ..... from ..... to ..... ft.
laterals 257', slot size 3/8 x 2-1/2" with 52 slots per ..... from ..... to ..... ft.
foot ..... from ..... to ..... ft.
..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

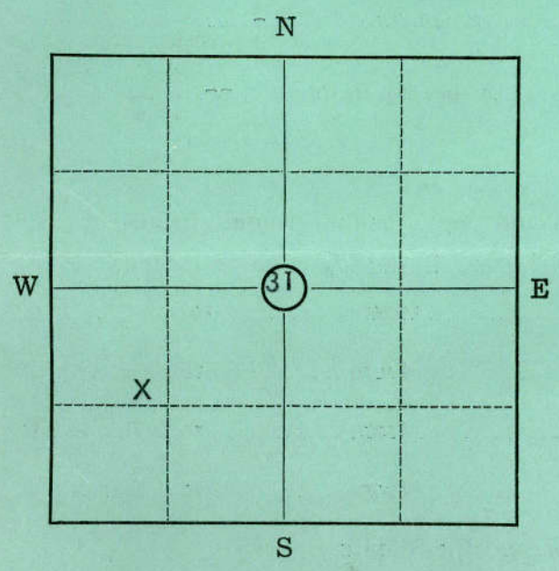
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Fill, gravel, boulders	13'	13'
Sand, Gravel	31'	44'
Clay	2'	46'

(b) INFILTRATION TRENCH OR TUNNEL: Type --

Dimensions: --
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width -- ft. Discharge -- g.p.m. Date of test --

Position of water bearing stratum with reference to portal of tunnel --



Scale: 1" = 2000'

Sec. 31 Twp. 9 N Rge. 30 E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels

Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J St., Suite 30-Sacramento 14, California

Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

RETURN TO:
DIVISION OF WATER RESOURCES
335 GENERAL ADMINISTRATION BLD
OLYMPIA, WASHINGTON

3/3

S. F. No. 7356—4-57—5M. 48912.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 3 1957
A. M. P. M.
7 8 9 10 11 12 1 2 3 4 5 6

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W.....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started February 13, 1957

4. Date on which work was completed October 11, 1957

5. If work on well or other structure was abandoned, give date .....
and reason for abandonment .....

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 47 ft. Diameter 13' I.D. in. or ft. Dug or drilled Dug

Flowing or pump well Pump Water Temp. 64°(varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 12.3' feet

After continuous operation for 69 hours, the measured discharge of the pump is
(At least four)

7470 g.p.m., and the drawdown of water level is 17 feet
(Pumping level minus static water level)

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
	NO RECOVERY DATA		

Date of test Sept. 19 to Sept. 22, 1957

IF FLOWING WELL: Measured discharge -- g.p.m. on --
(Date)

Shut-in pressure at ground surface -- lbs. per sq. in. on --
(Date)

Water is controlled by --
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13' I.D., 16' O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

OK/DM

Perforated casing or screens:

5 horizontal laterals varying in length from 32' to 85' from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)
projected at depths of 40'. Total length horizontal from ..... to ..... ft.
laterals 277 ft., slot size 3/8 x 2-1/2" with 52 slots from ..... to ..... ft.
per foot. from ..... to ..... ft.
..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

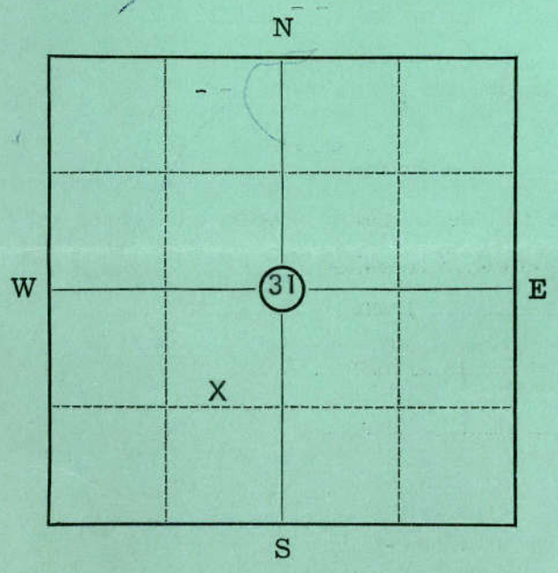
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Fill	16'	16'
Clay and gravel	16'	32'
Sand, gravel and boulders	15'	47'

(b) INFILTRATION TRENCH OR TUNNEL: Type --

Dimensions: --
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width -- ft. Discharge -- g.p.m. Date of test --

Position of water bearing stratum with reference to portal of tunnel .....



Scale: 1" = 2000'

Sec. 31 Twp. 9N Rge. 30E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels

Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J St., Suite 30-Sacramento 14, California
Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

Notice of Completion of Construction

RECEIVED
CONSERVATION
DEC 22 1958
A.M. P.M.

I, The City of Kennewick, the holder of Ground Water Permit No. 4372 issued by the State Supervisor of Water Resources of the State of Washington for the appropriation of ground waters withdrawn from a Horizontal "Ranney" type collector (Well, tunnel or infiltration trench), in accordance with the tenor of such permits and the limitations endorsed therein by the State Supervisor of Water Resources, have not completed the construction of the works described therein, on the xx day of xx, 19 xx

The ~~If~~ construction has not been abandoned: Date ..... Reason .....

Remarks: The first collector capacity was insufficient for the City's requirements and an additional collector in the immediate vicinity is still under design and construction.

A one year extension of time from Dec. 1, 1958 to Dec. 1, 1959 for completion of construction is requested for which the statutory fee of $2.00 is enclosed.

IN WITNESS WHEREOF, I have hereunto set my hand this 16 day of December, 1958

(Signature of applicant) City Engineer

Kennewick, Washington
(Present address)

S. F. No. 378—4-51—3M. 27804.

ext. 1yr RHR

Notice of Completion of Construction

I, Kennewick City Engineer, *the holder of Ground Water Permit No.* 4372 *issued by the State Supervisor of Hydraulics of the State of Washington for the appropriation of ground waters withdrawn from a* Horizontal Collector (Well, tunnel or infiltration trench), *in accordance with the tenor of such permit and the limitations endorsed therein by the State Supervisor of Hydraulics, have completed the construction of the works described therein, on the* 12th *day of* April, *19* 60

If construction has been abandoned: Date ..... *Reason* .....

Remarks: The water appropriated is used for the water supply of the City of Kennewick, Benton County, Washington

IN WITNESS WHEREOF, I have hereunto set my hand this 13 *day of* April, *19* 60

(Signature of applicant) City Engr

City Hall - Kennewick (Present address)

Work

S. F. No. 378—12-47—1M. 17237

December 19, 1960

Tim deJong, City Manager
P. O. Box 576
Kennewick, Washington

Dear Sir:

Re: Ground Water Permit No. 4372 and
Certificate No. 1805

Receipt is acknowledged of your letter of December 13 containing proof of appropriation and vouchers to be signed for obtaining necessary filing and recording fees. Also acknowledged is an addendum to the proof of appropriation pointing out that two additional horizontal collectors were constructed at a location in Columbia Park along the south bank of the Columbia River.

Our record now shows that the city has constructed three collectors on Clover Island and two collectors along the south bank of the Columbia River in Columbia Park from which a total of 13,500 gallons of water per minute are pumped. Of this amount, 4,950 gallons per minute are authorized under Certificate 1805 from wells located on Clover Island.

Permit No. 4372 authorizes the appropriation of 3400 gallons per minute from horizontal collectors in Govt. Lot 2, Sec. 31, T. 9 N., R. 30 E. which also places those wells on Clover Island.

Your letter of December 13 points out that insufficient water was obtained on Clover Island and that two Ranney-type collectors were constructed in Columbia Park. We are wondering just how much of the total 13,500 gallons per minute was obtained from each of the well sites.

As previously pointed out, the two above numbered water rights authorize a total withdrawal of 8,350 gallons per minute; whereas, you have installed for a capacity of 13,500 gallons per minute. It will, therefore, be necessary to publish an amended notice to include the additional rate of withdrawal.

Upon receipt of the information requested about the yield of each collector, we will prepare an amended notice for publication. The vouchers for

payment of the recording fees are returned and will be requested later after the permit has been brought up to date.

Yours very truly,

DEPARTMENT OF CONSERVATION
EARL COE, DIRECTOR

ROBERT H. RUSSELL, Asst. Supervisor
Division of Water Resources

RHR:asr
Enclosures

4372

CITY OF KENNEWICK

P. O. BOX 576 | 220 WEST KENNEWICK AVENUE | PHONE JUstice 6-6101—02

KENNEWICK, WASHINGTON

December 21, 1960

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 22 1960
A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

Mr. Robert H. Russell
Assistant Supervisor
Division of Water Resources
Olympia, Washington

Dear Mr. Russell:

In answer to your letter as of December 19, 1960, regarding water appropriation for Ranney type collectors in Clover Island and in Columbia Park, the following quantities are the capacity for each collector:

#1 - 2,000	G.P.M.	- Clover Island	
#2 - 350	"	"	"
#3 - 900	"	"	"
#4 - 2,500	"	- Columbia Park	
#5 -11,000	"	"	"

The request for the appropriation covered the two collectors in Columbia Park.

Thank you for your interest.

Very truly yours,

TdeJ/peb

Tim deJong
City Engineer

Ammended Notice.
13,500 gpm, 21,600 Af.
Two Horizontal Collectors within Govt. lots. 1 & 2
Sec. 35, Twp 9N, Rge. 29EWM.
Add Exam. Fee. 13,500 gpm @ $200 for Each. 450 gpm - = $60.00
16.00
Received
Add. Exam. Fee Due = $44.00
add. permit fee will be requested later

December 28, 1960

Tim deJong, City Engineer
City of Kennewick
P. O. Box 576
Kennewick, Washington

Dear Sir:

Re: Ground Water Permit No. 4372

Thank you for your letter of December 21 clarifying the amount of water being pumped from each collector.

In checking the above numbered permit and certificate of water right 1805, I find that there have been some changes that need to be clarified to bring the City's water rights in line with actual development.

From your letter of December 21 it is clear that the three wells constructed on Clover Island are covered by Certificate No. 1805 and that the present permit No. 4372 should cover the two collectors, numbers 4 and 5, in Columbia Park. Also, it will be necessary to publish an amended notice to show the correct location of wells number 4 and 5 and pay additional examination and permit fees to cover the increased withdrawal as follows:

Permit No. 4372	
13,500 gpm at $2 per 450 gpm or part thereof.	$60
Examination fee received.	16
Additional examination fee due.	$44

We are enclosing an amended notice for publication which should be published one day each week for two consecutive weeks in a paper of general circulation published in Benton County. After the second publication, kindly return the affidavit for our file.

After the 30-day expiration period we will request the additional permit fee and your copy of the permit so that it can be amended to show the increased rate of withdrawal and the amended well locations.

Yours very truly,

DEPARTMENT OF CONSERVATION
EARL COE, DIRECTOR

ROBERT H. RUSSELL, Asst. Supervisor
Division of Water Resources

RHR:asr
Enclosure

RETURN TO:
DIVISION OF WATER RESOURCES
GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

RECEIVED
DEPARTMENT OF CONSERVATION
JAN 1961
8 9 10 11 12 1 2 3 4 5 6 P.M.

S. F. No. 7356—4-57—5M. 48912.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. 4372

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector No. 4
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started March, 1959

4. Date on which work was completed June, 1959

5. If work on well or other structure was abandoned, give date —

and reason for abandonment —

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 43.5 ft. Diameter 13' ID in. or ft. Dug or drilled dug

Flowing or pump well pump Water Temp. 57°F. (varies with river temperature)

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 4.0 feet

After continuous operation for 72 (At least four) hours, the measured discharge of the pump is 2125 g.p.m., and the drawdown of water level is 31.0 (Pumping level minus static water level) feet

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
	NO RECOVERY DATA		

Date of test

IF FLOWING WELL: Measured discharge — g.p.m. on — (Date)

Shut-in pressure at ground surface — lbs. per sq. in. on — (Date)

Water is controlled by — (Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13 foot I.D., 16 foot O.D., reinforced concrete caisson

in. diameter from to ft.

in. diameter from to ft.

in. diameter from to ft.

in. diameter from to ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

04 RMR

Perforated casing or screens:

8 horizontal laterals varying in length from ..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)
18 feet to 57 feet, projected at a depth of 39 feet ..... from ..... to ..... ft.
below ground surface. Total length of horizontal ..... from ..... to ..... ft.
laterals 301.5 feet, slot size 3/8"x2" with 50 slots ..... from ..... to ..... ft.
per foot ..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

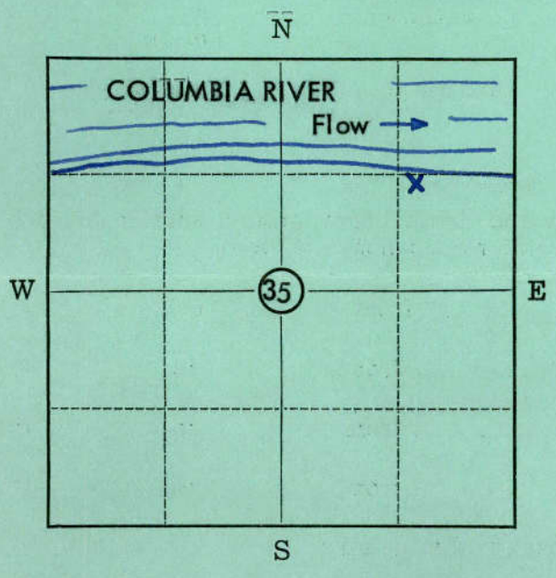
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Top soil, mud, and silt	15	15
Boulders and silt	6	21
Dirty sand and gravel	7	28
Clean coarse sand and gravel	6	34
Fine sand, medium gravel	5	39
Very fine sand, fine gravel	5	44
Very fine sand, fine gravel, clay balls	1.5	45.5
Clay		45.5

(b) INFILTRATION TRENCH OR TUNNEL: Type —

Dimensions: —
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width — ft. Discharge — g.p.m. Date of test —

Position of water bearing stratum with reference to portal of tunnel —



Scale: 1" = 2000'

Sec. 35 Twp. 9N Rge. 29E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels
Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J Street, Suite 30 -- Sacramento 14, California
Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

RETURN TO:
DIVISION OF WATER RESOURCES
35 GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

S. F. No. 7356—4-57—5M. 48912.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. .....

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. City of Kennewick Kennewick, Washington
(Name and address of owner of well or other works for withdrawal of water)

2. Type; name or number of works where water is taken Ranney Collector No. 5
(Well, tunnel or infiltration trench)

3. Date on which work on well or other structure was started September, 1960

4. Date on which work was completed November, 1960

5. If work on well or other structure was abandoned, give date —

and reason for abandonment —

6. DESCRIPTION OF WORKS:

(a) WELL: Depth 44 ft. Diameter 13' I.D. in. or ft. Dug or drilled dug

Flowing or pump well pump Water Temp. 61°F.

IF PUMP WELL: Type and size of pump is installed by others

Type and size of motor or engine is installed by others

Depth from ground surface to water level before pumping 12.4 feet

After continuous operation for 113 hours, the measured discharge of the pump is
(At least four)

7060 g.p.m., and the drawdown of water level is 9.0 feet
(Pumping level minus static water level)

Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	*Water Level*	*Time*	*Water Level*
0	22.7	8 hours	15.0
1/2 hr.	17.0	24 hours	14.5
1 hour	16.5	48 hours	14.1
4 hours	15.5	96 hours	13.8

Date of test —

IF FLOWING WELL: Measured discharge — g.p.m. on —
(Date)

Shut-in pressure at ground surface — lbs. per sq. in. on —
(Date)

Water is controlled by —
(Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.) 13 feet I.D., 16 foot O.D., reinforced concrete caisson

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

..... in. diameter ..... from ..... to ..... ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

04
DWR

Perforated casing or screens:

7 horizontal laterals varying in length from 50 feet to ..... from ..... to ..... ft.
(Number per foot and size of perforations, or describe screen)

63 feet, projected at a depth of 39 feet below ground sur- from ..... to ..... ft.

face. Total length of horizontal laterals 390 feet, ... from ..... to ..... ft.

slot size 3/8" x 2" with 60 slots per foot ..... from ..... to ..... ft.

..... from ..... to ..... ft.

LOG OF WELL OR TUNNEL: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

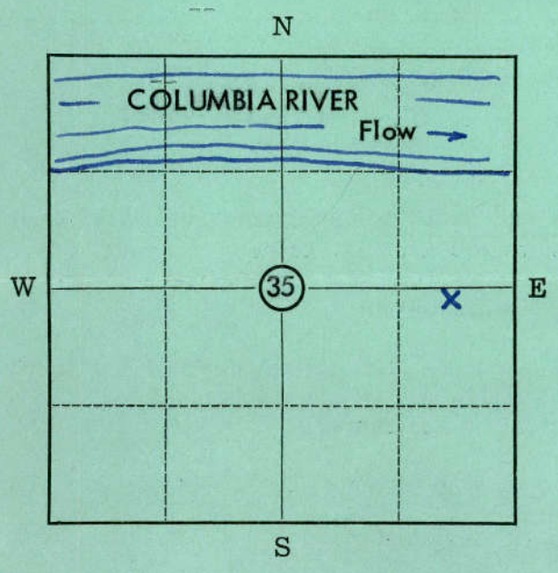
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
Silt and boulders	20	20
Clean sand and gravel	26	46
Clay		46

(b) INFILTRATION TRENCH OR TUNNEL: Type ---

Dimensions: ---
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width --- ft. Discharge --- g.p.m. Date of test ---

Position of water bearing stratum with reference to portal of tunnel ---



Scale: 1" = 2000'

Sec. 35 Twp. 9N Rge. 29E

Show approximate location of well or other works with (X) on section plat at left.

RANNEY METHOD WESTERN CORPORATION

Frederick C. Mikels
Signature of well driller or other constructor

Frederick C. Mikels, Vice President and Technical Director

2015 J Street, Suite 30-Sacramento 14, California
Address

STATE PRINTING PLANT OLYMPIA, WASH., 1957

S. F. No. 7355—7-57—5M. 49757. O.S.

RECEIVED
DEPARTMENT OF CONSERVATION
DEC 15 1960
A. M. 7 8 9 10 11 12 1 2 3 4 5 6 P. M.

Proof of Appropriation of Water

Application No. 4539 Permit No. 4372

1. Name of Permittee City of Kennewick
2. Postoffice address City Hall, Kennewick, Washington
3. Source of appropriation Horizontal collector
4. Name or number of works (if any) 5 horizontal collectors
5. For what purpose or purposes is water used? Municipal water supply
6. Give date of beginning of construction February 27, 1957
7. Give date of completion of construction work, including water distribution system December 6, 1960
8. Give date when water was completely applied to proposed use within 1 year
9. If used for irrigation:

   Give number of acres described in permit

   Give number of acres actually irrigated
10. If used for power: HP actually developed
11. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED:

    City of Kennewick, Benton County, Washington

12. During what months is water used? Continually
13. Does map filed with your application show correctly the location of well or point of diversion for withdrawal of water, and area of land where water is used? See attached sheet
14. If the dimensions, location or type of structure do not correspond to those described in your permit, state what changes have been made, giving dimensions, etc. See attached sheet
15. Actual measured discharge or diversion of permanent system: 13,500 (gpm or cfs)

OK ~~when amended notice~~ ~~is received~~
OK. E.T.W.

(Sign certification on reverse side)

STATE PRINTING PLANT OLYMPIA, WASHINGTON

STATE OF WASHINGTON,
County of Benton } ss.

I, Tim de Jong, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 14 day of Dec, 1960

Tim de Jong

Subscribed and sworn to before me this 14 day of December, 1960

Virginia A. Miller
Notary Public.

PROOF OF APPROPRIATION OF WATER

Answers to questions #13 and 14:

The original application for a potable water source was Clover Island in Kennewick. The collectors constructed at this source did not supply sufficient water to meet the demands for the City of Kennewick. Thereafter a search for additional water bearing strata under the Columbia River lead to two locations described as follows:

a. Collector No. 4
At a point in Columbia Park, along the south shore of the Columbia River being N 47° 07' E a distance of 5806.46 feet from the N.W. corner of Section 2 T8NR29 E.W.M.

b. Collector No. 5
At a point in Columbia Park being N61° 46' 45" E a distance of 5489.0 feet from the northwest oorner of Section 2 T8NR29 E.W.M.

STATE OF WASHINGTON

Department of Conservation

EARL COE, DIRECTOR

335 GENERAL ADMINISTRATION BUILDING

OLYMPIA

ALBERT D. ROSELLINI
GOVERNOR

DIVISIONS:

RECLAMATION
FLOOD CONTROL
WATER RESOURCES
MINES AND GEOLOGY
COLUMBIA BASIN PROJECT
POWER RESOURCES
WEATHER MODIFICATION

May 10, 1961

Auditor of Benton County
Prosser, Washington

Dear Sir:

Enclosed is Certificate of Water Right No. 3897-A and a check or money order in the amount of $ 2.00 to cover the cost of recording in your office.

When this has been done, please forward the certificate to:

Tim de Jong, City Engineer
P.O. Box 576
Kennewick, Washington

Very truly yours,

DEPARTMENT OF CONSERVATION

EARL COE, DIRECTOR

MGWalker

M. G. WALKER, Supervisor
Division of Water Resources

MGW:mb
Enc.

WATER RIGHTS

S4-25479C

MEMORANDUM

Date: July 8, 2016

To: Water Right Certificate **S4-25479C** File

From: Thomas Perkow, Water Resources Program

RE: Ministerial error for the metes and bounds description given for the Point of Diversion (POD) location.

On July 6, 2016, I received an email from Andy Dunn of RH2 Engineering, Inc. regarding a discrepancy in the POD location given for Surface Water Right Certificate S4-25479C. The metes and bounds description given in the Certificate was inconsistent with the legal description given as the SE¼ of Section 31, T. 9 N., R. 30 E.W.M. The metes and bounds description placed the POD in the SW¼ of said Section. Andy indicated that the legal description was accurate and that the metes and bounds description was in error. Andy's client is the water right holder, the City of Kennewick, and Andy requested that a correction be made to the record.

On July 7, 2016, I went through the documents that Andy included with his email (the subject Certificate and an aerial photograph showing said Section 31, the SE¼ of said Section 31, and the metes and bounds point location), the imaged documents in the WRTS database, and the microfiche file. I found that (1) a change in POD was requested while in the application stage, which describes the existing, accurate legal description; (2) the erroneous metes and bounds location shows up originally on the Report of Examination (ROE) and carried through to Permit and Certificate; (3) no Proof of Examination was conducted for this Certificate; (4) no justification for the metes and bounds description could be located in the reviewed documents; and (5) the more broad legal description that also is entered in the ROE, Permit and Certificate is consistent with the change request and was properly publically noticed.

On July 8, 2016, at the manager's meeting, we discussed Andy's request and my findings. It was agreed that it appears a ministerial error had been made in the metes and bounds description and that a memo to the file would be the appropriate means to address the error.

Thomas Perkow, Water Resources Program

file

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

[X] Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

[ ] Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
April 10, 1977	S4-25479	S4-25479P	S4-25479C

NAME
CITY OF KENNEWICK

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 6108	Kennewick,	Washington	99336

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
Columbia River

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
55.7		15,680

QUANTITY, TYPE OF USE, PERIOD OF USE
To be used continuously for a municipal supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION-WITHDRAWAL
700 feet east and 700 feet north of the southwest corner of Sec. 31.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼	31	9	30 E.	31	Benton

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kennewick.

PROVISIONS

"A total of 10,400 acre-feet per year has been granted under previous certificate; therefore, 5280 acre-feet per year of the total allowed under this certificate will be a primary right; 10,400 acre-feet per year will be a supplemental supply and may be used in conjunction with, or as an alternate supply, to the existing rights so long as the total annual quantity from all sources does not exceed 15,680 acre-feet per year."

"Screening of the intake structure shall be in accordance with the Departments of Fisheries and Game specifications."

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at **Yakima,** *Washington, this* **28th** *day of* **December**, *19* **82**

Department of Ecology

ENGINEERING DATA

OK

by RUSSELL K. TAYLOR, REGIONAL MANAGER

FOR COUNTY USE ONLY

NOV 15 1982

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER: S4-25479

PERMIT NUMBER: S4-25479P

NAME OF PERMITTEE: City of Kennewick

POST OFFICE ADDRESS: PO Box 6108 (CITY) Kennewick (STATE) Washington (ZIP CODE) 99336

ACTUAL SOURCE OF APPROPRIATION: Columbia River

PURPOSE OR PURPOSES WATER IS USED FOR: Municipal Supply

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE: 7-80

IF USED FOR IRRIGATION NUMBER OF ACRES ACTUALLY IRRIGATED: Area served by City of Kennewick

IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED: ☐ YES ☐ NO

MONTHS DURING WHICH WATER IS USED: Entire year

PUMP SIZE: 5200 gpm

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM: 55.7 ☐ GPM ☒ CFS

HAVE ALL PROVISIONS AS REQUIRED BY PERMIT BEEN ACCOMPLISHED: ☒ YES ☐ NO

IF NO, EXPLAIN:

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

Area served by City of Kennewick

Accept PA
Receipt fee
Issue cert for
permit
AW
11-29-82

STATE OF WASHINGTON,
County of [illegible] } ss.

I, Miles L. Cross, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of November, 1982.

Miles L. Cross
Permittee Signature

Subscribed and sworn to before me this 2nd day of November, 1982.

Eileen Baker Jr.
Notary Public

ECY 0040-1-26

P/A

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☒ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☐ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
April 10, 1977	84-25479	84-25479P	

NAME
CITY OF KENNEWICK

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 6108	Kennewick,	Washington	99336

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
Columbia River

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
55.7		15,680

QUANTITY, TYPE OF USE, PERIOD OF USE
To be used continuously for a municipal supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION WITHDRAWAL
700 feet east and 700 feet north of the southwest corner of Sec. 31.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼	31	9	30 E.	31	Benton

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kennewick.

DESCRIPTION OF PROPOSED WORKS

Water filter plant will consist of two (2) 42" dia. intake pipes in the Columbia River, pump station, filter beds, backwash facilities and small amount of transmission lines.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
October 1, 1979	October 1, 1982	October 1, 1983

PROVISIONS

"A total of 10,400 acre-feet per year has been granted under previous certificate; therefore, 5280 acre-feet per year of the total allowed under this permit will be a primary right; 10,400 acre-feet per year will be a supplemental supply and may be used in conjunction with, or as an alternate supply, to the existing rights so long as the total annual quantity from all sources does not exceed 15,680 acre-feet per year."

"Screening of the intake structure shall be in accordance with the Departments of Fisheries and Game specifications."

"Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971."

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Yakima, *Washington, this* 5th *day of* December, *19* 78

Department of Ecology

ENGINEERING DATA
OK

by Russell K. Taylor

Russell K. Taylor, Regional Manager

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

(AMENDED) REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

[XX] Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

[ ] Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
April 10, 1977	84-25479		

NAME
CITY OF KENNEWICK

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 6108	Kennewick,	Washington	99336

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Columbia River

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
55.7		15,680

QUANTITY, TYPE OF USE, PERIOD OF USE
To be used continuously for a municipal supply.

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700 feet east and 700 feet north of the southwest corner of Sec. 31.

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SW¼	31	9	30 E.	31	Benton

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kennewick.

DESCRIPTION OF PROPOSED WORKS

Water filter plant will consist of two (2) 42" dia. intake pipes in the Columbia River, pump station; filter beds, backwash facilities and small amount of transmission lines.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
October 1, 1979	October 1, 1982	October 1, 1983

PROVISIONS

The field examination of your application was performed on September 27, 1978, by Marsha Beery of the Central Washington Region.

The following quantities and provisions are recommended for approval:

The requested instantaneous quantity of 55.7 cubic feet per second is recommended for approval for the purpose of continuous municipal supply.

According to the records of this office, the established water rights for the 5 collectors presently serving the City of Kennewick are as follows:

Cert. No.	G.P.M.	Af./Yr.
1805-A	4950	4800
3897-A	13,500	5600
	18,450	10,400

The total water consumption for commercial and domestic supply in 1976 was 355,300,900 cubic feet of water or 2,664,756,750 gallons. Assuming that the greater Kennewick area will have a population increase of 312% or total population by the year 2000 of 70,000 requiring 200 gallons per day per capita, a projected total annual withdrawal of 15,680 acre-feet per year will be required.

"A total of 10,400 acre-feet per year has been granted under previous certificate; therefore, 5280 acre-feet per year of the total allowed under this permit will be a primary right; 10,400 acre-feet per year will be a supplemental supply and may be used in conjunction with, or as an alternate supply, to the existing rights so long as the total annual quantity from all sources does not exceed 15,680 acre-feet per year."

"Screening of the intake structure shall be in accordance with the Departments of Fisheries and Game specifications."

The annual quantity of 5280 acre-feet per year granted as a primary right in this permit is considered to be a portion of the amount reserved by the adoption of the John Day/McNary Basin Plan, WAC 173-531.

Use of the waters to be appropriated under this application will be for a public water supply. State Board of Health rules require every owner of a public water supply to obtain written approval from the Assistant Secretary, Division of Health, prior to any new construction or alterations of a public water supply. The applicant is advised to contact the Washington State Division of Health, Public Health Building No. 4, Thurston Airdustrial Center, Olympia, with regard to the need for compliance.

Applicant is advised that the issuance of permit by this Department for appropriation of the waters in question does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtainment of such right is a private matter between applicant and owner of that land.

Applicant is advised that notice of proof of appropriation of water (under which final certificate of water right issues) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

(Continued)

CITY OF KENNEWICK S4-25479

Provisions Continued:

Additionally, the permit, when issued, shall carry the following provision: "Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971."

It is noted that the construction of the facilities for the appropriation of water under the application will require removal of material from or adjacent to a stream channel or watercourse. Applicant is, therefore, advised that a Hydraulic Approval should be obtained from the Departments of Fisheries and Game prior to commencing work.

Signed at Yakima, Washington
this 20th day of November, 1978.

Marsha Beery
MARSHA BEERY
Resource Management Division
Department of Ecology

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

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April 10, 1977	84-25479		

NAME
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ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 6108	Kennewick,	Washington	99336

PUBLIC WATERS TO BE APPROPRIATED

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Columbia River

TRIBUTARY OF (IF SURFACE WATERS)

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SE¼	31	9	30 E.	31	Benton

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Kennewick.

DESCRIPTION OF PROPOSED WORKS

Water filter plant will consist of a 72" dia. intake pipe in the Columbia River, pump station, filter beds, backwash facilities and small amount of transmission lines.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
October 1, 1979	October 1, 1982	October 1, 1983

PROVISIONS

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A total of 10,400 acre-feet per year has been granted under previous certificate; therefore, 5280 acre-feet per year of the total allowed under this permit will be a primary right; 10,400 acre-feet per year will be a supplemental supply to existing rights. The total annual withdrawal shall not exceed 15,680 acre-feet per year.

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The annual quantity of 5280 acre-feet per year granted as a primary right in this permit is considered to be a portion of the amount reserved by the adoption of the John Day/McNary Basin Plan, WAC 173-531.

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Applicant is advised that the issuance of permit by this Department for appropriation of the waters in question does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtainment of such right is a private matter between applicant and owner of that land.

Applicant is advised that notice of proof of appropriation of water (under which final certificate of water right issues) should not be filed until the permanent diversion facilities have been installed together with a mainline system capable of delivering the recommended quantity of water to an existing or proposed distribution system within the area to be served.

(Continued)

CITY OF KENNEWICK S4-24479

PROVISIONS CONTINUED:

Additionally, the permit, when issued, shall carry the following provision: "Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971."

It is noted that the construction of the facilities for the appropriation of water under the application will require removal of material from or adjacent to a stream channel or watercourse. Applicant is, therefore, advised that a Hydraulic Approval should be obtained from the Departments of Fisheries and Game prior to commencing work.

Signed at Yakima, Washington
this 3rd day of November, 1978.

Marsha Beery
MARSHA BEERY
Resource Management Division
Department of Ecology

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RECEIVED

MAR 28 1978

STATE OF WASHINGTON
DEPT. OF ECOLOGY
2802 MAIN ST.
UNION GAP ,WA 98903

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Accepted By ...
Date ...

Is Field Exam. Required?
☐ YES ☒ NO
Determined By ...

APPLICATION FOR CHANGE OF WATER RIGHT

☐ PURPOSE ☒ DIVERSION OR WITHDRAWAL
☐ PLACE ☐ ADDITIONAL POINT OR POINTS

NAME	TELEPHONE NUMBER
CITY OF KENNEWICK	586-4181

ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 6108	Kennewick	Washington	99336

APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
S4-25479		

☐ YES ☐ NO

1. RIGHT CONSISTS OF

Columbia River	55.7 cubic feet per second
Municipal Supply	Continuously

2. LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL

... FEET	☐ NORTH ☐ SOUTH	... FEET	☐ EAST ☐ WEST	FROM THE	☐ NORTHWEST ☐ SOUTHWEST	☐ NORTHEAST ☐ SOUTHEAST	CORNER OF

NW¼NW¼

SECTION	TOWNSHIP	RANGE	COUNTY
36	9	29 E.	Benton

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

		OF THE NAME OF PLAT OR ADDITION

3. LEGAL DESCRIPTION OF LANDS WATER IS USED ON (From Original Water Right)

Service area of the City of Kennewick.

SECTION	TOWNSHIP	RANGE E. OR W. W.M.	COUNTY

ATTACH SEPARATE SHEET IF NECESSARY

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS	IF NO, EXPLAIN YOUR INTEREST
☒ YES ☐ NO	

REASONS FOR THE PROPOSED CHANGE

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

ECY 070-21(1)

CONTINUE ON REVERSE SIDE

CHANGE

4. **CHANGE REQUESTED**

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
		55.7 cubic feet per second

5. **LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL**

NUMBER OF FEET	☐ NORTH ☐ SOUTH	NUMBER OF FEET	☐ EAST ☐ WEST	FROM THE	☐ NORTHWEST ☐ SOUTHWEST	☐ NORTHEAST ☐ SOUTHEAST	CORNER OF

SMALLEST LEGAL SUBDIVISION
SE¼

SECTION	TOWNSHIP N.	RANGE, E. OR W. W.M.	COUNTY
31	9	30 E.	Benton

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF GIVE NAME OF PLAT OR ADDITION

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED
☐ YES ☐ NO

6. **LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON**

Same

[illegible]	[illegible]	[illegible]	[illegible]

ATTACH A SEPARATE SHEET IF NECESSARY

ARE YOU THE OWNER OF THE [illegible] RIGHT [illegible]	IF NOT EXPLAIN YOUR INTEREST
☐ YES ☐ NO	

Such change can be made without detriment or injury to existing rights or the state's interest in water as provided in RCW 90.44.100 or RCW 90.03.380

STATE OF WASHINGTON
County of Benton } ss.

I Joseph W. Painter, being first duly sworn, depose and say that I have read the above application for change of a water right, that I know the contents thereof, and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd day of March 1978.

Joseph W. Painter
Joseph W. Painter,
Kennewick City Manager
Applicant(s) Petitioner

Subscribed and sworn to before me this 23rd day of March 1978.

Shirley S. Gross
Notary Public in and for the State of Washington,
residing at Kennewick.

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

ECY 070-21 (2)

STATE OF WASHINGTON
DEPT. OF ECOLOGY
2802 MAIN ST.
UNION GAP ,WA 98903

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Accepted By .....
Date .....

Is Field Exam. Required?
☐ YES ☐ NO
Determined By .....

APPLICATION FOR CHANGE OF WATER RIGHT

☐ PURPOSE ☒ DIVERSION OR WITHDRAWAL
☐ PLACE ☐ ADDITIONAL POINT OR POINTS

NAME: City of Pomeroy | TELEPHONE NUMBER: 556-4151
ADDRESS: Pomeroy | CITY: Pomeroy | STATE: Wash. | ZIP CODE: 99336
[illegible] | [illegible] | CERTIFICATE NUMBER

☐ YES ☐ NO

1. RIGHT CONSISTS OF

Columbia River | [illegible] cfs
Municipal Supply | Continuity

2. LOCATION OF PRESENT POINT OF DIVERSION OR WITHDRAWAL

☐ NORTH ☐ SOUTH ☐ EAST ☐ WEST FROM THE ☐ NORTHWEST ☐ SOUTHWEST ☐ NORTHEAST ☐ SOUTHEAST CORNER OF

NE ¼ [illegible]

[illegible] | [illegible] | [illegible] | [illegible]

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

3. LEGAL DESCRIPTION OF LANDS WATER IS USED ON (From Original Water Right)

Service area of the City of Pomeroy

SECTION | TOWNSHIP N. | RANGE E. OR W. W.M. | COUNTY

ATTACH SEPARATE SHEET IF NECESSARY

ARE YOU THE LEGAL OWNER OF THE ABOVE DESCRIBED LANDS
☒ YES ☐ NO

IF NO, EXPLAIN YOUR INTEREST

REASON FOR THE PROPOSED CHANGE

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

ECY 070-21 (1)

CONTINUE ON REVERSE SIDE

CHANGE

4. **CHANGE REQUESTED**

CHANGE WATER USE TO	TIME OF USE	GALLONS PER MINUTE OR CUBIC FEET PER SECOND
		5.5.1

5. **LOCATION OF PROPOSED POINT OF DIVERSION OR WITHDRAWAL**

NUMBER OF FEET	☐ NORTH ☐ SOUTH	NUMBER OF FEET	☐ EAST ☐ WEST	FROM THE	☐ NORTHWEST ☐ SOUTHWEST	☐ NORTHEAST ☐ SOUTHEAST	CORNER OF

SMALLEST LEGAL SUBDIVISION

31 1/4

SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
31	2	36	[illegible]

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION

LOT	BLOCK	OF GIVE NAME OF PLAT OR ADDITION

ARE YOU THE OWNER OF THE LAND ON WHICH THE PROPOSED POINT OF DIVERSION OR WITHDRAWAL IS TO BE LOCATED

☐ YES ☐ NO

6. **LEGAL DESCRIPTION OF LANDS WATER IS TO BE USED ON**

[illegible]	[illegible]	[illegible]	[illegible]

ATTACH A SEPARATE SHEET IF NECESSARY.

[illegible] ☐ YES ☐ NO	[illegible]

Such change can be made without detriment or injury to existing rights or the state's interest in water as provided in RCW 90.44.100 or RCW 90.03.380

STATE OF WASHINGTON }
County of ..... } ss.

I ..... being first duly sworn, depose and say that I have read the above application for change of a water right, that I know the contents thereof, and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this ..... day of ..... 19 ....

.....
Applicant(s) Permittee

Subscribed and sworn to before me this ..... day of ..... 19 ....

.....
Notary Public

A MINIMUM FEE OF $10.00 MUST ACCOMPANY THIS APPLICATION

ECY 070-21(2)

State of Washington
Department of Ecology

APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☒ SURFACE WATER ☐ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
S 425479	37	Benton	4/1/77	1:52	OK

APPLICANTS NAME: City of Kennewick

BUSINESS TEL: (509)586-4181
HOME TEL:

ADDRESS (STREET): P. O. Box 6108 (CITY): Kennewick, (STATE): Washington (ZIP CODE): 99336

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION: Feb. 5, 1904 - Kennewick, WA.

1. SOURCE OF SUPPLY

IF SURFACE WATER

SOURCE (NAME OF STREAM LAKE SPRING ETC.) (IF UNNAMED SO STATE): Columbia River

TRIBUTARY:

IF GROUND WATER

SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.):

SIZE AND DEPTH:

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.): Municipal Supply

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF: CUBIC FEET PER SECOND (CFS): 7 OR GALLONS PER MINUTE (GPM): 25,000 ACRE FEET PER YEAR: 35 MGD

TIMES DURING YEAR WATER WILL BE REQUIRED: Will be required at all times but quantity will vary due to seasonal requirements.

IF IRRIGATION NUMBER OF ACRES:

IF DOMESTIC USE NUMBER OF UNITS BY TYPE E.G. 1 HOME, 1 MOBILE HOME, 2 CAMPSITES ETC.: 17,000 homes + commercial business

IF MUNICIPAL USE ESTIMATED POPULATION 20 YEARS FROM TODAY: ~~54,900~~ 70,000

DATE PROJECT WAS OR WILL BE STARTED: July, 1977

DATE PROJECT WAS OR WILL BE COMPLETED: May, 1979

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE

ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL: 1,900 ft.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N	RANGE (E OR W) W.M.	COUNTY
Columbia Park	36	9	29 EWM	Benton

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED IF NOT, INSERT NAME & ADDRESS OF OWNER: Army Corp of Engineers - partially leased to Benton County Parks & Recreation

5. LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY, OR COPY CAREFULLY IN THE SPACE BELOW

Water will be used for the total service area as shown on the attached map.

Plate 4.

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH THE WATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONTRACT PURCHASER ETC.)

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES) [X] YES [ ] NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

5 - Ground water wells by previous permits for municipal purposes.

Wells #1, #2 and #3 - Ground Water Certificate #1805

Wells #4 and #5 - Ground Water Certificate #3897

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

This system is in the planning stage. Upon final design we can supply you with all detailed information. The following information is available at this time: Water Filter Plant will consist of a 72" dia. intake pipe in the Columbia River, pump station, filter beds, backwash facilities and small amount of transmission lines.

REMARKS

7.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY

SIGNATURES

Joseph W. Painter

APPLICANT'S SIGNATURE

LEGAL LANDOWNER'S SIGNATURE

LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY } SS.

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before ..... *19*.....

Witness my hand this.....*day of*..... *19*.....

.....
Department of Ecology

ECY 040-1-14(5)
Rev 7-75

JOHN SPELLMAN
Governor

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3601 West Washington • Yakima, Washington 98903

DEC 30 1982

Benton County Auditor
County Courthouse
Prosser, WA 99350

Enclosed is Certificate of Water Right No. S4-25479C and a check or money order in the amount of $ [illegible].00 to cover the cost of recording.

After recording, please forward the certificate to:

City of Kennewick
P.O. Box [illegible]
Kennewick, WA [illegible]

Sincerely,

Resource Management
CENTRAL REGIONAL OFFICE

Enclosures Certificate
Warrant No. 144[illegible]A

cc: City of Kennewick
Enc.: Receipt No. 12[illegible]

ECY 040-1-19
Rev. 6/78

NOV 15 1982

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER: S4-25479

PERMIT NUMBER: S4-25479P

NAME OF PERMITTEE: City of Kennewick

POST OFFICE ADDRESS: PO Box 6108 (CITY) Kennewick (STATE) Washington (ZIP CODE) 99336

ACTUAL SOURCE OF APPROPRIATION: Columbia River

PURPOSE OR PURPOSES WATER IS USED FOR: Municipal Supply

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE: 7-80

IF USED FOR IRRIGATION NUMBER OF ACRES ACTUALLY IRRIGATED: Area served by City of Kennewick

IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED: ☐ YES ☐ NO

MONTHS DURING WHICH WATER IS USED: Entire year

PUMP SIZE: 5200 gpm

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM: 55.7 ☐ GPM ☒ CFS

HAVE ALL PROVISIONS AS REQUIRED BY PERMIT BEEN ACCOMPLISHED: ☒ YES ☐ NO

IF NO, EXPLAIN:

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

Area served by City of Kennewick

Accept PA
Receipt fee
Issue cert for
permit
AW
11-29-82

STATE OF WASHINGTON,
County of [illegible] } ss.

I, Miles L. Cross, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of November, 1982.

Miles L. Cross
Permittee Signature

Subscribed and sworn to before me this 2nd day of November, 1982.

Eileen Baker Jr.
Notary Public

ECY 0040-1-26

P/A

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

NOV 15 1982

November 12, 1982

State of Washington
Department of Ecology
3601 W. Washington
Yakima, Washington 98903

Re: Surface Water Permit #S4-25479P

Gentlemen:

In accordance with your September 30, 1982, letter, enclosed is the Proof of Appropriation of Water form, which has been executed by the City of Kennewick, together with our warrants for the filing and recording fees.

If you require additional information, please contact my office.

Sincerely,

M. L. Cross

M. L. Cross, P. E.
City Engineer/Construction

MLC:sc

Enclosures

cc: Director of Public Works

Phil Hatch

WATER & SEWER COMPARATIVE OPERATING REPORT

	1965	1970	1971	1972	1973	1974	1975	1976
Water Billed in dollars	405,849.85	559,767.55	564,639.99	598,015.69	642,008.45	656,751.13	1,243,762.33	1,406,327.32
Sewer Billed in dollars	111,795.26	163,869.67	268,061.43	274,604.48	284,228.18	293,888.69	397,785.51	481,071.74
Other Water & Sewer Revenue	35,803.08	50,253.69	90,065.69	72,730.79	86,368.52	386,848.32	405,074.13	470,104.22
Gross Revenue	553,448.19	773,890.91	922,766.84	945,350.96	1,012,605.15	1,337,488.14	2,046,621.97	2,357,503.28
Direct Water Oper. & Maint Exp	98,217.50	135,167.73	135,943.46	163,879.98	146,726.46	160,583.37	159,568.23	182,488.51
Direct Sewer Oper & Maint Exp	41,594.61	54,338.08	57,029.37	62,627.22	68,943.00	82,792.17	102,374.80	124,207.44
Other Water & Sewer Oper & Maint Exp	120,542.87	206,926.03	240,541.48	265,139.39	274,475.08	320,648.04	334,907.80	499,034.36
Bond & Depreciation Exp	179,510.32	210,514.95	281,998.03	332,518.94	352,934.15	598,682.47	689,023.86	927,188.15
Comparative Profit & Loss	113,582.89	166,944.12	207,254.50	121,185.43	169,526.46	174,782.09	760,747.28	624,584.82
No. of Water Services	6,990	7,721	7,896	8,138	8,377	8,678	9,218	* 10,196
No. of Sewer Services	3,973	4,305	4,389	4,490	4,560	4,746	5,010	* 5,981
100 CF Water Sold or Acct'd for	1,972,868	2,541,677	2,249,045	2,323,213	2,713,153	2,562,101	2,346,970	2,532,924
100 CF Water Pumped	2,503,538	2,746,600	2,598,253	2,845,882	2,950,537	3,042,632	3,119,418	3,553,009
Line loss in %	21.2	7.48	13.44	18.36	8.04	15.79	24.75	28.71
M & O Exp. per 100 CF of Water pumped (based on 72% of other exp. as Water Exp. after 1962)	7.39¢	10.34¢	11.89¢	12.47¢	11.67¢	12.87¢	12.85¢	15.25
Bond & Dep. Exp. per 100 CF pumped (based on 80% of Bond & Dep. Exp. after 1962)	5.74¢	6.44¢	8.68¢	9.34¢	9.57¢	15.74¢	17.67¢	20.88
Total cost per 100 CF pumped	13.13¢	16.78¢	20.57¢	21.81¢	21.24¢	28.61¢	30.52¢	36.13

* as of 4/29/77

31013

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

DEPT. OF ECOLOGY
APR 10 9 43 AM '78

April 7, 1978

In accordance with WAC 197-10-600, enclosed herewith is a copy of the Final Environmental Impact Statement for the City of Kennewick "Water Filtration Plant".

Very truly yours

William C. Kennedy

William C. Kennedy
Planning Director

WCK/jw

Enclosure

the quantity or part of the ——— of reserved
for municipal & industrial water & should be
so deducted from accounting system
Priority date is as the date of filing

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CONSTRUCTION NOTICE

RECEIVED
SEP 28 1982
DEPARTMENT OF ECOLOGY
CENTRAL RE...

COMPLETION OF CONSTRUCTION

NAME	SURFACE WATER PERMIT NO.	GROUND WATER PERMIT NO.
City of Kennewick	31-25219P	
DATE CONSTRUCTION BEGAN	DATE CONSTRUCTION COMPLETED	DATE ...
7-1-79	6-30-80	

A project is considered completed when the facilities are installed to deliver water to the place of use.

Pump: 7200 gpm Horsepower: 40 Operating Pressure at Pump: 10 psi

Turbine (X) Submersible ( ) Centrifugal ( ) Other ( )

Depth of Setting: _____ Bowl Size: _____ Booster horsepower: _____

Mainline Size: _____ Length: _____ No. of sprinklers: _____ Nozzel size: _____

Number of sprinklers operated per set: _____ Acres to be irrigated: _____

Location of well or surface water source if different from permit _____

IF CONSTRUCTION HAS BEEN ABANDONED

I certify I am the holder of the above permit issued by the Department of Ecology for the State of Washington, and in accordance with the terms of such permit and the limitations endorsed by the Department of Ecology have completed the actual construction of the work described in the permit.

OK for CC
ACK CC
SEND PA
REQUEST CERT FEES
EP
9-29-82

Date 9/27/82

J. Cox City Eng./Const.
Signature of Applicant

City of Kennewick
PO Box 6108
Present Address

Kennewick, Wash. 99336
City, State, Zip Code

Phone 586-4181 Ext. 250

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CONSTRUCTION NOTICE

☑ BEGINNING OF CONSTRUCTION

☐ COMPLETION OF CONSTRUCTION

NAME	SURFACE WATER PERMIT NO	GROUND WATER PERMIT NO
City of Kennewick	SW-35479P	
DATE CONSTRUCTION BEGAN	**DATE CONSTRUCTION COMPLETED**	**DATE COMPLETION EXPECTED**
August 10, 1979	-----	June 30, 1980

IF CONSTRUCTION NOT COMPLETE, SHOW % COMPLETED AS OF THIS DATE

% EQUIPMENT IN PLACE	% MATERIAL IN PLACE	% EXCAVATED	% STRUCTURE
-0-	-0-	100	10

IF CONSTRUCTION HAS BEEN ABANDONED

DATE ABANDONED	REASON ABANDONED

REMARKS OR ANY ADDITIONAL INFORMATION WHICH MAY TEND TO SHOW GOOD FAITH IN THE PROSECUTION OF THE WORK

I certify I am the holder of the above permit issued by the Department of Ecology for the State of Washington, and in accordance with the terms of such permit and the limitations endorsed by the Department of Ecology have ☒ begun ☐ completed the actual construction of the work described in the permit.

Signature of Applicant JOSEPH W. PAINTER
City Manager

~~P. O. Box 6108~~
Present Address

Kennewick, WA. 99336
City, State, Zip Code

ECY 040-1-30
Rev 6-78

RECEIPT № 86104

WASHINGTON STATE
DEPARTMENT OF ECOLOGY

12-5- 1978

RECEIVED FROM City of Kennewick DOLLARS 20.00
Twenty

FUND: General ✓ Rec. Rev. Basic Data Other
SOURCE: Water Code ✓ Publications Adjudications Refunds
Per. and Lic. Investments Registration Other

Cash
Check ✓
M.O.

Permit Fee # SH-25479

By Nancy Weber

Thank You

ECY 010-144

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

November 29, 1978

Mr. Russell K. Taylor
Regional Manager
Central Regional Office
Department of Ecology
2802 Main Street
Union Gap, Washington 98903

RECEIVED
NOV 30 1978

Re: Water Application No. S4-25479

Dear Mr. Taylor:

Enclosed is the City of Kennewick's statutory fee of $20.00, which is the final step in the issuance of our water rights permit for our water filtration plant.

It is the City of Kennewick's understanding that the permit will allow the City to withdraw 15,680 acre-feet of water from the Columbia River in any given year and that the projected service area in the year 2000, times the average annual consumption per person (73,000 gallons), are the maximum allowable water rights available to the City at this time.

The City would like to thank you and your staff for your cooperation and assistance in this matter.

Sincerely,

Joseph W. Painter
City Manager

JWP:MLC:sc

Enclosure: $20.00 Warrant

cc: Erv Bader

November 16, 1978

City of Kennewick
P.O. Box 6108
Kennewick, WA 99336

Attn: Mr. Cross

RE: Surface Water Application No. S4-25479

Dear Mr. Cross:

Enclosed is the amended Report of Examination with the corrections and clarifications we discussed. I hope that the revision of the paragraph on supplemental supply will help to clear up any confusion that might occur. If, however, you still have some questions, or concerns, please let me know.

Also, I have attached the Petition for Reservation of Public Waters with instructions and the two (2) regulations concerning this reservation. Please direct any questions about the petition or reservation to Bill Miller in our Olympia office, Department of Ecology, St. Martin's College, Olympia, Washington 98504, phone (206) 753-2964.

Sincerely,

Marsha Beery
Resource Management Division

MB:le

Enc.: Petition for Reservation
Amended Findings
WAC 173-590
WAC 173-531

PROGRESS SHEET - APPLICATION FOR CHANGE

NAME: City of Kennewick
P. O. Box 6108
Kennewick, Washington 99336

APPLI. NO. S-42-11 PERMIT NO. _____ CERT. NO. _____

PURPOSE OF APPLICATION Change to withdrawal from Columbia River

Application received 3/23/78 Initial $10.00 fee received 4/7/78
Statement of additional examination fee $_____ Sent _____ Rec'd _____

Returned for completion or correction _____ Received _____

FIELD EXAMINATION REQUIRED: YES [✓] NO [ ]
Examination made 9-22-78 by Marvin Beery
EXAM-PERMIT FEE REQUESTED NOV 6 1978

PUBLICATION:

O.K.'d by [illegible] Date [illegible] Notice Sent APR 28 1978

Protests _____ by _____

_____ by _____

_____ by _____

Affidavit received and checked 5-19-78 Time expires 6-11-78

O.K.'d for CHANGE [illegible] by [illegible]

*Statement of Fee Sent _____ Fee Received _____

CHANGE ISSUED _____ NO. _____

*Cert. of Change ONLY

I have examined this applicat
as required by SEPA and find that
it is: ☐ not an "action".
☐ categorically exempt.

DATE SIGNATURE

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

COMPUTER INPUT
☐ APPLICATION
☐ PERMIT
☐ CERTIFICATE
☐ OTHER

PROGRESS SHEET

☒ SURFACE WATER ☐ GROUND WATER

NAME City of Kennewick			TELEPHONE NO. 586-4181
ADDRESS P. O. Box 6108	CITY Kennewick	STATE Washington	ZIP CODE 99336
ASSIGNED TO		TELEPHONE NO.	DATE ASSIGNED
ADDRESS	CITY	STATE	ZIP CODE
APPLICATION NO S 425479	PERMIT NO S 425479P	CERTIFICATION NO S425479C	
DATE AMENDED	DATE CANCELLED	WRIA	

APPLICATION

DATE APPLICATION RECEIVED	INITIAL $10.00 FEE RECEIVED ☐ YES ☐ NO	DATE FEE RECEIVED
STATEMENT OF ADDITIONAL EXAMINATION FEES	DATE SENT	DATE RECEIVED
DATE RETURNED FOR COMPLETION OR CORRECTION	DATE RECEIVED	

TEMPORARY PERMIT

APPROVED BY	DATE ISSUED

PUBLICATION

APPROVED BY	DATE APPROVED	DATE NOTICE SENT SEP 12 1977
PROTESTED BY AND DATE		

DATE AFFIDAVIT RECEIVED 12/9/77	DATE ENTERED DK	TIME EXPIRED 11/8/78	DATE AMENDED NOTICE SENT	DATE AFFIDAVIT RECEIVED	TIME EXPIRED

DEPARTMENT OF GAME AND FISHERIES REPORT

APPROVED	PROVISO WRMP	PROTEST

EXAMINATION

DATE EXAMINATION MADE	MADE BY	DATE REPORT OF EXAM. WRITTEN 11-3-78	WRITTEN BY	CHECKED BY MRS HP
DATE PERMIT FEE REQUESTED	AMOUNT DUE		DATE RECEIVED 12-4-78	

PERMIT

PERMIT APPROVED BY	DATE APPROVED 12.5.78	PERMIT NO S425479P	DATE ISSUED

BEGINNING OF CONSTRUCTION

DATE NOTICE SENT	DATE FILED 11.20.79	EXTENSION FEE
EXTENDED TO	EXTENDED TO	

WELL DRILLER'S AND/OR CONSTRUCTION REPORT

DATE SENT	DATE FILED

COMPLETION OF CONSTRUCTION

DATE NOTICE SENT 11-20-79 9/22/82	DATE FILED 9-29-82	EXTENSION FEE
EXTENDED TO	EXTENDED TO	

PROOF OF APPROPRIATION

DATE SENT 9-30-82	DATE FILED 11-15-82	EXTENSION FEE	EXTENDED TO	
DATE CERTIFICATE FEE REQUESTED 9-30-82	AMOUNT DUE $/+	DATE RECEIVED 11-15-82	DATE APPROVED FOR CERTIFICATE 11-29-82	APPROVED BY

CERTIFICATION

PROOF EXAM. REQUIRED ☐ YES ☒ NO	CERTIFICATE NUMBER S425479C	DATE ISSUED DEC 30 1982

REMARKS SWW 1-29-82

PROGRESS

ECY. 070-17

RECEIVED

MAY 19 1978

AFFIDAVIT OF PUBLICATION

COUNTY OF Benton)
) ss.
STATE OF WASHINGTON)

Phyllis Graves, being first duly sworn on oath deposes and says she is the Principal Clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Benton County, Washington, and is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a true copy of a legal advertisement

Water right

as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, for a period of two consecutive weeks, commencing on the 4th day of May, 19 78, and ending on the 11th day of May, 19 78, and that said newspaper was regularly distributed to its subscribers during all of this period.

That the full amount of $ 37.58 has been paid in full, also at the rate of

4 in. x 4.50 = 20.25

in. 3.5 = 17.33

Phyllis Graves

Subscribed and sworn to before me this 17th day of May, 19 78.

C. K. Davis

Notary Public in and for the State of Washington, residing at Kennewick.

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

May 18, 1978

CERTIFIED MAIL
NO. 760736

Mr. Howard Powell
District Supervisor
Department of Ecology
2802 Main Street
Union Gap, Washington

Re: Application for Change of Point of Diversion
No. S4-25479

Dear Mr. Powell:

Enclosed please find a copy of the Affidavit of Publication regarding the above referenced Application for Change of Point of Diversion.

Sincerely,

M. L. Cross, P. E.
Project Administrator

MLC:sc

Encl: Affidavit of Publication

cc: DPW

RECEIVED
MAY 19 1978

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

October 16, 1978

RECEIVED
OCT 17 1978
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Mr. Howard Powell
District Supervisor
Department of Ecology
2802 Main Street
Union Gap, Washington 98903

Re: Application for Change of Point of Diversion
No. S4-25479

Dear Mr. Powell:

The City of Kennewick is proceeding with the design of our water filtration plant and anticipate the following bidding and construction schedule:

Advertise for Bids	November 8, 1978
Award Contract	January 1, 1979
Begin Construction	February 1, 1979
Complete Construction	June 1, 1980

To date we have had no indication on the water rights. The City assumes everything is in order and that our water rights are forthcoming.

Please advise in the near future if the City may be of assistance in what is necessary to obtain a commitment on water rights.

Sincerely,

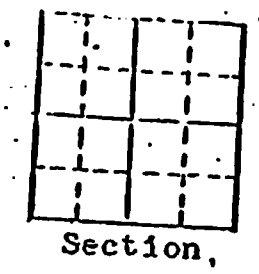
Robert F. Noland
Acting City Manager

RFN:MLC:sc

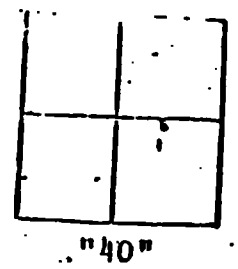
cc: Erv Bader
Roy Cross

Application No. 425479 Name Kennewick

POD Location



Section



"40"

Project Status: (Not started)____ (Started)____ (Completed)____

Type of System: _____

Pump capacity, Horsepower: _____

Uses: Irrigation-Acres: Present_____ Planned_____ Feasable_____

Crop type: _____

Pumping duration (season) _____

Domestic (number)(type) _____

Stock (size herd). _____

Industrial (specific use) _____

Percent of time used _____

Non-consumptive uses _____

Municipal (population)(date) _____

Other _____

Other water rights (Certificates, claimed right, irrig. dist.) appurtenant to this land _____

Proximity to existing wells, springs, streams: _____

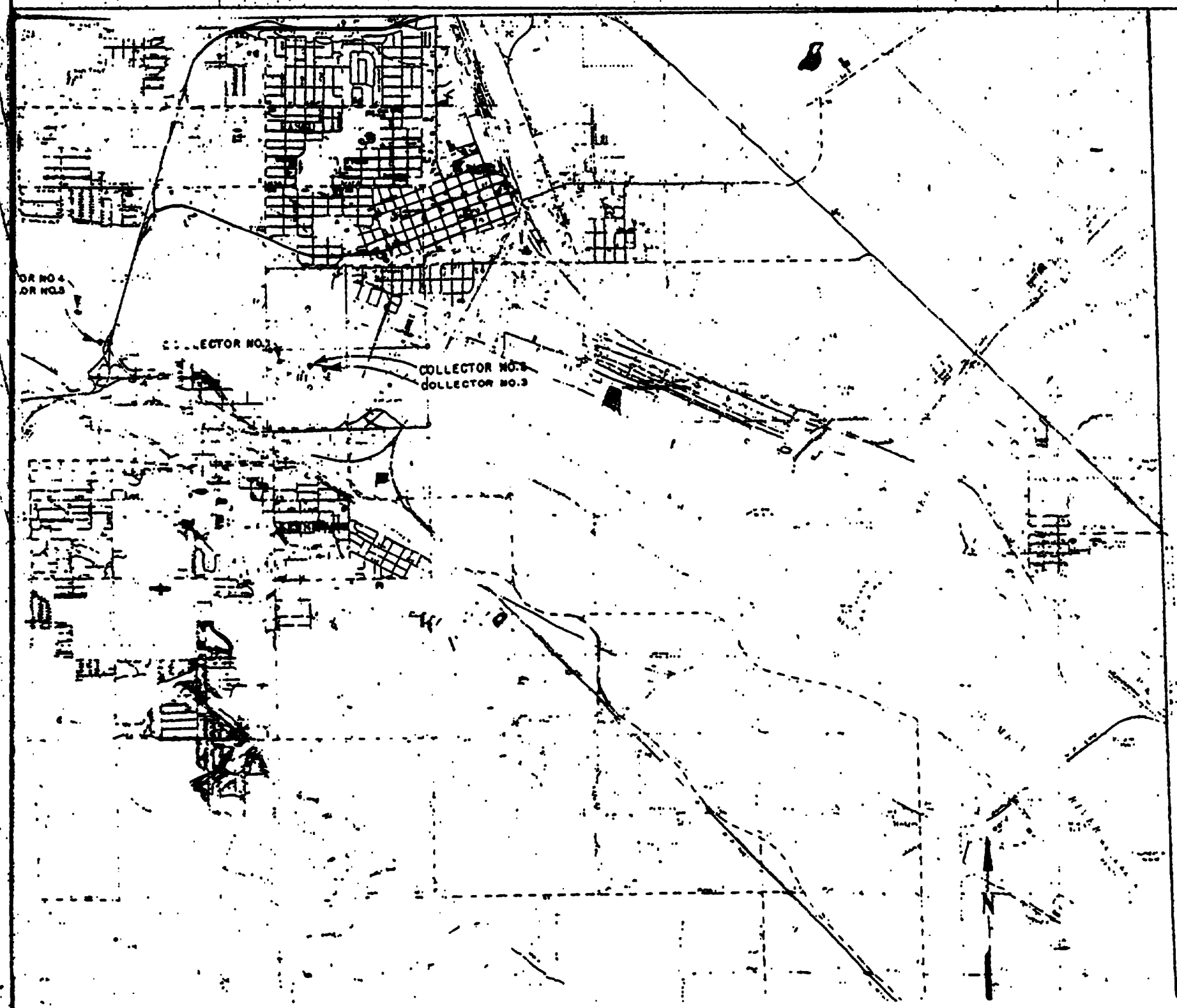
Surface Water:

Other uses from same source _____

Flow measurement or estimate _____

Remarks: _____

Examiner _____ Date of Exam _____


OR NO.4
OR NO.5
COLLECTOR NO.2
COLLECTOR NO.3
N

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
YAKIMA, WASHINGTON

NOTICE OF CHANGE OF POINT OF DIVERSION OF SURFACE WATERS AS APPLIED FOR UNDER SURFACE WATER APPLICATION NO. ~~G4~~-25479
5

TAKE NOTICE:

That the City of Kennewick in Benton County, Washington, has filed application to change the point of diversion of surface waters of the Columbia River applied for under Surface Water Application No. G4-25479.

That they wish to change the point of diversion of 55.7 cubic feet per second, for continuous municipal supply from the NW¼NW¼ of Sec. 36, T. 9 N., R. 29 E.W.M. Benton County to: the SE¼ of Sec. 31, T. 9 N., R. 30 E.W.M. Benton County.

Any protests or objections to approval of this application must include a detailed statement of the basis for objections and must be accompanied by a two ($2.00) dollar recording fee. All protests must be filed with the Department of Ecology, Central Regional Office, 2802 Main Street, Union Gap, Washington 98903, within thirty (30) days from:

_____
(Last date of publication to be entered by publisher.)

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

March 27, 1978

Mr. Howard Powell
District Supervisor
Department of Ecology
2802 Main Street
Union Gap, Washington 98903

Re: Kennewick Water Filtration Plant

Dear Mr. Powell:

Enclosed is the City of Kennewick's signed Application for Change of Point of Diversion.

Please inform the City if there are remaining requirements necessary to secure water rights for our filtration plant.

Sincerely,

M. L. Cross, P. E.
Project Administrator

MLC:sc

Encl: Application for Change or Point of Diversion

cc: Erv Bader
Dennis Eckhardt

RECEIVED
MAR 28 1978
DEPARTMENT OF ECOLOGY
CENTRAL OFFICE

March 20, 1978

M.L. Cross, P.E.
City of Kennewick
210 West 6th, P.O. Box 6108
Kennewick, WA 99336

RE: Application for Change

Dear Mr. Cross:

Enclosed is an Application for Change of Point of Diversion as requested.

Please have the appropriate official of the city sign the application and return it to this office.

Sincerely,

Howard Powell
District Supervisor

HP:le

Encl.: Application for Change

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

March 15, 1978

Mr. Howard Powell
State of Washington
Department of Ecology
2802 South Main Street
Union Gap, Washington 98903

Re: City of Kennewick's Water
Rights Application No. 54-25479

Dear Howard:

Please be advised that the City of Kennewick wishes to amend the referenced Water Rights Application with respect to location of the intake structure. Our revised intake location will be as follows: The Southeast Quarter of Section 31, Township 9, Range 30 East.

Please provide an amendment as soon as possible to enable the City to secure these necessary rights.

Sincerely,

M. L. Cross, P. E.
Project Administrator

MLC:sc

cc: Dennis Eckhardt
James M. Montgomery Consulting Engineers
Erv Bader, Director of Public Works

RECEIVED
MAR 16 1978
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

January 4, 1978

Department of Game
2802 Fruitvale Blvd.
Yakima, WA 98902

Attention: Lew Lund

Dear Mr. Lund:

Enclosed for your review and comments is a copy of Surface Water Application No. S4-25479 for the City of Kennewick.

Enclosed is an extract from their Draft E.I.S. describing the proposed diversion. You may already have a copy of the Draft E.I.S.

Receipt of your comments and recommendations within thirty (30) days from the date of this letter will be greatly appreciated.

Sincerely,

Darrell Monroe
Resource Managemetn Division

DM:wl

Enclosures: Copy of S4-25479
Extract From Draft E.I.S.

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY
Olympia, Washington 98504 206 753 2800

RECEIVED
JAN 5 1978

December 30, 1977

William C. Kennedy
Kennewick City Hall
P. O. Box 6108
Kennewick, WA 99336

Dear Mr. Kennedy:

Thank you for sending us your draft environmental impact statement on your proposed water supply and distribution system. As noted in your document the Department of Ecology is an agency with jurisdiction through your request for a water right.

It is an interesting coincidence that we are currently preparing a water management program for the John Day and McNary Pools. A copy of our draft EIS is enclosed for your use. Our projections for future municipal consumption are low compared to your proposal. This should not directly affect your project but we may have to modify our projections. Ken Slattery of our Water Resources program will be reviewing your proposal and contacting you to resolve the difference in our projections.

Sincerely,

T. L. Elwell
Environmental Review Section

TLE:bjw

enclosure

cc: Ken Slattery
Bill Smith

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

December 1, 1977

RECEIVED
DEC 7 - 1977
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

MEMORANDUM

TO: Required Recipients, and Interested Citizens and Organizations

FROM: William C. Kennedy, Planning Director WCK

RE: Draft Environmental Impact Statement "Water Filtration Plant"

In accordance with WAC 197-10-455, enclosed herewith is a copy of a Draft Environmental Impact Statement for a proposed water filtration plant to be constructed by the City of Kennewick.

Comments on this document are to be received by Wednesday, January 4, 1977.

A public hearing regarding this document will be held by the City Council on December 20, 1977, at 8:00 p.m., in the Kennewick City Hall Council Chambers at 210 West 6th Avenue.

WCK/jw

DEPT OF ECOLOGY
COMM & TRANS CENTER
OLYMPIA, WA 98504
DEC 5 S 01 AM '77

12/30/77 Telephone conversation between Bill Smith and Tom Elwell No comments on Draft EIS. Will be subject to John Day - McNary Basin Plan. Tom is to be contacting the planners. JM 1/3/78

DAILY PUMPING TOTALS - JUNE
#4, #5 and CLOVER ISLAND COLLECTORS

DAY	PUMPING TOTALS (in millions of gallons)	
	1975	1976
1	9,335	9,278
2	10,408	9,300
3	8,374	10,054
4	8,475	10,465
5	10,279	10,158
6	10,365	11,351
7	10,037	11,768
8	8,688	12,284
9	9,373	10,870
10	10,886	12,431
11	10,564	10,499
12	10,704	8,958
13	11,118	5,760
14	10,673	8,876
15	9,397	13,177
16	9,831	11,454
17	9,814	11,294
18	7,229	11,791
19	6,273	10,966
20	6,656	11,525
21	7,973	11,029
22	6,032	11,593
23	6,795	11,145
24	8,659	12,860
25	9,356	11,985
26	8,865	10,407
27	8,062	10,737
28	7,140	12,258
29	8,449	12,891
30	10,048	12,672
	269,988	336,438

DAILY PUMPING TOTALS - JULY
#4, #5 and CLOVER ISLAND COLLECTORS

DAY	PUMPING TOTALS (in millions of gallons)	
	1975	1976
1	10,689	11,038
2	11,296	10,581
3	12,212	12,888
4	11,140	12,139
5	11,374	8,940
6	11,524	13,205
7	12,381	13,917
8	12,923	12,061
9	13,117	8,409
10	13,068	10,721
11	13,245	11,717
12	11,952	11,515
13	10,930	11,726
14	7,897	12,321
15	10,247	11,165
16	9,857	11,462
17	10,009	11,286
18	10,787	10,643
19	10,446	10,815
20	10,820	11,933
21	11,059	8,047
22	10,462	9,727
23	11,410	11,559
24	11,716	11,155
25	12,283	9,653
26	11,082	11,945
27	10,533	11,237
28	10,624	10,771
29	11,933	11,549
30	9,029	11,439
31	8,944	11,826
	343,242	347,060

DAI . PUMPING TOTALS - AUGUST

#4, #5 and CLOVER ISLAND COLLECTORS

DAY	PUMPING TOTALS (in millions of gallons)	
	1975	1976
1	10,821	10,268
2	10,559	7,603
3	10,416	8,812
4	11,929	7,300
5	11,067	9,497
6	10,565	8,787
7	8,400	5,220
8	7,631	6,724
9	7,700	6,341
10	11,650	8,000
11	9,434	10,725
12	10,229	10,283
13	10,939	10,116
14	9,931	6,840
15	11,009	5,382
16	9,640	6,334
17	7,560	7,906
18	8,888	7,132
19	6,408	10,524
20	7,897	7,091
21	9,582	8,803
22	10,182	10,215
23	5,192	9,730
24	6,506	10,720
25	6,413	10,746
26	6,616	7,186
27	7,585	6,691
28	8,410	9,850
29	6,491	9,454
30	5,988	10,700
31	5,676	9,752
	267,569	266,371

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

RECEIVED
RECEIVED

February 24, 1977

Mr. Darrell Monroe
Department of Ecology
Resource Management Division
2802 Main Street
Union Gap, Washington 98903

Re: Application for Surface Water Permit

Dear Mr. Monroe:

I am in receipt of your letter dated February 15, 1977, and the return of the Application for Withdrawal of Surface Water from the Columbia River for a proposed filter plant.

As you requested, attached is the completed Environmental Check List in compliance with the State Environmental Policy Act. Since your agency requested the Environmental Checklist, I am assuming you are to be the lead agency on the environmental aspects of this project. If so, please send a copy of your declaration, whether it be significant or insignificant on this project, and whether an Environmental Impact Statement will be required.

I am enclosing a copy of our Joint Treatment Plant Study that was made by Vitro Engineering Corporation for the City of Richland and the City of Kennewick. You will note on Page 10 of the Joint Study it refers to Kennewick's Comprehensive Plan. On Page 1-20 of Kennewick's Comprehensive Plan it recommends an ultimate 30 million gallon filter plant for the City of Kennewick. The City of Kennewick is applying for funds, under Referendum 27, for this project. It has been determined that the City of Richland will require approximately 5 MGD from this plant. The City of Kennewick has agreed to provide the 5 million gallons of water to the City of Richland if funding is available for the construction of an initial 15 MGD plant. To provide for the additional water for the City of Richland, the City of Kennewick must provide and make application for 35 MGD.

To provide you with written description of the proposed use would probably be useless. Therefore, I am enclosing a map showing the location of the plant and the City's pipe network, which is in accordance with the 1974 Comprehensive Plan.

Also in the Joint Treatment Plant Study you will find on Page 14, a table showing the peak water demands for the years 1976 through 1995. I am also enclosing the past pumping records for the years 1975 and 1976 showing the peak water usage.

Hopefully this will answer the questions posed in your letter and the application can be processed in a most expeditious manner.

Sincerely,

E Bader

Erv Bader, P. E.
Director of Public Works

EB:sc

Encl: Environmental Checklist
Application
Warrant Nos. 4810 and 360
Joint Water Treatment Plant Study
Map
Past Pumping Records

cc: City Manager
Mel Heath

February 15, 1977

Erv Bader
City of Kennewick
P.O. Box 6108
Kennewick, WA 99336

RE: Application for Surface Water Permit

Dear Mr. Bader:

Your application is being returned for additional fees and information

The additional statutory fees required are calculated as follows:

55.7 CFS at $2/each CFS	$112.00
Less amount submitted	$ 10.00
Additional fee required	$102.00

Please complete the enclosed Environmental Checklist for compliance with the State Environmental Policy Act and return it to this office.

Provide us with a breakdown of how you arrived at the requested instantaneous quantity. What has been your past daily consumptive demands during the highest use season?

Provide us with a written description defining the place of use.

If you have any questions, do not hesitate to contact this office. Our telephone number is 509-575-2800.

In order for this application to retain its priority date, it must be returned to this office with the proper fee and requested information within 30 days from the date of this letter.

Sincerely,

Darrell Monroe
Resource Management Division

DM:ep

Enclosure: Environmental Checklist
Application
Check No. 4696

Prepared by the
Council on
Environmental Policy

ENVIRONMENTAL CHECKLIST

Introduction: The State Environmental Policy Act of 1971, Chapter 43.21C, RCW, requires all state and local governmental agencies to consider environmental values both for their own actions and when licensing private proposals. The Act also requires that an EIS be prepared for all major actions significantly affecting the quality of the environment. The purpose of this checklist is to help the agencies involved determine whether or not a proposal is such a major action.

Please answer the following questions as completely as you can with the information presently available to you. Where explanations of your answers are required, or where you believe an explanation would be helpful to government decision makers, include your explanation in the space provided, or use additional pages if necessary. You should include references to any reports or studies of which you are aware and which are relevant to the answers you provide. Complete answers to these questions now will help all agencies involved with your proposal to undertake the required environmental review without unnecessary delay.

The following questions apply to your total proposal, not just to the license for which you are currently applying or the proposal for which approval is sought. Your answers should include the impacts which will be caused by your proposal when it is completed, even though completion may not occur until sometime in the future. This will allow all of the agencies which will be involved to complete their environmental review now, without duplicating paperwork in the future.

NOTE: This is a standard form being used by all state and local agencies in the State of Washington for various types of proposals. Many of the questions may not apply to your proposal. If a question does not apply, just answer it "no" and continue on to the next question.

ENVIRONMENTAL CHECKLIST FORM

I. BACKGROUND

1. Name of Proponent City of Kennewick, Washington
2. Address and Phone Number of Proponent:
   P. O. Box 6108, Kennewick, Washington 99336 (509) 582-5648
3. Date Checklist Submitted February 24, 1977
4. Agency Requiring Checklist Department of Ecology
5. Name of Proposal, if applicable:
   Surface water permit from Columbia River for potable water
6. Nature and Brief Description of the Proposal (including but not limited to its size, general design elements, and other factors that will give an accurate understanding of its scope and nature):
   Potable water filtration plant for domestic use for City of Kennewick, City of Richland. 15 MGD initial design - ultimate design - 35 MGD.
7. Location of Proposal (describe the physical setting of the proposal, as well as the extent of the land area affected by any environmental impacts, including any other information needed to give an accurate understanding of the environmental setting of the proposal):
   Approximately 10 acres - located near SR-12 highway bridge at east end of Columbia Park.
8. Estimated Date for Completion of the Proposal:
   August, 1979
9. List of all Permits, Licenses or Government Approvals Required for the Proposal (federal, state and local--including rezones):
   Shoreline permit, hydraulic permit, Corps of Engineers, Dept. of Game & Fisheries.
10. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain:
    Yes: the intake pipe will be designed for 35 MGD, but initial plant will be built for 15 MGD.
11. Do you know of any plans by others which may affect the property covered by your proposal? If yes, explain:
    None - other than existing use of land as park.
12. Attach any other application form that has been completed regarding the proposal; if none has been completed, but is expected to be filed at some future date, describe the nature of such application form:
    None: See Item 9 above.

II. ENVIRONMENTAL IMPACTS
(Explanations of all "yes" and "maybe" answers are required)

	Yes	Maybe	No
(1) Earth. Will the proposal result in:			
(a) Unstable earth conditions or in changes in geologic substructures?			X
(b) Disruptions, displacements, compaction or overcovering of the soil?	X		
(c) Change in topography or ground surface relief features?	X		
(d) The destruction, covering or modification of any unique geologic or physical features?			X
(e) Any increase in wind or water erosion of soils, either on or off the site?			X
(f) Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?			X

Explanation: Only changes will be the buildings and backwash ponds.

	Yes	Maybe	No
(2) Air. Will the proposal result in:			
(a) Air emissions or deterioration of ambient air quality?			X
(b) The creation of objectionable odors?			X
(c) Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X

Explanation: _____

	Yes	Maybe	No
(3) Water. Will the proposal result in:			
(a) Changes in currents, or the course or direction of water movements, in either marine or fresh waters?	___	___	X
(b) Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?	___	___	X
(c) Alterations to the course or flow of flood waters?	___	___	X
(d) Change in the amount of surface water in any water body?	___	___	X
(e) Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	___	___	X
(f) Alteration of the direction or rate of flow of ground waters?	___	___	X
(g) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	___	___	X
(h) Deterioration in ground water quality, either through direct injection, or through the seepage of leachate, phosphates, detergents, waterborne virus or bacteria, or other substances into the ground waters?	___	___	X
(i) Reduction in the amount of water otherwise available for public water supplies?	___	___	X

Explanation: The amount withdrawn is insignificant to body of water being drawn from.

(4) Flora. Will the proposal result in:			
(a) Change in the diversity of species, or numbers of any species of flora (including trees, shrubs, grass, crops, microflora and aquatic plants)?	___	___	X

	Yes	Maybe	No
(b) Reduction of the numbers of any unique, rare or endangered species of flora?			X
(c) Introduction of new species of flora into an area, or in a barrier to the normal replenishment of existing species?	X		
(d) Reduction in acreage of any agricultural crop?			X

Explanation: Area will be landscaped including trees and shrubs.

	Yes	Maybe	No
(5) Fauna. Will the proposal result in:			
(a) Changes in the diversity of species, or numbers of any species of fauna (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?			X
(b) Reduction of the numbers of any unique, rare or endangered species of fauna?			X
(c) Introduction of new species of fauna into an area, or result in a barrier to the migration or movement of fauna?			X
(d) Deterioration to existing fish or wildlife habitat?			X

Explanation: _____

	Yes	Maybe	No
(6) Noise. Will the proposal increase existing noise levels?			X

Explanation: _____

	Yes	Maybe	No
(7) Light and Glare. Will the proposal produce new light or glare?			X

Explanation: _____

	Yes	Maybe	No
(8) Land Use. Will the proposal result in the alteration of the present or planned land use of an area?	X		

Explanation: Present use in public park.

	Yes	Maybe	No
(9) Natural Resources. Will the proposal result in:			
(a) Increase in the rate of use of any natural resources?			X
(b) Depletion of any nonrenewable natural resource?			X

Explanation:

	Yes	Maybe	No
(10) Risk of Upset. Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X

Explanation:

	Yes	Maybe	No
(11) Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?		X	

Explanation: With the increase in water supply the City can continue to grow in an orderly manner.

	Yes	Maybe	No
(12) Housing. Will the proposal affect existing housing, or create a demand for additional housing?	X		

Explanation: See #11 above.

	Yes	Maybe	No
(13) Transportation/Circulation. Will the proposal result in:			
(a) Generation of additional vehicular movement?		X	
(b) Effects on existing parking facilities, or demand for new parking?	X		
(c) Impact upon existing transportation systems?			X
(d) Alterations to present patterns of circulation or movement of people and/or goods?			X
(e) Alterations to waterborne, rail or air traffic?			X
(f) Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?			X

Explanation: The proposed location will reduce Columbia Park by approximately 10 acres.

(14) Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
(a) Fire protection?			X
(b) Police protection?			X
(c) Schools?			X
(d) Parks or other recreational facilities?			X
(e) Maintenance of public facilities, including roads?			X
(f) Other governmental services?			X

Explanation: _____

	Yes	Maybe	No
(15) Energy. Will the proposal result in:			
(a) Use of substantial amounts of fuel or energy?	X		
(b) Demand upon existing sources of energy, or require the development of new sources of energy?	X		

Explanation: Increase in electrical energy to run pumps to deliver water to system.

	Yes	Maybe	No
(16) Utilities. Will the proposal result in a need for new systems, or alterations to the following utilities:			
(a) Power or natural gas?		X	
(b) Communications systems?			X
(c) Water?	X		
(d) Sewer or septic tanks?			X
(e) Storm water drainage?			X
(f) Solid waste and disposal?			X

Explanation: This a proposal for a new water supply source.

	Yes	Maybe	No
(17) Human Health. Will the proposal result in the creation of any health hazard or potential health hazard (excluding mental health)?	X		

Explanation: Will provide supply of water to an area in desperate need of an additional water supply source.

	Yes	Maybe	No
(18) Aesthetics. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?			X

Explanation:

	Yes	Maybe	No
(19) Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	

Explanation: The plant location will decrease the park by approximately 10 acres.

	Yes	Maybe	No
(20) Archeological/Historical. Will the proposal result in an alteration of a significant archeological or historical site, structure, object or building?			X

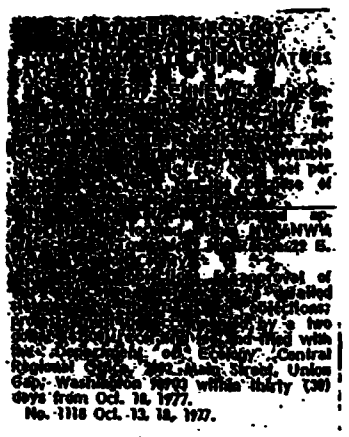
Explanation: _____

III. SIGNATURE

I, the undersigned, state that to the best of my knowledge the above information is true and complete. It is understood that the lead agency may withdraw any declaration of non-significance that it might issue in reliance upon this checklist should there be any willful misrepresentation or willful lack of full disclosure on my part.

Proponent: E. Bader

ERV BADER
Director of Public Works



RECEIVED

DEC 5 - 1977

DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

OK KOR
12/14/77

AFFIDAVIT OF PUBLICATION

COUNTY OF Benton)
) ss.
STATE OF WASHINGTON)

Phyllis Perry, being first duly sworn on oath deposes and says she is the principal clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Benton County, Washington, and is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a true copy of a legal advertisement

t r ri ht

as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, for a period of two consecutive weeks, commencing on the 1[illegible] day of Dec., 19 77, and ending on the 1[illegible] day of Dec., 19 77, and that said newspaper was regularly distributed to its subscribers during all of this period.

That the full amount of $ 1[illegible].[illegible]0 has been paid in full, also at the rate of

[illegible] = .[illegible]0

2 [illegible] = 7.[illegible]0

Phyllis Perry

Subscribed and sworn to before me this [illegible] day of Dec., 19 77.

C. K. Davis

Notary Public in and for the State of Washington, residing at Kennewick.

December 5, 1977

City of Kennewick
P. O. Box 6108
Kennewick, WA 99336

RE: Surface Water Application No. S4-25479

Dear Gentlemen:

Your published notice of application to appropriate public waters has been checked and found to be correct.

The State Water Code requires that we have a certified copy from the publisher in order to record the receipt of your affidavit of publication. The paper should provide you with (2) two copies, one of which should be forwarded to the Department of Ecology, Central Regional Office.

Sincerely,

Dan Russell
Resource Management Division

DR:wl

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

November 22, 1977

CERTIFIED MAIL
NO. 559954

RECEIVED
NOV 28 1977

Mr. Darrell Monroe
Resource Management Division
Department of Ecology
2802 Main Street
Union Gap, Washington 98903

Re: Application for Surface Water
Permit No. S4-25479

Dear Mr. Monroe:

Enclosed please find a copy of the Affidavit of Publication regarding the above referenced Application for Surface Water.

Through an error this Affidavit was not forwarded to your office within the 60-day period required. The City would like to keep this application active and hope that cancellation proceedings have not been initiated.

Sincerely,

Erv Bader, P. E.
Director of Public Works

EB:sc

Encl: Affidavit of Publication

DEPARTMENT OF ECOLOGY
NOTICE OF APPLICATION
TO APPROPRIATE PUBLIC WATERS
TAKE NOTICE:

That CITY OF KENNEWICK of Kennewick, Washington on April 10, 1977 under Application No. S4-25479 filed for permit to appropriate public waters subject to existing rights, from Columbia River in the amount of 55.7 cubic feet per second each year, for the purpose of continuous municipal supply.

The source of the proposed appropriation is located within NW¼NW¼ of Section 36 Township 9 N., Range 29 E. W.M. in Benton County.

Protests or objections to approval of this application must include a detailed statement of the basis for objections; protests must be accompanied by a two dollar ($2.00) recording fee and filed with the Department of Ecology Central Regional Office, 2802 Main Street, Union Gap, Washington 98903 within thirty (30) days from Oct. 18, 1977

No. 1118 Oct. 13, 18, 1977.

AFFIDAVIT OF PUBLICATION

COUNTY OF Benton)
)ss.
STATE OF WASHINGTON)

Virginia L. Lully, being first duly sworn on oath deposes and says she is the Principal Clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Benton County, Washington, and is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a true copy of a legal advertisement

Water right

as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, for a period of two consecutive weeks, commencing on the 13th day of Oct., 19 77, and ending on the 18th day of Oct., 19 77, and that said newspaper was regularly distributed to its subscribers during all of this period.

That the full amount of $ 15.20 has been paid in full, also at the rate of

2 in. 4.10 = 8.20
2 in. 3.50 = 7.00

Subscribed and sworn to before me this 18th day of Oct., 19 77.

Virginia L. Lully
Notary Public in and for the State of Washington, residing at Kennewick.

RECEIVED
NOV 2 1977

September 13, 1977

Erv Bader
City of Kennewick
P. O. Box 6108
Kennewick, WA 99336

RE: Application for Surface Water Permit No. S4-25479

Dear Mr. Bader:

Your application has been assigned number S4-25479. Please reference that number in all future correspondence.

Enclosed along with your receipt for the statutory application fee is the notice for publication with instructions.

In accordance with WAC 197-10-345 (6) & (4), the forwarding of an environmental checklist for completion would not constitute the assumption of the lead agency role. The request was for informational purposes since we are an agency with jurisdiction, as are the Departments of Fisheries and Game. Please forward a copy of your declaration of significance or non-significance.

Feel free to contact this office at (509) 575-2800 if you have any questions.

Sincerely,

Darrell Monroe
Resource Management Division

DM:jvw

Enc.: Receipt
Notice for Publication with Instructions

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

NOTICE OF APPLICATION TO APPROPRIATE PUBLIC WATERS

TAKE NOTICE:

That CITY OF KENNEWICK

of Kennewick, Washington on April 10, 1977 under

Application No. 84-25479 filed for permit to appropriate public waters, subject to existing rights,

from Columbia River

in the amount of 55.7 cubic feet per second

each year, for the purpose of continuous municipal supply

The source of the proposed appropriation is located within NW¼NW¼

of Section 36, Township 9 N., Range 29 E., W.M., in Benton County.

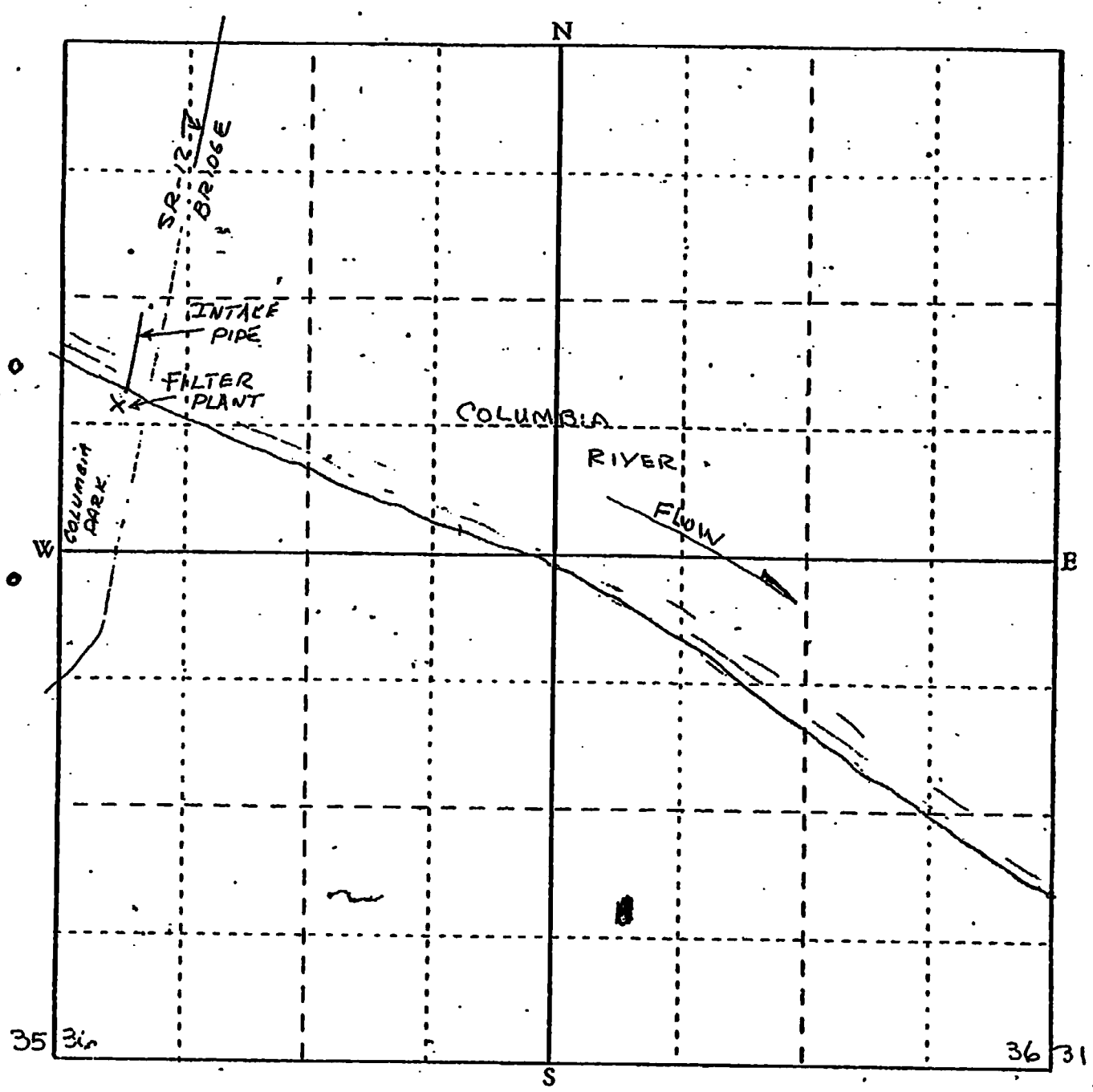
Protests or objections to approval of this application must include a detailed statement of the basis for objections, protests must be accompanied by a two dollar ($2.00) recording fee and filed with the Department of Ecology Central Regional Office, 2802 Main Street
Union Gap, Washington 98903
within thirty (30) days from
(Last date of publication to be entered above by publisher)

ECY 040-1-1

NOTICE

SECTION MAP

Sec. 36 Twp. 9 N. R. 29 E.W.M.



Scale: 1 inch = 800 feet (each small square = 10 acres)

Show by a cross (X) the location of point of diversion (surface water source) or point of withdrawal (ground water source); For ground water applications, show by a circle (O) the locations of other wells or works within a quarter of a mile.

Indicate traveling directions from nearest town in space below.

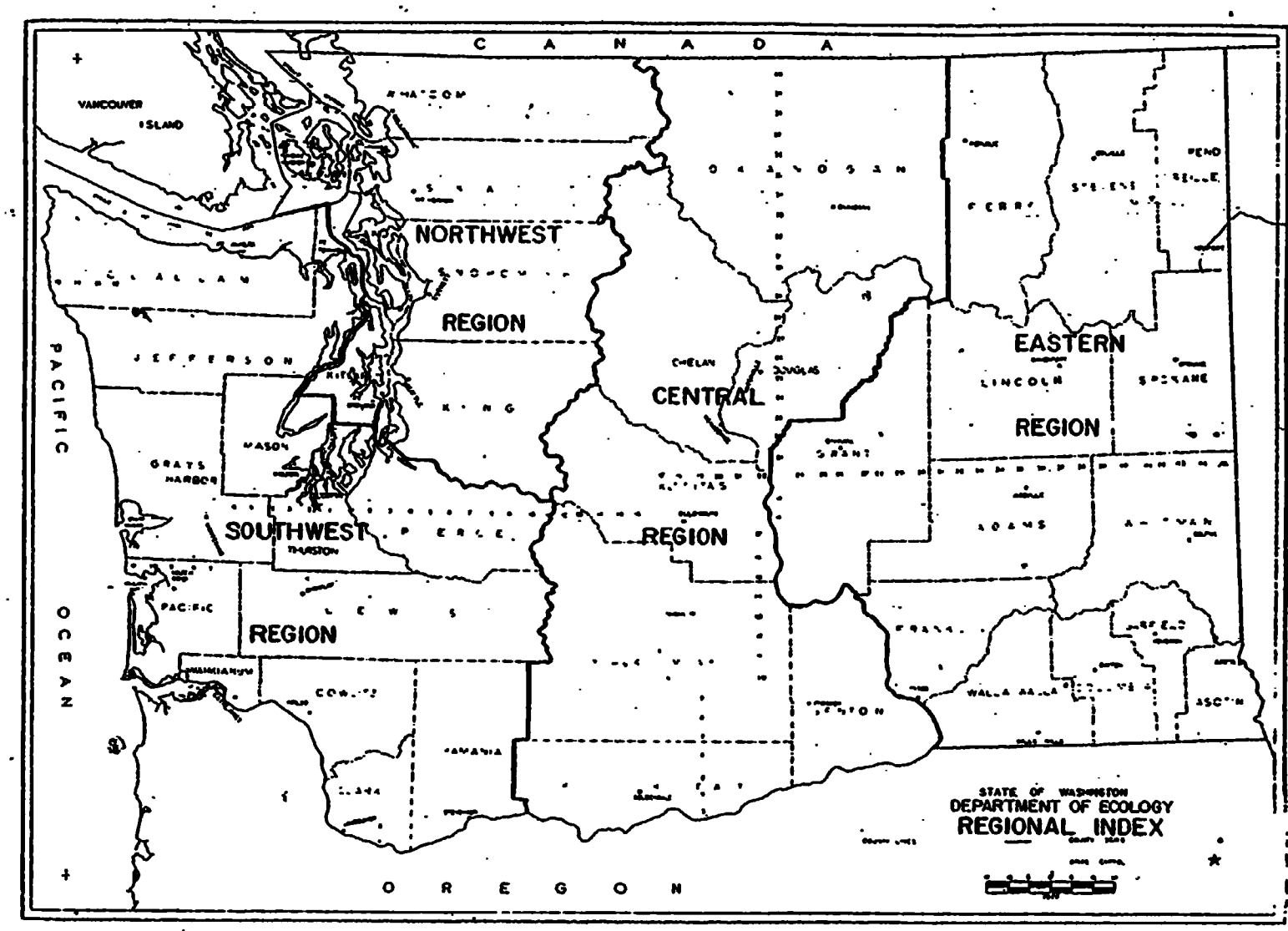
Detach here

Fold along scale

FEET 0 400 800 1,200 1,600 2,000 2,400 2,800 3,200 3,600 4,000 4,400 4,800 5,200

Detach this scale at the perforation, fold excess paper under or cut off excess by cutting along the scale line. This scale corresponds to the SECTION MAP above. You can read feet directly from this scale to outline property and locate points of diversion or withdrawal on the SECTION MAP. Enclose this map along with the application and $10.00 examination fee.

ECY 040-1-14(3)
Rev. 7-75



Your water right application will processed by the Regional Office of the Department of Ecology having jurisdiction in the area in which your water works are located. Please submit your completed application form, maps, sketches and $10.00 examination fee to the appropriate Regional Office.

Northest Regional Office
4350 150th Avenue N.E.
Redmond, Washington 98052
Tel. (206) 885-1900

Central Regional Office
2802 Main Street
Union Gap, Washington 98903
[redacted]
Telephone 509-575-2800

Southwest Regional Office
7272 Clearwater Lane
Olympia, Washington 98504
Tel. (206) 753-2970

Eastern Regional Office
103 East Indiana Avenue
Spokane, Washington 99207
Tel. (509) 456-2926

The appropriate Regional Office will be happy to answer any further questions you may have.

ECY 040-1-14(6)
Rev 7-75

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
210 W. 6TH / P.O. BOX 6108 / KENNEWICK, WASHINGTON 99336

January 6, 1977

State of Washington
Department of Ecology
Central Regional Office
2802 Main Street
Union Gap, Washington 98903

Re: Application for Permit

Gentlemen:

Enclosed please find one copy of the Application for Permit To Appropriate Public Waters of the State of Washington.

Also enclosed is the City of Kennewick's Warrant No. 4696, in the amount of $10.00, to cover the examination fee for the application.

Sincerely,

Erv Bader, P. E.
Director of Public Works

EB:sc

Encl: Application for Permit
Warrant No. 4696

cc: City Manager

See file for book

RECEIVED

FEASIBILITY
STUDY

JOINT WATER TREATMENT PLANT

FOR
CITIES OF

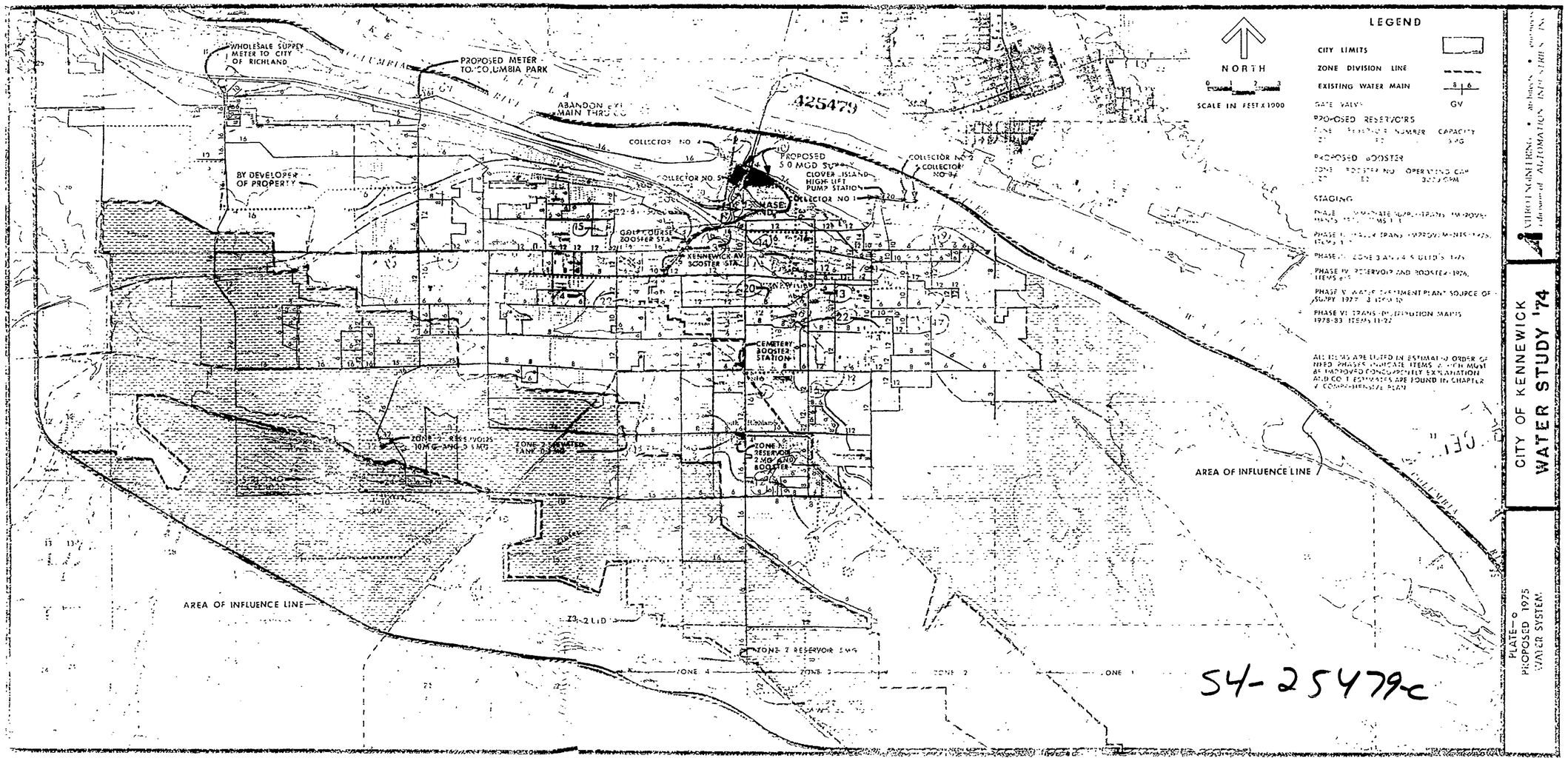
KENNEWICK - RICHLAND
WASHINGTON

[redacted]

JOB NO. 116106

MAY 1976

VITRO ENGINEERING CORPORATION
1955 Jadwin, Richland, WA 99352
(509) 943-9187



CITY OF KENNEWICK
WATER STUDY '74

PLATE—o
PROPOSED 1975
WATER SYSTEM

WATER RIGHTS

S4-30976P

DEPT OF ECOLOGY
Received
DEC 1 6 2011
CENTRAL REGION OFFICE

Quad Cities and the Office of Columbia River

Memorandum of Agreement (MOA): Securing New Water Supplies for the City of Kennewick, City of Pasco, City of Richland, and City of West Richland

Summary

1. Purpose
    a. Coordinate Water Supply Development Projects
    b. Resolve remaining uncertainty in the 2003 Settlement Agreement
2. Buckley Season of Use Transfer
    a. Upon written request of the Quad Cities, Ecology will modify the rights to restore the historic season of use
3. Agreement on Trust Water Holdings for Mitigation of First 10 cfs under S4-30976
    a. The Parties agree that Ecology's obligation is to mitigate total 8 cfs and 5,781.6 acre-feet.
    b. The Parties agree the appropriate amount of mitigation for the first increment of growth is 6 cfs and 4,336.2 acre-feet (60% consumptive use).
    c. The remaining 2 cfs and 1,445.4 acre-feet are available to the Quad Cities as mitigation for the future increments of growth.
    d. Responsibility for costs are divided between Ecology (6 cfs portion) and Quad Cities (2 cfs portion).
4. Fulfillment of Ecology's obligation to provide 8 cfs and 5,781.6 acre-feet.
    a. The difference between Ecology's Buckley and Byerly trust water holdings and the 8 cfs and 5,781.6 acre-feet described above, is 1 cfs and 4,014.37 acre-feet.
    b. Ecology agrees to make 13.25 cfs and 4,014.37 acre-feet available from Lake Roosevelt Project to fulfill its mitigation obligations.
    c. The Parties agree that the Lake Roosevelt water provides equivalent benefit to the McNary Pool per the 2003 Settlement Agreement
5. Filing of New Applications
    a. City-specific applications may be filed that address specific projects.
    b. Coordinated application shall be filed for regional growth needs. OCR may issue new rights as mitigation for S4-30976, or in substitution of S4-30976 if preferred by Quad Cities.
6. OCR and Quads will coordinate on future water supply projects to meet growth.
7. Pasco and West Richland pre-settlement "holes" are resolved.

Quad Cities and the Office of Columbia River

Memorandum of Agreement (MOA): Securing New Water Supplies for the City of Kennewick, City of Pasco, City of Richland, and City of West Richland

Parties: The undersigned Parties, the City of Kennewick, City of Pasco, City of Richland, and City of West Richland (Quad Cities) and the Washington State Department of Ecology (Ecology), acting through the Office of Columbia River (OCR), jointly support this Memorandum of Agreement (2011 Quads MOA).

Purpose: The undersigned Parties are committed to the following objectives:

1. Coordinate on water supply development projects that will assist the Quad Cities in meeting the mitigation requirements of Water Right Permit S4-30976P, or provide alternate, equivalent means of serving the projected growth for the Quad Cities.
2. Reach a common understanding of issues of uncertainty contained in the 2003 Stipulation, Settlement Agreement and Order of Dismissal of PCHB Appeal No. 02-216 (2003 Settlement Agreement), relating to Water Right Permit S4-30976P.

Recitals:

- Whereas OCR has a statutory mandate to pursue developing water supplies to meet pending municipal needs and develop sources of supply for interruptible water users on the Columbia River;

- Whereas Water Right Permit S4-30976P is subject to interruption associated with minimum instream flow requirements on the Columbia River.
- Whereas both Ecology and the Quad Cities are parties to the 2003 Settlement Agreement[1];
- Whereas Ecology and the City of Kennewick are partnering on an Aquifer Storage and Recovery (ASR) project, subject to a 2008 Memorandum of Understanding (2008 Kennewick MOU).
- Whereas Ecology and the City of Pasco are partnering on a water supply project, subject to a 2011 Memorandum of Understanding (2011 Pasco MOU).
- Whereas there is a need to coordinate future water supply development projects consistent with the terms of Water Right Permit S4-30976P.

Now, therefore, the Parties acknowledge and agree to the following:

1. **Buckley and Byerly Water Right Trust Transfers:** In partial fulfillment of obligations of the 2003 Settlement Agreement, Ecology acquired and placed water rights into the State Trust Program (RCW 90.42), termed the "Buckley" and "Byerly" water rights. Collectively, these water rights total 7 cfs and 1,767.23 acre-feet. A summary of the Buckley and Byerly water rights held in trust under the 2003 Settlement Agreement is provided in Appendix A.

   The 2003 Settlement Agreement (Page 3) states in part that "*the intent . . . is*

[1] The Center for Environmental Law and Policy (CELP) is also a party to the 2003 Settlement Agreement. CELP is not a party to this MOA and is unaffected by its terms and conditions.

that trust water rights used for mitigation shall be from McNary Pool and of equivalent quantity and period as shown in Table 5 of the ROE" (referring to Table 5 of the Report of Examination, or ROE, for Permit S4-30976P). The referenced table identified the historic Buckley season of use as year-round, with water right specific quantities for each season (i.e., summer, fall and winter/spring). However, Ecology's 2002 ROE for the Buckley water rights altered the season of use inconsistent with Table 5 in response to comments from the Washington Department of Fish and Wildlife.

Under RCW 90.42.040, Ecology may modify a trust water certificate providing it does not impair existing water rights. Upon written request of the Quad Cities, Ecology will process a modification to the subject rights to return the season of use consistent with the historic exercise thereof, and with the terms and conditions of Table 5 of the ROE for Permit S4-30976P. While Ecology cannot prejudge this decision, a return to the historic season of use is not expected to impair existing water rights. In the event that Ecology's impairment analysis introduces constraints to the Quad-Cities' requested trust water certificate modifications other than a return to the historic season of use, Ecology shall 1) consult with the Quad-Cities to set the modified certificate to the Quad Cities' maximum benefit; and 2) consult with the Fish Flow Advisory Group to determine whether the available Lake Roosevelt mitigation can be used to offset such constraints.

2. **<u>Trust Water Mitigation for the First 10 cfs of Diversions Under S4-30976P:</u>** The 2003 Settlement Agreement contains several statements that are unclear as to Ecology's obligation to hold trust water rights as mitigation for diversions under the first 10 cfs of Permit S4-30976P.

First, the 2003 Settlement Agreement (Page 4) states: "*To determine the amount of perpetual mitigation for the first increment of water use, Ecology has used an 80 percent consumptive use estimate". Permit S4-30976P identifies the first increment of water use as 10 cfs and 7,227 acre-feet. 80 percent of the first increment is 8 cfs and 5,781.6 acre-feet.*.

Second, the 2003 Settlement Agreement (Page 3) references Table 5 of the ROE for Permit S4-30976P as "*the two groups of water rights Ecology intends to use as mitigation for the first increment of Quad Cities' water use*". Table 5 identified diversions for a suite of water rights (Buckley and Simplot) ranging from 11 cfs to 20.8 cfs and totaling 6,476.7 acre-feet.

Third, the 2003 Settlement Agreement (Page 4) stated that concurrent with each 6-year Quad Cities planning update, Ecology "*will assure that the appropriate amount of water-for-water mitigation is in place*". In 2008, the Quad Cities completed its 2008 Regional Water Forecast and Conservation Plan Update, which identified an annual consumptive use percentage of 48%, significantly less than the 80% assumption. The "appropriate amount of

water-for-water mitigation" based on 48% consumptive use to offset the first increment under Permit S4-30976P would be 4.8 cfs and 3,469 acre-feet.

The Parties agree that Ecology's obligations to mitigate for the first increment of water use total 8 cfs and 5,781.6 acre-feet. The Parties further agree that, while consumptive use must be calculated during each 6-year planning effort, and while consumptive use may vary from year-to-year, that the 80% consumptive use assumption for the first 10 cfs is likely to be significantly higher than the Quad Cities' actual consumptive use, even during drought years.

The Parties desire to maximize the trust water holdings for the benefit of the Quad Cities municipal uses. The trust water holdings will be maximized if 1) sufficient trust water holdings are maintained to offset consumptive uses in the first increment across a range of potential water years; and 2) if trust water holdings surplus to that objective, but within the 8 cfs and 5,781.6 acre-feet held for such purpose, are made available to the Quad Cities as mitigation to offset future increments of growth. To that end, the Parties agree "that the appropriate amount of water-for-water mitigation" for the first increment of growth is 6 cfs and 4,336.2 acre-feet (60% consumptive use). The remaining 2 cfs and 1,445.4 acre-feet are available to the Quad Cities as mitigation for the future increments of growth.

The Parties agree that Ecology is responsible for developing the 8 cfs and 5,781.6 acre-feet of water for the first increment. The Parties agree that Ecology is responsible for costs associated with the 6 cfs and 4,336.2 acre-feet of water for the first increment. The Parties agree that Quad Cities is responsible for costs associated with the 2 cfs and 1,445.2 acre-feet of water beyond the first increment. However, in the event that consumptive use in the future increases above 60%, Ecology agrees to assume responsibility for costs associated with that quantity. The Parties further agree that in the event that a future planning document estimates consumptive use above 60%, the Parties will meet and negotiate how such data will affect future increments of growth for which mitigation has already been secured. The Parties further agree that in the event that a future planning document estimates consumptive use at a percentage less than the percentage used to acquire mitigation that the Parties will negotiate a new and expanded permitted diversion amount commensurate with the lower consumptive use percentage.

3. **Simplot, Byerly and Lake Roosevelt Trust Water Rights:** When the ROE for Permit S4-30976P issued, Table 5 contained a summary of six water rights Ecology was negotiating with Mr. Buckley to acquire and three water rights that Ecology was negotiating to acquire from the Simplot Corporation. The Buckley water rights were secured, totaling 1,536.58 acre-feet. However, negotiations between Simplot and Ecology broke down and those rights were

not acquired.

Since that time, Ecology has acquired two water rights termed the "Byerly" water rights, totaling 230.65 acre-feet, bringing Ecology's trust water holdings to 7 cfs and 1,767.23 acre-feet. The difference between Ecology's Buckley and Byerly trust water holdings and the 8 cfs and 5,781.6 acre-feet described in Section 2 above, is 1 cfs and 4,014.37 acre-feet.

OCR is beginning a permitting effort for water made available through its Lake Roosevelt Incremental Storage Release Projects. Ecology holds 25,000 acre-feet of water in trust for municipal, domestic, and industrial purposes. Mitigation water is available from this project from April to August. Ecology agrees to make 13.25 cfs and 4,014.37 acre-feet available to fulfill its mitigation obligations under the Quad Cities permit. These quantities are shown in Appendix B. While permits issued based on the mitigation provided by the Lake Roosevelt project are permanent, the mitigation supply is not; Ecology must replace its 25,000 acre-feet of trust water holdings in the future with another supply source. In that event, Ecology will notify Quad Cities of opportunities to participate in the permitting and environmental review for such decisions. The Parties agree to amend Section 3 and Appendix B of this MOA at that time to reflect the change in mitigation source, and potentially the timing of availability; however, the quantities agreed to herein

are expected to remain unchanged.

4. **McNary Pool Defined:** The 2003 Settlement Agreement (Page 3) states that the Buckley water rights and Simplot water rights (if acquired) place of use were to be modified to "the McNary Pool of the Columbia River". Further, if the Simplot rights were not acquired, then "other water rights from the McNary Pool" were to be acquired and put into trust. The Buckley and Byerly rights acquired to-date (and Simplot water not acquired) were originally diverted from the Walla Walla River, in a location such that the trust water benefit to McNary Pool accrued on the order of days later. The Parties agree that the Lake Roosevelt water described above provides equivalent benefit to the McNary Pool as contemplated in the 2003 Settlement Agreement. Lake Roosevelt authorizations used for Quad Cities mitigation will reflect delivery of water to the McNary Pool of the Columbia River from approximately River Mile 292 to River Mile 346.

5. **New Water Right Applications:** Section 9 (Page 5) of the 2003 Settlement Agreement required the Quad Cities to "*withdraw all pending applications for new water rights except for certain groundwater applications that are for supplemental rights for alternate places of withdrawal*". However, since execution of the 2003 Settlement Agreement, the legislature passed RCW 90.90 and formed the Office of Columbia River, which created water supply development and permitting options not originally contemplated by the

Parties.

Under this 2011 Quads MOA, the Parties agree on the following framework for the submittal of new water right applications:

a. **Project-Specific Applications:** Any individual city may file:

   i. A project-specific water right application associated with a joint City-OCR water supply development partnership. An example of a project of this nature is the City of Kennewick – OCR Aquifer Storage and Recovery project, for which a reservoir application has been filed and a preliminary permit issued. In the event that new water supply is made available from such a project, such quantity in acre-feet shall be allocated in the same manner as for Non-Project-Specific Applications below.

   ii. A new water right application for additional instantaneous capacity only (no additive annual allocation) without affecting annual allocations amongst the Quad Cities.

b. **Non-Project-Specific Applications:** Unless partnering with OCR on specific projects or filing for source redundancy applications in Section 5a above, the Quad Cities shall file new water right applications jointly and consistent with the planning demands outlined in the Regional Water Forecast and Conservation Plan updates, and the 2000 Final Supplemental Environmental Impact Statement. As part of the

negotiation of this MOA, the Quad Cities will file the first of such applications. The Quad Cities shall reserve the right to allocate water awarded under such applications amongst themselves consistent with the planning objectives outlined in the Regional Water Forecast and Conservation Plan updates. If Project-Specific Applications for individual cities are also granted, then the Quad Cities shall coordinate how such individual water right permits affect regional water availability. Non-Project-Specific Applications are subject to the following guidelines:

i. **Mitigation Water:** A new water right may be granted to provide mitigation water for consumptive use impacts associated with Permit S4-30976P. Such water right may be in the form of a new water right permit, a trust water certificate, a reservoir permit, or other appropriate authorization for the project.

ii. **In-Lieu Water:** Ecology may develop water supplies with mitigation requirements that are deemed "superior" to those in Permit S4-30976P. In such cases, the Quad Cities may receive a permit in exchange for the voluntary cancellation of an equal amount of Permit S4-30976P.

iii. **Priority Date:** Consistent with RCW 90.03.340, the priority date of such applications filed by the Quad Cities or individual cities that are a party to this 2011 Quads MOA is the date of the filing of the application. OCR shall follow WAC 173-152 in the

processing of water right applications filed. However, if OCR holds a trust water right, it reserves the right to assign portions thereof to Quad Cities as mitigation water so long as the objectives of RCW 90.90.020 are met.

6. **Future Water Supply Development Partnership:** The Parties agree to partner opportunistically on water supply development projects that meet the objectives of this 2011 Quads MOA. It is anticipated by the Parties that water supply development costs will be project-specific; if Quad Cities elects to receive water under the OCR Program beyond the 6 cfs and 4,336.2 acre-feet of water for the first increment described in Section 2, OCR may recover direct costs for such water supply from the Quad Cities consistent with RCW 90.90. The goal of the Parties is to ensure uninterrupted growth consistent with Permit S4-30976P, and to have a reasonable, non-speculative quantity of water in reserve to bridge the gap between water supply development alternatives.

7. **City of Pasco and City of West Richland Water Right Deficits Resolved:** In the past, Ecology, the City of Pasco, and the City of West Richland have disagreed about commitments to resolve water right deficits (aka "holes") that pre-dated the issuance of Permit S4-30976P and the 2003 Settlement Agreement. By virtue of a water supply project funded by OCR and the associated 2011 Pasco MOU, the City of Pasco agrees all "hole" issues have

been resolved to its satisfaction. The City of West Richland agrees all "hole" issues have been resolved to its satisfaction based on the following:

a. Ecology's processing of numerous change decisions in 2008 providing for greater source flexibility amongst city sources and water rights.
b. Ecology's issuance of new water right permit G4-35203P to the City in 2010 for 1,650 gpm (additive to existing rights) and 2,661 acre-feet (non-additive to existing rights).
c. Ecology and the City's agreement in this MOA regarding pending City applications G4-32304 and G4-32395 as follows:
    i. Ecology and the City agrees the intent of modifying application G4-32304 and G4-32395 to a supplemental designation was to provide an alternate, but non-additive source of water for the Quads permit (S4-30976P).
    ii. If a quantity of water is approved by Ecology for application G4-32304 and G4-32395, then an equal quantity of Permit S4-30976P would be cancelled and a superseding permit issued.
    iii. Ecology agrees it will begin processing application G4-32304 and G4-32395, or will otherwise modify existing Permit G4-35203P[2], to meet the goal of issuing 2,800 gpm and 4,531 acre-feet of water additive to the existing groundwater rights, but with a commensurate reduction of 2,800 gpm and 4,531 acre-feet from Permit S4-30976.

[2] If Permit G4-35203P is modified to accomplish this goal, then the face sheet of the permit will reflect that the 2,661 acre-feet authorized is now additive, so long as 2,661 acre-feet of water from Quads Permit S4-30976P is similarly reduced.

iv. Consistent with RCW 90.03.290, Ecology can only approve applications where water is available, will not impair other rights or the public interest, and is for a beneficial use.

v. West Richland understands that the groundwater being requested is in an area with uncertain recharge and with a history of complaints regarding declining water levels that have necessitated deepening of pump depths. If Ecology processes less than 2,800 gpm and 4,531 acre-feet in new groundwater applications or permit amendments, Ecology and West Richland agree to enter into negotiations for OCR-funding of a feasibility study for a potential aquifer storage and recovery project.

8. **Regulatory Actions Not Constrained**: To the extent this MOU contemplates Ecology taking regulatory action on any application, permit, certificate, or other document, the parties understand that Ecology must make decisions consistent with legal requirements, notwithstanding this MOU. The parties further understand that such decisions are subject to possible appeal by other parties, and that if an appeal alters or reverses a decision by Ecology, Ecology shall be relieved of any obligation to the contrary under this MOU.

9. **MOU Not a Binding Contract**: This MOU is intended only to improve intergovernmental coordination and is not intended to and does not create a legally binding contract or any right or benefit, substantive or procedural, enforceable at law or in equity by any party against another party, its

directors, officers, employees or other persons. This MOU does not constitute an explicit or implicit agreement by the parties to subject the other party to the jurisdiction of any federal or state court over and above any rights or procedures presently available to the parties. This MOU shall not be construed to create any right to judicial review involving the compliance or noncompliance of the parties with the MOU.

10. **No Commitment Except as Authorized**: Nothing in this MOU shall be construed as committing any party to actions for which it lacks authority. All actions and schedules called for by this MOU are subject to and contingent upon the availability and allocation of future appropriations, existing and future limitations on a party's statutory authorities, and state and federal regulatory approvals as needed.

11. **Principle of Construction**: This Agreement has been prepared jointly by the parties following negotiations between them. The parties were represented by legal counsel of their choosing. It shall be construed according to its terms and not for or against any of the parties.

MOU Acceptance By:

Representing the Washington State Department of Ecology:

_____ **Date** 12/19/11

Derek Sandison, Director
Office of Columbia River

Representing City of Kennewick:

Peter M. Beaudry _____ **Date** 12/12/2011

Peter M. Beaudry
Director of Public Works
City of Kennewick

Representing City of Pasco:

_____ **Date** 12/13/2011

Ahmad Qayoumi
Public Works Director
City of Pasco

Representing City of Richland:

_____ **Date** 12/9/2011

Peter Rogalsky
Public Works Director
City of Richland

Representing City of West Richland:

_____ **Date** 12/9/2011

Roscoe C. Slade III
Public Works Director
City of West Richland

Appendix A: Buckley and Byerly Water Rights Summary

Name	Water Right	Consumptive Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Buckley	4672-A	cfs	0.00	0.00	0.00	1.47	1.47	1.47	1.10	0.00	1.10	0.00	0.00	0.00	
		ac-ft	0.00	0.00	0.00	87.32	90.23	87.32	21.78	0.00	65.34	0.00	0.00	0.00	351.98
Buckley	8416-A	cfs	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39	0.39	0.00	0.00	
		ac-ft	0.00	0.00	0.00	0.00	23.94	23.17	0.00	0.00	23.17	21.62	0.00	0.00	91.89
Buckley	1275-A(A)	cfs	0.00	0.00	0.00	1.39	1.39	1.39	0.00	0.00	1.02	2.13	0.00	0.00	
		ac-ft	0.00	0.00	0.00	49.54	85.32	41.28	0.00	0.00	32.31	126.52	0.00	0.00	334.98
Buckley	3099-A	cfs	0.00	0.00	0.00	0.85	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	
		ac-ft	0.00	0.00	0.00	50.49	52.17	50.49	0.00	0.00	50.49	52.17	13.46	0.00	269.28
Buckley	6417-A	cfs	0.00	0.00	0.00	0.00	0.76	0.76	0.00	0.00	0.76	0.76	0.00	0.00	
		ac-ft	0.00	0.00	0.00	0.00	46.65	45.14	0.00	0.00	24.08	46.65	0.00	0.00	162.52
Buckley	9537-A	cfs	0.00	0.00	0.00	0.00	1.77	1.77	0.00	0.00	1.77	1.77	0.00	0.00	
		ac-ft	0.00	0.00	0.00	0.00	108.64	52.57	0.00	0.00	56.07	108.64	0.00	0.00	325.93
Byerly	5283	cfs	0.356	0.356	0.356	0.303	0.303	0.303	0.231	0.231	0.231	0.356	0.356	0.356	
		ac-ft	21.85	19.74	21.85	17.99	18.59	17.99	14.33	14.19	13.73	21.61	21.15	21.85	224.87
Byerly	3605B	cfs	0.010	0.010	0.010	0.007	0.007	0.007	0.005	0.005	0.005	0.010	0.010	0.010	
		ac-ft	0.62	0.56	0.62	0.41	0.43	0.41	0.30	0.30	0.29	0.61	0.60	0.62	5.78
	Peak Rate (cfs)														**7.00**
	Monthly Total (ac-ft)		22.47	20.30	22.47	205.75	425.96	318.37	36.42	14.49	265.48	377.82	35.21	22.47	**1767.23**

Appendix B: Buckley, Byerly and Lake Roosevelt Water Rights Summary

Name	Consumptive Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Buckley and Byerly	cfs	0.37	0.37	0.37	4.02	6.94	6.94	1.34	0.24	6.13	6.27	1.22	0.37	6.94
	ac-ft	22.47	20.30	22.47	205.75	425.96	318.37	36.42	14.49	265.48	377.82	35.21	22.47	1767.23
Lake Roosevelt	cfs	0.00	0.00	0.00	13.25	13.25	13.25	13.25	13.25	0.00	0.00	0.00	0.00	13.25
	ac-ft	0.00	0.00	0.00	787.13	813.37	787.13	813.37	813.37	0.00	0.00	0.00	0.00	4014.37
Total	cfs	0.37	0.37	0.37	17.27	20.19	20.19	14.59	13.49	6.13	6.27	1.22	0.37	**20.19**
	ac-ft	22.47	20.30	22.47	992.88	1239.33	1105.50	849.79	827.86	265.48	377.82	35.21	22.47	**5781.60**

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☒ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☐ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
September 23, 1991 *	S4-30976	S4-30976P	

* The first ten cubic feet per second of this water right has a priority date of June 24, 1980, pursuant to WAC 173-531A-050(3).

NAME
Cities of Richland, Kennewick, Pasco and West Richland (c/o Richland)

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 190	Richland	WA	99352-0190

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Columbia River

TRIBUTARY OF (IF SURFACE WATERS)
Pacific Ocean

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
178 [1]		96,619 [1]

QUANTITY, TYPE OF USE, PERIOD OF USE
Municipal, industrial, commercial. Year-round Period of Use.

[1]The projected maximum instantaneous and annual diversions from 2002-2008 are 10 cubic feet per second and 7227 acre-feet per year; additional quantities to meet projected demands beyond 2008 are to be determined by a six year review process as described in the Provisions of this permit. The maximum cubic feet per second and acre-feet per year quantities shown above are the maximums that can be used by 2051.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
Approximate location: Multiple points within the Cities of Kennewick, Pasco, and Richland service areas, including all the existing municipal diversions and treatment facilities in Kennewick, Pasco and Richland (see table below).

Location of Points of Withdrawal/Diversion on the Columbia River

CITY	MAP ID NO.	WATER RIGHT/OTHER ID NO.	LOCATION
Richland	R-1	Energy NW	NENW Section 2, T. 11 N., R. 28 E.W.M.
	R-2	Battelle	SWNE Section 14, T. 10 N., R. 28 E.W.M.
	R-3	S4-29941P	SWNE Section 14, T. 10 N., R. 28 E.W.M.
	R-4	W.S.U.	SWSW Section 24, T. 10 N., R. 28 E.W.M.
	R-5	SWC 9004	SWSW Section 24, T. 10 N., R. 28 E.W.M.
	R-6	S4-26404C Water Treatment Plant	NWNW Section 36, T. 10 N., R. 28 E.W.M.
		S4-27121C	
		SWC 9005	
	R-7	14030C Columbia Point	SWNE Section 13, T. 9 N., R. 28 E.W.M.
		G4-29214P	
		G4-29799P	
	R-8	Badger Mountain Irrigation District	SWSE Section 23, T. 9 N., R. 28 E.W.M.
Pasco	P-1	Water Treatment Plant	SWNE Section 31, T. 9 N., R. 30 E.W.M.
	P-2	S3-28791P (Kidwell)	W½ Section 18, T. 9 N., R. 29 E.W.M.
Kennewick	K-1	S4-25479C (SW Filter Plant)	SWSW Section 31, T. 9 N., R. 30 E.W.M.
	K-2	3897-A (Ranney Wells)	Govt. Lots 1 and 2, Section 35, T 9 N, R 29 EWM
	K-3	Corps of Engineers-Columbia Park (Multiple Points)	Sections. 27, 28, 29, 34, 35, T. 9 N., R. 29 EWM

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
Refer to table above				37, 40, 31	Benton, Franklin

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The water will be used within the area provided with urban water service by Kennewick, Pasco, Richland and West Richland, as identified in the six-year updates of the Quad Cities' Water System Plans, and as currently shown on Figure 1 (attached).

FILE COPY

DESCRIPTION OF PROPOSED WORKS

The cities of Kennewick, Pasco and Richland will initially use their existing Columbia River water diversion and treatment facilities. Additional diversion/withdrawal facilities, including the potential construction of facilities capable of delivering water for storage and later withdrawal as part of an Aquifer Storage and Recovery (ASR) project and other pumps and pipes, will be added to the system incrementally as needed to respond to demand. Use of any new point of diversion will require the applicant to apply for and receive approval of a change of water right.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
October 1, 2003	October 1, 2050	October 1, 2051

PROVISIONS

Over the duration of this permit, diversion of water will not be permitted at any time the applicable flow objectives are not met UNLESS the consumptive portion of the diverted water is properly mitigated through such means as water transfers, replacements, habitat enhancements, or trust water right arrangements. The first ten cubic feet per second (cfs) of this water right are allocated from the John Day/McNary Pools reservation for municipal water use pursuant to WAC 173-531A-050.

The following conditions apply to this approval:

A. The Quad Cities shall provide municipal water to all municipal, industrial, and commercial users and uses within their urban service areas based on the Quad Cities' six-year updates of their Regional Water Forecast and Conservation Plan (RWFCP) described in Provision H.5.

B. This authorization is subject to Washington Department of Fish and Wildlife juvenile salmon and gamefish screening criteria (pursuant to RCW 75.20.040). Permit holders should contact the Department of Fish and Wildlife, 600 Capitol Way N., Olympia, WA 98501-1091, Attention: Habitat Management Division, Phone: (360) 753-3318 or call (509) 575-2734 for the Yakima Screen Shop to obtain specific gamefish (trout, bass, etc.) requirements for their projects.

C. An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC.

Water use data shall be recorded daily. The maximum monthly rate of diversion/withdrawal and the monthly total volume shall be submitted to Ecology by January 31st of each calendar year. Ecology is requiring submittal of monthly meter readings to collect seasonal information for water resource planning, management and compliance.

The following information shall be included with each submittal of water use data: owner, contact name if different, mailing address, daytime phone number, WRIA, Permit/Certificate, source name, annual quantity used including units, maximum rate of diversion including units, monthly meter readings including units, peak monthly flow including units, Department of Health WFI water system number and source number(s), purpose of use, fish screen status, open channel flow or pressurized diversion and period of use. In the future, Ecology may require additional parameters to be reported or more frequent reporting. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

(Continued on page 3)

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand the seal of this office at Yakima, Washington,

this 15th *day of* SEPTEMBER *2003.*

Department of Ecology

by _____

Robert F. Barwin, Section Manager

DATA REVIEW

OK RD

Provisions Continued

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

D. Following each six-year period, Ecology will issue a certificate for the amount of water put to beneficial use during that period after an investigation has been conducted. Compliance with any Ecology Order issued as part of the water use associated with the six-year period is a requirement of the certificate for that six-year increment.

E. Unless a new instream flow rule for the mainstem Columbia River is promulgated and Ecology approves an application by the Quad Cities to substitute these flows as conditions to this water right, the following flow objectives will apply:

Water may be appropriated under this permit ONLY when the following minimum instream flow requirements are EQUALLED OR EXCEEDED, or when the consumptive water use associated with appropriations under this permit are fully mitigated:

1. Between April 10 and June 30, the minimum flow measured at McNary Dam will depend on the April-September runoff forecast at The Dalles Dam, such that:

   a. if the forecast is 80 million acre-feet (MAF) or less, the minimum flow is 220,000 cfs;

   b. if the forecast is greater than 80 MAF and less than 92 MAF, the minimum flow is 220,000+((40(forecast-80)/12) x 1000) cfs;

   c. if the forecast is greater than 92 MAF, the minimum flow is 260,000 cfs.

2. Between July 1 and August 31, the minimum flow measured at McNary Dam is 200,000 cfs.

3. From September 1 through October 31, the minimum flow measured at McNary Dam is 80,000 cfs.

4. Between November 1 and April 9, the minimum flow measured at Bonneville Dam will range from 125,000 to 160,000 cfs, with the specific flow objective to be set by the FCRPS Technical Management Team every two weeks during that period.

Any future proposed mitigation plans submitted by the Quad-Cities for review by Ecology shall be governed by the following terms:

- Mitigation for appropriations beyond the first ten cfs will be according to the following "fifty percent or more/fifty percent or less" formula: fifty percent or more of water consumptively used by the Quad Cities during times when flows established in Provision E are not met will be mitigated by flow replacement using water upstream of the McNary Dam in the Columbia River system; the balance of the mitigation will be accounted for by fish habitat improvements that benefit Columbia River system fish at least to the same extent as would replacement water.

- For any habitat project mitigation proposed by the Quad-Cities under this provision, the Quad-Cities will demonstrate based upon best available science and other applicable legal requirements that the proposed mitigation will benefit Columbia River system fish at least to the same extent as would replacement water.

- In determining whether any habitat project mitigation proposed under this provision is acceptable, Ecology will consult with and give a high degree of deference to the Washington State Department of Fish and Wildlife, the Confederated Tribes and Bands of the Yakama Nation, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

- Any time Ecology approves the use of mitigation to offset diversion increments after the first increment (the first increment is defined as the first 10 cfs of diverted water), Ecology shall issue an order that is subject to appeal to the Pollution Control Hearings Board or any successor body with jurisdiction to hear appeals from Ecology water right decisions.

- To determine the amount of perpetual mitigation for the first increment of water use, Ecology has used an 80 percent consumptive use estimate; *i.e.*, Ecology has assumed that for the first 10 cfs of diverted water, there will be a consumptive use of 8 cfs. Concurrent with the times that the Quad Cities submit each successive Regional Water Forecast and Conservation Plan (RWFCP) Ecology will reevaluate this 80 percent consumptive use estimate based on then-current metering and other data showing actual water returned to the system, and will assure that the appropriate amount of water-for-water mitigation is in place. If consumptive use increases above 80%, in order to keep the diversion for the first 10 cfs not subject to interruption, Ecology will transfer into trust additional water rights from the McNary Pool to offset the additional consumptive use.

F. If a new instream flow rule for the mainstem Columbia River is promulgated, the Quad Cities may apply to Ecology to have these new flows substituted as permit conditions for the above flows. The application must be in a form and manner that sufficiently explains the basis for the request and the effect of the request on public interest, existing rights and water availability. Upon approval by Ecology, the new flow objectives will replace the conditions described above. Until different instream flow objectives are established through formal rulemaking and Ecology approval of an application by Quad Cities to have these flows applied as new conditions to this water right, the flows set forth above shall remain in effect for the duration of this permit.

G. Based on the flow replacement mitigation agreed to be supplied by Ecology for the first six-year increment, the maximum water diversion allowed under this permit shall be 10 cfs. If additional water is required prior to 2008, the process to obtain it is the same as that described in Provisions E and H.

H. To access water beyond the initial 10 cfs, the Quad Cities shall submit an updated RWFCP to the Department of Health and the Department of Ecology on a six-year schedule consistent with the schedule for review of water right quantities. The Quad Cities shall coordinate the preparation and completion of their individual water system plans and related supply, demand, and conservation programs. Prior to completion of the plans, the RWFCP will be completed jointly by the Quad Cities to compare demand to available supply and to evaluate the conservation achieved and the conservation projected resulting from implementation of the program described in section 6. The Quad Cities may submit the RWFCP for access to additional water, under the same process described in this condition, prior to any six-year interval if demand forecasts or other circumstances warrant earlier review. The full quantities of water recommended for a permit in this report may be appropriated in six-year increments associated with submittal of the RWFCP, and only when the applicable minimum instream flow is equaled or exceeded, or when the consumptive water use associated with appropriations under this permit is mitigated. Ecology will review the demand estimates, the water conservation elements of the plan, return flows estimates, and other relevant information contained in the plan that comprises the mitigation or flow replacement proposal. Following public comment, Ecology would approve, conditionally approve, or deny the proposed mitigation plan through an Order. If the Order denies the proposed mitigation or flow replacement proposal, then the appropriation for that 6-year increment would be subject to interruption when the flow objectives in this permit are not met, as described in Provision E.

1. The non-interruptibility of water use beyond the first 10 cfs requires that the Quad Cities submit a mitigation plan to Ecology for approval. Unless extraordinary circumstances exist, when the Quad Cities propose a mitigation plan for future diversion increments under their water right, the Quad Cities will submit their plan at least one year before the Quad Cities need a final decision from Ecology. Ecology will use this one year period for public notice, consultation, and to accomplish any necessary water right trust transfers. For purposes of this section "extraordinary circumstances" is defined only as factual circumstances that establish the need for an Ecology response time of less than one year. In no case will Ecology shorten its review and decision time so as to preclude Ecology from fulfilling its public notice and consultation obligations. The mitigation required for withdrawals of water in the succeeding six-year periods shall be proposed by the Quad Cities in their six-year RWFCPs for approval by the Department of Ecology.

2. Upon issuance of an Order by Ecology approving, in conformance with Provision E of this permit, one or more trust water rights or approving another replacement water program or a mitigation program proposed by the permittee to offset the full projected consumptive use during periods when flow objectives are not met, the six-year appropriation will not be conditioned as interruptible.

3. The maximum quantity of withdrawals of water requiring mitigation during the succeeding six-year periods will be presented in the RWFCPs and determined by subtracting estimated return flow from the maximum diversion amount. Return flow calculations shall be based on best available science and shall reflect seasonal conditions. During the course of that six-year period, actual quantities to be mitigated will depend on daily recording and monthly reporting of actual water use under this permit, return flow estimates corresponding to the season of water use, and whether or not the then current flow objectives are achieved during that period.

4. Each RWFCP shall include a Conservation Program demonstrating how the best available and reasonable conservation technology will be implemented in the subsequent six-year period. The Conservation Program shall meet, as a minimum for the entire life of this permit, current (as of date prepared) Department of Health requirements as well as the conservation conditions described below. In addition, the RWFCP with its Conservation Program shall be submitted to the Department of Ecology for review and approval consistent with the six-year schedule for reviewing water rights. The RWFCP shall propose and implement water conservation activities in the following areas: reducing leakage and unaccounted for water from the municipal water supply system; and monitoring, accounting for (separately) and reducing commercial, industrial, residential (indoor) and landscape water use. The Conservation Program shall include a detailed profile of current water use characteristics for each conservation category defined above including their total annual demand, average demand, unit demand and peak demand. Compliance with the Conservation Program for each six year period shall be a condition of the permit.

5. The Quad Cities RWFCP shall comply with Department of Health rules (*Conservation Planning Requirements, Washington State Department of Health PUB 331-008, March 1994*) which currently require that these plans contain, as a minimum:

   - *Water Use Data Collection Requirements*. Systems must report the best currently available data on water use for the categories of use, which are identified by the department.

- *Water Demand Forecast.* A complete forecast, including an estimate of reduction of water use from implementation of water conservation measures, must be developed.
- *Conservation Program.* A Conservation Program must be developed and implemented. The Conservation Program elements must include: Conservation Objectives; Evaluation of Conservation Measures; and Identification of Selected Conservation Activities.

If the Department of Health adopts more stringent rules relating to water conservation, the Quads Cities will plan and implement their plans to meet or exceed the more stringent rules.

6. In addition to the general water conservation requirements described above, the following Conservation Program activities are required as conditions of this permit. The Quad Cities will initiate development of the following programs within one year after issuance of the permit and will adopt them for implementation within two years of the date of permit issuance.

For the purposes of the following conservation program elements, the term "implement" means obtaining and expending funding for capital facilities and operational staff, program assessment, and monitoring and reporting associated with each program element in a manner and on a schedule to achieve, and once achieved to maintain, the stated goal or target.

i. Leak Detection Program

The Quad Cities shall implement a program to reduce leakage and unaccounted for water for each water supply system within the Quad Cities area. Leakage and unaccounted for water includes water loss due to leaking water mains and smaller distribution lines and inefficient fixtures, including inaccurate metering. Unaccounted for or unmetered water consumption also includes uses such as street sweeping, contractors, flushing hydrants, dust control, and erosion control by the Cities, County and private parties. The goal of the program is to reduce unaccounted for water to no more than 10% of the total diversion by 12/31/2010.The improvements to achieve the goal that are not concluded by 2010 must be identified and incorporated in the State approved Water System Plan for the city's capital improvement program with a completion date of no more than 2016.

ii. Large Meter Testing Program

The Quad Cities shall implement a program by December 31, 2005 to test all large meters (greater than 2-inches diameter, primarily used in commercial/industrial connections) and repair or replace all meters found to be defective. The testing and maintenance program will continue after the December 31, 2005 date on a schedule consistent with the manufacturer's recommendations.

iii. Residential Meter Repair/Replacement Program

The Quad Cities shall implement a program by December 31, 2005 to test and repair or replace all residential water meters on a schedule consistent with manufacturers' recommendations. The testing and replacement program will continue after the December 31, 2005 date on an appropriate schedule to ensure that the users meters are reasonably accurate.

iv. Residential Retrofit Program

The Quad Cities shall implement a residential retrofit program by December 31, 2004 to provide the public with low-flow shower heads, toilet tank displacement bags, leak detection tablets and other residential water conservation measures. The initial program will be completed by December 31, 2008.

v. Source Metering Replacement and Improvement

The Quad Cities shall implement a source metering replacement and improvement program by December 31, 2005 to ensure that all water sources are accurately monitored.

vi. Develop a Water Audit Program for Large Water Users

The Quad Cities shall develop and implement a water audit program for large (commercial, industrial and institutional) water users. At least 50% of the large water users will be audited by December 31, 2007 and the remainder of the audits completed by 2010. The water audit program shall continue on an ongoing repeat schedule for those large customers where the audit suggests that reasonable additional water use reduction is possible.

vii. **Develop a Joint Plan with Irrigation Districts to address Urban Area Irrigation Needs**

The Quad Cities shall pursue development of a Joint Plan with Irrigation Districts whose service areas overlap with the Quad Cities service area. The Plan shall address irrigation water supplies for landscape use (e.g., which entity supplies landscape water and Quad Cities policies on serving those areas) and landscape water demands during water-short periods when Irrigation Districts may prorate their water users. This plan will be completed by December 31, 2009.

viii. **Develop an Integrated Water Shortage and Drought Response Plan**

The Quad Cities shall develop an integrated Water Shortage and Drought Response Plan for periods when water demands exceed allowed diversions. This plan will be completed by December 31, 2007.

ix. **Develop a recommended School Education Program**

The Quad Cities will work with the school districts within the UGA for the Quad Cities to define appropriate classroom materials and assist the school districts with implementation of the program. The plan will be outlined and a recommended program be adopted for initial implementation by the cities within two years from the issuance of the permit. The implementation in the schools will be on the schedule approved by the school districts.

x. **Develop a General Public Education Program.**

The Quad Cities will develop a public education program as committed to in the Regional Water Supply Plan that will include outreach to all customers emphasizing the efficient use of both indoor and outdoor watering, consumptive use records on water bills, the promotion of water efficient devices such as low flow shower heads, and regional publications explaining conservation programs. This program shall be developed by December 31, 2005 and implemented on an on-going basis.

I. This permit herein recommended is specifically subordinate to any future permits that may be issued under applications No. S4-29956, S4-30052, R4-30102, S4-30185, S4-30465, and S4-30584.

RECD BY AUG 27 2003

Pollution Control Hearing Board
Shorelines Hearings Board
Forest Practices Appeals Board
Hydraulics Appeals Board

(360) 459-6327
FAX (360) 438-7699
E-Mail: EHO@EHO.WA.GOV
INTERNET: http://www.eho.wa.gov

STATE OF WASHINGTON

ENVIRONMENTAL HEARINGS OFFICE

4224 - 6th Avenue SE, Bldg. 2, Rowe Six
P.O. Box 40903, Lacey, WA 98504-0903

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THOMAS M. PORS

August 19, 2003

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RE: PCHB NO. 02-216
CENTER FOR ENVIRONMENTAL LAW & POLICY v. ECOLOGY and CITIES OF RICHLAND, KENNEWICK, PASCO & WEST RICHLAND

Dear Parties:

Enclosed is the Stipulation, Settlement Agreement and Order of Dismissal in this matter.

The Board appreciates your efforts in reaching this settlement.

Sincerely yours,

Robert V. Jensen
Presiding

RVJ/P 02-216 ltr
Cc: Water Resources Hearing Coordinator
Enc.

CERTIFICATION
On this day, I forwarded a true and accurate copy of the documents to which this certificate is affixed via United States Postal Service postage prepaid to the attorneys of record herein. I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and cc
DATED 8-19-03 at Lacey, WA.

ORIGINAL

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BEFORE THE POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

CENTER FOR ENVIRONMENTAL LAW & POLICY, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, and CITIES OF RICHLAND, KENNEWICK, PASCO and WEST RICHLAND, Respondents.	PCHB No. 02-216 STIPULATION, SETTLEMENT AGREEMENT AND ORDER OF DISMISSAL

The parties, Center For Environmental Law and Policy (CELP), the Washington State Department of Ecology (Ecology), and the Cities of Richland, Kennewick, Pasco and West Richland (collectively Quad-Cities), through their attorneys, Karen Allston and Shirley Nixon (for CELP), Assistant Attorneys General Barbara Markham and Sarah Bendersky (for Ecology), and Tom Pors (for the Quad-Cities) enter into the following:

STIPULATION

1. On November 19, 2002, Ecology issued a Report of Examination to the Quad-Cities approving with conditions application S4-30976 for a municipal, industrial, and commercial water right from the Columbia River.

2. On December 18, 2002, CELP appealed the Report of Examination to the Pollution Control Hearings Board.

3. To avoid the costs, time, and uncertainty associated with litigation, the parties have entered into the following SETTLEMENT AGREEMENT to fully and finally resolve CELP's appeal.

SETTLEMENT AGREEMENT

1. Within 30 days of dismissal of this case by the PCHB as contemplated by this SETTLEMENT AGREEMENT, Ecology will issue a water right permit to the Quad-Cities.[1] Except as modified by the terms of this SETTLEMENT AGREEMENT, the permit will be consistent with the terms contained in the November 19, 2002, Report of Examination. The permit will include the ROE conditions and Recommendations A through I, and the terms specified in paragraphs 2, 3, 6, 7, 8, and 11 of this SETTLEMENT AGREEMENT.

2. The permit issued to the Quad-Cities will expressly specify that any time Ecology approves the use of mitigation to offset diversion increments after the first increment (the first increment is defined as the first 10 cubic feet per second (cfs) of diverted water), Ecology shall issue an order that is subject to appeal to the Pollution Control Hearings Board or any successor body with jurisdiction to hear appeals from Ecology water right decisions.

3. The permit issued to the Quad-Cities will expressly set forth the additional conservation requirements set forth in Exhibit A to this Settlement Agreement. The permit will specify that these conservation requirements will be the minimum conservation requirements that the Quad-Cities shall meet during the entire life of the permit. If the Department of Health adopts more stringent rules relating to water conservation, the Quad-Cities will plan and implement their plans to meet or exceed the more stringent rules.

4. With respect to the Quad-Cities' diversion of the first increment (10 cfs) of water, the right to divert water will be interrupted when the specified flow conditions described in Condition E are not met, unless the following mitigation for consumptive use is in place. Table 5 in the November 19, 2002 Report of Examination identifies the two groups of

water rights Ecology currently intends to use as mitigation for the first increment of Quad-Cities' water use. The first group is listed in the first 6 columns of Table 5 under the heading "Department of Ecology Trust Water Rights" (hereafter referred to as "the Buckley trust water rights"). The second group is listed in the second half of the table and labeled as the Grandview Farm Water Rights (hereafter referred to as "the Simplot water"). To make the Buckley trust water rights eligible to be considered as mitigation for the Quad-Cities' water right, Ecology will change the purpose and place of use of the Buckley water rights so that the purpose of use includes "mitigation for municipal use" and so that the place of use includes "the McNary Pool of the Columbia River". To make the Simplot water eligible to be considered as mitigation for the Quad-Cities' water right, Ecology will complete the steps necessary to put the Simplot water into trust with the purpose of use designated as "mitigation for municipal use" and the place of use designated as "the McNary Pool of the Columbia River." If Ecology is unable to complete the acquisition of the Simplot water, Ecology must acquire and put into trust other water rights from the McNary Pool of an equivalent quantity as the Simplot water. The intent of this paragraph is that trust water rights used for mitigation shall be from the McNary Pool and of equivalent quantity and period of use as shown in Table 5 of the ROE.

5. CELP believes that water already placed in trust should not subsequently serve as mitigation for later appropriations. CELP does not believe that the Buckley trust water rights constitute sufficient mitigation to offset the Quad-Cities' diversion of water from the Columbia River. In the interests of settlement, however, and so long as the trust water right certificates are amended as described in the preceding paragraph, above, CELP is accepting the use of these rights as mitigation for a portion of the first 10 cfs of the Quad-Cities' diversion. The Parties agree that they will not cite the use of this mitigation, or the fact of entry into this SETTLEMENT AGREEMENT, for legal or policy precedent for future mitigation efforts.

6. To determine the amount of perpetual mitigation for the first increment of water use, Ecology has used an 80 percent consumptive use estimate. *I.e.*, Ecology has assumed that for the first 10 cfs of diverted water, there will be a consumptive use of 8 cfs. Concurrent with the times that the Quad Cities submit each successive Regional Water Forecast and Conservation Plan (RWFCP) Ecology will reevaluate this 80 percent consumptive use estimate based on then-current metering and other data showing actual water returned to the system, and will assure that the appropriate amount of water-for-water mitigation is in place. If consumptive use increases above 80%, in order to keep the diversion for the first 10 cfs not subject to interruption, Ecology will transfer into trust additional water rights from the McNary Pool to offset the additional consumptive use.

7. Any future proposed mitigation plans submitted by the Quad-Cities for review by Ecology shall be governed by the following terms:

a. Mitigation for appropriations beyond the first ten cfs will be according to the following "fifty percent or more/fifty percent or less" formula: fifty percent or more of water consumptively used by the Quad Cities during times when flows established in Condition E are not met will be mitigated by flow replacement using water upstream of the McNary Dam in the Columbia River system; the balance of the mitigation will be accounted for by fish habitat improvements that benefit Columbia River system fish at least to the same extent as would replacement water.

b. For any habitat project mitigation proposed by the Quad-Cities under this provision, the Quad-Cities will demonstrate based upon best available science and other applicable legal requirements that the proposed mitigation will benefit Columbia River system fish at least to the same extent as would replacement water.

c. In determining whether any habitat project mitigation proposed under this provision is acceptable, Ecology will consult with and give a high degree of deference to the Washington State Department of Fish and Wildlife, the Confederated Tribes and

Bands of the Yakama Nation, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

d. *Reopener.* During the life of the Quad-Cities' permit, any party hereto may request that the other parties accept a mitigation formula using a percentage different than the fifty or more-fifty or less percentages specified in paragraph 7a. Any agreement among the parties to revise these percentages shall be documented through a written amendment to this agreement signed by all of the parties.

8. The permit issued to the Quad-Cities will expressly specify that 10 cfs of the Quad-Cities' water right is allocated from the John Day/McNary Pools reservation for municipal water use pursuant to WAC 173-531A-050. Ecology will reduce the amount of water available from the municipal reservation established under WAC ch. 173-531A to reflect this allocation to the Quad-Cities.

9. Thirty-one days after: (a) the permit is issued, provided there are no appeals, or (b) after all appeals are finally terminated, Quad-Cities has the affirmative obligation to:

a. Withdraw all pending applications for new water rights except for certain groundwater applications that are for supplemental rights for alternate places of withdrawal. A list of all pending applications to be withdrawn pursuant to this section is attached to this agreement as Exhibit B. The City of Richland shall request to Ecology in writing that Applications G4-30990, G4-30981 and G4-30980 be issued as supplemental to the annual quantity of the Quad-Cities' permit S4-30976. The City of West Richland shall request to Ecology in writing that Applications G4-32304 and G4-32395 be issued as supplemental to the annual quantity of the Quad-Cities' permit S4-30976.

b. Abandon or voluntarily relinquish all water rights that the Quad-Cities are not currently using. A list of all water rights (represented by claims, certificates, or permits) to be abandoned or voluntarily relinquished pursuant to this section is attached to this agreement as Exhibit C.

10. Ecology considers the top three paragraphs at the top of page 11 of the November 19, 2002, Report of Examination stricken from the ROE. The permit will include no reference to the top three paragraphs at the top of page 11 of the Report of Examination or the content therein, and Ecology agrees that the language and content therein has no precedential effect.

11. The non-interruptibility of water use beyond the first 10 cfs requires that the Quad Cities submit a mitigation plan to Ecology for approval. Unless extraordinary circumstances exist, when the Quad-Cities proposes a mitigation plan for future diversion increments under their water right, the Quad-Cities will submit their plan at least one year before the Quad-Cities needs a final decision from Ecology. Ecology will use this one year period for public notice, consultation, and to accomplish any necessary water right trust transfers. For purposes of this section "extraordinary circumstances" is defined only as factual circumstances that establish the need for an Ecology response time of less than one year. In no case will Ecology shorten its review and decision time so as to preclude Ecology from fulfilling its public notice and consultation obligations.

12. Ecology will provide input and actively participate in the Department of Health's statewide rulemaking efforts required by the Laws of 2003, E2SHB 1338, Section 7, addressing (a) conservation requirements, (b) needs assessments and (c) needs projections for water systems plans.

13. By April 30, 2004, Ecology will complete its development of a guidance document describing how and when it will perform a "maximum net benefits analysis" in the context of water resource rulemaking. In developing this guidance document Ecology will

seek input from CELP and other interested parties. At a minimum, Ecology agrees to meet with representatives from CELP every other month between September 2003 and April 2004 to review, discuss, and consider CELP proposals regarding the scope and content of this guidance document.

14. Ecology will not file a CR 102 containing draft rule language pertaining to the rulemaking for the Columbia River pursuant to the Columbia River Regional Initiative until after Ecology receives a final report and recommendations from the National Academy of Sciences (NAS) panel.

15. Subject to the limitations contained in this section, Ecology will not process any applications for new water rights permits from the Columbia River during the pendency of the Columbia River Regional Initiative process and before the date that rules related to that process become effective, or until January 1, 2005, whichever date is earlier. Ecology will abide by this suspension to the extent it is authorized to do so by law. Ecology will process applications during the suspension only: (a) if a court orders it to process an application, or (b) if an application is for a nonconsumptive use that would substantially enhance or protect the quality of the natural environment, or (c) if the agency must process an application to address a public health and safety emergency. The Quad-Cities agree not to sue or otherwise seek court orders compelling Ecology to process any pending application for a new water right from the Columbia River during the time frame set forth in this paragraph.

16. CELP agrees not to appeal, or assist anyone else in an appeal, of the permit issued pursuant to this SETTLEMENT AGREEMENT or any modification to the purpose or place of use of the Buckley trust rights, except that the permit issued may be appealed if its terms varies from the terms of this SETTLEMENT AGREEMENT. CELP and the Quad-Cities reserve the right to appeal any other future appealable orders of Ecology, including those described in paragraph 2 of this SETTLEMENT AGREEMENT.

17. Based upon the terms of this SETTLEMENT AGREEMENT, the parties jointly request that the PCHB enter the following order dismissing this case with prejudice.

CHRISTINE O. GREGOIRE
Attorneys for Department of Ecology

Dated: 8/7/03

BARBARA A. MARKHAM, WSBA #30234
(360) 586-6749

Dated: 8/7/03

SARAH BENDERSKY, WSBA #30481
(360) 586-6770

CENTER FOR ENVIRONMENTAL LAW & POLICY

Dated: 8/8/03

KAREN ALLSTON, WSBA #25336
(206) 223-8454

Dated: 8/8/03

SHIRLEY WATERS NIXON, WSBA #25756
(~~360~~) ~~457-2711~~ (206) 223-8454

CITY OF KENNEWICK

Dated: 7-30-03

JOHN S. ZIOBRO, WSBA #25991
(509) 585-4272

CITY OF WEST RICHLAND

Dated: 7-29-03

TERRY M. TANNER, WSBA #21381
TANNER & HUI
(509) 943-0654

CITY OF RICHLAND

Dated: 8/6/03

THOMAS O. LAMPSON, WSBA #13707
(509) 942-7385

CITIES OF RICHLAND, KENNEWICK, PASCO AND WEST RICHLAND

Dated: 8/6/03

THOMAS M. PORS, WSBA #1778
LAW OFFICE OF THOMAS M PORS
(206) 340-4396

CITY OF PASCO

Dated: 7/29/03

LELAND B. KERR, WSBA #6059
PAINE, HAMBLEN COFFIN
BROOKE & MILLER LLP
(509) 735-1542

I. ORDER OF DISMISSAL

This matter having come before the Pollution Control Hearings Board upon the joint motion of the parties and based upon the SETTLEMENT AGREEMENT, and the Board having reviewed the SETTLEMENT AGREEMENT and the records and files herein, and having determined that the parties have agreed to a full and complete settlement of this appeal, now, therefore,

IT IS ORDERED that:

1. The appeal of *CELP v. Ecology and the Cities of Richland, Kennewick, Pasco and West Richland*, PCHB No. 02-216 is dismissed with prejudice;

2. Each party is to bear its own costs and fees.

Dated this 19th day of August, 2003.

POLLUTION CONTROL HEARINGS BOARD

ROBERT V. JENSEN, Presiding

KALEEN COTTINGHAM, Member

WILLIAM H. LYNCH, Member

Presented by:

CHRISTINE O. GREGOIRE
Attorneys for Department of Ecology

BARBARA A. MARKHAM
SARAH BENDERSKY
(360) 586-6749

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CITY OF RICHLAND

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CITY OF PASCO

LELAND B. KERR, WSBA #6059
PAINE, HAMBLEN COFFIN
BROOKE & MILLER LLP
(509) 735-1542

H. To access water beyond the initial 10 cfs, the Quad Cities shall submit an updated RWFCP to the Department of Health and the Department of Ecology on a six-year schedule consistent with the schedule for review of water right quantities. The Quad Cities shall coordinate the preparation and completion of their individual water system plans and related supply, demand, and conservation programs. Prior to completion of the plans, the RWFCP will be completed jointly by the Quad Cities to compare demand to available supply and to evaluate the conservation achieved and the conservation projected resulting from implementation of the program described in section 6. The Quad Cities may submit the RWFCP for access to additional water, under the same process described in this condition, prior to any six-year interval if demand forecasts or other circumstances warrant earlier review. The full quantities of water recommended for a permit in this report may be appropriated in six-year increments associated with submittal of the RWFCP, and only when the applicable minimum instream flow is equaled or exceeded, or when the consumptive water use associated with appropriations under this permit is mitigated. Ecology will review the demand estimates, the water conservation elements of the plan, return flows estimates, and other relevant information contained in the plan that comprises the mitigation or flow replacement proposal. Following public comment, Ecology would approve, conditionally approve, or deny the proposed mitigation plan through an Order. If the Order denies the proposed mitigation or flow replacement proposal, then the appropriation for that 6-year increment would be subject to interruption when the flow objectives in this permit are not met, as described in Condition E.

1. The non-interruptibility of water use beyond the first 10 cfs requires that the Quad Cities submit a mitigation plan to Ecology for approval. Unless extraordinary circumstances exist, when the Quad Cities propose a a mitigation plan for future diversion increments under their water right, the Quad Cities will submit their plan at least one year before the Quad Cities need a final decision from Ecology. Ecology will use this one year period for public notice, consultation, and to accomplish any necessary water right trust transfers. For purposes of this section "extraordinary circumstances" is defined only as factual circumstances that establish the need for an Ecology response time of less than one year. In no case will Ecology shorten its review and decision time so as to preclude Ecology from fulfilling its public notice and consultation obligations. The mitigation required for withdrawals of water in the succeeding six-year periods shall be proposed by the Quad Cities in their six-year RWFCPs for approval by the Department of Ecology.

2. Upon issuance of an Order by Ecology approving in conformance with Recommendation E of this permit one or more trust water rights or approving another replacement water program or a mitigation program proposed by the permittee to offset the full projected consumptive use during periods when flow objectives are not met, the six-year appropriation will not be conditioned as interruptible.

3. The maximum quantity of withdrawals of water requiring mitigation during the succeeding six-year periods will be presented in the RWFCPs and determined by subtracting estimated return flow from the maximum diversion amount. Return flow calculations shall be based on best available science and shall reflect seasonal conditions. During the course of that six-year period, actual quantities to be mitigated will depend on daily recording and monthly reporting of actual

water use under this permit, return flow estimates corresponding to the season of water use, and whether or not the then current flow objectives are achieved during that period.

4. Each RWFCP shall include a Conservation Program demonstrating how the best available and reasonable conservation technology will be implemented in the subsequent six-year period. The Conservation Program shall meet, as a minimum, current (as of date prepared) Department of Health requirements as well as the conservation conditions described below. In addition, the RWFCP with its Conservation Program shall be submitted to the Department of Ecology for review and approval consistent with the six-year schedule for reviewing water rights. The RWFCP shall propose and implement water conservation activities in the following areas: reducing leakage and unaccounted for water from the municipal water supply system; and monitoring, accounting for (separately) and reducing commercial, industrial, residential (indoor) and landscape water use. The Conservation Program shall include a detailed profile of current water use characteristics for each conservation category defined above including their total annual demand, average demand, unit demand and peak demand. Compliance with the Conservation Program for each six year period shall be a condition of the permit.

5. The Quad Cities RWFCP shall comply with Department of Health rules (*Conservation Planning Requirements, Washington State Department of Health PUB 331-008, March 1994*) which currently require that these plans contain, as a minimum:

   - *Water Use Data Collection Requirements.* Systems must report the best currently available data on water use for the categories of use, which are identified by the department.
   - *Water Demand Forecast.* A complete forecast, including an estimate of reduction of water use from implementation of water conservation measures, must be developed.
   - *Conservation Program.* A Conservation Program must be developed and implemented. The Conservation Program elements must include: Conservation Objectives; Evaluation of Conservation Measures; and Identification of Selected Conservation Activities.

   If the Department of Health adopts more stringent rules relating to water conservation, the Quads Cities will plan and implement their plans to meet or exceed the more stringent rules.

6. In addition to the general water conservation requirements described above, the following Conservation Program activities are required as conditions of this permit. The Quad Cities will initiate development of the following programs within one year after issuance of the permit and will adopt them for implementation within two years of the date of permit issuance.

   For the purposes of the following conservation program elements, the term "implement" means obtaining and expending funding for capital facilities and operational staff, program assessment, and monitoring and reporting associated

with each program element in a manner and on a schedule to achieve, and once achieved to maintain, the stated goal or target.

i. **Leak Detection Program**

The Quad Cities shall implement a program to reduce leakage and unaccounted for water for each water supply system within the Quad Cities area. Leakage and unaccounted for water includes water loss due to leaking water mains and smaller distribution lines and inefficient fixtures, including inaccurate metering. Unaccounted for or unmetered water consumption also includes uses such as street sweeping, contractors, flushing hydrants, dust control, and erosion control by the Cities, County and private parties. The goal of the program is to reduce unaccounted for water to no more than 10% of the total diversion by 12/31/2010.The improvements to achieve the goal that are not concluded by 2010 must be identified and incorporated in the State approved Water System Plan for the city's capital improvement program with a completion date of no more than 2016.

ii. **Large Meter Testing Program**

The Quad Cities shall implement a program by December 31, 2005 to test all large meters (greater than 2-inches diameter, primarily used in commercial/industrial connections) and repair or replace all meters found to be defective. The testing and maintenance program will continue after the December 31,2005 date on a schedule consistent with the manufacturers recommendations.

iii. **Residential Meter Repair/Replacement Program**

The Quad Cities shall implement a program by December 31, 2005 to test and repair or replace all residential water meters on a schedule consistent with manufacturers' recommendations. The testing and replacement program will continue after the December 31,2005 date on an appropriate schedule to ensure that the users meters are reasonably accurate.

iv. **Residential Retrofit Program**

The Quad Cities shall implement a residential retrofit program by December 31, 2004 to provide the public with low-flow shower heads, toilet tank displacement bags, leak detection tablets and other residential water conservation measures. The initial program will be completed by December 31, 2008.

v. **Source Metering Replacement and Improvement**

The Quad Cities shall implement a source metering replacement and improvement program by December 31, 2005 to ensure that all water sources are accurately monitored.

vi. **Develop a Water Audit Program for Large Water Users**

The Quad Cities shall develop and implement a water audit program for large (commercial, industrial and institutional) water users. At least 50% of the large water users will be audited by December 31, 2007 and the remainder of the audits completed by 2010. The water audit program shall continue on an ongoing repeat schedule for those large customers where the audit suggests that reasonable additional water use reduction is possible.

vii. **Develop a Joint Plan with Irrigation Districts to address Urban Area Irrigation Needs**

The Quad Cities shall pursue development of a Joint Plan with Irrigation Districts whose service areas overlap with the Quad Cities service area. The Plan shall address irrigation water supplies for landscape use (e.g., which entity supplies landscape water and Quad Cities policies on serving those areas) and landscape water demands during water-short periods when Irrigation Districts may prorate their water users. This plan will be completed by December 31, 2009.

viii. **Develop an Integrated Water Shortage and Drought Response Plan**

The Quad Cities shall develop an integrated Water Shortage and Drought Response Plan for periods when water demands exceed allowed diversions. This plan will be completed by December 31, 2007.

ix. **Develop a recommended School Education Program**

The Quad Cities will work with the school districts within the UGA for the Quad Cities to define appropriate classroom materials and assist the school districts with implementation of the program. The plan will be outlined and a recommended program be adopted for initial implementation by the cities within two years from the issuance of the permit. The implementation in the schools will be on the schedule approved by the school districts.

x. **Develop a General Public Education Program.**

The Quad Cities will develop a public education program as committed to in the Regional Water Supply Plan that will include outreach to all customers emphasizing the efficient use of both indoor and outdoor watering, consumptive use records on water bills, the promotion of water efficient devices such as low flow shower heads, and regional publications explaining conservation programs. This program shall be developed by December 31, 2005 and implemented on an on-going basis.

Quad Cities
Water Rights for Settlement
Exhibit B - Pending Applications to be Withdrawn

Water Right Number	Instantaneous Quantity (gpm)	Annual Quantity (Acre-Feet)	Source	Priority
Applications to be Withdrawn				
Pasco				
G3-29957	2,500	4,032	Wellfield	April 16, 1996
S3-29979	7,181	6,400	Columbia River	August 6, 1996
Richland				
G4-30262	250		Well	May 24, 1990
S4-30185	5,660	2,042	Columbia River	November 22, 1989

Quad Cities
Water Rights for Settlement
Exhibit C - Water Rights and Claims to be Voluntarily Relinquished

Water Right Number	Instantaneous Quantity (gpm)	Annual Quantity (Acre-Feet)	Source	Priority
Kennewick				
Water Right Claim No. 301518	44,800	6,000	Columbia River	July 1906
Richland				
Claim 063206	500	80	Well D-15	May-44
Certificate 5532	2,000	3,200	Well	March 21, 1960
Certificate 6134	1,200	1,920	Well	December 18, 1961

WASHINGTON STATE DEPARTMENT OF ECOLOGY

APPLICATION FOR PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

RECEIVED SEP 23 1991 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

☒ SURFACE WATER ☐ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
S 430976	40	Benton	9-23-91		OR

APPLICANT'S NAME — PLEASE PRINT: CITY OF RICHLAND

Bus. Tel. 509-943-9161
Home Tel.
Other Tel.

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P. O. Box 190	Richland	WA	99352

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE): Columbia River	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.)
TRIBUTARY	SIZE AND DEPTH

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)
Primarily for industrial and commercial uses with some municipal.

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF: CUBIC FEET PER SECOND (CFS) 178 **OR** GALLONS PER MINUTE (GPM) 80,000 | ACRE FEET PER YEAR

Continuous municipal supply, industrial, commercial

TIMES DURING YEAR WATER WILL BE REQUIRED
January 1 through December 31.

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, 1-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY 65,000
DATE PROJECT WAS OR WILL BE STARTED: April 1992	DATE PROJECT WAS OR WILL BE COMPLETED: June 1993	

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION, SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.
850 feet West and 2450 feet South of NE sorner of Section 14.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
SE 1/4 of NE 1/4	14	T 10 N	R 28 E	Benton

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER

5. LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED*

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM **A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY.** OR, COPY CAREFULLY IN THE SPACE BELOW.

The water will be used within the municipal city limits of Richland.

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH THE WATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONTRACT PURCHASER, ETC.)

Municipal government providing water service.

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.) ☒ YES ☐ NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Other municipal and private water rights within the municipal city limits.

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.

An intake will be installed in the Columbia River with four 1750 horsepower, 20,000 gallons per minute pumps, 15,000 feet of 60-inch diameter pipe line will be installed from the intake to the first customer.

REMARKS

7.

8.

COMPLETE THIS SECTION ONLY IF THIS APPLICATION INCLUDES IRRIGATION AS A USE

IN ORDER TO IMPLEMENT THE PROVISIONS OF INITIATIVE MEASURE NUMBER 59, THE FAMILY FARM WATER ACT WHICH WAS PASSED BY THE VOTERS ON NOVEMBER 3, 1977, WE MUST ASK THE FOLLOWING QUESTIONS:

DOES THE TOTAL NUMBER OF ACRES IN WHICH YOU HAVE CONTROLLING INTEREST IN THE STATE OF WASHINGTON EXCEED 2000 ACRES FOR THE FOLLOWING THREE CATEGORIES:

1. LANDS THAT ARE BEING IRRIGATED UNDER WATER RIGHTS ACQUIRED AFTER DECEMBER 8, 1977. YES ☐ NO ☐
2. LANDS THAT MAY BE IRRIGATED UNDER APPLICATIONS NOW ON FILE WITH THE DEPARTMENT OF ECOLOGY. YES ☐ NO ☐
3. LANDS THAT MAY BE IRRIGATED UNDER THIS APPLICATION. YES ☐ NO ☐

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

Stanley R. Cole
APPLICANT'S SIGNATURE

City of Richland
LEGAL LANDOWNERS NAME (PLEASE PRINT)

Water and Wastewater Utilities Director
LEGAL LANDOWNER'S SIGNATURE (OWNER OF PROPERTY DESCRIBED IN ITEM NUMBER 5)

P.O. Box 190, Richland WA 99352
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARATMENT OF ECOLOGY } ss.

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before ....., *19*.....

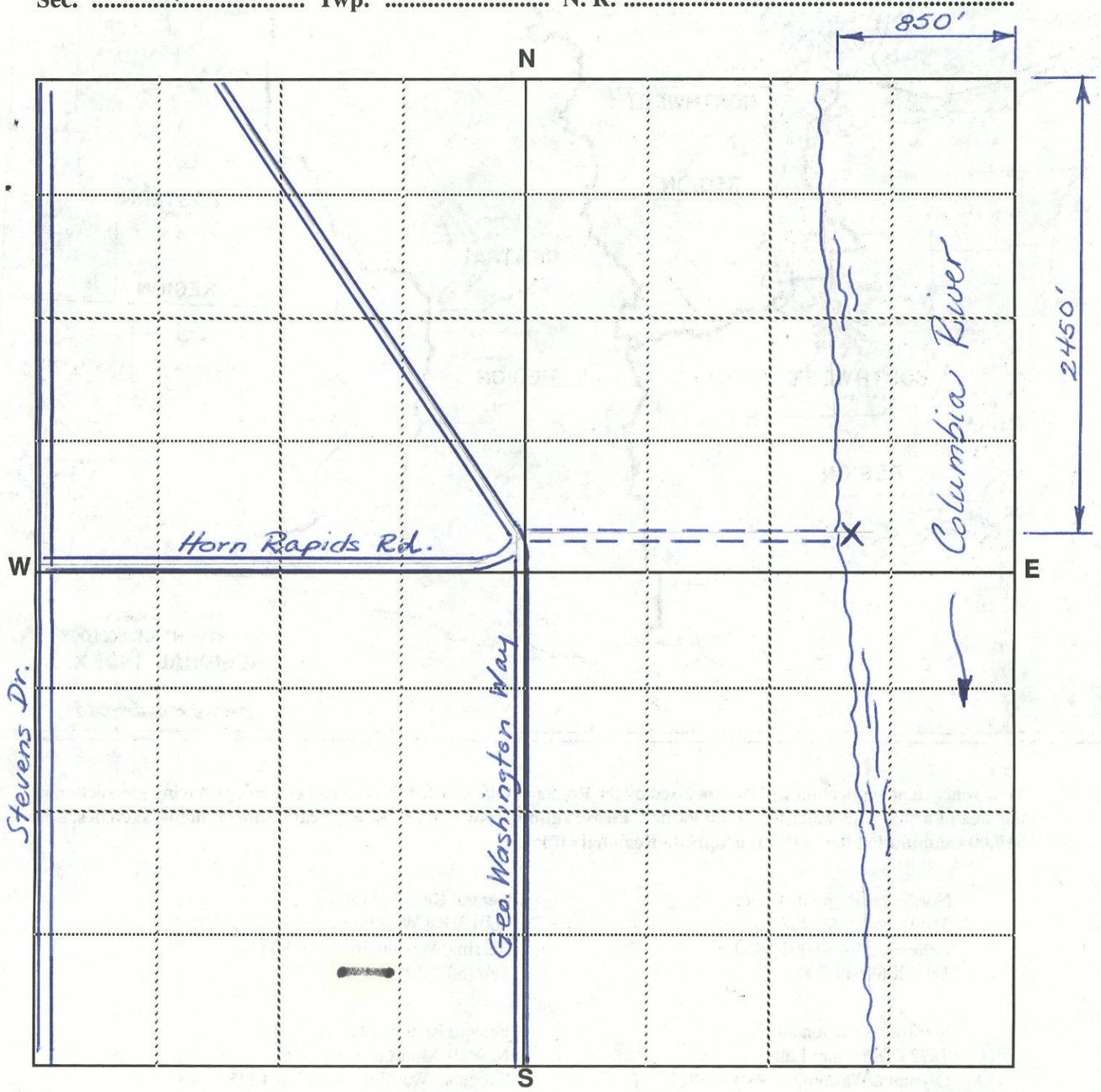
Witness my hand this ..... *day of* ....., *19*.....

.....
Department of Ecology

ECY 040-1-14
Rev. 2/91 F

SECTION MAP

Sec. 14 Twp. 10 N. R. 28 E W.M.



Scale: 1 inch = 800 feet (each small square = 10 acres)

Show by a cross (X) the location of point of diversion (surface water source) or point of withdrawal (ground water source). For ground water applications, show by a circle (O) the locations of other wells or works within a quarter of a mile.

Indicate traveling directions from nearest town in space below.

S430976

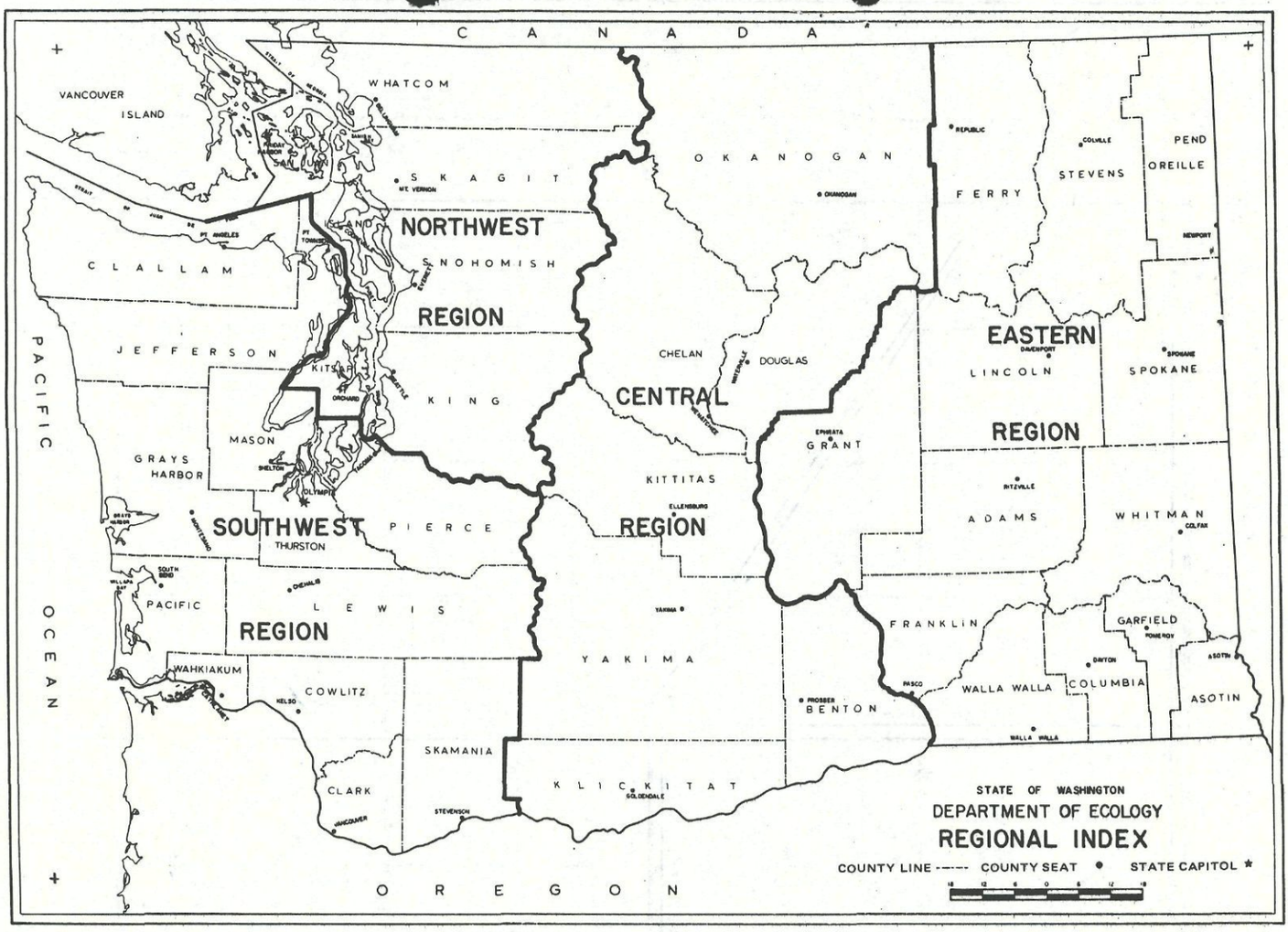
Detach here

Fold along scale

FEET 0 400 800 1,200 1,600 2,000 2,400 2,800 3,200 3,600 4,000 4,400 4,800 5,200

Detach this scale at the performation, fold excess paper under or cut off excess by cutting along the scale line. This scale corresponds to the SECTION MAP above. You can read feet directly from this scale to outline property and locate points of diversion or withdrawal on the SECTION MAP. Enclose this map along with the application and $10.00 examination fee.

ECY 040-1-14
Rev. 2/91 F



Your water right application will be processed by the Regional Office of the Department of Ecology having jurisdiction in the area in which your water works are located. **Please submit your completed application form, maps, sketches, and $10.00 examination fee to the appropriate Regional Office.**

Northwest Regional Office
3190 - 160th Avenue S.E.
Bellevue, WA 98008-5452
Tel. (206) 649-7000

Central Regional Office
3601 West Washington
Yakima, Washington 98903-1164
Tel. (509) 575-2800

Southwest Regional Office
7272 Cleanwater Lane
Olympia, Washington 98504-6811
Tel. (206) 586-6380

Eastern Regional Office
N. 4601 Monroe, Suite 100
Spokane, Washington 99205-1295
Tel. (509) 456-2926

The appropriate Regional Office will be happy to answer any further questions you may have.

WATER RIGHTS

S4-33044(B)A

For Ecology Use

(Date Stamp)

DEPARTMENT OF ECOLOGY State of Washington

Office of Columbia River
WATER RIGHT APPLICATION SPLIT FORM

When do I use this form?
You may use this form to divide a water right application into multiple applications based on the proposed purposes of use, or for phasing of a project. Ecology will assign each application a distinct file number and may process the applications separately.

If you need assistance, please contact the Office of Columbia River at (509) 575-2490.

INSTRUCTIONS:

Section 1: APPLICATION NUMBER AND CONTACT INFORMATION

Enter the application number and applicant contact information.

Section 2: WATER QUANTITES BY PURPOSE OF USE

Limitations:

- The purpose(s) of use must match the purpose(s) of use listed on the original application.
- The total water quantities for all portions cannot be greater than those listed on the original application.
- Place of use amendments must be consistent with the original intent of the project.

(A) Portion / (B) Portion: Indicate how you wish Ecology to divide the application into separate applications based on the purposes of use or phases of your project. List the purpose(s) of use, annual and instantaneous quantities for each portion. Identify the place of use proposed for each portion of the application. Use the comments space to provide any relevant information, such as description of the proposed point(s) of withdrawal/diversion.

Section 1: APPLICATION NUMBER AND CONTACT INFORMATION

Application Number: S4-33044		
Applicant/Business Name: City of Pasco		Phone No: 509-543-5738
Address: 525 N. Third Avenue		
City: Pasco	State: WA	Zip: 99301
Email Address (optional): qayoumia@pasco-wa.gov		

Section 2: WATER QUANTITIES BY PURPOSE OF USE

(A) Portion

Purpose of Use	**Annual Quantity** Acre-Feet per Year (AF/YR)	**Instantaneous Quantity (rate of flow)** ☒ surface water: cubic feet per second ☐ groundwater: gallons per minute
Municipal	5,000 AF/YR	6.9 CFS

Place of Use for (A) Portion

Place of use is the UGA of Pasco and the Pasco city limits. Points of diversion will be intake structures on the Columbia River for the Butterfield Water Plant, I-182 river intake, West Pasco WTP I, West Pasco WTP II intake.

Please provide comments below or on attached sheets

(B) Portion

Purpose of Use	**Annual Quantity** Acre-Feet per Year (AF/YR)	**Instantaneous Quantity (rate of flow)** ☒ surface water: cubic feet per second ☐ groundwater: gallons per minute
Municipal	81,983	158.1 CFS

Place of Use for (B) Portion

UGA and city limits of Kennewick, Pasco, Richland and West Richland.

Please provide comments below or on attached sheets

NOTE: By completing and signing this form, you authorize the Department of Ecology (Ecology) to split the original application as described on the preceding pages. All parties with an interest in this application must sign this form, including the applicant or authorized representative, and all landowners within the proposed place of use.

I certify that the information provided in this application is true and accurate to the best of my knowledge. I understand that in order to process my application, I grant staff from the Department of Ecology access to the site for inspection and monitoring purposes. Even though the employees of the Department of Ecology may have assisted me in the preparation of the above application, all responsibility for the accuracy of the information rests with me, the applicant.

Print Name	Signature	Date
Gary Cartwright, City Mgr		6-24-14
(Applicant or authorized representative)		
Roscoe C. Slade III, PW Director		7/24/2014
(Legal Owner or Part Owner Place of Use)		
Cary M Roe	Cary M Roe	7/24/2014
(Legal Owner or Part Owner Place of Use)		
[illegible]	Pete Rogalsky	7/24/2014
(Legal Owner or Part Owner Place of Use)		

Please mail the completed Application Split form to:

Department of Ecology
Office of Columbia River
15 W. Yakima Ave., Ste 200
Yakima WA 98902-3452

For Ecology Use
(Date Stamp)

DEPT OF ECOLOGY
Received
NOV 2 8 2011
CENTRAL REGION OFFICE

DEPARTMENT OF
ECOLOGY
State of Washington

NOV 21 A9:52

Water Resources Program
Application for a Water Right Permit

DEPT. OF ECOLOGY
FISCAL & BUDGET

☒ SURFACE WATER ☐ GROUND WATER ☒ PERMANENT

☐ TEMPORARY ☐ SHORT TERM ☐ DROUGHT

Follow the attached instructions. Attach additional sheets as necessary.

***A NON-REFUNDABLE MINIMUM FEE OF $50.00 MUST ACCOMPANY THIS APPLICATION.**

Section 1. APPLICANT

Applicant/Business Name: Quad Cities (Cities of Kennewick, Pasco, Richland and West Richland)	Phone No: (509) 942-7500	Other No:
Address: P.O. Box 190 MS-26		
City: Richland	State: WA	Zip:99352
Email Address (optional): naldrich@ci.richland.wa.us		

Contact Name (if different from above): Nancy Aldrich	Phone No: (509) 942-7508	Other No:
Relationship to Applicant: Lead City Representative (City of Richland)		
Address: P.O. Box 190 MS-26		
City: Richland	State: WA	Zip: 99352
Email Address (optional): naldrich@ci.richland.wa.us		

Legal Land Owner or Part Owner Name of the Proposed Place of Use: Quad Cities (Cities of Kennewick, Pasco, Richland and West Richland)	Phone No: (509) 942-7500	Other No:
Address: P.O. Box 190 MS-26		
City: Richland	State: WA	Zip:99352
Email Address (optional): naldrich@ci.richland.wa.us		

Section 2. STATEMENT OF INTENT

Briefly describe the purpose of your proposed project: The purpose of this application is to secure water for current and future growth of the four cities, Kennewick, Pasco, Richland and West Richland

Anticipated length of time to complete your project: 50 years

Water Use List all purposes for which water will be applied to a beneficial use and list quantity required for each.

Purpose(s) of Use	Rate (check one box only) ☒ Cubic Feet per Second (CFS) ☐ Gallons per Minute (GPM)	Acre-Feet per Year (AF/YR) (If known)	Period of Use (Continuously or Seasonal)
Municipal	165	86,983	Continuously
TOTAL:	165	86,983	

For Ecology Use	
	APPLICATION NO: S4-33044 SEPA: Exempt/Not Exempt
	Fee Paid: $16,500.- Check No: ECY Coding: 001-001-WR1-0285-000011
Date Returned By Priority Date 11-28-11 By	WRIA: 37 Benton, 31 Benton, 36 Franklin

Columbia River

Short Term/Temporary Water Use

Is this a request for a short term project (less than four months and non-recurring)? ☐ YES ☒ NO

Is this request for a temporary permit? ☐YES ☒ NO

If yes to either question above, indicate the dates that the water will be needed:

FROM: _____/_____/_____ TO: _____/_____/_____

Section 3. POINT OF DIVERSION OR WITHDRAWAL

(Complete A or B, and C below)

A.) If Surface Water Source	B.) If Ground Water Source
☐ Spring ☐ Creek ☒ River ☐ Lake ☐ Other:_____	☐ Well(s) ☐ Other:_____
Source Name: Columbia River	Well diameter & depth:_____
Tributary to: Pacific Ocean	Number of proposed points of withdrawal:_____
	Do you have an existing well? ☐ YES ☐ NO
Number of proposed diversion points: Multiple	If available, attach Water Well Report and pump test.
Do you have an existing diversion? ☒ YES ☐ NO	Well Tag ID No._____

C.) Point of Diversion/Withdrawal – Legal Description

Parcel No.	¼	¼	Section	Township	Range	County
Energy Northwest			2	11N	28E	Benton
Battelle			14	10N	28E	Benton
Horn Rapids Pump Station			14	10N	28E	Benton
WSU Pump Station			24	10N	28E	Benton
SWC 9004			24	10N	28E	Benton
Richland WTP			36	10N	28E	Benton
Columbia Pt. Pump Station			13	9N	28E	Benton
BMID Pump Station			23	9N	28E	Benton
Columbia Pt. Marina Park			13	9N	28E	Benton
Butterfield Water Plant						
I-182/River Intake			31	9N	30E	Franklin
West Pasco WTP I			18	9N	29E	Franklin
West Pasco WTP II			18	9N	29E	Franklin
FCID Intake			13	9N	29E	Franklin
			18	9N	29E	Franklin
Kennewick Filter Plant						
Ranney Wells			31	9N	30E	Benton
Army COE-Columbia Park			35	9N	29E	Benton
			27, 28, 29, 34, 35	9N	29E	Benton

Lot(s)	Block(s)	Subdivision

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____ Feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐ ____) corner of Section_____.

Parcel No.	¼	¼	Section	Township	Range	County

Lot(s)	Block(s)	Subdivision

For Ecology Use	APPLICATION NO:_____ SEPA: Exempt/Not Exempt Fee Paid:_____ Check No:_____ ECY Coding: 001-001-WR1-0285-000011
Date Returned _____ By_____ Priority Date _____ By_____ WRIA:_____	

Short Term/Temporary Water Use

Is this a request for a short term project (less than four months and non-recurring)? ☐ YES ☒ NO

Is this request for a temporary permit? ☐YES ☒ NO

If yes to either question above, indicate the dates that the water will be needed:

FROM: _____/_____/_____ TO: _____/_____/_____

Section 3. POINT OF DIVERSION OR WITHDRAWAL
(Complete A or B, and C below)

A.) If Surface Water Source	B.) If Ground Water Source
☐ Spring ☐ Creek ☒ River ☐ Lake ☐ Other:_____	☐ Well(s) ☐ Other:_____
Source Name: Columbia River	Well diameter & depth:_____
Tributary to: Pacific Ocean	Number of proposed points of withdrawal:_____
	Do you have an existing well? ☐ YES ☐ NO
Number of proposed diversion points: Multiple	If available, attach Water Well Report and pump test.
Do you have an existing diversion? ☒ YES ☐ NO	Well Tag ID No._____

C.) Point of Diversion/Withdrawal – Legal Description

Parcel No.	¼	¼	Section	Township	Range	County
Energy Northwest			2	11N	28E	Benton
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Richland WTP			36	10N	28E	Benton
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BMID Pump Station			23	9N	28E	Benton
Columbia Pt. Marina Park			13	9N	28E	Benton
Butterfield Water Plant						
I-182/River Intake			31	9N	30E	Franklin
West Pasco WTP I			18	9N	29E	Franklin
West Pasco WTP II			18	9N	29E	Franklin
FCID Intake			13	9N	29E	Franklin
			18	9N	29E	Franklin
Kennewick Filter Plant						
Ranney Wells			31	9N	30E	Benton
Army COE-Columbia Park			35	9N	29E	Benton
			27, 28, 29, 34, 35	9N	29E	Benton

Lot(s)	Block(s)	Subdivision

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____ Feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐ ____) corner of Section_____.

Parcel No.	¼	¼	Section	Township	Range	County

Lot(s)	Block(s)	Subdivision

For Ecology Use	APPLICATION NO:_____ SEPA: Exempt/Not Exempt Fee Paid:_____ Check No:_____ ECY Coding: 001-001-WR1-0285-000011
Date Returned _____ By_____ Priority Date _____ By_____ WRIA:_____	

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐____) corner of Section_____

NOTE: If more than two points of diversion/withdrawal attach additional information on a separate sheet of paper.

Do you own the land on which the proposed point of diversion/withdrawal is located? ☒ YES ☐ NO
If no, do you have legal authority to make this application for use of another's land? ☒ YES ☐ NO
Provide the owner name(s), address, and phone number:_____

Section 4. PLACE OF USE

Attach a copy of the legal description of the property (on which the water will be used) taken from a real estate contract, property deed or title insurance policy, or copy it carefully in the space below.

The Place of Use will be the urban growth areas of the cities of Kennewick, Pasco, Richland and West Richland
(See attached Map~~s~~– Exhibit A)

¼	¼	Section	Twp.	Range	County	Parcel No.

Do you own all the lands on which the proposed place of use is located? ☐ YES ☒ NO.

If no, do you have legal authority to make this application for use of another's land? ☒ YES ☐ NO
Provide owner name(s), address, and phone number: Kennewick, Pasco, Richland and West Richland municipal water utilities (Richland is contact for the four utilities)

Are there any other water rights or claims associated with this property or water system? ☒ YES ☐ NO
If yes, provide the water right and/or claim numbers: See attached Exhibit B

Attach a map of your project showing the point of diversion/withdrawal and place of use. If platted property, be sure to include a complete copy of the plat map.

Section 5. WATER SYSTEM DESCRIPTION

Describe your proposed water system (include type and size of devices used to divert or withdraw water from source): Each city, with the exception of West Richland, has one or two main intake structures on the Columbia River diverting water to their water treatment plants. Richland provides Columbia River water to West Richland through an intertie governed by an interlocal agreement. The water is dispersed into each utility through pipes and pump stations.

Section 6. DOMESTIC WATER SUPPLY SYSTEM INFORMATION

(Complete A or B, and C below)

A.) Domestic Water Systems only	B.) Municipal Water Systems only *(defined under RCW 90.03.015)*
Projected number of connections to be served: _____ Type of connections:_____ *(e.g., home, recreational cabin)*	Present population to be served water: Pasco (61,000), Kennewick (69,178), Richland (48,850), West Richland (12,200) = 122,050 Estimate future population to be served: Pasco (87,300), Kennewick (93,306), Richland (62,981), West Richland (21,164) = 171,445 (20 year projection)

C.) Water System Planning

Do you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division? ☒ YES ☐ NO

If yes, date plan was approved _____/_____/_____ Water System Number:_____

Name of water system: See Below

Are you within the service area of an existing water system? ☐ YES ☒ NO

If yes, explain why you are unable to connect to the system:

City of Pasco: Plan approved 02-16-2011 Water System ID 664003

City of Kennewick: Plan Approved 06-14-2010 Water System ID 38100Q

City of Richland: Plan Approved 12-20-2010 Water System ID 72250W

City of West Richland: Plan Approved 06-28-2010 Water System ID 94900P

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation

Total number of acres requested to be irrigated under this application = _____ACRES

NOTE: Outline the area to be irrigated on your attached map.

Stockwater

List number and kind of stock:_____

Is the proposed project for a dairy farm? ☐ YES ☐ NO

Other Proposed Farm Uses

Describe all proposed uses: _____

Family Farm Water Act (RCW 90.66):

Calculate the acreage in which you have a controlling interest, including only:

- Acreage irrigated under water rights acquired after December 8, 1977,
- Acreage proposed to be irrigated under this application, and
- Acreage proposed to be irrigated under other pending application(s).

Is the combined acreage under existing rights greater than 6000 acres? ☐ YES ☐ NO

Do you have a controlling interest in a Family Farm Development Permit? ☐ YES ☐ NO

If yes, enter Permit No: _____

Section 8. OTHER WATER USES

Hydropower

Indicate total feet of head _____ and proposed capacity in kilowatts:_____

Describe works:_____

Indicate all uses to which power is to be applied:_____

C.) Water System Planning

Do you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division? ☒ YES ☐ NO

If yes, date plan was approved _____/_____/_____ Water System Number:_____

Name of water system: See Below

Are you within the service area of an existing water system? ☐ YES ☒ NO

If yes, explain why you are unable to connect to the system:

City of Pasco: Plan approved 02-16-2011 Water System ID 664003

City of Kennewick: Plan Approved 06-14-2010 Water System ID 38100Q

City of Richland: Plan Approved 12-20-2010 Water System ID 72250W

City of West Richland: Plan Approved 06-28-2010 Water System ID 94900P

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation

Total number of acres requested to be irrigated under this application = _____ACRES

NOTE: Outline the area to be irrigated on your attached map.

Stockwater

List number and kind of stock:_____

Is the proposed project for a dairy farm? ☐ YES ☐ NO

Other Proposed Farm Uses

Describe all proposed uses: _____

Family Farm Water Act (RCW 90.66):

Calculate the acreage in which you have a controlling interest, including only:

- Acreage irrigated under water rights acquired after December 8, 1977,
- Acreage proposed to be irrigated under this application, and
- Acreage proposed to be irrigated under other pending application(s).

Is the combined acreage under existing rights greater than 6000 acres? ☐ YES ☐ NO

Do you have a controlling interest in a Family Farm Development Permit? ☐ YES ☐ NO

If yes, enter Permit No: _____

Section 8. OTHER WATER USES

Hydropower

Indicate total feet of head _____ and proposed capacity in kilowatts:_____

Describe works:_____

Indicate all uses to which power is to be applied:_____

FERC License No: _____

Mining/Industrial Use
Describe use, method of supplying and utilizing water: _____

Other Use

Section 9. WATER STORAGE

Will you be using a dam, dike, or other structure to retain or store water? ☐ YES ☒ NO

Are you proposing to store more than 10 acre-feet of water? ☐ YES ☒ NO

Will the water depth be 10 feet or more? ☐ YES ☒ NO

If you answered yes to any of the above questions, please describe: _____

NOTE: If you will be storing 10 acre-feet or more of water and/or if the water depth will be 10 feet or more at the deepest point and some portion of the storage will be above grade, you must also complete an Application for Permit to Construct a Reservoir and a Dam Construction Permit and Application.

Section 10. DRIVING DIRECTIONS

Provide detailed driving directions to the project site: _____

Site Address: _____

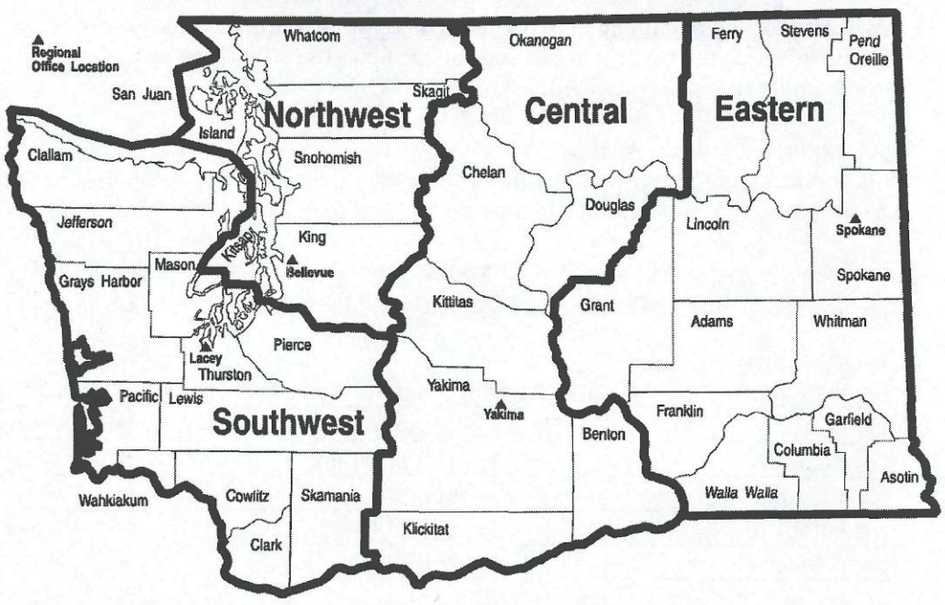
Section 11. REQUIRED SIGNATURES

I certify that the information provided in this application is true and accurate to the best of my knowledge. I understand that in order to process my application, I grant staff from the Department of Ecology access to the site for inspection and monitoring purposes. Even though the employees of the Department of Ecology may have assisted me in the preparation of the above application, all responsibility for the accuracy of the information rests with me, the applicant.

Print Name	Signature	Date
PETER M. BEAUDRY (City of Kennewick)	Peter M. Beaudry	11/3/2011
AHMAD S. QAYOUMI (City of Pasco)		11/3/2011
Pete Rogalsky (City of Richland)		11/03/2011
ROSCOE C. SLADE III (City of West Richland)		11/03/11

*Submit your application to:	Please check the region in which the project is located:	
DEPARTMENT OF ECOLOGY CASHIERING SECTION PO BOX 47611 OLYMPIA, WA 98504-7611	☒ Central Regional Office 15 W Yakima Avenue, Suite 200 Yakima, WA 98902 (509) 575-2490	☐ Eastern Regional Office 4601 N. Monroe Spokane, WA 99205-1295 (509) 329-3400
	☐ Northwest Regional Office 3190 – 160th Avenue SE Bellevue, WA 98008-5452 (425) 649-7000	☐ Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775 (360) 407-6300

If you have questions about your application, contact the Water Resources program at the regional office in which your project is located.



INSTRUCTIONS for the Application for a Water Right Permit

Please read these instructions carefully. Be accurate and complete in filling out your application, as the information you provide is very important in processing your application. Be sure to attach your fees, maps, and any additional information related to the water uses you are proposing.

If you need assistance, please contact the regional office in which your project will be located. A map of the Ecology regions is on the back page of the application. If your answers to any questions are longer than the space provided, you may attach additional sheets as necessary.

Check Boxes

Check the appropriate box for Surface or Ground Water.
Check the appropriate box for Permanent, Temporary, or Short Term use (duration of 4 months or less).

*Application Fee

- A minimum fee of $50.00 is required for each new application for a water right permit.
- No fees are required for applications to be processed under a Cost Reimbursement contract.
- No fees are required for Emergency Drought Applications (only when a drought is declared).

If additional fees are required, Ecology will send you a letter requesting those fees. If you are unsure of the appropriate fee amount, contact your regional office for more information, or visit our website: <http://www.ecy.wa.gov/programs/wr/rights/wr_fees.html>.

Please make checks or money orders payable to the "Department of Ecology." Cash cannot be accepted. ALL FEES ARE NONREFUNDABLE.

Section 1. APPLICANT

Enter the name of the person, organization, or water system for which the water right permit is requested. For instance, if the permit is required for a community water system, enter the name of the system (e.g. Green Acres Water Works). Enter a mailing address, including zip, daytime telephone, an alternate or cell phone number, and an

Email address (if you have one).

Provide the name of a contact person (if different from above) to call in case we have questions about the application or proposed project. Describe the relationship of the contact person to the applicant, e.g. "consultant," "water systems engineer," "realtor," "chair of community well organization," etc.

Enter the name of the legal or part owner (person or business) of the land where the water is to be used. Enter a mailing address, including zip, daytime telephone, an alternate or cell phone number, and an Email address (if available).

Section 2. STATEMENT OF INTENT

Provide a brief description of the purpose of your proposed project and the anticipated length of time to complete the project.

Water Use
List the purpose(s) for which you are proposing to use the water (**see examples of purposes below**). Check the appropriate box to indicate if the rate you have provided is measured in cubic feet per second or gallons per minute. For each purpose provide the maximum rate at which water is proposed to be taken from the water source. If known, provide the maximum quantity to be used for the purposes in acre-feet per year. Provide period of use (months) in which the water will be used for each purpose. Total the water needs for each purpose of use and write the total within the space provided.

Short Term/Temporary Water Use
If this application is being submitted for a short term (less than four months – see Policy 1037) or temporary water use (see Policy 1035), check the appropriate box and indicate the dates the water will be needed.

For more information on Water Resources Program Policies, contact your regional office or visit our website: <http://www.ecy.wa.gov/programs/wr/rules/pol_pro.html#wradminpolicy>.

Examples of purpose(s)
Be sure that you include ALL uses that you propose, not just the major use of water. Some examples are:

• Dairy	• Domestic-Multiple	• Domestic-Single
• Dust Control	• Fish Propagation	• Frost Protection
• Heat Exchange	• Hydropower	• Industrial/Manufacturing/Commercial
• Irrigation	• Mining	• Municipal
• Stockwater	• Other (describe)	

Section 3. POINT OF DIVERSION OR WITHDRAWAL
(Complete A or B, and C)

A.) If Surface Water Source
Check the appropriate box if you plan to divert water from a spring, creek, river, lake, or other (describe). Enter the source name, e.g. "Wenatchee River." If the source feeds another body of surface water, give the name of the body of water to which the source is a tributary, e.g. "Columbia River." Enter the number of proposed diversion points. Check the appropriate box if you have an existing diversion.

B.) If Ground Water Source
Check the appropriate box if you plan to withdraw water from a well or other ground water system (describe). Enter the diameter, depth, and the number of proposed points of withdrawal (wells). Check the appropriate box if you have an existing well. If the well has been constructed, attach a Water Well Report. If you have already done a pump test, attach a copy of the pump test results. Provide the Well Tag ID number, if available.

C.) Point of Diversion/Withdrawal Location – Legal Description
Enter the parcel number, quarter-quarter (¼¼), section, township, range and county in which each point of diversion or withdrawal is located. If the location has been platted (subdivided), enter the lot, block, and subdivision name. You can generally obtain this information from a legal description or plat of the property, or from your county assessor's office. If there are more than two points of diversion or withdrawal, attach additional information on a separate sheet of paper.

If known, enter the distances in feet from the nearest section corner to each point of diversion or withdrawal (e.g. 420 feet south and 150 feet west from the Northeast Corner of Section 12). You can obtain this information by measuring the distance on a USGS map, other map drawn to scale, or by measurement on the ground.

Check if you own the land containing the proposed point of diversion/withdrawal. If you don't own the land, provide the owner's name(s), address, and phone number. Please check whether you have legal authority to make this application for use of another's land.

Section 4. PLACE OF USE

Attach a legal description of the lands where you propose to use the water or copy it carefully in the space provided.

You can usually obtain a legal description from a survey, county assessor's office, real estate contract, title insurance policy, or property deed. Also include the tax parcel number(s) if available.

Check if you own all of the lands on which the proposed place of use is located. If you do not own the lands, provide the owner's name(s), address and phone number. If this is a community or municipal water system, please include a copy of your current and future service area map.
NOTE: Landowner's signature is required in Section 11.

Check if there are any other water rights or claims associated with this property or water system. If yes, provide the water right and/or claim numbers.

Attach a map of your project showing the point(s) of diversion/withdrawal and place of use. If platted property, be sure to include a complete copy of the plat map.

Section 5. WATER SYSTEM DESCRIPTION

Provide a description of your proposed project, explaining how you will divert, pump, distribute, and store the water, and any conservation measures you may be taking. Include proposed size, capacity, location, and motor horsepower of any pump.

Section 6. DOMESTIC WATER SUPPLY SYSTEM INFORMATION
(Complete A or B, and C)

A.) Domestic Water Systems
Enter the projected number of connections to be served and the type of connection (e.g. home, recreational cabin).

B.) Municipal Water Systems (as defined under RCW 90.03.015)
Enter the present population to be served water and estimate the future population to be served (20 year projection).

C.) Water System Planning
Check yes if you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division. Provide the date the plan was approved, as well as the water system number. Enter the name of the water system (e.g. Johnson Point Water Association).

Check yes, if you are within the service area of an existing water system and explain why you are unable to connect to the system.

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation
Provide the total number of acres of land to be irrigated in the space provided. The number of acres to be irrigated should not include lands within the general irrigation area that may contain buildings, roads, etc. Outline the area to be irrigated on your attached map from Section 4.

Stockwater
Indicate total number of animals receiving stockwater and the type of animal (e.g. goats, chickens, llamas).

Check yes if the proposed project is for a dairy farm.

Other Proposed Farm Uses
Describe all other proposed farm uses (e.g. frost protection, heat control, or harvesting) listed in Section 2 and provide the proposed number of acres of land upon which each purpose would occur. Also note other uses of water on the farm (e.g. cleaning the milking parlor, washing cattle, or for a cooling system) and how much water is needed for each use.

Family Farm Water Act (RCW 90.66)
In order to comply with the Family Farm Water Act, indicate if you have a controlling interest in more than 6,000 acres of irrigation as defined in RCW 90.66.040(3). This includes the number of acres that are irrigated under water rights acquired after December 8, 1977, acreage that would be irrigated under this application, and acreage proposed to be irrigated under other pending applications on file with the Department of Ecology.

Check yes, if the proposed project is over 6,000 acres.

Enter the permit number(s) of any Family Farm Development Permit in which you hold controlling interest.

Section 8. OTHER WATER USES

Hydropower
For hydropower projects, indicate the total feet of head and proposed capacity in kilowatts. Describe the proposed diversion facility, including the bypass reach. Indicate all uses to which power is to be applied. Enter the FERC

license number.

Mining/Industrial Use
Describe use, method of supplying and utilizing water.

Other Use
Describe any other use(s) of water.

Section 9. WATER STORAGE

Check the appropriate box for each question in the above form.

If you answered yes to any of the questions, your project may require a reservoir permit, or an approval from Ecology's Dam Safety Program. For criteria on reservoir permits contact the regional office in which your project is located.

Section 10. DRIVING DIRECTIONS

Provide detailed driving directions from the nearest town to the project site. If applicable, provide the site address.

Section 11. REQUIRED SIGNATURES

The applicant or authorized representative (e.g. the Public Works Director of a municipality, or the chair of a community water system) AND the legal owner(s) or part owner of the place of use MUST sign the application.

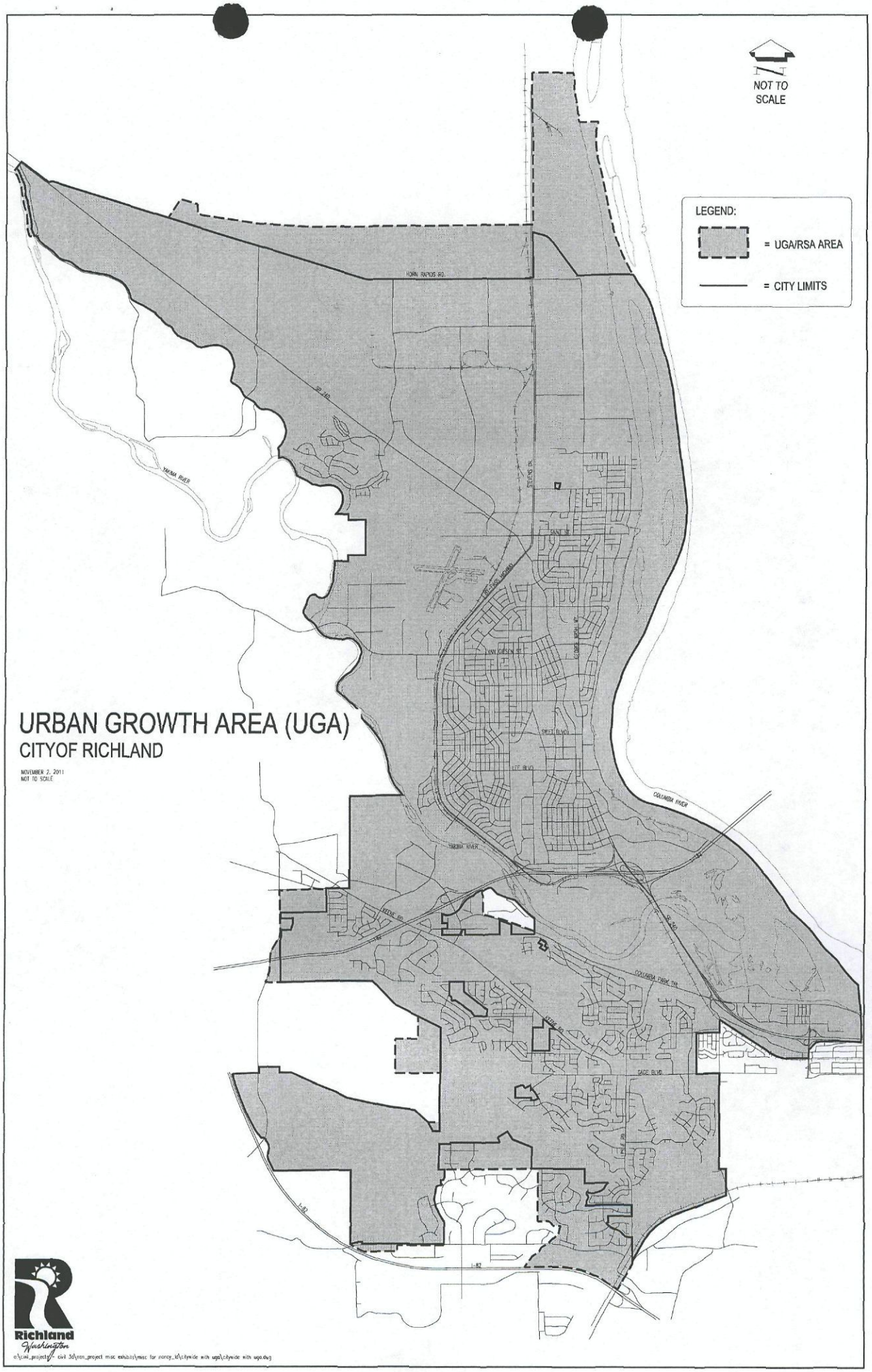

NOT TO SCALE
LEGEND:
= UGA/RSA AREA
= CITY LIMITS
HORN RAPIDS RD.
SR 240
YAKIMA RIVER
STEVENS DR.
SANDY DR.
BECKER/GARRARD
VAN GORDEN ST.
GEORGE WASH. WY.
SPITZ BLVD.
LEE BLVD.
COLUMBIA RIVER
YAKIMA RIVER
KEENE RD.
SR 240
COLUMBIA PARK TR.
KEENE RD.
GAGE BLVD.
I-82
I-82
URBAN GROWTH AREA (UGA)
CITYOF RICHLAND
NOVEMBER 2, 2011
NOT TO SCALE
Richland
Washington
o:\cm_projects\- civil 3d\non_project misc exhibits\misc for nancy_k\citywide with uga\citywide with uga.dwg

Exhibit A

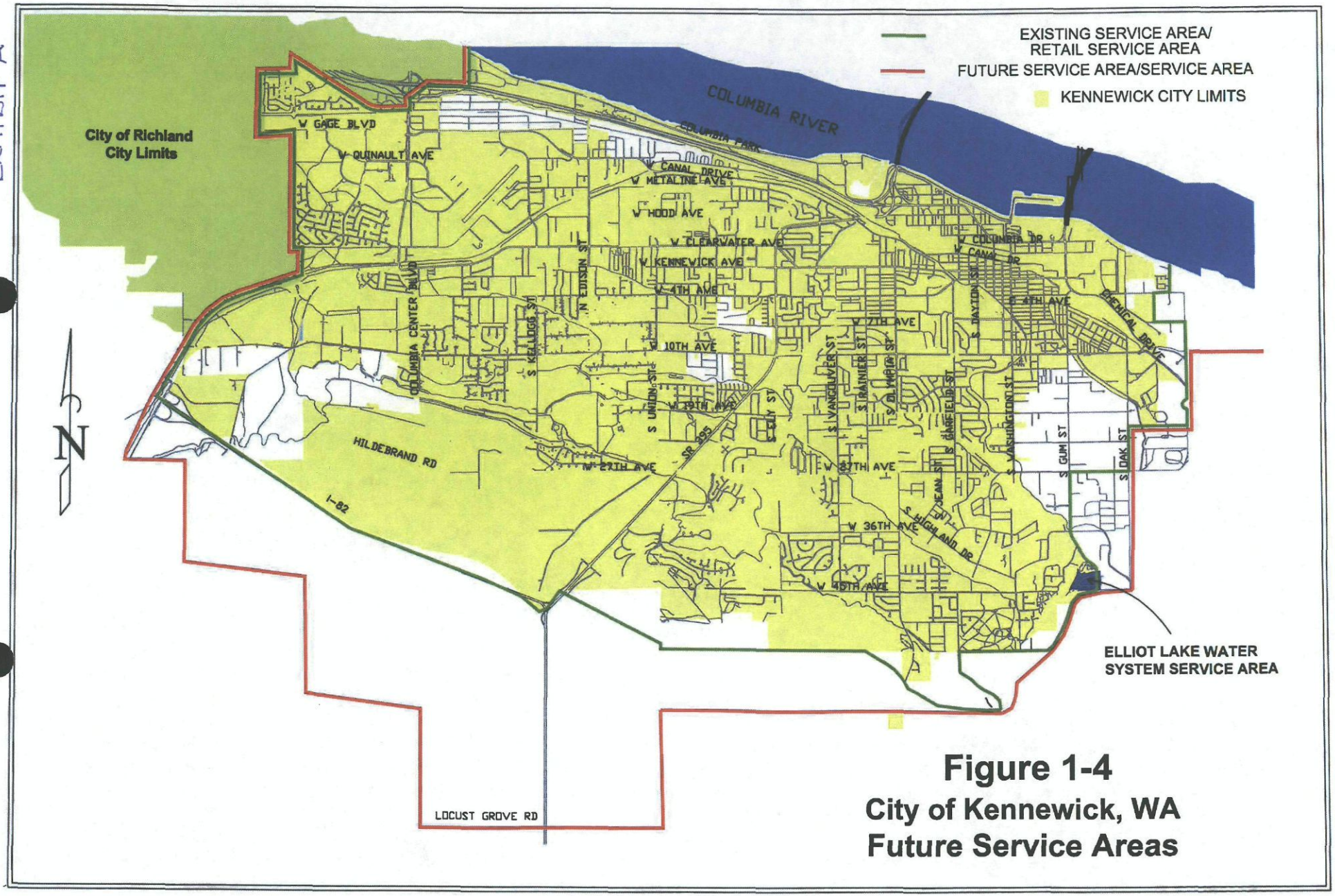
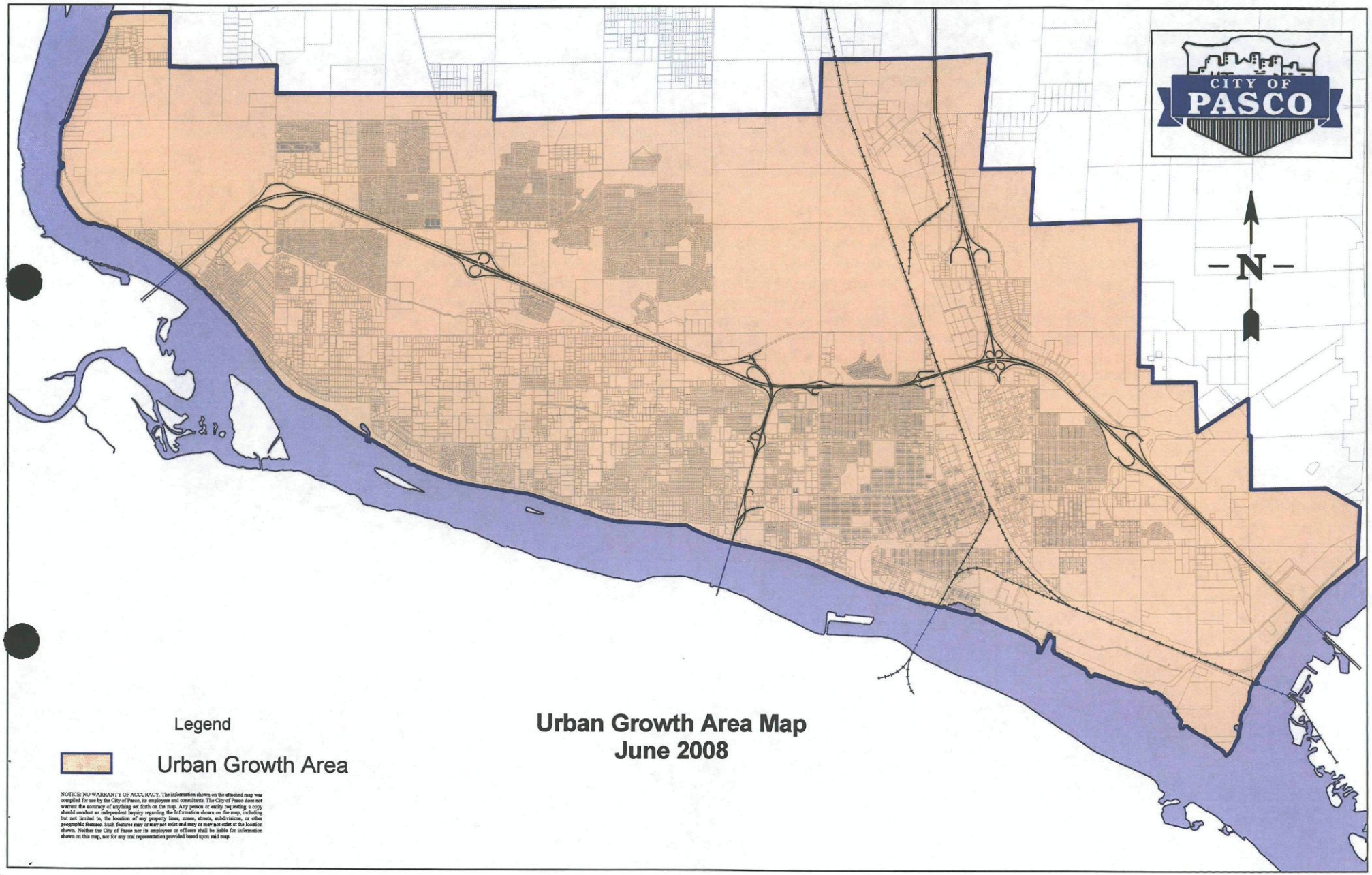
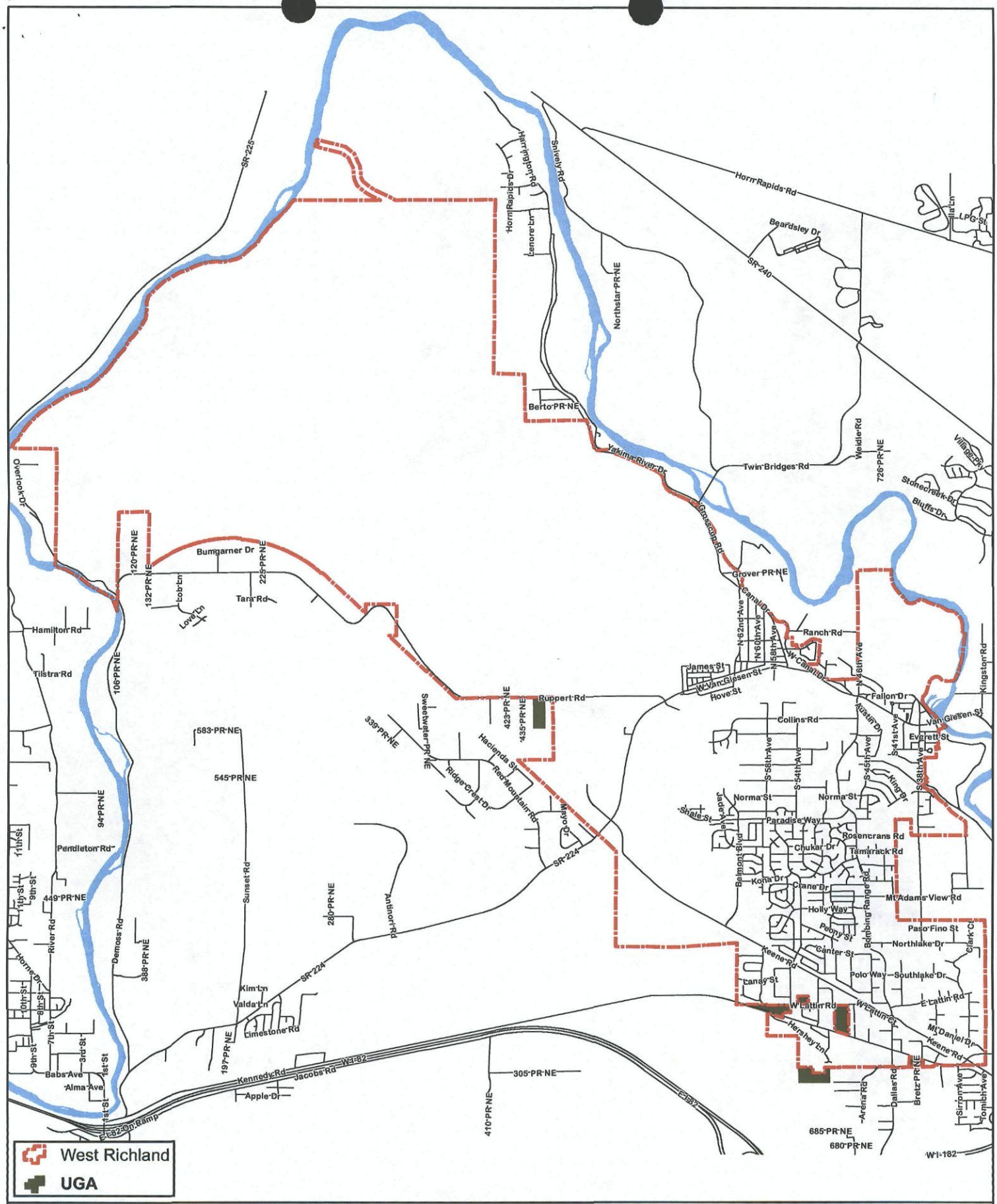


Figure 1-4
City of Kennewick, WA
Future Service Areas



Urban Growth Area Map
June 2008

NOTICE: NO WARRANTY OF ACCURACY. The information shown on the attached map was compiled for use by the City of Pasco, its employees and consultants. The City of Pasco does not warrant the accuracy of anything set forth on the map. Any person or entity requesting a copy should conduct an independent inquiry regarding the information shown on the map, including but not limited to, the location of any property lines, zones, streets, subdivisions, or other geographic features. Such features may or may not exist and may or may not exist at the location shown. Neither the City of Pasco nor its employees or officers shall be liable for information shown on this map, nor for any oral representation provided based upon said map.



CITY OF WEST RICHLAND

COMMUNITY DEVELOPMENT

CITY OF WEST RICHLAND

0 3,850 7,700 15,400 Feet

AERIAL PHOTO FROM 2008

THIS MAP IS FOR REPRESENTATION PUROPSES ONLY. PLEASE CONTACT THE COMMUNITY DEVELOPMENT DEPARTMENT AT (509) 967-5902 WITH QUESTIONS REGARDING THIS MAP OR FOR SPECIFIC QUESTIONS.

EXHIBIT B

Kennewick:

93D	94D	1805	3897
S4-25479C	S4-30976P	G4-35338	G4-29926P

Pasco:

(SWC)11660	7205-A(A)	10192(B)	G3-26081C(A)
G3-26081C(B)	G3-25177C(A)	G3-25177C(B)	S4-30976P
G3-27413P(C)	G3-27413P(D)	S3-28615C	S3-28788C
S3-28789C	S3-28790C	G3-01085C	G3-20243(B)
G3-22447C	G3-01243C	G3-28452C	G3-20245P
G3-20247P	G3-24546P	G3-25175P	

Richland:

S4-30976P	S4-26404C	G4-12416C	G4-29214P
9004	9005	5823	S4-27121C
G4-28515C	G4-28516C	G4-28517C	63205CL
G4-35244P	G4-25690C	G4-28463P	

West Richland

CG4-04768A	CG4-23893C(3)	CG3-00349C(1)	CG4-24124C
CG4-24640(B)P	CG4-24174C	CG4-25902C	CG4-26268C
CG4-26280(1)	CG4-26491(1)	CG4-03082(A)	G4-35206P
S4-30976P			

For Ecology Use

(Date Stamp)

DEPARTMENT OF ECOLOGY State of Washington

Office of Columbia River
WATER RIGHT APPLICATION SPLIT FORM

When do I use this form?
You may use this form to divide a water right application into multiple applications based on the proposed purposes of use, or for phasing of a project. Ecology will assign each application a distinct file number and may process the applications separately.

If you need assistance, please contact the Office of Columbia River at (509) 575-2490.

INSTRUCTIONS:

Section 1: APPLICATION NUMBER AND CONTACT INFORMATION

Enter the application number and applicant contact information.

Section 2: WATER QUANTITES BY PURPOSE OF USE

Limitations:

- The purpose(s) of use must match the purpose(s) of use listed on the original application.
- The total water quantities for all portions cannot be greater than those listed on the original application.
- Place of use amendments must be consistent with the original intent of the project.

(A) Portion / (B) Portion: Indicate how you wish Ecology to divide the application into separate applications based on the purposes of use or phases of your project. List the purpose(s) of use, annual and instantaneous quantities for each portion. Identify the place of use proposed for each portion of the application. Use the comments space to provide any relevant information, such as description of the proposed point(s) of withdrawal/diversion.

Section 1: APPLICATION NUMBER AND CONTACT INFORMATION

Application Number: S4-33044		
Applicant/Business Name: City of Pasco		Phone No: 509-543-5738
Address: 525 N. Third Avenue		
City: Pasco	State: WA	Zip: 99301
Email Address (optional): qayoumia@pasco-wa.gov		

Section 2: WATER QUANTITIES BY PURPOSE OF USE

(A) Portion

Purpose of Use	**Annual Quantity** Acre-Feet per Year (AF/YR)	**Instantaneous Quantity (rate of flow)** ☒ surface water: cubic feet per second ☐ groundwater: gallons per minute
Municipal	5,000 AF/YR	6.9 CFS

Place of Use for (A) Portion

Place of use is the UGA of Pasco and the Pasco city limits. Points of diversion will be intake structures on the Columbia River for the Butterfield Water Plant, I-182 river intake, West Pasco WTP I, West Pasco WTP II intake.

Please provide comments below or on attached sheets

(B) Portion

Purpose of Use	**Annual Quantity** Acre-Feet per Year (AF/YR)	**Instantaneous Quantity (rate of flow)** ☒ surface water: cubic feet per second ☐ groundwater: gallons per minute
Municipal	81,983	158.1 CFS

Place of Use for (B) Portion

UGA and city limits of Kennewick, Pasco, Richland and West Richland.

Please provide comments below or on attached sheets

NOTE: By completing and signing this form, you authorize the Department of Ecology (Ecology) to split the original application as described on the preceding pages. All parties with an interest in this application must sign this form, including the applicant or authorized representative, and all landowners within the proposed place of use.

I certify that the information provided in this application is true and accurate to the best of my knowledge. I understand that in order to process my application, I grant staff from the Department of Ecology access to the site for inspection and monitoring purposes. Even though the employees of the Department of Ecology may have assisted me in the preparation of the above application, all responsibility for the accuracy of the information rests with me, the applicant.

Print Name	Signature	Date
Gary Cartwright, City Mgr		6-24-14
(Applicant or authorized representative)		
Roscoe C. Slade III, PW Director		7/24/2014
(Legal Owner or Part Owner Place of Use)		
Cary M Roe	Cary M Roe	7/24/2014
(Legal Owner or Part Owner Place of Use)		
[illegible]	Pete Rogalsky	7/24/2014
(Legal Owner or Part Owner Place of Use)		

Please mail the completed Application Split form to:

Department of Ecology
Office of Columbia River
15 W. Yakima Ave., Ste 200
Yakima WA 98902-3452

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

RECEIVED DEC - 6 2011

December 5, 2011

Quad Cities
Kennewick, Pasco, Richland and West Richland
Attn: Nancy Aldrich, Lead City Representative
PO Box 190 MS-26
Richland WA 99352-0190

Re: Water Right Application No. S4-33044

Dear Ms. Aldrich:

The Department of Ecology has received your water right application. We have assigned it the number shown above. Please include this number if you contact us regarding your application.

It may be some time before we begin working in your area, due to funding and staff limitations. When we start actively evaluating applications in your watershed, we will prepare a public notice and send it to you with publication instructions. The filing of your application does **not** authorize you to start your project.

The availability of water in Washington is a serious problem. Much of the water in our state has already been appropriated. With the many demands on the state's water resources, a favorable permit decision is not always possible. You may want to consider purchasing all or part of an existing water right or other options discussed in the enclosed focus sheet.

You must notify Ecology of changes such as address, property ownership, or variations in your proposed water use plans. If you have any questions, please contact Teresa Mitchell at 509-575-2597.

Sincerely,

Mark Kemner, LHG
Section Manager
Water Resources Program

MK
111202

Enclosure: Focus on Organizing Water Resources Permitting Work

App-new-delay.doc

For Ecology Use
Date Stamp

DEPARTMENT OF ECOLOGY
State of Washington

Water Resources Program
Application for a Water Right Permit

DEPT OF ECOLOGY Received NOV 28 2011 CENTRAL REGION OFFICE

☒ SURFACE WATER ☐ GROUND WATER ☒ PERMANENT

☐ TEMPORARY ☐ SHORT TERM ☐ DROUGHT

Follow the attached instructions. Attach additional sheets as necessary.

***A NON-REFUNDABLE MINIMUM FEE OF $50.00 MUST ACCOMPANY THIS APPLICATION.**

Section 1. APPLICANT

Applicant/Business Name: Quad Cities (Cities of Kennewick, Pasco, Richland and West Richland)	Phone No: (509) 942-7500	Other No:
Address: P.O. Box 190 MS-26		
City: Richland	State: WA	Zip:99352
Email Address (optional): naldrich@ci.richland.wa.us		

Contact Name (if different from above): Nancy Aldrich	Phone No: (509) 942-7508	Other No:
Relationship to Applicant: Lead City Representative (City of Richland)		
Address: P.O. Box 190 MS-26		
City: Richland	State: WA	Zip: 99352
Email Address (optional): naldrich@ci.richland.wa.us		

Legal Land Owner or Part Owner Name of the Proposed Place of Use: Quad Cities (Cities of Kennewick, Pasco, Richland and West Richland)	Phone No: (509) 942-7500	Other No:
Address: P.O. Box 190 MS-26		
City: Richland	State: WA	Zip:99352
Email Address (optional): naldrich@ci.richland.wa.us		

Section 2. STATEMENT OF INTENT

Briefly describe the purpose of your proposed project: The purpose of this application is to secure water for current and future growth of the four cities, Kennewick, Pasco, Richland and West Richland

Anticipated length of time to complete your project: 50 years

Water Use List all purposes for which water will be applied to a beneficial use and list quantity required for each.

Purpose(s) of Use	Rate (check one box only) ☒ Cubic Feet per Second (CFS) ☐ Gallons per Minute (GPM)	Acre-Feet per Year (AF/YR) (If known)	Period of Use (Continuously or Seasonal)
Municipal	165	[redacted]	[redacted]
TOTAL:	165	[redacted]	

For Ecology Use	
	APPLICATION NO: S4-33044 SEPA: Exempt/Not Exempt
	Fee Paid $16,500.- Check No: ____ ECY Coding: 001-001-WR1-0285-000011
Date Returned ____ By ____	Priority Date 11-28-11 By ____ WRIA: 37 Benton, 31 Benton, 36 Franklin

Columbia River

Short Term/Temporary Water Use

Is this a request for a short term project (less than four months and non-recurring)? ☐ YES ☒ NO

Is this request for a temporary permit? ☐YES ☒ NO

If yes to either question above, indicate the dates that the water will be needed:

FROM: ____/____/____ TO: ____/____/____

Section 3. POINT OF DIVERSION OR WITHDRAWAL

(Complete A or B, and C below)

A.) If Surface Water Source	B.) If Ground Water Source
☐ Spring ☐ Creek ☒ River ☐ Lake ☐ Other:_____	☐ Well(s) ☐ Other:_____
Source Name: Columbia River	Well diameter & depth:_____
Tributary to: Pacific Ocean	Number of proposed points of withdrawal:____
	Do you have an existing well? ☐ YES ☐ NO
Number of proposed diversion points: Multiple	If available, attach Water Well Report and pump test.
Do you have an existing diversion? ☒ YES ☐ NO	Well Tag ID No._____

C.) Point of Diversion/Withdrawal – Legal Description

Parcel No.	¼	¼	Section	Township	Range	County
Energy Northwest			2	11N	28E	Benton
Battelle			14	10N	28E	Benton
Horn Rapids Pump Station			14	10N	28E	Benton
WSU Pump Station			24	10N	28E	Benton
SWC 9004			24	10N	28E	Benton
Richland WTP			36	10N	28E	Benton
Columbia Pt. Pump Station			13	9N	28E	Benton
BMID Pump Station			23	9N	28E	Benton
Columbia Pt. Marina Park			13	9N	28E	Benton
Butterfield Water Plant						
I-182/River Intake			31	9N	30E	Franklin
West Pasco WTP I			18	9N	29E	Franklin
West Pasco WTP II			18	9N	29E	Franklin
FCID Intake			13	9N	29E	Franklin
			18	9N	29E	Franklin
Kennewick Filter Plant						
Ranney Wells			31	9N	30E	Benton
Army COE-Columbia Park			35	9N	29E	Benton
			27, 28, 29, 34, 35	9N	29E	Benton

Lot(s)	Block(s)	Subdivision

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____ Feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐ ____) corner of Section_____.

Parcel No.	¼	¼	Section	Township	Range	County

Lot(s)	Block(s)	Subdivision

For Ecology Use	APPLICATION NO:_____ SEPA: Exempt/Not Exempt Fee Paid:_____ Check No:_____ ECY Coding: 001-001-WR1-0285-000011
Date Returned _____ By_____ Priority Date _____ By_____ WRIA:_____	

Short Term/Temporary Water Use

Is this a request for a short term project (less than four months and non-recurring)? ☐ YES ☒ NO

Is this request for a temporary permit? ☐YES ☒ NO

If yes to either question above, indicate the dates that the water will be needed:

FROM: ____/____/____ TO: ____/____/____

Section 3. POINT OF DIVERSION OR WITHDRAWAL

(Complete A or B, and C below)

A.) If Surface Water Source	B.) If Ground Water Source
☐ Spring ☐ Creek ☒ River ☐ Lake ☐ Other:_____	☐ Well(s) ☐ Other:_____
Source Name: Columbia River	Well diameter & depth:_____
Tributary to: Pacific Ocean	Number of proposed points of withdrawal:____
	Do you have an existing well? ☐ YES ☐ NO
Number of proposed diversion points: Multiple	If available, attach Water Well Report and pump test.
Do you have an existing diversion? ☒ YES ☐ NO	Well Tag ID No._____

C.) Point of Diversion/Withdrawal – Legal Description

Parcel No.	¼	¼	Section	Township	Range	County
Energy Northwest			2	11N	28E	Benton
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Horn Rapids Pump Station			14	10N	28E	Benton
WSU Pump Station			24	10N	28E	Benton
SWC 9004			24	10N	28E	Benton
Richland WTP			36	10N	28E	Benton
Columbia Pt. Pump Station			13	9N	28E	Benton
BMID Pump Station			23	9N	28E	Benton
Columbia Pt. Marina Park			13	9N	28E	Benton
Butterfield Water Plant						
I-182/River Intake			31	9N	30E	Franklin
West Pasco WTP I			18	9N	29E	Franklin
West Pasco WTP II			18	9N	29E	Franklin
FCID Intake			13	9N	29E	Franklin
			18	9N	29E	Franklin
Kennewick Filter Plant						
Ranney Wells			31	9N	30E	Benton
Army COE-Columbia Park			35	9N	29E	Benton
			27, 28, 29, 34, 35	9N	29E	Benton

Lot(s)	Block(s)	Subdivision

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____ Feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐ ____) corner of Section_____.

Parcel No.	¼	¼	Section	Township	Range	County

Lot(s)	Block(s)	Subdivision

For Ecology Use	APPLICATION NO:_____ SEPA: Exempt/Not Exempt Fee Paid:_____ Check No:_____ ECY Coding: 001-001-WR1 0285-000011
Date Returned	_____By_____ Priority Date _____By_____ WRIA:_____

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐____) corner of Section_____

NOTE: If more than two points of diversion/withdrawal attach additional information on a separate sheet of paper.

Do you own the land on which the proposed point of diversion/withdrawal is located? ☒ YES ☐ NO
If no, do you have legal authority to make this application for use of another's land? ☒ YES ☐ NO
Provide the owner name(s), address, and phone number:_____

Section 4. PLACE OF USE

Attach a copy of the legal description of the property (on which the water will be used) taken from a real estate contract, property deed or title insurance policy, or copy it carefully in the space below.

The Place of Use will be the urban growth areas of the cities of Kennewick, Pasco, Richland and West Richland
(See attached Maps– Exhibit A)

¼	¼	Section	Twp.	Range	County	Parcel No.

Do you own all the lands on which the proposed place of use is located? ☐ YES ☒ NO.

If no, do you have legal authority to make this application for use of another's land? ☒ YES ☐ NO
Provide owner name(s), address, and phone number: Kennewick, Pasco, Richland and West Richland municipal water utilities (Richland is contact for the four utilities)

Are there any other water rights or claims associated with this property or water system? ☒ YES ☐ NO

If yes, provide the water right and/or claim numbers: See attached Exhibit B

Attach a map of your project showing the point of diversion/withdrawal and place of use. If platted property, be sure to include a complete copy of the plat map.

Section 5. WATER SYSTEM DESCRIPTION

Describe your proposed water system (include type and size of devices used to divert or withdraw water from source): Each city, with the exception of West Richland, has one or two main intake structures on the Columbia River diverting water to their water treatment plants. Richland provides Columbia River water to West Richland through an intertie governed by an interlocal agreement. The water is dispersed into each utility through pipes and pump stations.

Section 6. DOMESTIC WATER SUPPLY SYSTEM INFORMATION

(Complete A or B, and C below)

A.) Domestic Water Systems only	**B.) Municipal Water Systems only** *(defined under RCW 90.03.015)*
Projected number of connections to be served: _____ Type of connections:_____ *(e.g., home, recreational cabin)*	Present population to be served water: Pasco (61,000), Kennewick (69,178), Richland (48,850), West Richland (12,200) = 122,050 Estimate future population to be served: Pasco (87,300), Kennewick (93,306), Richland (62,981), West Richland (21,164) = 171,445 (20 year projection)

C.) Water System Planning

Do you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division? ☒ YES ☐ NO

If yes, date plan was approved ____/____/____ Water System Number:_____

Name of water system: See Below

Are you within the service area of an existing water system? ☐ YES ☒ NO

If yes, explain why you are unable to connect to the system:

City of Pasco: Plan approved 02-16-2011 Water System ID 664003

City of Kennewick: Plan Approved 06-14-2010 Water System ID 38100Q

City of Richland: Plan Approved 12-20-2010 Water System ID 72250W

City of West Richland: Plan Approved 06-28-2010 Water System ID 94900P

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation

Total number of acres requested to be irrigated under this application = _____ACRES

NOTE: Outline the area to be irrigated on your attached map.

Stockwater

List number and kind of stock:_____

Is the proposed project for a dairy farm? ☐ YES ☐ NO

Other Proposed Farm Uses

Describe all proposed uses: _____

Family Farm Water Act (RCW 90.66):

Calculate the acreage in which you have a controlling interest, including only:

- Acreage irrigated under water rights acquired after December 8, 1977,
- Acreage proposed to be irrigated under this application, and
- Acreage proposed to be irrigated under other pending application(s).

Is the combined acreage under existing rights greater than 6000 acres? ☐ YES ☐ NO

Do you have a controlling interest in a Family Farm Development Permit? ☐ YES ☐ NO

If yes, enter Permit No: _____

Section 8. OTHER WATER USES

Hydropower

Indicate total feet of head _____ and proposed capacity in kilowatts:_____

Describe works:_____

Indicate all uses to which power is to be applied:_____

C.) Water System Planning

Do you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division? ☒ YES ☐ NO

If yes, date plan was approved ____/____/____ Water System Number:_____

Name of water system: See Below

Are you within the service area of an existing water system? ☐ YES ☒ NO

If yes, explain why you are unable to connect to the system:

City of Pasco: Plan approved 02-16-2011 Water System ID 664003

City of Kennewick: Plan Approved 06-14-2010 Water System ID 38100Q

City of Richland: Plan Approved 12-20-2010 Water System ID 72250W

City of West Richland: Plan Approved 06-28-2010 Water System ID 94900P

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation

Total number of acres requested to be irrigated under this application = _____ACRES

NOTE: Outline the area to be irrigated on your attached map.

Stockwater

List number and kind of stock:_____

Is the proposed project for a dairy farm? ☐ YES ☐ NO

Other Proposed Farm Uses

Describe all proposed uses: _____

Family Farm Water Act (RCW 90.66):

Calculate the acreage in which you have a controlling interest, including only:

- Acreage irrigated under water rights acquired after December 8, 1977,
- Acreage proposed to be irrigated under this application, and
- Acreage proposed to be irrigated under other pending application(s).

Is the combined acreage under existing rights greater than 6000 acres? ☐ YES ☐ NO

Do you have a controlling interest in a Family Farm Development Permit? ☐ YES ☐ NO

If yes, enter Permit No: _____

Section 8. OTHER WATER USES

Hydropower

Indicate total feet of head _____ and proposed capacity in kilowatts:____

Describe works:_____

Indicate all uses to which power is to be applied:_____

FERC License No: _____

Mining/Industrial Use
Describe use, method of supplying and utilizing water: _____

Other Use

_____

Section 9. WATER STORAGE

Will you be using a dam, dike, or other structure to retain or store water? ☐ YES ☒ NO

Are you proposing to store more than 10 acre-feet of water? ☐ YES ☒ NO

Will the water depth be 10 feet or more? ☐ YES ☒ NO

If you answered yes to any of the above questions, please describe: _____

NOTE: If you will be storing 10 acre-feet or more of water and/or if the water depth will be 10 feet or more at the deepest point and some portion of the storage will be above grade, you must also complete an Application for Permit to Construct a Reservoir and a Dam Construction Permit and Application.

Section 10. DRIVING DIRECTIONS

Provide detailed driving directions to the project site: _____

Site Address: _____

Section 11. REQUIRED SIGNATURES

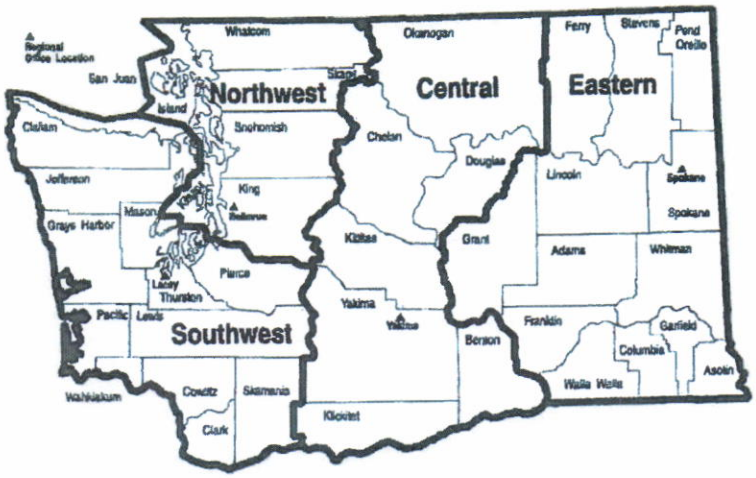
I certify that the information provided in this application is true and accurate to the best of my knowledge. I understand that in order to process my application, I grant staff from the Department of Ecology access to the site for inspection and monitoring purposes. Even though the employees of the Department of Ecology may have assisted me in the preparation of the above application, all responsibility for the accuracy of the information rests with me, the applicant.

Print Name	Signature	Date
Peter M. Beaudry (City of Kennewick)	Peter M. Beaudry	11/3/2011
Ahmad S. Qayoumi (City of Pasco)		11/3/2011
Pete Rogalsky (City of Richland)		11/03/2011
Roscoe C. Slade III (City of West Richland)		11/03/11

Please check the region in which the project is located:

***Submit your application to:**		
DEPARTMENT OF ECOLOGY CASHIERING SECTION PO BOX 47611 OLYMPIA, WA 98504-7611	☒ Central Regional Office 15 W Yakima Avenue, Suite 200 Yakima, WA 98902 (509) 575-2490	☐ Eastern Regional Office 4601 N. Monroe Spokane, WA 99205-1295 (509) 329-3400
	☐ Northwest Regional Office 3190 – 160th Avenue SE Bellevue, WA 98008-5452 (425) 649-7000	☐ Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775 (360) 407-6300

If you have questions about your application, contact the Water Resources program at the regional office in which your project is located.



INSTRUCTIONS for the Application for a Water Right Permit

Please read these instructions carefully. Be accurate and complete in filling out your application, as the information you provide is very important in processing your application. Be sure to attach your fees, maps, and any additional information related to the water uses you are proposing.

If you need assistance, please contact the regional office in which your project will be located. A map of the Ecology regions is on the back page of the application. If your answers to any questions are longer than the space provided, you may attach additional sheets as necessary.

Check Boxes

Check the appropriate box for Surface or Ground Water.
Check the appropriate box for Permanent, Temporary, or Short Term use (duration of 4 months or less).

***Application Fee**

- A minimum fee of $50.00 is required for each new application for a water right permit.
- No fees are required for applications to be processed under a Cost Reimbursement contract.
- No fees are required for Emergency Drought Applications (only when a drought is declared).

If additional fees are required, Ecology will send you a letter requesting those fees. If you are unsure of the appropriate fee amount, contact your regional office for more information, or visit our website: <http://www.ecy.wa.gov/programs/wr/rights/wr_fees.html>.

Please make checks or money orders payable to the "Department of Ecology." Cash cannot be accepted. ALL FEES ARE NONREFUNDABLE.

Section 1. APPLICANT

Enter the name of the person, organization, or water system for which the water right permit is requested. For instance, if the permit is required for a community water system, enter the name of the system (e.g. Green Acres Water Works). Enter a mailing address, including zip, daytime telephone, an alternate or cell phone number, and an

Email address (if you have one).

Provide the name of a contact person (if different from above) to call in case we have questions about the application or proposed project. Describe the relationship of the contact person to the applicant, e.g. "consultant," "water systems engineer," "realtor," "chair of community well organization," etc.

Enter the name of the legal or part owner (person or business) of the land where the water is to be used. Enter a mailing address, including zip, daytime telephone, an alternate or cell phone number, and an Email address (if available).

Section 2. STATEMENT OF INTENT

Provide a brief description of the purpose of your proposed project and the anticipated length of time to complete the project.

Water Use
List the purpose(s) for which you are proposing to use the water (**see examples of purposes below**). Check the appropriate box to indicate if the rate you have provided is measured in cubic feet per second or gallons per minute. For each purpose provide the maximum rate at which water is proposed to be taken from the water source. If known, provide the maximum quantity to be used for the purposes in acre-feet per year. Provide period of use (months) in which the water will be used for each purpose. Total the water needs for each purpose of use and write the total within the space provided.

Short Term/Temporary Water Use
If this application is being submitted for a short term (less than four months – see Policy 1037) or temporary water use (see Policy 1035), check the appropriate box and indicate the dates the water will be needed.

For more information on Water Resources Program Policies, contact your regional office or visit our website: <http://www.ecy.wa.gov/programs/wr/rules/pol_pro.html#wradminpolicy>.

Examples of purpose(s)
Be sure that you include ALL uses that you propose, not just the major use of water. Some examples are:

• Dairy	• Domestic-Multiple	• Domestic-Single
• Dust Control	• Fish Propagation	• Frost Protection
• Heat Exchange	• Hydropower	• Industrial/Manufacturing/Commercial
• Irrigation	• Mining	• Municipal
• Stockwater	• Other (describe)	

Section 3. POINT OF DIVERSION OR WITHDRAWAL
(Complete A or B, and C)

A.) If Surface Water Source
Check the appropriate box if you plan to divert water from a spring, creek, river, lake, or other (describe). Enter the source name, e.g. "Wenatchee River." If the source feeds another body of surface water, give the name of the body of water to which the source is a tributary, e.g. "Columbia River." Enter the number of proposed diversion points. Check the appropriate box if you have an existing diversion.

B.) If Ground Water Source
Check the appropriate box if you plan to withdraw water from a well or other ground water system (describe). Enter the diameter, depth, and the number of proposed points of withdrawal (wells). Check the appropriate box if you have an existing well. If the well has been constructed, attach a Water Well Report. If you have already done a pump test, attach a copy of the pump test results. Provide the Well Tag ID number, if available.

C.) Point of Diversion/Withdrawal Location – Legal Description
Enter the parcel number, quarter-quarter (¼¼), section, township, range and county in which each point of diversion or withdrawal is located. If the location has been platted (subdivided), enter the lot, block, and subdivision name. You can generally obtain this information from a legal description or plat of the property, or from your county assessor's office. If there are more than two points of diversion or withdrawal, attach additional information on a separate sheet of paper.

If known, enter the distances in feet from the nearest section corner to each point of diversion or withdrawal (e.g. 420 feet south and 150 feet west from the Northeast Corner of Section 12). You can obtain this information by measuring the distance on a USGS map, other map drawn to scale, or by measurement on the ground.

Check if you own the land containing the proposed point of diversion/withdrawal. If you don't own the land, provide the owner's name(s), address, and phone number. Please check whether you have legal authority to make this application for use of another's land.

Section 4. PLACE OF USE

Attach a legal description of the lands where you propose to use the water or copy it carefully in the space provided.

You can usually obtain a legal description from a survey, county assessor's office, real estate contract, title insurance policy, or property deed. Also include the tax parcel number(s) if available.

Check if you own all of the lands on which the proposed place of use is located. If you do not own the lands, provide the owner's name(s), address and phone number. If this is a community or municipal water system, please include a copy of your current and future service area map.
NOTE: Landowner's signature is required in Section 11.

Check if there are any other water rights or claims associated with this property or water system. If yes, provide the water right and/or claim numbers.

Attach a map of your project showing the point(s) of diversion/withdrawal and place of use. If platted property, be sure to include a complete copy of the plat map.

Section 5. WATER SYSTEM DESCRIPTION

Provide a description of your proposed project, explaining how you will divert, pump, distribute, and store the water, and any conservation measures you may be taking. Include proposed size, capacity, location, and motor horsepower of any pump.

Section 6. DOMESTIC WATER SUPPLY SYSTEM INFORMATION
(Complete A or B, and C)

A.) Domestic Water Systems
Enter the projected number of connections to be served and the type of connection (e.g. home, recreational cabin).

B.) Municipal Water Systems (as defined under RCW 90.03.015)
Enter the present population to be served water and estimate the future population to be served (20 year projection).

C.) Water System Planning
Check yes if you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division. Provide the date the plan was approved, as well as the water system number. Enter the name of the water system (e.g. Johnson Point Water Association).

Check yes, if you are within the service area of an existing water system and explain why you are unable to connect to the system.

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation
Provide the total number of acres of land to be irrigated in the space provided. The number of acres to be irrigated should not include lands within the general irrigation area that may contain buildings, roads, etc. Outline the area to be irrigated on your attached map from Section 4.

Stockwater
Indicate total number of animals receiving stockwater and the type of animal (e.g. goats, chickens, llamas).

Check yes if the proposed project is for a dairy farm.

Other Proposed Farm Uses
Describe all other proposed farm uses (e.g. frost protection, heat control, or harvesting) listed in Section 2 and provide the proposed number of acres of land upon which each purpose would occur. Also note other uses of water on the farm (e.g. cleaning the milking parlor, washing cattle, or for a cooling system) and how much water is needed for each use.

Family Farm Water Act (RCW 90.66)
In order to comply with the Family Farm Water Act, indicate if you have a controlling interest in more than 6,000 acres of irrigation as defined in RCW 90.66.040(3). This includes the number of acres that are irrigated under water rights acquired after December 8, 1977, acreage that would be irrigated under this application, and acreage proposed to be irrigated under other pending applications on file with the Department of Ecology.

Check yes, if the proposed project is over 6,000 acres.

Enter the permit number(s) of any Family Farm Development Permit in which you hold controlling interest.

Section 8. OTHER WATER USES

Hydropower
For hydropower projects, indicate the total feet of head and proposed capacity in kilowatts. Describe the proposed diversion facility, including the bypass reach. Indicate all uses to which power is to be applied. Enter the FERC

license number.

Mining/Industrial Use
Describe use, method of supplying and utilizing water.

Other Use
Describe any other use(s) of water.

Section 9. WATER STORAGE

Check the appropriate box for each question in the above form.

If you answered yes to any of the questions, your project may require a reservoir permit, or an approval from Ecology's Dam Safety Program. For criteria on reservoir permits contact the regional office in which your project is located.

Section 10. DRIVING DIRECTIONS

Provide detailed driving directions from the nearest town to the project site. If applicable, provide the site address.

Section 11. REQUIRED SIGNATURES

The applicant or authorized representative (e.g. the Public Works Director of a municipality, or the chair of a community water system) AND the legal owner(s) or part owner of the place of use MUST sign the application.

WATER RIGHTS

R4-35237A

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

April 3, 2015

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Temporary Authorization for the Beneficial Use of Water for Municipal Supply under Reservoir Application No. R4-35237

Dear Mr. Beauchene:

This letter constitutes your TEMPORARY PERMIT under Reservoir Application Number R4-35237. This Temporary Permit authorizes the storage, recovery and beneficial use of water for municipal supply subject to the provisions include below.

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a reservoir permit. The source of water includes diversion from the Columbia River under Surface Water Certificate S4-25479C and Surface Water Permit S4-30976P, and withdrawal of groundwater under Groundwater Certificate 3897-A.

The proposed reservoir is an aquifer in Priest Rapids Member of the Wanapum Basalt Formation of the Columbia River Basalt Group. The project entails diversion of source water, treatment at the City of Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer, and withdrawal of the stored water for beneficial use. It is anticipated that water may be available for diversion between October 15, and June 15, each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal of stored water is Kennewick's Aquifer Storage and Recovery (ASR-1) well located approximately 2,500 feet north and 1000 feet west of the southeast corner of Section 17, T. 8N., R. 29E.W.M. The associated Benton County Tax Parcel No. is 1-1789-400-0001-004. This location is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29E.W.M. in an area known as the "Southridge site."

This Temporary Permit is associated with Year 2 operations at the City's ASR-1 well. The permit is associated with an ASR grant to the City of Kennewick funded through the Columbia River Basin Development Account administered by Ecology's Office of the Columbia River. Work to be performed is described in the *Phase 4 ASR Cycle Testing and Reservoir Permit Application Completion ASR-1 Project Operations and Monitoring Work Plan*, prepared by GSI Water Solutions, Inc., dated February 2014, and approved by Ecology. The workplan is amended as described in letters from Phil Brown, of GSI Water Solutions Inc., to Ecology, dated May 30, 2014, and June 27, 2014. The specific recharge and recovery quantities and schedule to be performed under this permit are described in a letter from Phil Brown of GSI Water Solutions Inc., to Ecology, dated March 27, 2015.

Public notice of Reservoir Application No. R4-35237 was published in the Tri-City Herald of Kennewick, Washington on June 14, 2009, and June 21, 2009. No letters of protest or comments were received during the 30-day protest period.

FILE COPY

This project includes injection of chlorinated drinking water from Kennewick's municipal water system into the Wanapum Basalt aquifer. Ecology's Water Quality Program has conducted a review of this project and based on the information provided, determined that the benefits of the project outweigh the potential risk of adverse impacts. Kennewick must continue to follow WA DOH and US EPA guidance and requirements to minimize the formation of disinfection bi-products to the maximum extent reasonable. For the Kennewick ASR project, following the disinfection bi-product guidance and requirements is required to meet AKART and qualify to meet the groundwater quality standards for disinfection bi-products through a determination of Overriding Public Interest as recommended in WAC 173-157-200(2) and WAC 173-200-050(3)(b)(vi).

Water is available for groundwater recharge and storage for this Temporary Authorization under the terms and conditions of Surface Water Certificate S4-25479C, Surface Water Permit S4-30976P, Groundwater Certificate 3897-A, and Kennewick's March 14, 2014, Preliminary Permit. Available information indicates that Kennewick's operation of the Southridge ASR facility will not impair existing rights. Storage and withdrawal of groundwater for municipal supply using the ASR well are beneficial uses. Successful operation of Kennewick's Southridge ASR facility will reduce diversions from the Columbia River during mid to late summer and meet water quality standards while providing Kennewick water to meet peak municipal water demands. Work performed under this Temporary Authorization will further assist Ecology in developing a permit that meets the requirements of Chapters 90.03 RCW, 90.44 RCW, and 90.48 RCW, as proposed in Reservoir Permit Application No. R4-35237. Testing done under this Temporary Authorization is in the public interest and will not be detrimental to the public welfare.

This TEMPORARY AUTHORIZATION is subject to the following conditions:

1. This Temporary Authorization becomes effective immediately and will remain in effect until January 1, 2016, unless sooner revoked or revised by the Department of Ecology.
2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the test, or data collection activities, the test shall be terminated immediately.
3. This Temporary Authorization may be revoked if the applicant fails to comply with the terms of this Temporary Authorization.
4. The issuance of this Temporary Authorization in no way guarantees a standard permit will be issued.
5. Groundwater withdrawal for beneficial use from the ASR Well may take place between July 1, 2015, and December 31, 2015.
6. No discharge to surface waters of the state is authorized. Kennewick shall monitor any surface water discharge to ensure that any discharge water infiltrates prior to reaching surface water and does not cause excessive erosion. Water quality field parameters shall be observed during the Pilot Test, per the approved workplan. If any water quality problems are observed during any portion of the test, water quality samples shall be collected for laboratory analyses and/or the test shall be terminated immediately.

7. The anticipated schedule, volume, and rates of recharge, storage, and recovery are listed in the table below.

Recharge	April 6 to May 28, 2015 52 days @ 1,100 gpm 75 MG[1]
Storage	May 28 to July 13, 2015 46 days
Recovery	July 13 to Sep. 15, 2015 69.4 days @ 600 gpm[2] 60 MG[1]
Residual	15 MG[2]
Duration	167 days
Schedule[1]	April 6 to Sep. 15, 2015

1- Recharge rates may vary depending on pressure demands in the City's supply system.
2- The actual volume recovered could vary as a function of recovered water temperature.

8. The operator of the system under this authorization shall have a copy of this Temporary Authorization and be aware of the parameters and provisions and operate accordingly.
9. All water level, flow rate, temperature, pressure, water quality, and other relevant data collected as part of the ASR Cycle and Pilot Testing shall be provided to Ecology in electronic format (i.e., spreadsheet).
10. This Temporary Authorization shall in no way excuse the permittee from compliance with any applicable federal, state, or local statues, ordinances, or regulations including those administered by other programs of the Department of Ecology.
11. The issuance of this Temporary Authorization does not convey a right of access to or other right to use land, which you do not legally possess. Obtainment of such a right is a private matter between the applicant and owner of that land.
12. The water sources and/or transmission facilities may not be located entirely upon the land owned by the applicant. Therefore, the applicant is advised that issuance of a permit by the Department of Ecology for appropriation of waters in question does not convey a right of access to, or other right to use, land which the applicant does not legally possess.
13. Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use and data collection that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions, but only to the extent otherwise allowed by law.

Your Right To Appeal

You have a right to appeal this decision to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decisoin with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW, Ste. 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:aa (150402)

Enclosures: Your Right To Be Heard

Certified Mail: 7010 0290 0000 7126 6876

cc: Philip Rigdon, Director, Natural Resources Division, Yakama Nation

7010 0290 0000 7126 6876

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CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK WA 99336

PS Form 3800, August 2006 See Reverse for Instructions

R4 35237 City of Kennewick #150403

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits. 150403

1. Article Addressed to:

CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK WA 99336

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kellie Hays ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) Kellie Hays C. Date of Delivery 4/6/15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7010 0290 0000 7126 6876

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

July 1, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Temporary Authorization for the Beneficial Use of Water for Municipal Supply under Reservoir Application No. R4-35237

Dear Mr. Beauchene,

This letter constitutes your TEMPORARY PERMIT under Reservoir Application Number R4-35237. This Temporary Permit authorizes the storage, recovery and beneficial use of water for municipal supply in conjunction with previously issued Preliminary Permit for R4-35237, dated March 20, 2014, subject to the provisions include below.

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a reservoir permit. The source of water includes diversion from the Columbia River under Surface Water Certificate S4-25479C and Surface Water Permit S4-30976P, and withdrawal of groundwater under Groundwater Certificate 3897-A.

The proposed reservoir is an aquifer in Priest Rapids Member of the Wanapum Basalt Formation of the Columbia River Basalt Group. The project entails diversion of source water, treatment at the City of Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer, and withdrawal of the stored water for beneficial use. It is anticipated that water may be available for diversion between October 15 and June 15 each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal of stored water is Kennewick's Aquifer Storage and Recovery (ASR) well located approximately 2,500 feet north and 1000 feet west of the southeast corner of Section 17, T. 8N., R. 29E.W.M. The associated Benton County Tax Parcel No. is 1-1789-400-0001-004. This location is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29E.W.M. in an area known as the "Southridge site."

This Temporary Permit is associated with Phase 4 in Amendment No. 1 to the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick. The project is being funded through the Columbia River Basin Development Account administered by Ecology's Office of

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the Columbia River. Work to be performed is described in the *Phase 4 ASR Cycle Testing and Reservoir Permit Application Completion ASR-1 Project Operations and Monitoring Work Plan*, prepared by GSI Water Solutions, Inc., dated February 2014. The workplan is amended as described in letters from Phil Brown, of GSI Water Solutions Inc., to Ecology, dated May 30, 2014 and June 27, 2014. The objectives of the on-going work are to:

- Assess the feasibility of developing a cool water storage zone that will allow the City to use the stored water for municipal drinking water supply.
- Confirm the geochemical compatibility of the two waters and aquifer matrix, and ensure that the recovered water meets the City's needs for municipal supply.
- Assess groundwater quality during intermediate-scale ASR cycle testing to ensure compliance with state groundwater quality standards.
- Establish baseline and trends for pre-ASR static water levels and dynamic (long term recharge and pumping) water levels.
- Track well performance after baseline.
- Assess aquifer hydraulic response to ASR operations.
- Complete intermediate-scale ASR cycle testing that will inform operational objectives for future full-scale testing.

A significant amount of information has been obtained through the grant agreement that Kennewick and Ecology are using to evaluate project operation and environmental impacts and plan future testing. This information will be used to prepare a permit that meets the requirements of Chapter 173-157 WAC, as proposed in Reservoir Permit Application No. R4-35237. This Temporary Authorization will provide additional information and allows Kennewick to beneficially use stored groundwater using the ASR well as the point of withdrawal.

Public notice of Reservoir Application No. R4-35237 was published in the Tri-City Herald of Kennewick, Washington on June 14, 2009 and June 21, 2009. No letters of protest or comments were received during the 30-day protest period.

This project includes injection of chlorinated drinking water from Kennewick's municipal water system into the Wanapum Basalt aquifer. Ecology's Water Quality Program has conducted a review of this project and based on the information provided determined that the benefits of the project outweigh the potential risk of adverse impacts. Kennewick must continue to follow WA DOH and US EPA guidance and requirements to minimize the formation of disinfection bi-products to the maximum extent reasonable. For the Kennewick ASR project, following the disinfection bi-product guidance and requirements is required to meet AKART and qualify to meet the groundwater quality standards for disinfection bi-products through a determination of Overriding Public Interest as recommended in WAC 173-157-200(2) and WAC 173-200-050(3)(b)(vi).

Water is available for groundwater recharge and storage for this Temporary Authorization under the terms and conditions of Surface Water Certificate S4-25479C, Surface Water Permit S4-30976P, Groundwater Certificate 3897-A, and Kennewick's March 14, 2014 Preliminary Permit. Available information indicates that Kennewick's operation of the Southridge ASR facility will not impair existing rights. Storage and withdrawal of groundwater for municipal supply using the ASR well are beneficial uses. Successful operation of Kennewick's Southridge

ASR facility will reduce diversions from the Columbia River during mid to late summer and meet water quality standards while providing Kennewick water to meet peak municipal water demands. Work performed under this Temporary Authorization will further assist Ecology in developing a permit that meets the requirements of Chapters 90.03 RCW, 90.44 RCW, and 90.48 RCW, as proposed in Reservoir Permit Application No. R4-35237. Testing done under this Temporary Authorization is in the public interest and will not be detrimental to the public welfare.

This TEMPORARY AUTHORIZATION is subject to the following conditions:

1. This Temporary Authorization becomes effective immediately and will remain in effect until October 31, 2015, unless sooner revoked or revised by the Department of Ecology.
2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the test, or data collection activities, the test shall be terminated immediately.
3. This Temporary Authorization may be revoked if the applicant fails to comply with the terms and conditions of the March 20, 2014 Preliminary Permit for R4-35237 and this Temporary Authorization.
4. The issuance of this Temporary Authorization in no way guarantees a standard permit will be issued.
5. Groundwater withdrawal for beneficial use from the ASR Well may take place between July 1, 2014 and October 31, 2014.
6. No discharge to surface waters of the state is authorized. Kennewick shall monitor any surface water discharge to ensure that any discharge water infiltrates prior to reaching surface water and does not cause excessive erosion. Water quality field parameters shall be observed during the Pilot Test, per the approved workplan. If any water quality problems are observed during any portion of the test, water quality samples shall be collected for laboratory analyses and/or the test shall be terminated immediately.
7. The anticipated schedule, volume, and rates of recharge, storage, and recovery are listed in the table below.

Recharge	May 12 to July 10, 2014 59 days @ 1,100 gpm 93 MG[1]
Storage	July 10 to July 14, 2014 4 days
Recovery	July 14 to Oct. 3, 2014 81 days @ 600 gpm[2] 70 MG[3]
Residual	23 MG[3]
Duration	140 days[3]
Schedule[1]	May 12 to Oct. 3, 2014

a. Recharge rates will vary between 1,400 and 1,000 gpm depending on pressure demands in the City's supply system. Recharge will cease when 1,000 gpm

causes low pressure conditions. The assumed average rate is 1,100 gpm, though actual recharge duration and stored volume will vary depending on weather-related demand conditions. This Temporary Authorization extends to October 31, 2014.

b. 600 gpm is the assumed average recovery rate over a 24-hour summer day. Actual demand could result in different average rates and result in a different duration of pumping.

c. The recovery duration and volume are assumed, based on the 600 gpm average pumping rate assumption and a thermal recovery efficiency of 75%.

8. The operator of the system under this authorization shall have a copy of this Temporary Authorization and be aware of the parameters and provisions and operate accordingly.
9. All water level, flow rate, temperature, pressure, water quality, and other relevant data collected as part of the ASR Cycle and Pilot Testing shall be provided to Ecology in electronic format (i.e., spreadsheet) with the Draft Phase 4 report.
10. This Temporary Authorization shall in no way excuse the permittee from compliance with any applicable federal, state, or local statues, ordinances, or regulations including those administered by other programs of the Department of Ecology.
11. The issuance of this Temporary Authorization does not convey a right of access to or other right to use land, which you do not legally possess. Obtainment of such a right is a private matter between the applicant and owner of that land.
12. The water sources and/or transmission facilities may not be located entirely upon the land owned by the applicant. Therefore, the applicant is advised that issuance of a permit by the Department of Ecology for appropriation of waters in question does not convey a right of access to, or other right to use, land which the applicant does not legally possess.
13. Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use and data collection that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions, but only to the extent otherwise allowed by law.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW Ste 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:RAZ (140701)

Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7131 4409

cc: Philip Rigdon, Director, Natural Resources Division, Yakama Nation

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

March 14, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to conduct recharge and recovery testing as part of the pilot test for aquifer storage and recovery (ASR) under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29E.W.M.

This letter serves as a PRELIMINARY PERMIT to conduct recharge and recovery testing as part of the pilot test for Kennewick's ASR facility under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a new reservoir permit. The source of water is a diversion from the Columbia River under Surface Water Certificate S4-25479C, Groundwater Certificate 3897-A, and Surface Water Permit S4-30976P. The proposed reservoir is an aquifer in the Wanapum Basalt Formation of the Columbia River Basalt Group. The proposed project entails diversion of source water, treatment at the City of Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer system and withdrawal of the stored water at a later date. It is anticipated that water may be available for diversion between October 15 and June 15 each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal is Kennewick's ASR well located approximately 2,500 feet north and 1000 feet west of the southeast corner of Section 17, T. 8 N., R. 29E.W.M. The associated Benton County Tax Parcel No. is 1-1789-400-0001-004. This location is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29E.W.M. in an area known as the "Southridge site."

Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a Preliminary Permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application.

This Preliminary Permit is associated with Phase 4 in Amendment No. 1 to the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick for the City of Kennewick Aquifer Storage and Recovery (ASR) Feasibility Study. Work to be performed for this preliminary permit is described in the Phase 4: ASR Cycle Testing and Reservoir Permit Application Completion ASR-1 Project Operations and Monitoring Work Plan, prepared by GSI Water Solutions, Inc., dated February 2014, as amended. The objectives of the proposed work plan are to:

- Assess the feasibility of developing a cool water storage zone that will allow the City to use the stored water for municipal drinking water supply.

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- Confirm the geochemical compatibility of the two waters and aquifer matrix, and ensure that the recovered water meets the City's needs for municipal supply.

- Assess groundwater quality during intermediate-scale ASR cycle testing to ensure compliance with state groundwater quality standards.

- Establish baseline and trends for pre-ASR static water levels and dynamic (long term recharge and pumping) water levels.

- Track well performance after baseline.

- Assess aquifer hydraulic response to ASR operations.

- Complete intermediate-scale ASR cycle testing that will inform operational objectives for future full-scale testing.

Data gathered during this work will assist Kennewick and Ecology in evaluating project operation, planning future testing, and collection of information that can be used to prepare a permit that meets the requirements of Chapter 173-157 WAC, as proposed in Reservoir Permit Application No. R4-35237.

This project includes injection of chlorinated drinking water from Kennewick's municipal water system into the Wanapum Basalt aquifer. Ecology's Water Quality Program has conducted a review of this project and based on the information provided determined that the benefits of the project outweigh the potential risk of adverse impacts. Kennewick must continue to follow WA DOH and US EPA guidance and requirements to minimize the formation of disinfection bi-products to the maximum extent reasonable. For the Kennewick ASR project, following the disinfection bi-product guidance and requirements is required to meet AKART and qualify to meet the groundwater quality standards for disinfection bi-products through a determination of Overriding Public Interest as recommended in WAC 173-157-200(2) and WAC 173-200-050(3)(b)(vi).

You are hereby granted a PRELIMINARY PERMIT to proceed with testing as specified in the Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

II. General Conditions

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until January 1, 2015, unless sooner revoked or revised by Ecology.

2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the aquifer test, or data collection activities, the test shall be terminated immediately.

3. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. Failure to comply with any of the terms and/or conditions of this PRELIMINARY PERMIT will result in this authorization being immediately terminated and the application on which it is based shall be automatically canceled (RCW 90.03.290(2)(a). This could include issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

4. This authorization does <u>not</u> imply or grant any right to withdraw public ground water from any well other than that authorized under this PRELIMINARY PERMIT.

5. This authorization does not imply or grant any right to withdraw water for any beneficial purpose or use; water withdrawn shall be for testing purposes only and will be discharged to the Kennewick Irrigation District canal. Kennewick Irrigation District has agreed to allow use of their canal for this purpose and will not beneficially use water resulting from this project.

6. No discharge to surface waters of the state is authorized. Kennewick shall monitor the discharge of water to the Kennewick Irrigation District canal to ensure that all discharge water infiltrates in the canal prior to reaching surface water. Water quality field parameters shall be observed during the pumping test, per the approved workplan. If any water quality problems are observed during any portion of the aquifer test, water quality samples shall be collected for laboratory analyses and/or the test shall be terminated immediately.

7. Issuance of this PRELIMINARY PERMIT does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between the applicant and owner of the land.

8. All activities shall comply with the January 9, 2014 Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan and Quality Assurance Project Plan (QAPP) prepared by Golder Associates and approved by Ecology on January 27, 2014. Copies of the approved Work Plan and Quality Assurance Project Plan can be obtained by contacting Ecology's project coordinator.

9. Deviations from the program outlined in the January 9, 2014 Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan shall be documented and request for approval shall be submitted in writing to Ecology's project coordinator. Any additional testing beyond that proposed in the approved workplan shall be documented and requested in writing from Ecology's project coordinator.

10. The scope of this PRELIMINARY PERMIT is limited as set forth below:

III. Project Management

1. The project coordinator for Ecology is:

Name:	Dave Nazy
Address:	300 Desmond Drive PO Box 47600 Lacey, WA 98504-7600 Phone: (360) 407-6038

Communications between Ecology and the applicant, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this PRELIMINARY PERMIT shall be directed through the Ecology project coordinator.

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1. The applicant shall notify the Ecology a minimum of five working days in advance, prior to the start of pumping or recharge of the ASR well. All data acquired as part of this work shall be tabulated and provided electronically (e.g. spreadsheet) to the Ecology within 30 days of completion of testing.

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YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

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Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:AH (140307)

Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7126 6968

CC: Philip Rigdon, Yakama Nation

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

February 10, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to conduct recharge and recovery testing as part of the completion of construction of infrastructure related to aquifer storage and recovery (ASR) under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29E.W.M

This letter serves as a PRELIMINARY PERMIT to conduct recharge and recovery testing as part of the completion of construction of Kennewick's ASR facility under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

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Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:AH (140222)

Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7127 0279

CC: Philip Rigdon, Yakama Nation

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

February 10, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to conduct recharge and recovery testing as part of the completion of construction of infrastructure related to aquifer storage and recovery (ASR) under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29E.W.M

This letter serves as a PRELIMINARY PERMIT to conduct recharge and recovery testing as part of the completion of construction of Kennewick's ASR facility under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

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Mark C. Schuppe
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Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7127 0279

CC: Philip Rigdon, Yakama Nation

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

October 8, 2009

Bruce Beauchene
City of Kennewick
P.O. Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to drill a test well and conduct aquifer testing to assess the feasibility of aquifer storage and recovery under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29 E.W.M

Dear Mr. Beauchene:

This letter serves as a PRELIMINARY PERMIT to drill and conduct testing under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

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The proposed point of injection and withdrawal is located approximately 2,600 feet north and 700 feet west of the southeast corner of Section 17, T. 8 N., R. 29 E.W.M. The associated Benton County Tax Parcel No. is 117894010857005. The proposed location of the test well is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29 E.W.M. in an area known as the "Southridge site".

Due to the hydrogeologic uncertainties and the lack of site specific data, additional information is needed to sufficiently evaluate the reservoir application. The applicant has proposed the construction of a test well for the purpose of evaluating the hydrogeologic conditions found at the site and has requested that Ecology issue a preliminary permit to authorize well construction

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and testing. The well is to be cased and sealed into the basalt aquifer system. The well shall be constructed in a manner that prevents significant groundwater flow between distinct aquifer zones. The test target is anticipated to be the Priest Rapids member of the Wanapum Basalt Formation, estimated to occur between 1000 and 1200 feet below ground surface at the Southridge site.

Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a Preliminary Permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application.

This Preliminary Permit is associated with the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick for the City of Kennewick Aquifer Storage and Recovery (ASR) Feasibility Study. Work to be performed for this preliminary permit is described in a Draft Scope of Work (SOW) and Quality Assurance Project Plan (QAPP) prepared by Golder Associates, dated July 10, 2009. The primary objective of the proposed aquifer test program is to obtain data to characterize aquifer properties in the immediate area of the Southridge site. Data gathered will assist the applicant completing the ASR Permit Application requirements of Chapter 173-157 WAC and Ecology in evaluating the ability of the above named horizon to serve as a reservoir for an ASR facility, as proposed in Reservoir Permit Application No. R4-35237

You are hereby granted a PRELIMINARY PERMIT to proceed with drilling and testing for project feasibility. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

I. General Conditions:

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until September 30, 2010, unless sooner revoked or revised by the Department of Ecology.

2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the aquifer test, or data collection activities, the test shall be terminated immediately.

3. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. Failure to comply with any of the terms and/or conditions of this PRELIMINARY PERMIT will result in this authorization being immediately terminated, issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

4. This authorization does <u>not</u> imply or grant any right to withdraw public ground water from any well other than that authorized under this PRELIMINARY PERMIT.

5. This authorization does not imply or grant any right to withdraw water for any beneficial purpose or use; water withdrawn shall be for testing purposes only.

6. Issuance of this PRELIMINARY PERMIT does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between the applicant and owner of the land.

7. All activities shall comply with the final Scope of Work and Quality Assurance Project Plan (QAPP) prepared by Golder Associates for the Kennewick Aquifer Storage and Recovery Project, and approved by Ecology on September 24, 2009. The approved Scope of Work and Quality Assurance Project Plan is included in this preliminary permit as an attachment.

8. Deviations from the program outlined in the July 10, 2009 Scope of Work and QAPP shall be documented and request for approval shall be submitted in writing to Ecology's project coordinator. Any additional testing beyond that proposed in that QAPP shall be documented and requested in writing from Ecology's project coordinator.

9. The scope of this PRELIMINARY PERMIT is set forth below:

II. Project Management

1. The project coordinator for Ecology is:

Name: Dave Nazy
Address: 300 Desmond Drive
PO Box 47600
Lacey, WA 98504-7600
Phone: (360) 407-6038

Communications between Ecology and the applicant, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this PRELIMINARY PERMIT shall be directed through the Ecology project coordinator.

III. Well Construction

1. One (1) test well may be drilled within the NE¼SE¼ of Sec. 17, T. 8 N., R. 29 E.W.M, Benton County within Water Resource Inventory Area (WRIA) 37 for the purpose of investigating the hydrogeologic conditions of the aquifer.

2. All wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under Chapter 18.104 RCW (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

3. Each well shall be tagged with an Ecology unique well identification number, issued by Ecology. This tag shall remain shall remain attached to the well. Reference this tag number when submitting water measuring reports.

4. The wells shall be drilled by a licensed well driller as set forth in Washington Administrative Code (WAC) 173-162-040. The applicant shall provide a complete copy of this PRELIMINARY PERMIT to the licensed well driller for correlation with project goals and requirements.

5. The applicant must submit the required well drilling Notices of Intent with the required fees providing the required 72 hours notice. Complete well reports shall be submitted by the licensed driller to the Department of Ecology within thirty (30) days of completion. Department staff may be on site during the drilling process.

6. In accordance with WAC 173-160-171, wells shall not be located within certain minimum distances of potential sources of contamination. In general, wells shall be located at least 100 feet from a drain field, privy, or other sources or potential sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill. Minimum distances shall also comply with state and local health regulations.

7. Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

IV. Aquifer Testing

1. The applicant shall notify the Ecology project coordinator a minimum of five working days in advance, prior to pump testing of the test well. Verbal approval from the Ecology project coordinator shall be required prior to any pump test being conducted. All data acquired during drilling and pump testing shall be tabulated and provided electronically (e.g. spreadsheet) to the Department of Ecology within 30 days of well completion.

2. A licensed hydrogeologist or engineer shall oversee well testing and provide analysis. The test(s) will include both step-drawdown and constant rate pumping components, not to exceed a pumping rate of 900 gallons per minute, for a minimum of 24 hours, with stabilization occurring for at least the last 4 of those hours. Stabilization is defined as a drop in water level of less than or equal to 0.1 feet per hour. If the response characteristic is not changing at the end of the 72-hour testing period anticipated for this project, the test may be terminated after consulting with the Ecology project coordinator. The

applicant shall provide all equipment necessary to collect recovery data. Drawdown and recovery measurements must be made in the same manner and at the same or greater frequency as described in Water Resource Information System (WRIS) Information Bulletin No. 30., and in accordance with the Quality Assurance Project Plan for the project. . Once the pump has been turned off measurements shall be taken until 95% recovery is achieved. All procedures shall conform with Bulletin No. 30 or as recommended in American Society of Testing and Materials (ASTM) Standards D4043 and D4050 and the following:

a. A well construction report (well log) for the test well, which shall include the well's total depth, screened interval depths, pump intake depth, and construction specifications.

b. A well construction report (well logs) for each observation well, including the well's total depth, screened interval depths, and construction specifications.

c. A map and description (¼, ¼, Section, Township, Range, distance to nearest section corner, GPS coordinates) accurately indicating the well location(s).

d. A legible table including the pumping rate and all water measurement data collected for all wells observed during pumping and recovery. The report should include information on methods, and any other data collected or analyzed. An Excel spreadsheet, or tab-delimited text electronic table shall be prepared including all these data.

e. The above information shall be incorporated into the report that will detail all reconnaissance information on hydrology and geology for the area, standard hydraulic estimates of well efficiency and standard aquifer parameters. The report shall also include discussions regarding whether the well would capture waters in hydraulic continuity with area surface water bodies. The applicant shall make this report available to the Department.

3. The Driller shall keep the Department project coordinator informed of progress during the drilling of the wells.

4. After the project testing has been completed, the pump shall be removed from the test well. The test well and observation wells shall then be securely capped.

5. The well must remain accessible to Ecology field staff for periodic readings.

V. Appeal

Any person has a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearing Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.

- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.

- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board:

Mail appeal to:	OR	Deliver your appeal in person to:
Pollution Control Hearings Board PO Box 40903 Olympia WA 98504-0903		Pollution Control Hearings Board 4224 – 6th Ave SE Rowe Six, Bldg 2 Lacey WA 98503

2. To serve your appeal on the Department of Ecology:

Mail appeal to:	OR	Deliver your appeal in person to:
Department of Ecology Appeals Coordinator PO Box 47608 Olympia WA 98504-7608		Department of Ecology Appeals Coordinator 300 Desmond Dr SE Lacey WA 98503

3. And send a copy of your appeal packet to:

Derek I. Sandison, Director
Office of Columbia River
Department of Ecology
15 W Yakima Ave Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov.

To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser.

If you have any questions or concerns about this decision, or if we can otherwise provide further assistance, please contact Dave Nazy at (360) 407-6038 or dnaz461@ecy.wa.gov.

Sincerely,

Derek I. Sandison,
Director, Office of Columbia River

(DIS:DN:cmr 091007)

Enclosures: Scope of Work and Quality Assurance Project Plan
Your Right To Be Heard

By Certified Mail: 7007 2560 0001 7676 2507

cc: Phil Brown, Golder Associates (w/enclosures)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

RECEIVED
APR 21 2009
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

APPLICATION FOR PERMIT
TO CONSTRUCT A RESERVOIR AND TO STORE FOR BENEFICIAL USE WATERS OF THE STATE OF WASHINGTON

$50.00 NON-REFUNDABLE MINIMUM STATUTORY FILING FEE REQUIRED WITH APPLICATION
(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NUMBER	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
R4-35237	31	BENTON	May 15, 2009		

APPLICANT'S NAME	TELEPHONE NUMBER
City of Kennewick WA	(509) 585-4289
DATE AND PLACE OF INCORPORATION, IF APPLICANT IS A CORPORATION	

ADDRESS (STREET) PO Box 6108 (CITY) Kennewick (STATE) WA (ZIP CODE) 99336

1. **SOURCE, USE, AND CAPACITY OF RESERVOIR**

NAME OF PROPOSED RESERVOIR Columbia River Basalt Aquifer System (Wanapum Basalt or overlying) underlying the City of Kennewick near the Southridge High School and surrounding areas (Southridge site).

DEPT. OF ECOLOGY FISCAL & BUDGET 09 MAY 15 A8:43

NAME OF STREAM OR OTHER SOURCE FOR RESERVOIR SUPPLY

Water from the Columbia River diverted under Permit #S4-30976P (Quad Cities). Water diverted from the Columbia will be conveyed to the City of Kennewick's Filtration Water Treatment Plant, where it is filtered and chlorinated (unless obtained from a collector well), then sent to the distribution system. Water from the distribution system will be directly introduced into wells (to be installed) to recharge the basalt aquifer system.

TRIBUTARY OF: N/A

USE(S) TO BE MADE OF IMPOUNDED WATER (IRRIGATION, POWER, FISH PROPOGATION, ETC.) Municpal Supply

NUMBER OF ACRE FEET TO BE STORED AT MAXIMUM OPERATING LEVEL

To be determined through a testing program. A single well recharging at 900 gpm (1.3MGD) would likely store up to 233 MG (714 acre-feet) per year. Actual rates and volumes to be determined through testing. Additional storage capacity may be requested at a later date if additional ASR capacity is developed.

MONTHS OF YEAR DURING WHICH RESERVOIR IS TO BE FILLED

To be confirmed. Recharge water is expected to be available between October 15 and June 15 each year. The exact dates of recharge water availability are dependent on streamflows, water system demand, and biological flow requirements in the Columbia River system.

NUMBER OF ACRES TO BE IRRIGATED, IF USED FOR IRRIGATION N/A

TYPE AND CAPACITY OF DIVERSION WORKS IF WATER IS TO BE WITHDRAWN

Wells will be owned and operated by the City of Kennewick. The wells will be completed between 600 and 1200 feet below ground surface in the South ridge area of Kennewick. Actual well locations to be determined. The attached map (Figure 1) shows the general location of the City's proposed ASR well.

2. **LOCATION OF POINT OF DIVERSION OR WITHDRAWAL**

ON ACCOMPANYING PLATS OR MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION.
GIVE MEASURED DISTANCE AND BEARING, OR NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER.

COMPLETE EITHER A OR B	A	THE RESERVOIR IS TO BE LOCATED IN THE CHANNEL OF (NAME OF STREAM)
	B	THE RESERVOIR IS TO BE FILLED THROUGH A FEEDER CANAL (OR PIPELINE) HAVING ITS POINT OF DIVERSION (INTAKE) LOCATED AS FOLLOWS Water will be diverted from the Columbia River at the City of Kenewwick's municipal water supply intake, filtered at the City's water treatment facility, and conveyed through the City's water supply system to the proposed ASR well location described below.

DISTANCE AND BEARING TO SECTION CORNER

The proposed storage reservoir is regional in scale and is described in the memoranda supporting this application. The storage zone is likely to be within a 2,000 foot radius of the location shown in Figure 1. The proposed ASR well is located in T9N, R29E-17 – approximately 2,600 feet south and 700 feet east to southeast corner of section 17.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
SE ¼	17	8N	29E	Benton

3. **IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, COMPLETE THIS SECTION**

LOT N/A	BLOCK N/A	OF (GIVE NAME OF PLAT OR ADDITION) N/A

4. **LOCATION OF IMPOUNDING STRUCTURE**

IMPOUNDING STRUCTURE LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.
Naturally occurring deep confined basalt aquifer within the Columbia River Basalt Aquifer System. See attached Figure 1.	17	8N	29E

LEGAL SUBDIVISION OF LANDS IN WHICH THE SUBMERGED AREA IS TO BE LOCATED
(THE OUTLINE OF THIS LAND IS TO BE SHOWN ON THE MAP TO ACCOMPANY THIS APPLICATION)

DO YOU OWN THIS PROPERTY	IF NO, HAVE YOU SECURED FLOOD RIGHTS FOR LANDS TO BE INUNDATED
☒ YES ☐ NO	☐ YES ☒ NO
The storage reservoir is the Columbia River Basalt Aquifer System. The City of Kennewick has an agreement with the land owner to acquire ownership of the parcel containing the ASR well.	No lands will be flooded. Storage will be underground in the Columbia River Basalt Aquifer System.

5. **CONSTRUCTION OF IMPOUNDING STRUCTURE**

HEIGHT OF DAM (FEET) N/A	LENGTH OF TOP (FEET) N/A	LENGTH OF BOTTOM (FEET) N/A	WIDTH ON TOP (FEET) N/A

CONTINUED ON NEXT PAGE

SLOPE OF FRONT OR WATER SIDE (NUMBER OF FEET HORIZONTAL TO ONE FOOT VERTICAL) N/A	SLOPE OF BACK SIDE (NUMBER OF FEET HORIZONTAL TO ONE FOOT VERTICAL) N/A
HEIGHT OF DAM ABOVE WATER LINE AT MAXIMUM FLOOD FLOW (FEET) N/A	
TYPE OF CONSTRUCTION OF DAM AND MATERIAL OF WHICH IT IS TO BE BUILT N/A	
LOCATION AND DIMENSIONS OF SPILLWAYS (STATE WHETHER OVER, AROUND, OR THROUGH DAM) N/A	

NUMBER OF ACRES TO BE SUBMERGED BY RESERVOIR WHEN FULL N/A	MAXIMUM DEPTH (FEET) N/A	APPROXIMATE AVERAGE DEPTH (FEET) N/A

ESTIMATED COST OF PROPOSED WORK	
CONSTRUCTION WILL BEGIN ON OR BEFORE (DATE)	CONSTRUCTION WILL BE COMPLETED ON OR BEFORE (DATE) Construction of additional ASR wells is expected to be planned and continue as long as financially and hydrogeologically feasible.
SIZE AND TYPE OF OUTLET STRUCTURE	

6. **LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED (IF DIFFERENT THAN ABOVE)***

COPY LEGAL DESCRIPTION FROM DEED: OR ATTACH COPY OF DEED. TAX STATEMENT DESCRIPTIONS ARE NOT ACCEPTABLE.
ALSO OUTLINE THIS PROPERTY ON THE MAPS OR PLATS SUBMITTED WITH THIS APPLICATION.

Area served by the City of Kennewick

DO YOU OWN THIS PROPERTY

☐ YES ☒ NO

IF NO, GIVE NAME AND ADDRESS OF OWNER

The water will be used in the area served by the City of Kennewick which includes multiple property owners. The City of Kennewick owns and maintains the water system infrastructure, including wells, distribution system piping and valving, water storage facilities, water treatment facilities, and raw water conveyance and storage.

BRYCE BEAUCHENE

Bruce Beauchene 4/16/09

SIGNATURE OF APPLICANT

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY } ss.

This is to certify that I have examined the foregoing application together with the accompanying maps and data, and return the same for correction or completion as follows:.....

.....

.....

In order to retain its priority, this application must be returned to the Department of Ecology, with corrections, on or before ....., 20.....

Witness my hand this ..... *day of* ....., 20.....

.....

Department of Ecology

If you require this document in an alternate format, please contact the Water Resource Program at (360) 407-6600 or TTY (for the speech or hearing impaired) at 711 or 1-800-833-6388.

Golder Associates
9 Monroe Parkway, Suite 270
Lake Oswego, Oregon 97035
Telephone (503) 607-1820
Fax (503) 607-1825
www.golder.com

Golder Associates

TRANSMITTAL LETTER

TO: Washington Department of Ecology
Central Regional Office
15 West Yakima Ave
Suite 200
Yakima, WA 98902-3452

DATE: April 20, 2009

PROJECT NO.: 083-99742-01

SENT VIA:

X Federal Express

☐ U.S. Mail

☐ Courier

☐ Hand Delivery

☐ Other: _____

QUANTITY	ITEM	DESCRIPTION
1	Copy	1st Deliverable for the City of Kennewick. Including:
		• Reservoir Permit Application
		• Project Description

REMARKS:

Please let us know if the items above are not received as indicated.

Thank you.

Per Andrea Cornette

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APR 21 2009
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Golder Associates Inc.
9 Monroe Parkway, Suite 270
Lake Oswego, Oregon 97035
Telephone: (503) 607-1820
Fax: (503) 607-1825
www.golder.com

TECHNICAL MEMORANDUM

TO:	Bruce Beauchene/City of Kennewick Dave Nazy/Washington Department of Ecology	**DATE:**	March 31, 2009
FR:	Phil Brown/Golder Associates Inc. Steven Humphrey/Golder Associates Inc.	**OUR REF:**	0839974201
RE:	CITY OF KENNEWICK ASR FEASIBILITY STUDY PROJECT DESCRIPTION – SUPPORTING INFORMATION FOR THE RESERVOIR PERMIT APPLICATION		

1.0 INTRODUCTION

The City of Kennewick, Washington (City) entered into an August 2008 Grant Agreement (State Grant Number G0900011) with the Washington State Department of Ecology (Ecology) to complete an Aquifer Storage and Recovery (ASR) feasibility study. That Agreement defined four phases of the project, with the first phase titled: Phase One Reservoir Permit Application and Preliminary Permit, which describes the requirement to apply for a reservoir permit in accordance with RCW 90.03.370. The Agreement acknowledges hydrogeologic feasibility work completed prior to this study will be the primary body of data to support the application, and the additional site-specific information that is required will be collected in project phases two and three of the project. The project structure is described in more detail in Section 4.0. The City of Kennewick has retained the Golder Associates Inc. (Golder) team to complete the ASR feasibility study.

This document is intended to provide a general narrative of the current project understanding and approach to support the reservoir permit application, sufficient for Ecology to proceed with the public notice requirements of RCW 90.03.280.

1.1 Project Background

The City of Kennewick plans to develop an ASR project to support the water demands for the growing population in the area. The project proposes to withdraw water from the Columbia River using the Quad Cities water right under permit S430976P during the winter months, store it in a deep basalt aquifer in the Southridge area, and recover the water to supplement peak demands during the summer months. Previous studies on the feasibility for an ASR program have been completed for the City of Kennewick and areas of a similar setting (GSI, 2009; Aspect, 2005; Golder, 2001). Detailed information on the hydrogeologic system, water quality and the potential for ASR was provided in these studies, which serve as background information for this assessment. Golder has summarized that information below, and encourage the reader to refer to these documents should additional detail be required.

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APR 21 2009
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

This feasibility study will focus on identifying an ASR storage zone that strikes the best balance between:

- Drilling and well construction costs;
- Water quality and temperature;
- The potential for well interference and interaction with shallower zones;
- Ease of permitting.

The general approach will be to drill to the maximum target depth that funding will support in Phase Two of the project. During drilling, field measurements will be completed to assess zones of permeability and to characterize groundwater quality. Drilling cuttings will be examined in the field and submitted for XRF analysis to classify the basalt flows based on whole rock geochemistry and established correlations. If field measurements indicate a potentially suitable target storage zone has been encountered, a recommendation for constructing the test well will be developed. If questionable or otherwise unsuitable conditions are encountered, test well construction will be delayed until a proposal for drilling to a deeper target can be developed, approved, and funded.

2.0 PROJECT DESCRIPTION

The City and Ecology have worked to develop a feasibility study project approach that would evaluate the potential for developing an ASR system. The project will be considered successful according to the following measures:

- The project meets permitting requirements;
- Water is captured during high-flow for later beneficial use during low-flow periods;
- Measurable benefits to streamflow occur during low-flow periods;
- Water quality issues are successfully addressed
- The ASR project remains economically feasible relative to other supply alternatives when these issues are addressed; and
- The project is operated and managed to provide mitigation for the appropriation under Permit #S4-30976P.

The project approach to assess the feasibility of an ASR system for the City of Kennewick involves four phases:

Phase 1 - Reservoir permit application, preliminary permit for drilling, Phase two scope and Quality Assurance Project Plan (QAPP);

Phase 2 - Test well construction, aquifer testing and technical report;

Phase 3 - Project monitoring plan, conditioned reservoir permit, pilot well construction, development, and storage cycle testing;

Phase 4- Preparation of plans and documents for the complete reservoir permit application.

These phases are described in more detail below.

2.1 Phase I: Reservoir Permit Application, Preliminary Permit, Phase Two Scope and QAPP

This phase will develop a preliminary Reservoir Permit Application; a preliminary permit to drill a test well; a work plan for drilling, testing, and sampling; a Quality Assurance Project Plan (QAPP); and an initial AKART analysis to evaluate water treatment and quality objectives and approaches.

2.1.1 Task 1 – Reservoir Permit Application

This task involves preparing a draft Reservoir Permit Application using existing information from the USGS, Department of Ecology, consultant reports, and this report (ASR Assessment) completed for the City. Golder will evaluate the need for a mitigation plan based on a conceptual hydrogeologic model and the environmental assessment. An application will be prepared and submitted to Ecology, then updated after Phase 3. This document represents the supporting information for the initial permit application. It is recognized that substantial additional information will be required for approval, and that this project has been structured to develop that information during the second and third phases of the project.

2.1.2 Task 2 – Preliminary Permit

A narrative will be submitted as a request to drill a test well to be used for ASR pilot testing. General information on the well location, anticipated depth/construction, and pumping test description will be included in the narrative. The narrative will reference the production of a detailed scope of work to be approved by Ecology prior to Phase Two of the project. The Preliminary Permit for the test well will be issued and published for a 30-day public notice period.

2.1.3 Task 3 – Prepare Phase II Scope of Work

A Phase Two Scope of Work and QAPP will be developed to ensure Phase 2 will meet the technical, permitting and budget objectives of the project. The elements included in the scope will be an environmental assessment and analysis report; a plan for test well construction and development; technical report documenting results of the test well drilling and aquifer testing program; an outline of the AKART analysis; and a QAPP.

2.2 Phase II: Test Well Construction, Aquifer Testing and Technical Report

This phase will begin with an Environmental Assessment and Analysis (EAA) that may include a State Environmental Policy Act checklist and address the potential environmental impacts. This will be followed by a test well drilling program to collect geochemical, stratigraphic, and hydraulic information to support the Phase 2 Technical Report.

2.2.1 Task 1 – Environmental Assessment and Analysis Report

The EAA Report will be prepared in compliance with the requirements of WAC 173-157-150 (1) and (2), and will be supplemented with a mitigation plan if impacts are anticipated based on the Phase 1 modeling work.

2.2.2 Task 2 – Test Well Construction

This task requires selecting a drilling contractor followed by the drilling and sampling of an ASR test well. Requested bids received from drilling contractors will be reviewed with Ecology and the City to select the most responsive bidder based on qualifications, cost, and schedule.

It is anticipated that the test well will be drilled by reverse circulation air-rotary methods. During drilling, cuttings will be sampled for an XRF analysis in an on-site laboratory and a detailed geologic classification will be developed for the well log. Borehole geophysical logging to characterize

lithology, permeability, and formation water quality will be conducted if an open-borehole section exists upon completion of the well.

2.2.3 Task 3 – Aquifer Testing

The pumping test for the test well will be conducted in three stages; baseline monitoring, constant rate testing, and recovery monitoring. The pumping period will be set by the ASR Project Team to balance objectives, the final well capacity, water management requirements, and cost. An observation network of nearby wells will be established to monitor the aquifer's hydraulic response in the vicinity of the test well and proposed ASR facility. Testing data will be collected per the Preliminary Permit and QAPP.

2.2.4 Task 4 – Technical Report

Golder will prepare a technical report describing the drilling, testing, sampling, analyses and results. The draft technical report will be submitted for Ecology review, and the final report will be prepared after addressing all comments received from Ecology. Following completion of the final technical report, the ASR Project Team will meet with Ecology to review the Phase 2 test results and recommendations and agree on a second Preliminary Permit to authorize additional testing.

2.3 Phase III: Project Monitoring Plan, Conditioned Reservoir Permit, Pilot Well Construction, Development, and Storage Cycle Testing

This Phase begins with the development of a conditioned reservoir permit supported by a Scope of Work and QAPP. An ASR Pilot well will be installed, operational ASR facilities will be constructed, and ASR pilot testing will be completed to determine water quality, reservoir capacity, groundwater system hydraulic response to storage and recovery, well performance issues, and storage zone development.

2.3.1 Task 1 – Scope of Work for Phase 3

The Scope of Work for Phase 3 will be prepared including proposed tasks, methods, deliverables, and an anticipated schedule. A QAPP and project monitoring plan will detail the objectives and methods for the Phase 3 work to be completed.

2.3.2 Task 2 – ASR Pilot Well Construction

Task 2 will consist of constructing and developing an ASR pilot well that will target the storage zone evaluated by the test well. The ASR pilot well will be outfitted with pumping and injection equipment to facilitate subsequent ASR cycle testing. The City will convey water from their distribution system to the ASR well to facilitate the cycle testing operations, and, depending on the results of the AKART analysis, may incorporate a temporary water treatment facility at the wellhouse facility. The Golder Project Team will work with the City, Department of Ecology, and Department of Health to determine whether the extracted water throughout the pilot testing will be placed into the distribution system or used for other purposes.

After completing construction and baseline testing of the ASR pilot well, the Golder team will prepare a technical report consistent with the Phase 3 Scope of Work and conditioned reservoir permit that describes all work completed and results obtained.

2.3.3 Task 3 – ASR Cycle Testing

ASR cycle testing will commence at the pilot well per the conditions of the conditioned reservoir permit. The first ASR cycle will consist of a recharge, storage, and recovery phase as outlined in the permit. It is anticipated that the approach for objectives, schedule and monitoring details will be largely consistent with the one previously developed by Golder and Ecology for the Yakima pilot test (Golder, 2001).

Water quality samples will be collected during the recharge, storage, and recovery phases to document recharge water quality, any near-well changes during the storage period, and recovered water quality through the far side of the mixing zone. At the end of the first year of ASR cycle testing, a draft annual report would be prepared to document the work completed, results obtained, and recommendations for further project development and build-out.

2.4 Phase IV: Preparation of Plans and Documents for the Complete Reservoir Permit Application

The goal of Phase 4 is to develop and compile all the documents necessary to complete the reservoir permit application package meeting the requirements of Chapter 173-157 WAC, which may include reference to existing reports that meet application requirements. Data collection and compilation to support Phase 4 may be completed concurrently with Phase 3, though the approach, budget, and schedule are likely to be collaboratively developed by the ASR Project Team after evaluating the longer pilot test results completed in Phase 3.

3.0 ASR PROJECT SETTING

The City of Kennewick is located on the west side of the Columbia River in southeastern Washington. Kennewick is located within the Pasco Basin at the foothills of the Horse Heaven Hills at an elevation of approximately 1,000 feet above mean seal level (amsl). The prospective ASR site is termed Southridge due to the close proximity of the Southridge High School located southwest of downtown Kennewick off Union Loop Rd (Figure 1).

In this memorandum, the term "Project Area" refers to the Southridge site, approximately 6 miles south of the Columbia River. The term "Region" refers to an area within a circle of approximately 6 to 10 miles radius of the Southridge site – sufficient distance to encompass the nearby structural features (folds and faults) and the Columbia River. An actual radius of influence (area subject to hydraulic influence from ASR operations) will be estimated on the basis of the aquifer test completed in Phase Two. That area may be either larger or smaller than the area described as in the region of the project in this memorandum.

3.1 Geology

The geology of the project area consists of Pleistocene sedimentary deposits at the surface underlain by the Columbia River Basalt Group (CRBG), which is comprised of a series of massive basalt flows. The stratigraphy beneath the project area has been interpreted from over 30 geologic logs from previously drilled wells (Aspect, 2005). The CRBG is composed of the Saddle Mountains, Wanapum, Grande Ronde, Picture Gorge and Imnaha Basalt Formations (Bauer and Hansen, 2000). From the several studies that have characterized the hydrogeology of the CRBG, the basalt stratigraphy is generally well known, and the extent of the basalt formations can be applied to a broad area. The specific formations and their depths at the Southridge site will be assessed by the Phase Two drilling program.

The Saddle Mountains and Wanapum Basalt Formations have been described by others as exhibiting hydrogeologic and geochemical characteristics that may be suitable for large-scale ASR (Aspect, 2005). In the vicinity of the Southridge site, the basalts of the Saddle Mountains and Wanapum formations are expected to comprise the upper 1,500 to 2,000 feet of the CRBG, with the basalts of the Grande Ronde occurring below that (Golder, 2001). Though the Grande Ronde basalts have not been assessed near the Southridge site, they are interpreted as having the potential for both increased salinity and temperature in this area (Hearn and others, 1985). In other parts of the Columbia Basin, basalts of the Grand Ronde are both more permeable and have relatively better water quality than the overlying Saddle Mountains and Wanapum. Because of the combined the risk of elevated temperature and salinity and the additional expense of deeper exploratory drilling, this project will elect to focus on indentifying an ASR storage zone ("reservoir") above the Grande Ronde formation.

3.2 Hydrogeology

The hydrogeology of the study area and ASR target zone mainly consists of the aquifers of the CRBG. The CRBG is a large scale regional aquifer system composed of series of volcanic flows typically containing a vesicular flow base/top with intervening entablature. Where not fractured by faults and folding, the basalts typically exhibit high horizontal and vertical hydraulic conductivities in vesicular/fractured, and weathered zones associated with flow tops (i.e. horizontal contacts or interflows), and low horizontal and vertical hydraulic conductivities in the entablature (flow interior, Figure 2). Lateral groundwater movement is primarily within the interflows. Where flows are laterally extensive, there is little vertical hydraulic connectivity between flows.

An ideal ASR storage zone would have the potential to store a large quantity (several hundred million gallons) of recharge water and permit the recovery of most if not all of the water with little impact on nearby groundwater users and surface water. A confined ASR storage zone minimizes impacts to other aquifer systems and limits the potential for leakage to nearby surface water. A laterally extensive high-transmissivity storage zone allows for a large volume of water to be stored and recovered without large changes in piezometric pressure (groundwater level).

Pumping tests have been used to calculate CRBG transmissivities in this area with the highest values (84,000 gpd/ft) attributed to the Wanapum Formation (US DOE, 1982). Testing completed by Golder at the Willowbrook well located in Richland (Golder, 2001) calculated similar values (67,000 gpd/ft). Currently, several wells that have been completed in the CRBG Wanapum Formation are pumped at high rates (200 to 1,200 gpm) which reliably support a variety of uses (Aspect, 2005).

3.2.1 ASR Storage Zone(s)

Water is typically stored in a basalt aquifer within an interflow or several combined interflows. An interflow is the area between two flows stacked upon each other and usually contains the most permeable water-bearing zone (Bauer and others, 1985) (Figure 2). The upper section of the Wanapum Formation was identified in a previous study as the best candidate aquifer for storage on the basis of depth and reported permeability. In addition, temperature distribution information suggests that groundwater in the Wanapum basalts may be 5 degrees (F) cooler than both the overlying Saddle Mountains and the underlying Grand Ronde (Hearn, 1985). This suggests that fluid-driven thermal transport is the primary mechanism for the thermal regime rather than a shallow heat source. In this setting, the ASR system could be effective in creating a cool water storage zone in the Wanapum.

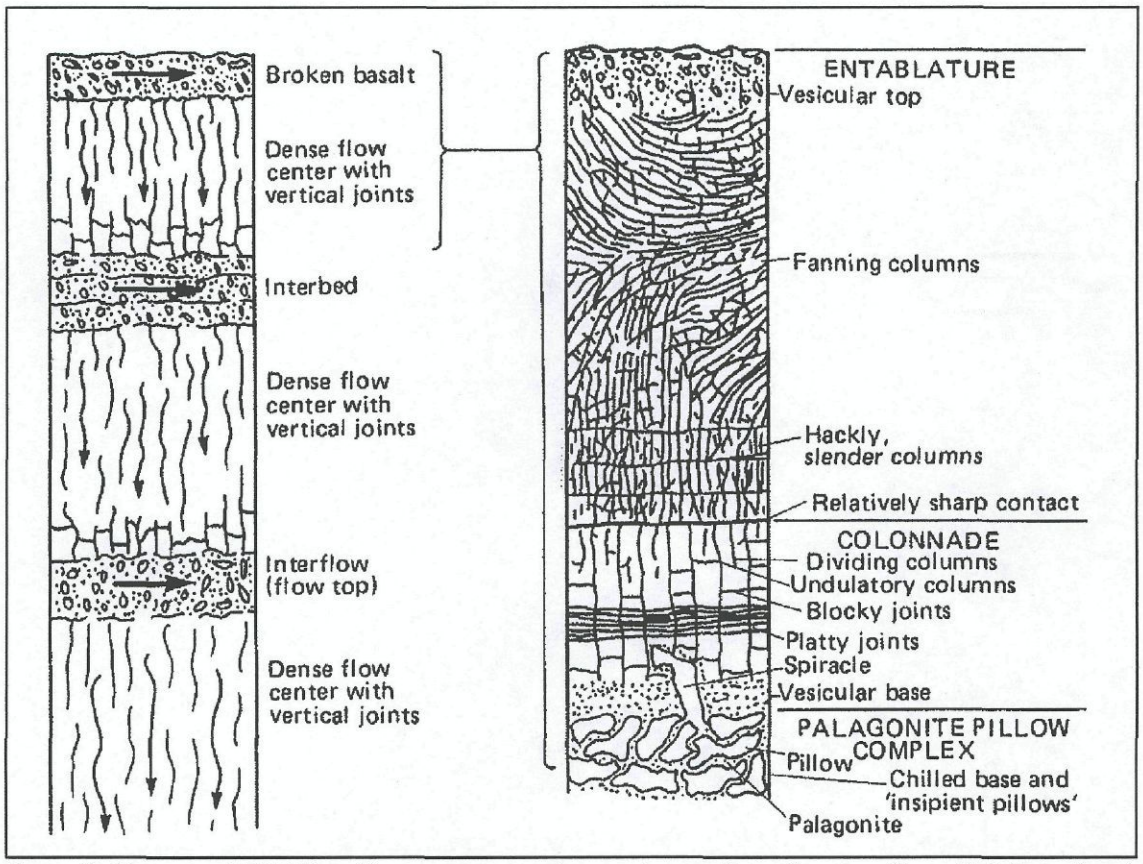


Figure 2: Common CRBG interflow structure and groundwater flow direction (from Steinkampf and others, 1985).

The Wanapum Formation is laterally extensive throughout much of Washington and Oregon, each containing multiple basalt interflows that may serve as potential ASR storage zones. Average thickness of the Wanapum Basalt is around 400 feet, but can be over 1000 feet thick in some areas (Steinkampf and Hearn, 1996). There is some uncertainty regarding the depth of the Wanapum Basalt in the Southridge area. It has been reported to be roughly 600 to 800 feet bgs (Jones and Vaccaro, 2008). However, there are indications that it is 140 to 260 feet deeper than has been depicted previously (Figure 3, pers. comm. with Hoselton, 2008).

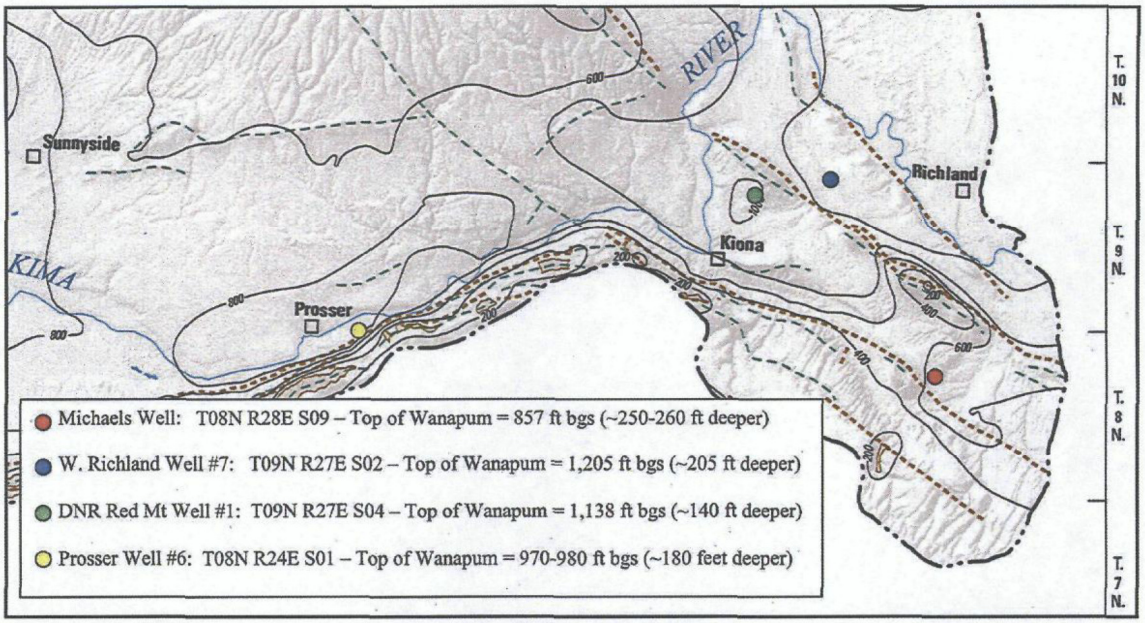


Figure 3: Alternative depths for the top of the Wanapum Basalt. The Kennewick Southridge site lies a short distance east of this mapped area. (Draft Ecology Corrections to Jones and Vaccaro, 2008; provided by WDOE in Draft form, 2009).

The issues with depth and position-related variability in groundwater quality, potential reactivity, and variable temperature regimes could make storage zone development and control a key element of ASR feasibility. Projecting water quality changes over successive ASR pilot testing cycles and distinguishing mixing from other water quality processes (water-water or rock-water interactions), is key to understanding recovery of stored water and subsurface processes. The approach to evaluating geochemistry and recovery efficiency will be developed as part of a drilling and testing work plan included in the QAPP to be submitted to Ecology for approval at the end of Phase One. This information will be evaluated prior to proceeding with any ASR pilot testing activities, and if an ASR well is developed, operational data will be assessed prior to finalizing this reservoir permit application.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. RE08641

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction
☐ Decommission

500619

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Golder Associates

Unique Ecology Well IDTag No. AAR 980

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Schneider, Steve

Driller/Engineer /Trainee Signature

Driller or Trainee License No. 0643

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

☒ Resource Protection
☐ Geotech Soil Boring

Department of Ecology
NOV 20 2013
Water Resources Program

Property Owner City of Kennewick

Site Address ~~PO Box~~ 6108

City Kennewick County Benton

Location NW1/4-1/4 SW1/4 Sec 16 Twn 8 R 29

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg 46 Min 10 Sec 38.7

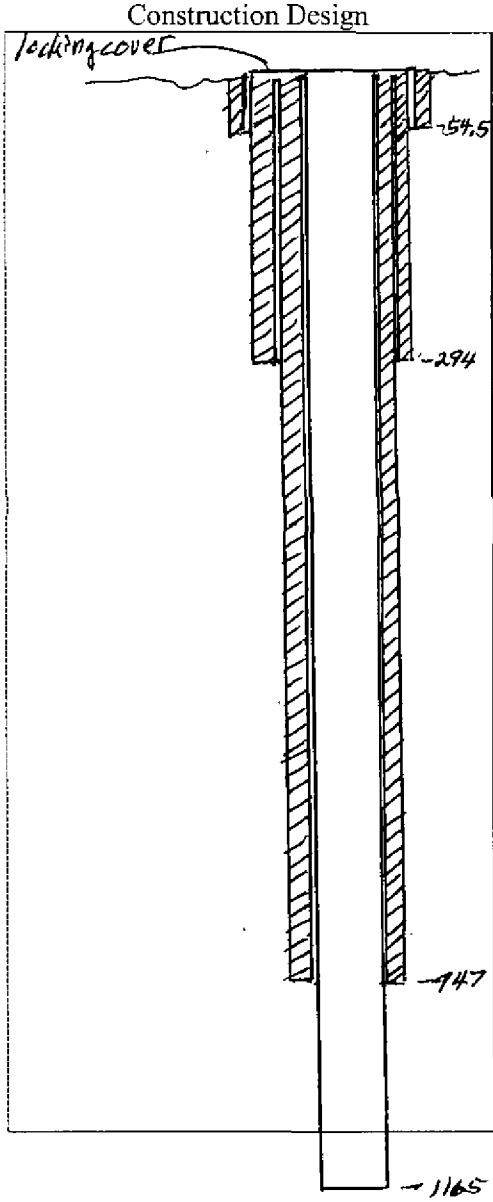
Long Deg 119 Min 12 Sec 1.05

Tax Parcel No. none assigned

Cased or Uncased Diameter 6 Static Level 323

Work/Decommission Start Date 7/1/13

Work/Decommission Completed Date 9/10/13

Construction Design	Well Data	Formation Description
	16"x.375 steel casing 3' above ground to 54.5' below ground. 10"x.25 steel casing 1.25' above ground to 294' below ground. 6"x.25 steel casing 2.3' above ground to 947' below ground. All casings sealed to their full depth with cement grout. 6" diameter open basalt borehole to 1165'.	0-16 Soil, silty, brown 16-18 Rock, grey, broken, cemented 18-45 Cobbles & boulders, some gravel & clay, brown, soft 45-55 Rock, grey, broken, cemented 55-61 Rock, grey, broken, cemented w/clay, silty, brown, soft 61-105 Clay, silty, brown, soft w/gravel, small & cobbles & boulders 105-267 Cobbles & boulders w/gravel, small & some clay, silty, brown, soft 267-276 Cobbles & boulders w/gravel, small 276-295 Basalt, grey & brown, medium-hard, fractured 295-340 Basalt, grey, hard, fractured 340-350 Basalt, black, soft, some vesicles w/some claystone, blue, soft & some sandstone, blacke, medium 350-357 Basalt, black, soft-medium, vesicular w/claystone, brown-green, soft 357-360 Basalt, grey-brown, medium, some vesicles 360-400 Basalt, grey, hard, fractured

DEPT OF ECOLOGY Received DEC 04 2013 CENTRAL REGIONAL

RECEIVED
NOV 27 2013
Department of Ecology
Eastern Regional Office

SCALE: 1"= 200' PAGE 1 OF 2

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Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. RE08641

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction

☐ Decommission 500619

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Golder Associates

Unique Ecology Well IDTag No. AAR 980

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Schneider, Steve

Driller/Engineer /Trainee Signature

Driller or Trainee License No. 0643

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

Department of Ecolog

NOV 20 2013

Water Resources Progra

Property Owner City of Kennewick

Site Address PO Box 6108

City Kennewick County Benton

Location NW1/4-1/4 SW1/4 Sec 16 Twn 8 R 29

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg 46 Min 10 Sec 38.7

Long Deg 119 Min 12 Sec 1.05

Tax Parcel No. none assigned

Cased or Uncased Diameter 6 Static Level 323

Work/Decommission Start Date 7/1/13

Work/Decommission Completed Date 9/10/13

Construction Design	Well Data	Formation Description
See page 1 for design.	See page 1 for well data.	400-415 Clay, green, soft w/claystone, green, medium
		415-455 Basalt, black & brown, soft-medium, vesicular w/claystone, green, medium-hard
	Formation Description continued from third column on this page:	455-725 Basalt, grey, hard, fractured
	1080-1085 Basalt, grey & brown, medium, fractured some quartz	725-803 Clay, green, soft-medium, sandy w/claystone, green, medium
	1085-1102 Basalt, grey, hard, some fractures & few vesicles	803-975 Basalt, grey, hard, fractured w/some quartz, brown in lower 25'
	1102-1124 Basalt, grey, hard, some fractures	975-987 Basalt, grey, medium, fractured, some vesicles
	1124-1155 Basalt, grey & brown, soft-medium, fractured, vesicular w/claystone, blue-green, soft-medium	987-1010 Basalt, grey, hard, some fractures & occasional vesicles
	1155-1165 Basalt, grey, hard, fractured, occasional vesicles	1010-1025 Basalt, grey & brown, medium-hard, fractured, some vesicles & quartz
		1025-1030 Basalt, grey, medium-hard, fractured, some quartz & claystone, blue
		1030-1065 Basalt, grey, hard, some fractures
		1065-1075 Basalt, grey & brown, medium, fractured, vesicular w/quartz
		1075-1080 Basalt, brown, medium, fractured w/quartz
		continued in middle column

DEPT OF ECOLOGY Received DEC 04 2013 CENTRAL REGION

RECEIVED NOV 27 2013 Department of Ecology Eastern Regional Office

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

DEPARTMENT OF ECOLOGY State of Washington

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission *("x" in circle)*

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION* 419879

Notice of Intent Number _____

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other ASR

TYPE OF WORK: Owner's number of well (if more than one) _____

☒ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 16 inches, drilled ___ ft. 164' to 957'

Depth of completed well 1173ft 15" to 1108'

CONSTRUCTION DETAILS 12 3/4" to 1173'

Casing Installed: ☒ Welded 16" Diam. from +3 ft to 957 ft.

☐ Liner installed ____" Diam. from ____ ft. to ____ ft.

☐ Threaded ____" Diam. From ____ ft. to ____ ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand _____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☒ Yes ☐ No To what depth? 957ft.

Material used in seal Neat cement

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level 357.2ft. below top of well Date 6/13

Artesian pressure N/A lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? Driller

Yield: 1000gal./min. with 14ft. drawdown after 35hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	370.4	15	357.44		
5	349.6	20	357.3		
10	357.5				

Date of test 6/13-6/14

Bailer test ____ gal./min with ____ft drawdown after ____hrs.

Airtest ____gal./min. with stem set at ____ft. for ____hrs

Artesian flow ____g.p.m. Date _____

Temperature of water 82 Was a chemical analysis made? ☒ Yes ☐ No

CURRENT

RECEIVED JUL 25 2011 Water Resources Program Department of Ecology

Notice of Intent No. WE12711

Unique Ecology Well ID Tag No. ALM112

Water Right Permit No. R4-35237

Property Owner Name City of Kennewick

Well Street Address W 36th Ave & Ridgeline Drive

City Kennewick County Benton

Location NE1/4-1/4 SE1/4 Sec 17 Twn 8 R 29 EWM ☒ Or WWM ☐

(s, t, r Still REQUIRED)

Lat/Long Lat Deg ____ Lat Min/Sec ____

Long Deg ____ Long Min/Sec ____

Tax Parcel No. (Required) 1-1789-400-0001-001

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Top soil	0	4
Broken -Weathered basalt	4	13
Basalt -Black - Medium	13	59
Basalt -Black/gray - Medium	59	69
Basalt -Black/Green claystone	69	80
Basalt -Black -Medium	80	139
Basalt -Black -Med/Hard	139	142
Basalt -Black -Med	142	195
Basalt -Black -Some claystone	195	253
Basalt -Gray -Med	253	300
Basalt -Black, some gray	300	325
Basalt - Drk Gray to black	325	333
Basalt -light gray - med	333	353
Basalt -gray/grn vesicular	353	385
Basalt -gray/blk w/ cinders	385	411
Basalt -blk, vesicular/clystn	411	470
Basalt -blk, grn/rd, pyrite	470	480
Basalt -blk, fractured, pyrit	480	716
Grn claystone/sandstone	716	805
Basalt -blk med w/ mica	805	888
Basalt -blk w/ gray pyrite	888	913
Basalt -blk grn/yellow depost	913	917
Basalt -blk w/ dense clayston	917	980
Basalt -blk, soft, fractured	980	995
Basalt - blk, medium	995	1040
Basalt -blk w/ claystone	1040	1075
Basalt -blk, vesicular	1075	1138
Basalt -blk, grn pyrite, vesi	1138	1173

RECEIVED JUL 29 2011 DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Start Date 3/21/11 Completed Date 7/7/11

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Gordon Burton

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 2462

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Boart Longyear Company

Address 11277 SW Clay St, Suite A

City, State, Zip Sherwood , OR, 97140

Contractor's Registration No. BOARTLC941RA Date 7/18/2011

ECY 050-1-20 (Rev 02/10) *If you need this document in an alternate format, please call the Water Resources Program at 360-407-6872. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE08484

Construction/Decommission *("x" in box)*

☒ Construction

☐ Decommission 501191

ORIGINAL INSTALLATION Notice of Intent Number:

Consulting Firm Golder Associates

Unique Ecology Well IDTag No. AAS-170

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Schneider, Steve

Driller/Engineer /Trainee Signature [signature]

Driller or Trainee License No. 0643

If trainee, licensed driller's Signature and License Number:

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

Department of Ecology NOV 20 2013 Water Resources Program

Property Owner City of Kennewick

Site Address ~~PO Box~~ 6108

City Kennewick County Benton

Location NW1/4-1/4 SW1/4 Sec 16 Twn 8 R 29

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg 46 Min 10 Sec 38.75

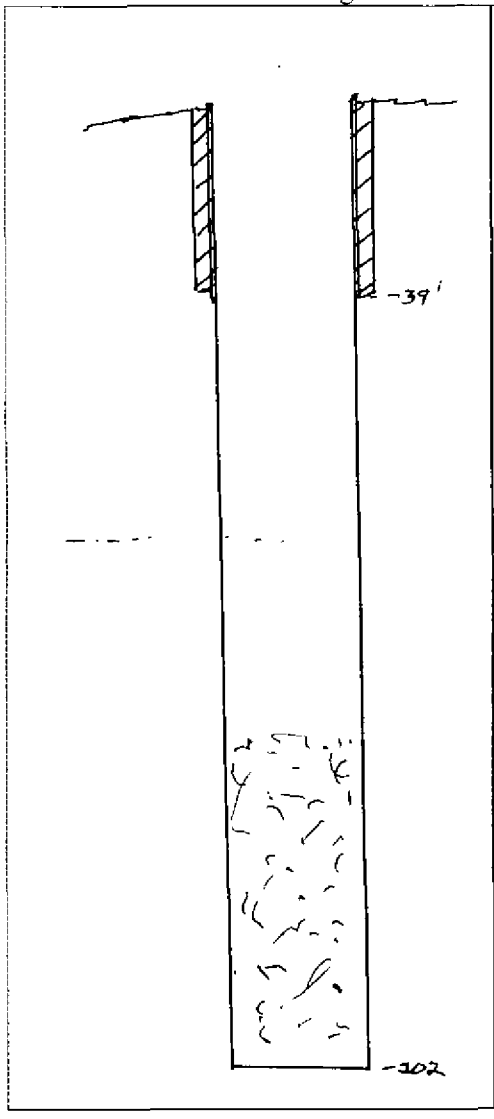
Long Deg 119 Min 12 Sec 1.3

Tax Parcel No. none assigned

Cased or Uncased Diameter 10 Static Level

Work/Decommission Start Date 5/28/13

Work/Decommission Completed Date 9/10/13

Construction Design	Well Data	Formation Description
	10"x.25 steel casing from 1' above ground surface to 39'. Casing annulus is sealed with cement grout. 10" diameter bore hole below casing became unstable. Hole was cemented back and redrilled several times. Hole finally caved back to 130'. No groundwater encountered. Elected to decommission hole and start a new well. Decommissioning is on another report. DEPT OF ECOLOGY Received DEC 04 2013 CENTRAL REGION OFFICE RECEIVED NOV 27 2013 Department of Ecology Eastern Regional Office	0-12 Soil, silty, brown, fine 12-14 Silt, brown 14-33 Rock, grey & brown, medium-soft, broken 33-42 Rock, black, medium-hard 42-67 Siltstone,brown, hard-medium 67-71 Rock, grey & brown, medium, broken 71-88 Siltstone, brown medium 88-94 Rock, grey & brown, medium 94-100 Siltstone, brown, medium-soft w/sand & some gravel, 1"- 100-108 Silt, brown, packed 108-126 Rock, grey & brown 126-130 Sand, multi-colored, coarse 130-131 Sand, multi-colored, coarse w/gravel, 2"- 131-150 Rock, black, medium, fractured 150-202, Cobbles, boulders, gravel, sand w/clay, yellow, hard

SCALE: 1"= 40' PAGE 1 OF 1

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction

☒ Decommission 501192

ORIGINAL INSTALLATION Notice of Intent Number: RE08484

Consulting Firm Golder Associates

Unique Ecology Well IDTag No. AAS-170

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee

Name (Print Last, First Name) Schneider, Steve

Driller/Engineer /Trainee Signature [signature]

Driller or Trainee License No. 0643

If trainee, licensed driller's Signature and License Number:

CURRENT Notice of Intent No. AE22555

Department of Ecology NOV 20 2013 Water Resources Program

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner City of Kennewick

Site Address ~~PO Box~~ 6108

City Kennewick County Benton

Location NW1/4-1/4 SW1/4 Sec 16 Twn 8 R 29

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg 46 Min 10 Sec 38.75

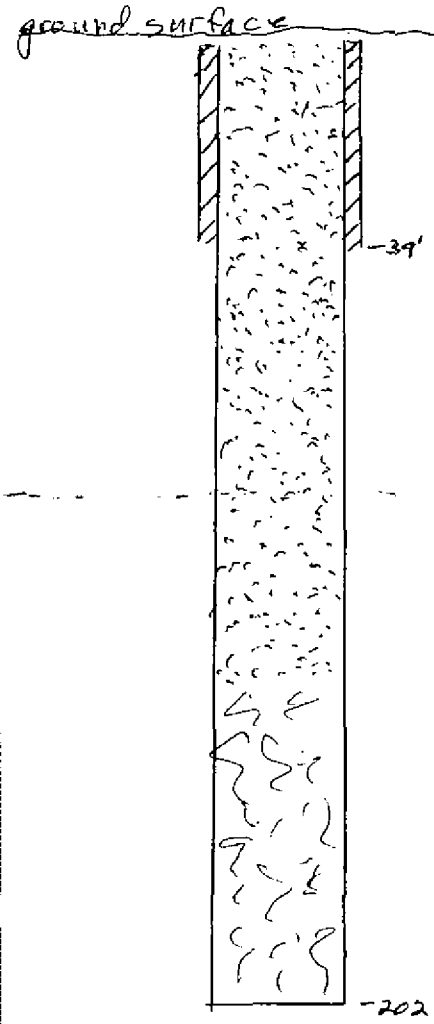
Long Deg 119 Min 12 Sec 1.3

Tax Parcel No. none assigned

Cased or Uncased Diameter na Static Level na

Work/Decommission Start Date 6/27/13

Work/Decommission Completed Date 9/10/13

Construction Design	Well Data	Formation Description
	Decommissioned existing hole with 291 sacks chip bentonite from bottom to 1' below ground. Cut off 10" steel casing 1' below ground and topped off with native material to ground surface.	No new formations drilled.

RECEIVED NOV 27 2013 Department of Ecology Eastern Regional Office

DEPT OF ECOLOGY Received DEC 04 2013 CENTRAL REGIONAL OFFICE

SCALE: 1"= 40' PAGE 1 OF 1

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

BRUCE BEAUCHENE
CITY OF KENNEWICK
PO BOX 6108
KENNEWICK WA 99336

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* PATRICK FLYNN

C. Date of Delivery 10-9-09

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7007 2560 0001 7676 2507

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

October 8, 2009

Bruce Beauchene
City of Kennewick
P.O. Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to drill a test well and conduct aquifer testing to assess the feasibility of aquifer storage and recovery under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29 E.W.M

Dear Mr. Beauchene:

This letter serves as a PRELIMINARY PERMIT to drill and conduct testing under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a new reservoir permit. The source of water is a diversion from the Columbia River under Surface Water Permit No. S4-30976P. The proposed reservoir is an aquifer in the Wanapum Basalt Formation of the Columbia River Basalt Group. The proposed project entails diversion of source water, treatment at the City of Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer system and withdrawal of the stored water at a later date. It is anticipated that water may be available for diversion between October 15 and June 15 each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal is located approximately 2,600 feet north and 700 feet west of the southeast corner of Section 17, T. 8 N., R. 29 E.W.M. The associated Benton County Tax Parcel No. is 117894010857005. The proposed location of the test well is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29 E.W.M. in an area known as the "Southridge site".

Due to the hydrogeologic uncertainties and the lack of site specific data, additional information is needed to sufficiently evaluate the reservoir application. The applicant has proposed the construction of a test well for the purpose of evaluating the hydrogeologic conditions found at the site and has requested that Ecology issue a preliminary permit to authorize well construction

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and testing. The well is to be cased and sealed into the basalt aquifer system. The well shall be constructed in a manner that prevents significant groundwater flow between distinct aquifer zones. The test target is anticipated to be the Priest Rapids member of the Wanapum Basalt Formation, estimated to occur between 1000 and 1200 feet below ground surface at the Southridge site.

Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a Preliminary Permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application.

This Preliminary Permit is associated with the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick for the City of Kennewick Aquifer Storage and Recovery (ASR) Feasibility Study. Work to be performed for this preliminary permit is described in a Draft Scope of Work (SOW) and Quality Assurance Project Plan (QAPP) prepared by Golder Associates, dated July 10, 2009. The primary objective of the proposed aquifer test program is to obtain data to characterize aquifer properties in the immediate area of the Southridge site. Data gathered will assist the applicant completing the ASR Permit Application requirements of Chapter 173-157 WAC and Ecology in evaluating the ability of the above named horizon to serve as a reservoir for an ASR facility, as proposed in Reservoir Permit Application No. R4-35237

You are hereby granted a PRELIMINARY PERMIT to proceed with drilling and testing for project feasibility. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

I. General Conditions:

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until September 30, 2010, unless sooner revoked or revised by the Department of Ecology.

2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the aquifer test, or data collection activities, the test shall be terminated immediately.

3. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. Failure to comply with any of the terms and/or conditions of this PRELIMINARY PERMIT will result in this authorization being immediately terminated, issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

4. This authorization does <u>not</u> imply or grant any right to withdraw public ground water from any well other than that authorized under this PRELIMINARY PERMIT.

5. This authorization does not imply or grant any right to withdraw water for any beneficial purpose or use; water withdrawn shall be for testing purposes only.

6. Issuance of this PRELIMINARY PERMIT does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between the applicant and owner of the land.

7. All activities shall comply with the final Scope of Work and Quality Assurance Project Plan (QAPP) prepared by Golder Associates for the Kennewick Aquifer Storage and Recovery Project, and approved by Ecology on September 24, 2009. The approved Scope of Work and Quality Assurance Project Plan is included in this preliminary permit as an attachment.

8. Deviations from the program outlined in the July 10, 2009 Scope of Work and QAPP shall be documented and request for approval shall be submitted in writing to Ecology's project coordinator. Any additional testing beyond that proposed in that QAPP shall be documented and requested in writing from Ecology's project coordinator.

9. The scope of this PRELIMINARY PERMIT is set forth below:

II. Project Management

1. The project coordinator for Ecology is:

Name: Dave Nazy
Address: 300 Desmond Drive
PO Box 47600
Lacey, WA 98504-7600
Phone: (360) 407-6038

Communications between Ecology and the applicant, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this PRELIMINARY PERMIT shall be directed through the Ecology project coordinator.

III. Well Construction

1. One (1) test well may be drilled within the NE¼SE¼ of Sec. 17, T. 8 N., R. 29 E.W.M, Benton County within Water Resource Inventory Area (WRIA) 37 for the purpose of investigating the hydrogeologic conditions of the aquifer.

2. All wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under Chapter 18.104 RCW (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

3. Each well shall be tagged with an Ecology unique well identification number, issued by Ecology. This tag shall remain shall remain attached to the well. Reference this tag number when submitting water measuring reports.

4. The wells shall be drilled by a licensed well driller as set forth in Washington Administrative Code (WAC) 173-162-040. The applicant shall provide a complete copy of this PRELIMINARY PERMIT to the licensed well driller for correlation with project goals and requirements.

5. The applicant must submit the required well drilling Notices of Intent with the required fees providing the required 72 hours notice. Complete well reports shall be submitted by the licensed driller to the Department of Ecology within thirty (30) days of completion. Department staff may be on site during the drilling process.

6. In accordance with WAC 173-160-171, wells shall not be located within certain minimum distances of potential sources of contamination. In general, wells shall be located at least 100 feet from a drain field, privy, or other sources or potential sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill. Minimum distances shall also comply with state and local health regulations.

7. Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

IV. Aquifer Testing

1. The applicant shall notify the Ecology project coordinator a minimum of five working days in advance, prior to pump testing of the test well. Verbal approval from the Ecology project coordinator shall be required prior to any pump test being conducted. All data acquired during drilling and pump testing shall be tabulated and provided electronically (e.g. spreadsheet) to the Department of Ecology within 30 days of well completion.

2. A licensed hydrogeologist or engineer shall oversee well testing and provide analysis. The test(s) will include both step-drawdown and constant rate pumping components, not to exceed a pumping rate of 900 gallons per minute, for a minimum of 24 hours, with stabilization occurring for at least the last 4 of those hours. Stabilization is defined as a drop in water level of less than or equal to 0.1 feet per hour. If the response characteristic is not changing at the end of the 72-hour testing period anticipated for this project, the test may be terminated after consulting with the Ecology project coordinator. The

applicant shall provide all equipment necessary to collect recovery data. Drawdown and recovery measurements must be made in the same manner and at the same or greater frequency as described in Water Resource Information System (WRIS) Information Bulletin No. 30., and in accordance with the Quality Assurance Project Plan for the project. . Once the pump has been turned off measurements shall be taken until 95% recovery is achieved. All procedures shall conform with Bulletin No. 30 or as recommended in American Society of Testing and Materials (ASTM) Standards D4043 and D4050 and the following:

a. A well construction report (well log) for the test well, which shall include the well's total depth, screened interval depths, pump intake depth, and construction specifications.

b. A well construction report (well logs) for each observation well, including the well's total depth, screened interval depths, and construction specifications.

c. A map and description (¼, ¼, Section, Township, Range, distance to nearest section corner, GPS coordinates) accurately indicating the well location(s).

d. A legible table including the pumping rate and all water measurement data collected for all wells observed during pumping and recovery. The report should include information on methods, and any other data collected or analyzed. An Excel spreadsheet, or tab-delimited text electronic table shall be prepared including all these data.

e. The above information shall be incorporated into the report that will detail all reconnaissance information on hydrology and geology for the area, standard hydraulic estimates of well efficiency and standard aquifer parameters. The report shall also include discussions regarding whether the well would capture waters in hydraulic continuity with area surface water bodies. The applicant shall make this report available to the Department.

3. The Driller shall keep the Department project coordinator informed of progress during the drilling of the wells.

4. After the project testing has been completed, the pump shall be removed from the test well. The test well and observation wells shall then be securely capped.

5. The well must remain accessible to Ecology field staff for periodic readings.

V. Appeal

Any person has a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearing Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.

- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.

- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board:

Mail appeal to:	OR	Deliver your appeal in person to:
Pollution Control Hearings Board PO Box 40903 Olympia WA 98504-0903		Pollution Control Hearings Board 4224 – 6th Ave SE Rowe Six, Bldg 2 Lacey WA 98503

2. To serve your appeal on the Department of Ecology:

Mail appeal to:	OR	Deliver your appeal in person to:
Department of Ecology Appeals Coordinator PO Box 47608 Olympia WA 98504-7608		Department of Ecology Appeals Coordinator 300 Desmond Dr SE Lacey WA 98503

3. And send a copy of your appeal packet to:

Derek I. Sandison, Director
Office of Columbia River
Department of Ecology
15 W Yakima Ave Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov.

To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser.

If you have any questions or concerns about this decision, or if we can otherwise provide further assistance, please contact Dave Nazy at (360) 407-6038 or dnaz461@ecy.wa.gov.

Sincerely,

Derek I. Sandison,
Director, Office of Columbia River

(DIS:DN:cmr 091007)

Enclosures: Scope of Work and Quality Assurance Project Plan
Your Right To Be Heard

By Certified Mail: 7007 2560 0001 7676 2507

cc: Phil Brown, Golder Associates (w/enclosures)

ATTACHMENT A

QUALITY ASSURANCE PROJECT PLAN
FOR
CITY OF KENNEWICK ASR FEASIBILITY STUDY: PHASE TWO

Revision 0

Submitted to:

Mr. David Nazy, Water Resources
Washington Department of Ecology Headquarters
300 Desmond Dr. SE. Lacey, WA 98503

Submitted by:

Golder Associates Inc.
9 Monroe Pkwy, Ste. 270
Lake Oswego, OR 97035

Phil Brown, RG
Project Manager

Steven Humphrey
Staff Hydrogeologist

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July 25, 2009

083-9974201

Other useful information pertaining to the study:

- Grant #G0900011
- Technical Memorandum: *Project Description* – City of Kennewick ASR Feasibility Study (Golder, 2009).
- Technical Memorandum: *Phase Two Scope of Work* – City of Kennewick ASR Feasibility Study (Golder, 2009).
- Site Location: Approximately 2 miles southwest of the City of Kennewick: NE ¼ SE ¼ Sec. 17, T8N R29E –2,600 feet north and 700 feet west of the SE corner of Section 17.

Approval Signatures:

Project Manager (Phil Brown): Date:

Supervisor (David Banton): Date:

City of Kennewick (Bruce Beauchene): Date:

Laboratory Representative: Date:

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GLOSSARY

ASR/FS	Aquifer Storage and Recovery Feasibility Study
bgs	below ground surface
CRBG	Columbia River Basalt Group
DBP	Disinfection By-Product
DOC	Dissolved Organic Carbon
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FCR	Field Change Request
Golder	Project Team: Golder Associates Inc., HDR Engineering Inc., Western Groundwater Services
gpm	Gallons Per Minute
HAA	Haloacetic Acid
HASP	Health and Safety Plan
ICN	Interim Change Notice
IDW	Investigative Derived Waste
IOC	In-organic Compound
LCS	Laboratory Control Sample
MDL	Method Detection Limit
MTCA	Model Toxics Control Act
PLP	Potentially Liable Partners
PQL	Practical Quantitation Limits
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SOC	Synthetic Organic Compound
TTHM	Total Trihalomethane
TOC	Total Organic Carbon
VOC	Volatile Organic Compound

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QUALITY ASSURANCE PROJECT PLAN
FOR
CITY OF KENNEWICK ASR FEASIBILITY STUDY: PHASE TWO – DRILLING AND TESTING OF A PROPOSED TEST WELL

Recipients of QAPP:

- Dave Nazy (Washington Department of Ecology)
- Bruce Beauchene (City of Kennewick)
- (Analytical Laboratory)
- David Banton (Golder Associates Inc.)
- Mark Cunnane (Western Groundwater Services)
- Aaron Meilluer (HDR Engineering Inc.)

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1.0 PROJECT DESCRIPTION

1.1 Project Background

This Quality Assurance Project Plan (QAPP) is prepared for the City of Kennewick (City) Aquifer Storage and Recovery Feasibility Study (ASR/FS) by the ASR project team (Golder): Golder Associates Inc, HDR Engineering Inc, and Western Groundwater Services. This QAPP has been written to support the Phase Two Scope of Work and to be used in conjunction with the ASR/FS Phase Two Scope of Work document. The QAPP was generated in accordance with the document Publication No. 04-03-030, 'Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies' (WDOE, 2004) and provides procedures for making accurate measurements and obtaining representative, accurate, and precise analytical data.

The City has been involved in developing an ASR program for several years. Golder has been selected to complete the ASR Feasibility Study in accordance with the Washington Department of Ecology Grant Study (#G0900011). The purpose of the Grant Study is to evaluate the feasibility of using water appropriated during the winter months under Permit number S430976P (the Quad Cities water right), store that water in the basalt aquifer system beneath the City, and withdraw the stored water during periods of high demand. A description of the overall project is provided in the Phase Two Scope of Work and Project Description (Golder, 2009[a]).

1.2 Site Description

The Southridge Site is located in the foothills of the Horse Heaven Hills in southeast Washington, approximately two miles southwest of the City of Kennewick. The Site is located along the south side of W. 36th Ave. near the Southridge High School on undeveloped land. A discussion and location map of the Site is provided in Section 2.1 of the ASR/FS Phase Two Scope of Work document (Golder, 2009[b]).

1.3 Project Objectives

As part of Phase Two of the Grant Study, Golder is evaluating the feasibility of ASR through installation and testing of a test well drilled at the Southridge site. A test well will be drilled and constructed, followed by a pumping test and groundwater and source water sampling to allow a water quality evaluation of ASR operations. The aquifer properties and potential impacts for an ASR system will be evaluated using a pumping test, water quality analysis and whole-rock geochemistry. This QAPP has been developed for the work associated with drilling, sampling, testing, and laboratory analysis for the Phase Two test well.

1.3.1 Drilling and Formation Sampling

The primary objectives of the drilling and formation sampling portion of Phase Two include:

- Installation of a test well sufficient to support aquifer testing activities to characterize the hydraulic properties of the ASR target storage zone;
- Characterization of the basalt stratigraphy, and;
- Characterization of the mineralogy of the basalt storage zone sufficient to support an evaluation for the potential for source water-rock interactions to influence groundwater and recovered water quality.

The test well will be completed in the Columbia River Basalt Group (CRBG). Cutting samples will be collected at 5-foot intervals during drilling to analyze the basalt mineralogy and define the litho-stratigraphic sequence of the basalt formations encountered. Samples will be submitted to a laboratory for XRF analysis to determine the mineral composition of the basalts. The test well construction activity will conform to Chapter 18.104 RCW and companion rules Chapter 173-160 and 173-162 WAC.

1.3.2 Aquifer Pumping Test

The primary objective of the Phase Two aquifer pumping test is to:

- Complete an aquifer pumping test to characterize aquifer hydraulic properties to support an evaluation of the hydraulic response to ASR operations.

Following construction of the test well, a pumping test will be conducted in accordance with WAC 173-157-110. Pumping test procedures will follow guidelines based on the Washington State Department of Health and Golder Associates Technical Procedures. The aquifer pumping test is anticipated to consist of a baseline monitoring period, a step test, a constant-rate pumping period of 72-hours, followed by a recovery monitoring period. An appropriately sized pump will be installed to accommodate pumping rates anticipated to be between approximately 300 and 400 gpm. These rates are estimated on the basis of anticipated lift and the performance of commonly available test pumping equipment – not aquifer production capacity. An observation well network will be developed and the resulting hydraulic response data will be used to characterize aquifer transmissivity, storativity (assuming appropriate observation wells are available), vertical permeability (leakage), interpreted aquifer extent, and boundary conditions.

Water levels will be measured in the test well and available surrounding observation wells (where access has been granted by the well owner) within a determined radius using pressure transducers and electric water level sensors. Otherwise, measurements will be made with electronic water level meters accurate to within 0.01 ft. Barometric pressure will be recorded and the water level data corrected for barometric effects as necessary as part of the test analysis.

1.3.3 Water Quality Monitoring and Sampling

During the pumping test, field (i.e. physical) water quality parameters will be measured at a set frequency. Field parameters will include temperature, pH, conductivity, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity. The objective of this monitoring program is to aid in groundwater characterization and assess the potential for water quality to vary as a function of pumping duration.

During and near the end of the pumping period, groundwater samples will be collected to determine the background water quality for the potential ASR system, in accordance with WAC 173-200 and WAC 246-290-310. The sample to be collected during the pumping period will be collected at approximately 36-hours. This sample will only be analyzed for inorganic constituents (IOC) to aid in understanding how the groundwater quality varies as a function of pumping duration and to provide additional data for geochemical modeling. The sample to be collected near the end of the pumping period to ensure that it is representative of groundwater not altered as a result of the drilling process and will be analyzed for IOCs, volatile organic compounds (VOCs) and synthetic organic compounds (SOCs). A sample of ASR source water will be also collected from the City's water distribution system as near to the ASR project site as possible to represent the water that will be used for ASR pilot testing. The primary objectives of the groundwater and source water sampling program include:

- Characterization of groundwater and source water to support a geochemical compatibility analysis that evaluates the potential for groundwater-source water interactions, and;

- Using the water quality information and the geochemical modeling to support the AKART analysis of water-quality related regulatory compliance alternatives.

1.4 Sampling and Analysis Program Design

The sampling location and frequency, and the sampling procedures and analyses to be performed are presented in more detail in Section 4.0. The proposed media sampling location for drilling cuttings and groundwater are identified and illustrated on Figure 1 (test well location). The location of the sampling point for the surface water is located at the Southridge high school. The tasks to be completed are described in detail in the Phase Two Scope of Work document (Golder, 2009) and are summarized below:

1. Drill and construct the test well:
    a. Record drilling process, water level, production, and borehole characteristics during drilling;
    b. Collect drill cuttings for on-site geological analysis at 5-foot intervals;
    c. Analyze produced water for field parameters and gases daily at a minimum and where observations suggest a change in lithology and/or production, and;
    d. Submit drilling cuttings samples to laboratory for XRF analysis;
2. Conduct a pumping test:
    a. Collect high-frequency water level measurements from the test well and observation wells during baseline, pumping, and recovery phases;
    b. Measure pumping rate and water levels;
    c. Record barometric pressure throughout the aquifer testing phases;
    d. Measure and record field water quality parameters during the pumping period, and;
    e. Collect groundwater samples during and at the end of the pumping period for laboratory analysis.
3. Collect a source water sample for laboratory analysis at a location in the City's water supply system as close as possible to the ASR project site
4. Conduct a geochemical modeling analysis to assess the potential for geochemical reactions between the source water, groundwater, and aquifer matrix. Evaluate the potential for any reactions to alter recovered and groundwater quality.

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2.0 PROJECT ORGANIZATION AND SCHEDULE

2.1 Organizational Structure

The organizational structure for field activities for the Phase Two drilling and testing program is described in this section. The key project personnel can be reached with the following contact information:

	Golder Principal-in-Charge	Golder Project Manager
Contact:	David Banton, L.Hg.	Phil Brown, L.Hg.
Company:	Golder Associates Inc.	Golder Associates Inc.
Address:	18300 NE Union Hill Road, Suite 200 Redmond, Washington 98052-3333	9 Monroe Parkway, Suite 270 Lake Oswego, Oregon 97035
Phone:	Work (425) 883-0777 Cell (425) 503-9331	Work (503) 607-1820 Cell (503) 313-5195
Fax:	(425) 882-5498	(503) 607-1825

Principal-in-Charge

Principal in Charge, David Banton, is responsible for ensuring that Golder activities meet financial, schedule and quality requirements. Mr. Banton will collaborate with the Golder Project Manager, and provide guidance on analytical interpretation, quality assurance efforts, and all report products. He will also provide review for the technical quality, interpretations and conclusions presented in the ASR/FS Phase Two Technical Report.

Project Manager

Project Manager, Phil Brown, is responsible for planning, coordinating, and executing all environmental sampling and analysis, preparation of data reports, communicating and coordinating with the ASR Project Team (includes Ecology), preparation of the Phase Two Technical Report and all associated submittals to Ecology. The Project Manager prepares the specifications for, and administers the subcontracts for laboratory analysis. Mr. Brown also acts as the Quality Assurance Coordinator and reviews aspects of quality control. Scope of Work tasks, referenced method quantitation limits, regulatory compliance levels, and other pertinent documents will be reviewed and assessed to determine if data quality objectives are being met.

Health & Safety Officer

Health and Safety Officer, Mr. Mark Wirganowicz is Golder's Portland Health and Safety Officer. His project responsibilities will include developing the site Health and Safety Plan (HASP), ensuring compliance, obtaining and evaluating subcontractor HASPs, and communicating the key elements of

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on-site safety to field personnel, including personal protective measures, equipment, emergency preparedness, and incident protocol.

Chemist/Validator

The Chemist/Validator, Cheryl Ross will reports to the Project Manager. She will coordinate with field staff to obtain required analyses, and for sample tracking, chain of custody, and other sampling and analysis documentation. The Chemist/Validator maintains the data center files, including tabulating, compiling, and archiving analytical data. The Chemist/Validator is responsible for the review and validation of laboratory analysis reports. Dr. Rens Verburg is Golder's senior geochemist who will provide senior review for Ms. Ross geochemical work.

Investigative Field Team

The Investigative Field Personnel report to the Project Manager. Golder's investigative Field Team will include Mark Cunnane of Western Groundwater Services. Golder staff will include Steven Humphrey, Hydrogeologist, Kenny Janssen, Hydrogeologist and Lizzi Bartosik, Hydrogeologist. These individuals will be responsible for collecting field samples in accordance with the ASR/FS Phase Two Scope of Work and QAPP. The field personnel are also responsible for coordinating with the off-site analytical laboratories to obtain the required analyses, implementing correct sampling protocol, chain-of-custody protocol, shipping, schedule coordination, and tracking submitted samples. In addition, the Field Personnel are responsible for assembly, organization, and maintenance of all information collected during field activities (including sampling logbook, daily activity logbook, chain-of-custody forms, and water-level/flow measurements).

2.2 Use of Subcontractors

Golder will use contractors as needed for project execution. The selected drilling contractor will be licensed in the State of Washington for conducting the drilling, construction and testing of the test well. The contractor selected to provide laboratory analytical services will be licensed in the State of Washington. Golder field personnel will ensure the work performed by these subcontractors conforms with both Golder Technical Procedures and applicable regulatory requirements.

The following contractors are expected to be required to complete the Phase Two scope of work:

Drilling Contractor

A suitable Washington accredited Drilling and Pump Company will be selected by Golder as a local qualified driller/pump contractor. The selection process for the drilling subcontractor is described in the Scope of Work.

Analytical Laboratory

The selection of a Washington accredited laboratory will be based upon the need for data quality, timeliness, and logistics for sample transport and proper handling of samples to meet holding times.

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3.0 DATA QUALITY OBJECTIVES

3.1 Appropriate Analytical Methods

The objectives for analytical data quality are defined in terms of the quantitation limits achievable using the referenced analytical methods, and in terms of the resulting goals for precision, accuracy, representativeness, completeness, and comparability of analytical data. Quantitation limits are provided for each analytical parameter in Table 3 and are cross-referenced to applicable standard EPA reference and Ecology methods. The quality objectives established for the Phase Two investigation and monitoring are described as follows:

- Precision: Analytical precision shall be reported as required by the governing reference methods cited in Table 2. At a minimum, data validation criteria for analytical precision will reference the governing methods;

- Accuracy (Bias): Accuracy shall be reported as required by the governing reference methods cited in Table 2. At a minimum, data validation criteria for analytical accuracy will reference the governing methods;

- Representativeness: Goals for sample representativeness are addressed qualitatively by the sampling location and time defined in the Phase Two Scope of Work. In addition, the use of standard procedures for sample acquisition (as described in Section 4 of this QAPP) will facilitate the collection of representative data;

- Completeness: Completeness is defined as the percentage of valid analytical determinations with respect to the total number of requested determinations in a given sample delivery group; completeness goals are established at 90 percent. Failure to meet this criterion shall be documented and evaluated in the data validation process described in Section 6 of this QAPP, and corrective action taken as warranted on a case-by-case basis;

- Comparability: Approved analytical procedures shall require the consistent use of the reporting techniques and units specified by the reference methods cited in Tables 2 and 4 in order to facilitate the comparability of data sets from sequential sampling rounds in terms of their precision and accuracy.

Groundwater and source water samples will have standard field parameter list indicators measured including temperature, pH, conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity. Analytical methods will be selected to ensure that detection limits are in accordance with Washington State Department of Ecology water quality criteria (WAC 173-200) and Department of Health drinking water maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs) (WAC 246-290-310). Tables 2 and 4 list the analytical parameters proposed for groundwater sampling during the site testing phase and source water sampling for a geochemical compatibility model and AKART analysis.

Water levels collected by automated transducers and manual water level sensors will follow Golder's Technical Procedures (see Table 1) to ensure data quality for a proper analysis of the pumping test. Recorded data will be downloaded and compared to manual measurements on a fixed schedule to verify the instruments are working properly. All downloaded and logged data will be compiled and analyzed using appropriate analysis and spreadsheet software to detect and correct any errors.

4.0 SAMPLING AND OTHER FIELD PROCEDURES

4.1 Selected Procedures

Technical procedures have been developed by Golder to support sampling activities, monitoring actions, data validation, and other technical activities. The sampling procedures will be in accordance with EPA Method 1669, where applicable. Technical Procedures, Golder Procedures, and EPA method documents applicable to this project are included in Table 1, and complete copies are attached to this report in the attached CD - Technical Procedures.

The Project Manager will be responsible for making sure that the Field Technician receives the appropriate training prior to performing testing, sampling and monitoring unsupervised. Technical procedures are provided as guidance to technical personnel and as such, require the specific circumstance of application or the knowledge of the Field Technician to appropriately apply the guidance criteria. Significant changes from the guidance provided in the technical procedures will be identified and included on a Field Change Request form (TP-1.2-23, "Chain of Custody").

4.1.1 Test Well Drilling

We anticipate that the test well will be drilled by reverse circulation air-rotary methods. The specifications will allow alternative methods to be recommended and evaluated as cost saving measures that may still meet data quality and project objectives. Drill cuttings will be logged and sampled during test well construction and will follow procedures as described by Golder Technical Procedure TP-1.2-5. In addition to the description of the litho-stratigraphy, the incremental increase or decrease in water production from the well as various basalt interflows are penetrated will be routinely documented. Produced water will be analyzed for field parameters and gases to assess general changes in water chemistry as the borehole is advanced.

Drill cuttings will be collected at 5-foot intervals. The Golder team will have a polarizing microscope on-site during drilling to evaluate formation samples for mineralogy. Penetration rate, fracture zones, changes in drilling rate/conditions, changes in head, and air-lift rate measurements will all be recorded. XRF analyses will be performed on a rush basis and the data will be evaluated by plotting adjacent to correlation data for the basalts. Cuttings samples will be rinsed, dried, and archived to plastic vials. Each sample will be classified in an on-site laboratory, and entered into a logging program developed by Western Groundwater Services. Samples collected for XRF analysis will be selected from the interior of basalt flows, washed, dried, sieved (sieving is done to remove material sloughed from above), and examined to remove contaminants, such as altered chips and sedimentary grains. The examination for contaminants is done on-site in a portable lab, and uses a 6X-40X stereomicroscope. This procedure will be performed twice on each XRF sample before it is packaged and shipped to the laboratory.

Well construction will follow procedures as described by Golder Technical Procedure TP-1.2-12 and be constructed in compliance with the "Minimum Standards For Construction and Maintenance of Wells" (Chapter 173-160 WAC).

4.1.2 Pumping Test

Following completion of the drilling and construction of the test well, an aquifer pumping test will be conducted to analyze the overall characteristics of the aquifer. The aquifer test will be designed to allow for information to be collected as required by WAC 173-157-110. The test well will be equipped with a test pump that will be capable of optimizing the test rate depending on the size of the casing actually installed. A 6 to 8 inch pump is anticipated, capable of pumping between 300 to 400 gpm, depending on lift and the disposal option selected. The actual test rate will be selected on the

basis of a step-rate test completed when the test pump is installed (likely during development), and may be lower depending on aquifer/well performance. Pumping rates will be monitored with a factory-calibrated digital flow meter and a properly constructed orifice weir equipped with a manometer tube. Pumping rates will be measured by the Field Technician to document any changes throughout the pumping test. The pumping test will follow procedures as described by Golder Technical Procedures TP-1.4-5 and TP-1.4-12.

4.1.2.1 Water Level Measurements

Water level readings from the test well and the observation well network will be collected by the Field Technician using pressure transducers (where possible) and electric water level sensors. Barometric pressure will be recorded during all phases of the pumping test to evaluate barometric pressure response to assess whether data corrections are necessary to evaluate test response. The automated transducers will have a file naming convention to provide consistent information on the time and location of measurements for the downloaded data. The pressure transducers will be secured with cables to ensure they will be deployed and retrieved properly. The frequency of the pressure transducers will be set to 1-minute intervals to ensure a sufficient amount of data for analysis. Data will be downloaded on a consistent basis for continuous monitoring in the field to ensure the transducers are working properly and providing data of sufficient quality. Manual water level readings with the electric sensors will occur on a regular basis to verify the pressure transducer readings. The electric water level sensors will be equipped with a reading sensitivity to 0.01 feet, which will ensure accuracy when comparing to pressure transducer readings. Water levels will be measured in accordance with Golder Technical Procedure TP-1.4-6 at times when transducer assemblies are installed, programmed, and downloaded in addition to the regular monitoring frequency specified in the Phase Two Scope of Work.

4.1.2.2 Field Parameter Measurements

Field parameters (temperature, pH, conductivity, oxidation-reduction potential, dissolved oxygen, and turbidity) will be recorded continuously with a calibrated field instrument during the constant rate pumping period. The instrument will be calibrated with proper solutions and methods conforming to the instrument user's manual. Calibration information will be recorded in the field logbook to document instrument performance. The sensor will be programmed to record data at 1-hour intervals during the pumping phase of the test. Field parameters recorded during the test will have an accurate date/time stamp to ensure an accurate correlation with other test measurements.

4.1.2.3 Groundwater Sampling

During and at the end of the pumping phase of the test, groundwater samples will be collected to analyze geochemistry and all regulated/unregulated constituents. Collecting the groundwater sample during the pumping test will be analyzed for geochemical parameters (IOCs) to be used for the PHREEQC modeling phase of the feasibility study. Collecting the groundwater sample at the end of the pumping test will provide a representative background groundwater quality sample. Additional information recorded in the field log will include date, time, location, sampling personnel, weather conditions, sample identification, and sample analyses to be performed. The groundwater sample will be collected in accordance with Golder Technical Procedure TP-1.2-20 and EPA Method 1669.

If a field parameter measurement appears anomalous, the technician will repeat the measurement. If the result remains suspect, the instrument will be recalibrated. If the measurement remains consistent after recalibration, the measurement will be documented and the results communicated to the Project Manager.

Specific samples may require preservation by chilling or the addition of acids or bases. Steps required for sample preservation are described in Section 4.5 below. The contracted laboratory and Field Technician are responsible for assuring proper preservation of samples and the holding times are met.

4.1.3 Source Water Sampling

The source water for the potential ASR program for the City will be sampled from the City's water distribution system. The sample will be collected as close to the ASR project site as is practical, in a location with good turnover and recommended by City staff as likely to provide representative water quality. Sampling procedures will be performed as described by Golder Technical Procedure TP-1.2-26 and EPA Method 1669. Field measurements of pH, temperature, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity will be made. Field measurements will be documented on Sample Integrity Data Sheets (see attached CD, TP-1.2-20). Additional information shall be recorded in field logs, including date, time, location, sampling personnel, weather conditions, sample identification, and sample analyses to be performed.

4.2 Document Distribution, Variation Request, and Change Control Considerations

The technical procedures and all other procedures cited in this QAPP are subject to the distribution control requirements of Golder's 801 Procedure: Project Management Implementation Guide (PMIG) (attached CD). Variations from established field procedure requirements may be necessary in response to unique circumstances encountered during sampling activities. All such variations will be documented on a Field Change Request (FCR) form and submitted to the Project Manager for review and approval. A copy of the Field Change Request form is presented in TP-1.2-23 "Chain of Custody."

The Project Manager or his assigned Field Sampling Personnel are authorized to implement non-substantive variations based on immediate need, provided that the Project Manager is notified within 24-=hours of the variation, and the FCR is forwarded to the Project Manager for review within 2 working days. Substantive variations require notification of the Project Manager and Client Project Coordinator before implementation and a FCR is forwarded for review within 2 working days. If the variation is unacceptable to either reviewer, the activity shall be re-performed or other corrective action taken as indicated in the "Comments" section of the FCR. A copy of the FCR shall be included with all field reports, as well as the data validation report. Changes to the requirements of this QAPP or the Phase Two Scope of Work shall be controlled through the Scope Changes procedures as discussed in Golder's 801 PMIG document.

4.3 Sample Quantities, Types, Locations, and Intervals

Sample quantities, types, locations, and intervals for the rock formation, groundwater and source water sampling shall be as specified in Tables 2 and 3, and the Phase Two Scope of Work (Golder, 2009[b]). Field quality control samples shall be included in the minimum quantities specified in Section 7 of this QAPP. Appropriate documentation of the purpose of the samples shall be maintained in the field log, and identified by the assigned sample number; copies of sample identification records shall be separately provided to the data validator (see section 6 of this QAPP).

4.4 Sample Identification and Labeling Requirements

Sample labels will be attached to each sample container with an assigned field sample identification number applied as each sample is collected during the field activities. The number system will appear on each sample bottle or container collected and will identify a unique sample ID number applied to one collection sequence for one sample, regardless of the number of bottles and containers collected. The number system will ensure field quality control (QC) samples will remain indistinguishable from

the field locations. The label will contain the sampler's initials, one collection date, and one collection time appropriate for each sample, and will be cross referenced by the sample number to identify the location, depth, and geological data in the field notes. An example label is shown below:

GOLDER ASSOCIATES INC.		
(503) 607-1820		
	Sample ID #: PREGW	
	Date:	
	Time:	
Initials:	Analysis:	Preservative:

Each sample bottle label will also identify the laboratory analysis to be performed, noting the identified method number as stated in Table 2 and the preservative added for the appropriate analytical parameter as indicated on the bottle label. Identification numbers shall be recorded on the field report forms shown in the applicable sampling procedures, and on the chain of custody/sample analysis request form supplied by the analytical laboratory.

4.5 Sample Container Type, Volume, Preservation, and Handling Requirements

All sample containers, container preparation, preservatives, trip blank, and sample storage chests will be provided by the analytical laboratory as part of their agreement for services. Sample container type, volume requirements, and preservation requirements are listed by analytical category in Table 2 for groundwater and source water.

All groundwater, source water and drilling cuttings samples will be sealed, labeled, properly identified, and submitted to the analytical laboratory under formal chain of custody requirements as described in Section 4.4 and 4.6 of this QAPP. Transport sample chests will be secured with a custody seal on the outside, with signature and date provided by the attending Field Technician.

4.6 Chain of Custody Considerations

All samples obtained during the course of this investigation will be controlled as required by procedure TP-1.2-23, "Chain of Custody" (attached CD). Chain of custody forms (see Exhibit C in TP-1.2-23) will be completed for each shipment of samples as described in the procedure. Chain of Custody forms will specifically identify the applicable reference methods specified in Table 2 as appropriate for each individual sample. Sample Integrity Data Sheets will be completed for all sample collection locations, and cross reference the location and sample depth with the sample identification entered on the Chain of Custody. All laboratory chain of custody and sample tracking procedures will ensure traceability of analytical results to the original samples through the analytical method referenced on the chain of custody, and the laboratory applied tracking number, which is traceable to unique sample identification numbers as specified in Section 4.4 above.

4.7 Sampling Equipment Decontamination

All non-dedicated sampling equipment (in contact with sample) will be thoroughly cleaned prior to each sampling event to prevent cross-contamination between samples and to ensure accurate representation of analytes of interest in each sample interval. Personnel performing decontamination will wear rubber gloves, face or eye shields, and such other safety equipment as directed by the project-specific HASP. Samplers and sampling tools will be disassembled as necessary and placed in clean, dedicated drums or troughs fitted with gravity drains. Non-dedicated equipment will be

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cleaned with a brush and non-phosphate detergent, water mixture so that all visible solid matter is removed. A second wash will be performed after the detergent/water wash.

Should visible matter remain on the non-dedicated equipment after the detergent/water wash, the full complement of wash procedures will be repeated. If the non-dedicated equipment retains visible matter after the repeated actions, the equipment will be retired from the sampling procedures and not used again. Samplers will be reassembled using clean rubber gloves; all decontaminated samplers and sampling tools will be sealed in clean plastic bags pending their next use. All wash and rinse fluids will be transferred to storage drums for short-term storage on-site, pending characterization and final disposal at the direction of the Project Manager.

4.8 Investigative Derived Wastes (IDW)

Drilling cuttings and borehole residuals will be generated as investigative derived solid waste material that cannot, or otherwise will not be returned to the borehole. Unless obvious signs of contamination are observed during the drilling and sampling program, the investigative derived waste (IDW) will be spread or stockpiled on the site to be used later as grading material. Water generated during drilling will be discharged to the surface. The options that will be pursued for disposal of water generated in during the aquifer pumping test are described in the SOW.

Drilling cuttings and water samples submitted for testing purposes will become the responsibility of the laboratories tasked for the appropriate analyses. As such, all disposal responsibilities will remain with each laboratory at the conclusion of the testing activities for spent samples. See Section 3.0 of the SAP for further details on IDW procedures.

4.9 Calibration Requirements

Calibration of all measuring and test equipment, whether in existing inventory or purchased for this investigation, shall be controlled as required by procedure GP-3, "Calibration and Maintenance of Test and Measuring Equipment." Lease equipment will require certifications or other documentation demonstrating acceptable calibration status for the entire period of use for this project. Field calibration requirements will be in compliance with the technical procedure describing the instrument's use and/or with the manufacturer's instructions issued with the equipment. Method and analytical equipment-specific calibration requirements applicable within the individual analytical laboratories are addressed by the individual laboratory QA plans.

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5.0 QUALITY CONTROL PROCEDURES

All analytical samples shall be subject to quality control (QC) measures in both the field and laboratory. The following minimum field quality control requirements apply to all analyses.

- ***Field duplicate samples.*** An effort will be made to obtain sufficient sample quantities for the purpose of collecting field duplicates. Field duplicates will be collected of rock and water samples that are suspected, based upon field observations, to contain contaminants, and where volume requirements are sufficient. Duplicate samples shall be collected at the location consistent with the Phase Two Scope of Work Plan and shall be retrieved from the same sampling location using the same equipment and sampling technique, and shall be placed into identically prepared and preserved containers. All field duplicates shall be identified with a unique sample ID number and will be analyzed independently as an indication of gross errors in sampling techniques. Field duplicates will be established at a frequency of one duplicate sample per sampling event, or once every 20 samples, whichever is greater.

- ***Equipment blanks.*** Equipment blanks shall consist of pure deionized/distilled water washed through decontaminated non-dedicated sampling equipment and placed in containers identical to those used for actual field samples. Equipment blanks verify the adequacy of sample containers, non-dedicated sampling equipment decontamination procedures, and the proficiency of the field technician to eliminate fugitive contaminants. Equipment blanks will be established at a frequency of one blank sample per sampling event;

- ***Field blanks.*** Preparation of field blanks will be required for analyses of water samples. Field blanks consist of pure deionized/ distilled water added to the same batch of clean water sample containers and preservative used in the sampling event. Field blanks shall be shipped during a sampling activity and submitted to the laboratory as a water sample. Field blanks are used as a check on possible contamination originating from container preparation methods, shipment, handling, storage, preservatives or site conditions. Field blanks will be established at a frequency of one blank sample per sampling event.

The internal quality control checks performed by the analytical laboratory shall meet the following minimum requirements:

- ***Matrix spike and matrix spike duplicate samples.*** Matrix spike and matrix spike duplicate samples require the addition of a known quantity of a representative analyte of interest to soil or water samples as a measure of recovery percentage. The spike shall be made in a replicate of a field sample or field duplicate sample. Replicate samples are separate aliquots removed from the same sample container in the laboratory. Spike compound selection, quantities, and concentrations shall be described in the laboratories analytical procedures. One sample shall be spiked per analytical batch, or once every 20 samples, whichever is greater,

- ***Quality control reference samples (check samples).*** A quality control reference sample (also known as a Laboratory Control Sample; LCS) shall be prepared from an independent standard at a concentration other than that used for calibration, but within the calibration range. The quality control reference sample is analyzed after the initial calibration and before any samples are analyzed, and shall be run with every analytical batch, or every 20 samples, whichever is greater. Reference samples are required as an independent check on analytical technique and methodology.

- ***Method blanks.*** Method blanks are prepared during the preparation of both soil and water samples in the laboratory to evaluate the proficiency of the laboratory at eliminating fugitive vapors, reagent contaminants, and preparation vessel carryover contaminants. The method blank shall be prepared using the same procedure used for preparation of the samples, at the same time, and involving the same reagents. The method blank must be tested after the quality control reference sample and before any samples are analyzed, and shall be run with every analytical batch or 20 samples, whichever is more frequent.

Internal laboratory quality control checks shall be in accordance with the EPA Contract Laboratory Program or the specified analytical method. The analytical laboratory shall notify the Golder Associates Project Manager immediately if sample integrity has been compromised, holding times have been exceeded, or other nonconforming conditions are identified by the laboratory. Disposition of the sample will be made by the Golder representative. The laboratory, however, will carry out corrective action procedures as required by the internal laboratory QA plan.

A summary of quality control requirements are specified in Table 4.

5.1 Instrument/Equipment Testing, Inspection, and Maintenance

All measuring and test equipment used in support of the hydrologic monitoring activities that directly affects the quality of the analytical data shall be subject to preventive maintenance measures that minimize equipment downtime.

The subcontracted analytical laboratory shall be responsible for maintenance of their analytical equipment. Maintenance requirements, spare parts lists, and instructions shall be included in individual methods and/or Golder-approved laboratory QA plans or procedures.

5.2 Instrument Calibration and Frequency

Calibration of all Golder-owned or -leased measuring and test equipment used for components of the monitoring and sampling program shall be performed as identified in Golder Procedure GP-3. Calibration of analytical laboratory equipment shall be in accordance with the laboratory's internal procedures, which are subject to approval by Golder.

5.3 Inspection/Acceptance of Supplies and Consumables

Quality-affecting items purchased for use on this project shall be inspected/accepted in accordance with Golder 801 Operating Procedures. Non-conforming conditions identified during receiving inspection shall be documented and resolved prior to field work. .

5.4 Data Management

Data received from the lab will be logged, batched, and processed according to Golder Technical Procedure TP-2.2-12. The data will be uploaded into a relational database to be maintained in a separate directory. The database will be backed up onto disk and network drives daily and stored in a separate building where it can be retrieved, upon request, by an information technician. After entry of hardcopy data into the database, the associated data will be printed from the database and compared with the hardcopies for accuracy. Errors will be noted, corrected, the corrected records reprinted, and the markups and corrected copies kept on file in accordance with Golder's 801 PMIG. Reporting and calculations will be done programmatically and results checked against input to ensure against data loss.

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6.0 DATA MANAGEMENT, VALIDATION, AND REPORTING

This section presents an overview of the procedures that will be used to manage monitoring and analysis data. The Field Technician will be properly organized to maintain the data collected to be used for generating reports and for use in data evaluation and future permitting.

Data received from the field and lab will be logged, batched, and processed according to Golder Technical Procedure TP-2.2-12 into a relational database to be maintained in a separate directory. The database will be backed up onto disk daily and stored in a separate building where it can be retrieved, upon request, by an information technician. After entry of hardcopy data into the database, the associated data will be printed from the database and compared with the hardcopies for accuracy. Errors will be noted, corrected, the corrected records reprinted, and the markups and corrected copies kept on file. Reporting and calculations will be done programmatically and results checked against input to ensure against data loss.

6.1 Recording and Validation of Field Analyses

The Field Technician will be responsible for documenting field measurements and recording the results of these measurements in Golder template forms. The Field Technician will also be responsible for noting any circumstances that may affect the field measurements. Data recorded by the Field Technician will be reviewed by the Project Manager for completeness and to identify any anomalous information generated by field analyses. Actions the Project Manager can take to resolve anomalous information may include the following:

- Evaluation of the sampling steps compared against the applicable method TP 2.2-12 in order to identify any possible errors in either sample collection or the TP;
- Reanalysis of any anomalous values or
- Collection of a different sample for submittal to a laboratory.

6.2 Data Analysis, Evaluation and Usability

Monitoring data will be reviewed by the Project Manager to ascertain that samples were collected and analyzed in accordance with the approved QAPP. The Project Manager will also compare monitoring data to criteria established for the QAPP parameters. Data packages (level II) provided by the analytical laboratory will be expected to include the following information:

- Data analysis with the exception of field parameters on hard copy sheet and in electronic form;
- Copies of completed chain-of-custody forms;
- A QA/QC summary and documentation of any discrepancies that may have affected the reported measurements;
- Sampling and analysis dates;
- Test methods;
- Recovery percentages; and
- QC data including method blank, matrix spike data, matrix spike duplicate data, and laboratory control sample data.

Laboratory reports will be reviewed to ascertain that analytical holding times were not exceeded, and that the results for field duplicate samples are valid. Questionable, poor quality, or unusable data, will warrant immediate action by the Project Manager, which may involve re-calibration of field instruments and re-sampling or re-analysis of samples.

6.3 Data Tracking, Retrieval and Storage

The Field Technician notebook computer will be the final on-site repository for data generated in this monitoring program. The laptop will allow ready access to collected data, and supports data importing and exporting, tabulation, evaluation, graphing, and storage. Data can be imported directly from instruments and compatible spreadsheet programs employed by most analytical laboratories. Importing data directly into a correctly managed spreadsheet will limit the amount of manual data entry that would otherwise be required, and thereby reduce data entry errors.

The Field Technician will be responsible for entering data into the spreadsheet that is not directly imported into the system from instrument and laboratory data files. The Field Technician will also be responsible for backing up data on the office network. The Field Technician and Project Manager will be responsible for routinely verifying the data that is entered into the spreadsheet against hard-copy data reports submitted by the analytical laboratory. As analytical data is entered into the database routine QA/QC queries are performed. The information system will be periodically backed up on the company's server as well as on CD's. Hard copies will be maintained in the main filing system.

6.4 Analytical Procedures

Table 2 cross-references the analytes of interest of this investigation to the standard reference methods. Method Detection Limits (MDLs) for analytes in water samples are given and shall be established as contractual requirements between Golder and the subcontracted analytical laboratory. The subcontracted laboratory is responsible for implementing the analytical methods selected, documenting through Standard Operating Procedures modifications (if any) to the methods, and providing these documents for review upon request. Any changes to the method number selected for analysis and identified in Table 2 must first be brought to the attention of the Project Manager in writing before analysis can begin.

MDLs for established analytical methods, as presented in the Tables shall be considered adequate for the water quality samples for the Phase Two Scope of Work. Instances of MDLs found above the Reporting Limit level (according to WAC 173-200) will be brought to the attention of the Project Manager and analytical results will be assessed by matrix and location at the conclusion of the Phase Two Technical Report.

6.5 Minimum Requirements for Laboratory Analytical Data Packages

All analytical data packages submitted by the analytical laboratory shall include the following:

- Sample receipt "condition found" record, noting dates of sample receipt; chain-of-custody and shipping documentation including identification of field sampling personnel, and shipping personnel (or organization);
- Copies of completed chain of custody documentation;
- Analytical hard copy (paper) summary results for each sample containing neat or dilution adjusted results for all analytes/constituents requested in the chain of custody, request for analysis or purchase order;
- Analytical quality control results and summary documents for laboratory method blanks, duplicates, laboratory control samples, blank spike/blank spike duplicates, matrix spike/matrix spike duplicates, serial dilutions, surrogates and internal standards;

- Sample extraction and preparation summary data including dates of sample extraction and analysis and analytical sequence information for each sample set, and each sample dilution and reanalysis,

- Electronic data compact disks or electronic deliverables that provide the summarized results, date of extraction and analysis, quality control data results and true values, client and laboratory sample identifications, analysis methods, dilutions applied and appropriate detection or reporting limits.

All data packages for all analytical parameters shall be reviewed and approved by the analytical laboratory's QA Officer before submittal for validation.

6.6 General Validation Requirements

Data shall be validated based on the applicable elements of the EPA Functional Guidelines for Inorganic Analyses (EPA, 1994), and EPA Contract Laboratory Program and Golder Technical Procedure TP-2-2-12 or applicable reference method requirements as appropriate.

Data validation will be performed in order to ensure that the laboratory has met all contractual requirements, all applicable reference method requirements, and has met the data quality objectives discussed previously in Section 3. Validated data will be stored as indicated in procedure TP-2.2-12, "Analytical Data Management" for the sample delivery group. A sample delivery group may be interpreted as the group of samples delivered to the laboratory in a single sampling event.

The data validator shall document all contacts made with the laboratory to resolve questions related to the data package. The data validator shall prepare a technical report applicable for the specified method, documenting the evaluation of laboratory blanks, equipment blanks, duplicates, matrix spikes/matrix spike duplicates, laboratory control samples, calibration data, and any re-qualification of analytical results required as a result of the validation exercise. The validation report, laboratory contact documentation, copies of the laboratory sample summary reports, and the as-reviewed laboratory data package shall be routed to the Project Manager for data assessment purposes and to the permanent project records.

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7.0 ASSESSMENT AND OVERSIGHT

7.1 Assessments and Response Actions

Two types of audits may be performed during hydrologic monitoring activities. Submittal of a duplicate sample to the subcontracted laboratory for quantitative comparison with the data routinely obtained by the measurement system will constitute a performance audit. A system audit will involve an on-site evaluation of laboratories or of other project activities for compliance with quality plans and procedures. Performance audits and system audits will be performed at the request of the Project Manager. Any non-conforming conditions identified during a performance or system audit that cannot be immediately corrected to the satisfaction of the investigator shall be documented and resolved. Appropriate actions shall be assigned to specific individuals by the Project Manager.

7.2 Reports to Management

All audit and corrective action documentation shall be routed to the project records upon completion or closure of the activity. A report summarizing all audit, corrective action, and Field Change Request activity shall be prepared and included in the final report. The final report shall include an assessment of the overall adequacy of the total measurement system with regard to the data quality objectives of the investigation.

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8.0 REFERENCES

EPA, 1994. EPA Contract Laboratory Program National Functional Guidelines for Inorganics Data Review, EPA 540/R-94/013, US Environmental Protection Agency Office of Emergency and Remedial Response, Washington DC.

Golder Associates Inc, 2009[a]. Project Description – Technical Memorandum for the City of Kennewick ASR Feasibility Study. 14p. April, 2009.

Golder Associates Inc, 2009[b]. Phase Two Scope of Work – Technical Memorandum for the City of Kennewick ASR Feasibility Study.

Washington Department of Ecology, 2004. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies. Publication No. 04-03-030, Revision of Publication No. 01-03-003. 100p. July 2004.

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TABLES

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TABLE 1

Golder Technical and Quality Procedures List

GP-3	Calibration and Maintenance of Measuring and Test Equipment
TP-1.2-5	Drilling, Sampling, and Logging of Soils
TP-1.2-12	Monitoring Well Drilling and Installation
TP-1.2-20	Collection of Groundwater Quality Samples
TP-1.2-23	Chain of Custody
TP-1.2-26	Surface Water Sampling Methods
TP-1.4-6a	Manual Groundwater Level Measurement
TP-1.4-6b	Automated Groundwater Level Measurement
TP-1.4-12	Technical Procedure for Multiple Observation Well Drawdown and Recovery Pump Test
TP-2.2-12	Analytical Data Management

Golder 801 Procedures: Project Management Implementation Guide (PMIG)

The complete volume of each technical procedure can be found in the attached CD – Technical Procedures.

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TABLE 2

Sample Container Types, Volumes, Handling, Preservation, and Holding Times

WATER QUALITY SAMPLES

Analytes	Analytical Method	Container Type	Amount Needed	Preservation	Maximum Holding Time
pH, Temperature, Conductivity, Dissolved Oxygen, Oxidation-Reduction Potential, Turbidity	Field Measurement	Field Parameters; Sample is not collected	N/A	N/A	N/A
VOCs	EPA 524.2	40 mL Vial	2 Vials	HCl; Chill to 4°C	14 days
HAAs	EPA 552.2/552.3	250 mL Amber	250 mL	NH4Cl; Chill to 4°C	14 days
TTHMs	EPA 524.2	40 mL Vial	2 Vials	Ascorbic Acid, HCl; Chill to 4°C	14 days
Residual Chlorine	SM 4500-Cl G	250 mL poly	250 mL	N/A	Immediate
Chlorite	EPA 300.1	500 mL poly	500 mL	Chill to 4°C	28 days
Herbicides	EPA 515.4	60 mL Vial	2 Vials	Sodium Sulfite	14 days
SOC (Aroclors, Toxaphene)	EPA 508.1	1000 mL Amber BR	2 Containers	Sodium Sulfite plus HCl; Chill to 4°C	14 days
SOCs	EPA 525.2	1000 mL Amber BR	2 Containers	Sodium Sulfite plus HCl; Chill to 4°C	14 days

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Analytes	Analytical Method	Container Type	Amount Needed	Preservation	Maximum Holding Time
Carbamates	EPA 531.2	40 mL Vial	40 mL	Potassium Citrate and Sodium Thiosulfate	28 days
Ammonia	EPA 350.1	250 mL poly	250 mL	Chill to 4°C, H_2SO_4 pH<2	28 days
Hardness	EPA 200.7	500 mL poly	500 mL	HNO3	180 days
Total Dissolved Solids	SM 2540C	1000 mL poly	1000 mL	Chill to 4°C	7 days
Total Suspended Solids	EPA 180.1	1000 mL poly	1000 mL	Chill to 4°C	7 days
Total Organic Carbon (TOC)	SM 5310 B	60 mL vial	60 mL vial	Chill to 4°C, HCl pH<3	28 days
Dissolved Organic Carbon (DOC)	SM 5310 C	250 mL Amber	250 mL	Chill to 4°C	28 days
Alkalinity (total)	SM 2320B	250 mL poly	250 mL	Chill to 4°C	14 days
Chloride, Sulfate	EPA 300.0	1000 mL poly	1000 mL	Chill to 4°C	28 days
Nitrate + Nitrite	EPA 300.0	1000 mL poly	1000 mL	Chill to 4°C	2 days
Fluoride	EPA 300.0	1000 mL poly	1000 mL	Chill to 4°C	28 days
Calcium, Magnesium	EPA 200.7	250 mL poly	500 mL	HNO3	180 days
Iron, Sodium, Aluminum	EPA 200.7	500 mL poly	500 mL	HNO3	180 days
Silver, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Nickel, Antimony, Selenium, Thallium, Zinc	EPA 200.8	500 mL poly	500 mL	HNO3	180 days

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Analytes	Analytical Method	Container Type	Amount Needed	Preservation	Maximum Holding Time
Mercury	EPA 245.1	500 mL poly	500 mL	HNO3	28 days
Ortho-Phosphate	SM 4500-P E	250 mL poly	250 mL	Chill to 4°C	2 days
Silica	SM 4500-Si F	250 mL poly	250 mL	Chill to 4°C	180 days
Color	SM 2120 B	1000 mL poly	1000 mL	Chill to 4°C	2 days
Turbidity	EPA 180.1	1000 mL poly	1000 mL	Chill to 4°C	2 days
Cyanide	SM 4500-CN F	1000 mL poly	1000 mL	NaOH; Chill to 4°C	14 days
Conductivity	SM 2510B	1000 mL poly	1000 mL	Chill to 4°C	1 day
Gross Alpha/Beta	EPA 900.0	1000 mL poly	1000 mL	N/A	28 days
Radium 226	EPA 903.1	1000 mL poly	1000 mL	N/A	180 days
Radium 228	EPA 904.0	1000 mL poly	1000 mL	N/A	180 days
Uranium	EPA 200.8	1000 mL poly	1000 mL	HNO3	180 days
Heterotrophic Plate Count	SM 9215B	120 mL poly	120 mL	None; Chill to 4°C	24 hrs
Fecal Coliform	SM 9221E	120 mL poly	120 mL	None; Chill to 4°C	24 hrs
Total Coliform	SM 9221B	120 mL poly	120 mL	None; Chill to 4°C	24 hrs

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TABLE 3

Analyte Method Detection and Reporting Limits

WATER QUALITY SAMPLE ANALYTES

VOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
1,1 - DICHLOROETHYLENE	0.15	7	0.4	0.5	ug/L
1,1,1 - TRICHLOROETHANE	0.15	200	0.4	0.5	ug/L
1,1,2 - TRICHLOROETHANE	0.20	5	0.4	0.5	ug/L
1,2 - DICHLOROETHANE	0.17	5	0.4	0.5	ug/L
1,2 - DICHLOROPROPANE	0.23	5	0.4	0.5	ug/L
1,2,4, - TRICHLOROBENZENE	0.14	70	0.4	0.5	ug/L
1,2-DIBROMO-3-CHLOROPROPANE	0.13	0.2	0.4	0.5	ug/L
BENZENE	0.16	5	0.4	0.5	ug/L
CARBON TETRACHLORIDE	0.16	5	0.4	0.5	ug/L
CHLOROBENZENE	0.18	100	0.4	0.5	ug/L
CIS - 1,2 - DICHLOROETHYLENE	0.21	70	0.4	0.5	ug/L
ETHYLBENZENE	0.13	700	0.4	0.5	ug/L
ETHYLENE DIBROMIDE (EDB)	0.12	0.05	0.4	0.5	ug/L
M/P - XYLENE	0.28		0.4	0.5	ug/L
METHYLENE CHLORIDE	0.12	5	0.4	0.5	ug/L
O - DICHLOROBENZENE	0.21	600	0.4	0.5	ug/L
O - XYLENE	0.12		0.4	0.5	ug/L
P - DICHLOROBENZENE	0.18	75	0.4	0.5	ug/L
STYRENE	0.21	100	0.4	0.5	ug/L

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VOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
T - 1,2 - DICHLOROETHYLENE	0.15	100	0.4	0.5	ug/L
TETRACHLOROETHYLENE	0.11	5	0.4	0.5	ug/L
TOLUENE	0.08	1000	0.4	0.5	ug/L
TOTAL XYLENES	0.32	10000	0.4	0.5	ug/L
TRICHLOROETHYLENE	0.13	5	0.4	0.5	ug/L
VINYL CHLORIDE	0.19	2	0.4	0.5	ug/L
1,1 - DICHLOROETHANE	0.17		0.4	0.5	ug/L
1,1 - DICHLOROPROPENE	0.16		0.4	0.5	ug/L
1,1,1,2 - TETRACHLOROETHANE	0.14		0.4	0.5	ug/L
1,1,2,2 - TETRACHLOROETHANE	0.22		0.4	0.5	ug/L
1,2,3 - TRICHLOROBENZENE	0.39		0.4	0.5	ug/L
1,2,3 - TRICHLOROPROPANE	0.13		0.4	0.5	ug/L
1,2,4 - TRIMETHYLBENZENE	0.17		0.4	0.5	ug/L
1,3 - DICHLOROPROPANE	0.23		0.4	0.5	ug/L
1,3,5 - TRIMETHYLBENZENE	0.14		0.4	0.5	ug/L
2,2 - DICHLOROPROPANE	0.15		0.4	0.5	ug/L
BROMOBENZENE	0.15		0.4	0.5	ug/L
BROMOCHLOROMETHANE	0.17		0.4	0.5	ug/L
BROMOMETHANE	0.18		0.4	0.5	ug/L
CHLOROETHANE	0.19		0.4	0.5	ug/L
CHLOROMETHANE	0.22		0.4	0.5	ug/L
CIS - 1,3 - DICHLOROPROPENE	0.14		0.4	0.5	ug/L
DIBROMOMETHANE	0.17		0.4	0.5	ug/L
DICHLORODIFLUOROMETHANE	0.28		0.4	0.5	ug/L
HEXACHLOROBUTADIENE	0.12		0.4	0.5	ug/L
ISOPROPYLBENZENE	0.18		0.4	0.5	ug/L
M - DICHLOROBENZENE	0.16		0.4	0.5	ug/L
N - BUTYLBENZENE	0.15		0.4	0.5	ug/L
N - PROPYLBENZENE	0.15		0.4	0.5	ug/L
NAPHTHALENE	0.14		0.4	0.5	ug/L
O - CHLOROTOLUENE	0.14		0.4	0.5	ug/L
P - CHLOROTOLUENE	0.18		0.4	0.5	ug/L

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VOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
P - ISOPROPYLTOLUENE	0.25		0.4	0.5	ug/L
SEC - BUTYLBENZENE	0.16		0.4	0.5	ug/L
TERT - BUTYLBENZENE	0.14		0.4	0.5	ug/L
TRANS- 1,3 - DICHLOROPROPENE	0.13		0.4	0.5	ug/L
TRICHLOROFLUOROMETHANE	0.20		0.4	0.5	ug/L
METHYL TERT-BUTYL ETHER	0.07		1.0	1.0	ug/L
SOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
2,4 – D (HERBICIDE)	0.2	70	0.5	0.5	ug/L
2,4,5 - TP (SILVEX) (HERBICIDE)	0.04	50	0.25	1.0	ug/L
DALAPON (HERBICIDE)	0.9	200	3.25	5	ug/L
DINOSEB (HERBICIDE)	0.2	7	0.5	1.0	ug/L
PENTACHLOROPHENOL (HERBICIDE)	0.05	1	0.25	0.2	ug/L
PICLORAM (HERBICIDE)	0.07	500	0.25	0.5	ug/L
2,4 DB (HERBICIDE)	2		2	1.0	ug/L
2,4,5 T (HERBICIDE)	0.04		0.25	0.4	ug/L
3,5 - DICHLOROBENZOIC ACID (HERBICIDE)	0.2		0.25	0.5	ug/L
ACIFLUORFEN (HERBICIDE)	0.1		0.25	2.0	ug/L
BENTAZON (HERBICIDE)	0.2		0.5	0.5	ug/L
CHLORAMBEN (HERBICIDE)	0.3		0.2	0.2	ug/L
DCPA (ACID METABOLITES) (HERBICIDE)	0.1		0.25	0.1	ug/L
DICAMBA (HERBICIDE)	0.05		0.25	0.2	ug/L
DICHLORPROP (HERBICIDE)	0.5		0.75	0.5	ug/L
AROCLOR 1016	0.1		0.1	0.1	ug/L
AROCLOR 1221	0.1^		0.1	20	ug/L
AROCLOR 1232	0.1^		0.1	0.5	ug/L
AROCLOR 1242	0.1^		0.1	0.5	ug/L
AROCLOR 1248	0.1^		0.1	0.1	ug/L
AROCLOR 1254	0.1^		0.1	0.1	ug/L
AROCLOR 1260	0.08		0.1	0.2	ug/L

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SOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
PCBS (Total Aroclors)		0.5	0.2	0.2	ug/L
TOXAPHENE	0.5	3	1	2	ug/L
ACENAPHTHENE	0.1^		0.1	0.2	ug/L
ACENAPHTHYLENE	0.025		0.1	0.2	ug/L
ANTHRACENE	0.012		0.1	0.2	ug/L
BENZ(A)ANTHRACENE	0.012		0.1	0.1	ug/L
BENZO(B)FLUORANTHENE	0.025		0.1	0.2	ug/L
BENZO(G,H,I)PERYLENE	0.025		0.1	0.2	ug/L
BENZO(K)FLUORANTHENE	0.022		0.1	0.2	ug/L
CHRYSENE	0.022		0.1	0.2	ug/L
DIBENZO(A,H)ANTHRACENE	0.024		0.1	0.2	ug/L
FLUORANTHENE	0.1^		0.1	0.2	ug/L
FLUORENE	0.026		0.1	0.2	ug/L
INDENO(1,2,3-CD)PYRENE	0.040		0.1	0.2	ug/L
NAPTHALENE	0.1^		0.1	0.1	ug/L
PHENANTHRENE	0.015		0.1	0.2	ug/L
PYRENE	0.022		0.1	0.2	ug/L
BENZYL BUTYL PHTHALATE	0.022		0.1	0.6	ug/L
DIETHYL PHTHALATE	0.044		0.1	0.6	ug/L
DIMETHYL PHTHALATE	0.015		0.1	0.6	ug/L
DI-N-BUTYL PHTHALATE	0.085		0.1	0.6	ug/L
ALACHLOR	0.044	2	0.1	0.4	ug/L
ATRAZINE	0.030	3	0.1	0.2	ug/L
BENZO(A)PYRENE	0.012	0.2	0.1	0.04	ug/L
CHLORDANE, TECHNICAL	0.3	2	0.1	0.4	ug/L
DI(ETHYLHEXYL)-ADIPATE	0.022	400	0.1	1.3	ug/L
DI(ETHYLHEXYL)-PHTHALATE	0.063	6	0.1	1.3	ug/L
ENDRIN	0.030	2	0.1	0.02	ug/L
HEPTACHLOR	0.022	0.4	0.1	0.08	ug/L
HEPTACHLOR EPOXIDE	0.02	0.2	0.1	0.04	ug/L
HEXACHLOROBENZENE	0.025	1	0.1	0.2	ug/L
HEXACHLOROCYCLO-PENTADIENE	0.024	50	0.1	0.2	ug/L

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SOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
LINDANE (BHC - GAMMA)	0.028	0.2	0.1	0.04	ug/L
METHOXYCHLOR	0.015	40	0.1	0.2	ug/L
PENTACHLOROPHENOL	0.08	1	0.4	0.4	ug/L
SIMAZINE	0.030	4	0.1	0.15	ug/L
ALDRIN	0.022		0.1	0.2	ug/L
BUTACHLOR	0.024		0.1	0.4	ug/L
DIELDRIN	0.031		0.1	0.2	ug/L
METOLACHLOR	0.024		0.1	1.0	ug/L
METRIBUZIN	0.030		0.1	0.2	ug/L
PROPACHLOR	0.031		0.1	0.2	ug/L
4,4-DDD	0.024		0.1	0.2	ug/L
4,4-DDE	0.024		0.1	0.2	ug/L
4,4-DDT	0.022		0.1	0.2	ug/L
BROMACIL	0.031		0.1	0.2	ug/L
CYANAZINE	0.13		0.1	0.2	ug/L
DIAZINON	0.035		0.1	0.2	ug/L
EPTC	0.028		0.1	0.3	ug/L
MALATHION	0.015		0.1	0.2	ug/L
PARATHION	0.022		0.1	0.2	ug/L
TERBACIL	0.043		0.1	0.2	ug/L
TRIFLURALIN	0.024		0.1	0.2	ug/L
CARBOFURAN	0.2	40	1.0	1.8	ug/L
OXYMAL	0.3	200	1.0	4.0	ug/L
3-HYDROXYCARBOFURAN	0.3		1.0	2.0	ug/L
ALDICARB	0.3		1.0	1.0	ug/L
ALDICARB SULFONE	0.3		1.0	1.6	ug/L
ALDICARB SULFOXIDE	0.3		1.0	1.0	ug/L
CARBARYL	0.2		1.0	2.0	ug/L
METHOMYL	0.3		1.0	1.0	ug/L
METHIOCARB	0.3		1.0	4.0	ug/L
PROPOXUR (BAYGON)	0.4		1.0	1.0	ug/L

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IOCs					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
HARDNESS	1.32		3.30	10	mg CaCO3/L
IRON	0.002	0.3	0.050	0.100	mg/L
MAGNESIUM	0.006		0.5	0.5	mg/L
TOTAL DISSOLVED SOLIDS	10	500	10	150	mg/L
ALKALINITY	1.4		5.0	5.0	mg CaCO3/L
ALUMINUM	0.007		0.1	0.1	mg/L
AMMONIA	0.02		0.05	0.05	mg/L
ANTIMONY	0.000014	0.006	0.001	0.001	mg/L
ARSENIC	0.00004	0.010	0.001	0.002	mg/L
BARIUM	0.00016	2	0.001	0.100	mg/L
BERYLLIUM	0.00001	0.004	0.001	0.003	mg/L
CADMIUM	0.000046	0.005	0.001	0.002	mg/L
CALCIUM	0.013		0.5	0.5	mg/L
CHLORIDE	0.012	250	1.0	20	mg/L
CHROMIUM	0.000018	0.1	0.010	0.010	mg/L
COPPER	0.0002	1.3	0.005	0.020	mg/L
FLUORIDE	0.012	4	0.10	0.20	mg/L
LEAD	0.00001	0.015	0.001	0.002	mg/L
MANGANESE	0.00003	0.05	0.001	0.010	mg/L
MERCURY	0.00006	0.002	0.0002	0.0002	mg/L
NICKEL	0.0003	0.1	0.005	0.040	mg/L
NITRATE-N	0.015	10	0.10	0.50	mg/L
NITRITE-N	0.010	1	0.10	0.50	mg/L
TOTAL NITRATE/NITRITE	0.017	10	0.10	0.50	mg/L
PHOSPHATE	0.05		0.01	0.01	mg/L
SELENIUM	0.00007	0.05	0.005	0.005	mg/L
SILICA	0.02		1.0	1.0	mg/L
SILVER	0.000003	0.05	0.010	0.010	mg/L
SODIUM	0.070		1.0	5.0	mg/L
SULFATE	0.04	250	0.2	10	mg/L
THALLIUM	0.000013	0.002	0.001	0.002	mg/L
ZINC	0.00008	5	0.005	0.200	mg/L

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Miscellaneous					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
TURBIDITY	0.02	1.0	0.05	0.05	NTU
TOTAL ORGANIC CARBON	0.18		0.5	0.5	mg/L
DISSOLVED ORGANIC CARBON	0.1		0.5	0.5	mg/L
COLOR	1	15	5	5	Color Units
ELECTRICAL CONDUCTIVITY	10	700	10	10	uS/cm
TOTAL SUSPENDED SOLIDS	1.55		4	4	mg/L
CYANIDE, FREE	0.006	0.2	0.040	0.040	mg/L
Disinfection By-Products					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
MONOCHLOROACETIC ACID	0.373		1.5	1.5	ug/L
MONOBROMOACETIC ACID	0.138		1.0	1.0	ug/L
DIBROMOACETIC ACID	0.177		0.5	0.5	ug/L
DICHLOROACETIC ACID	0.326		1.5	1.5	ug/L
TRICHLOROACETIC ACID	0.152		0.5	0.5	ug/L
TOTAL HALOACETIC ACIDS (HAA)		60	1.5	1.5	ug/L
BROMODICHLOROMETHANE	0.18		0.4	0.5	ug/L
BROMOFORM	0.14		0.4	0.5	ug/L
CHLORODIBROMOMETHANE	0.14		0.4	0.5	ug/L
CHLOROFORM	0.17		0.4	0.5	ug/L
TOTAL TRIHALOMETHANE (TTHM)		80	0.4	0.5	ug/L
CHLORITE	0.0007		0.01	0.01	mg/L
RESIDUAL CHLORINE	0.02		0.02	0.02	mg/L

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Radionuclides					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
GROSS ALPHA		15	3	3	pCi/L
GROSS BETA		50	4	4	pCi/L
RADIUM 226			1	1	pCi/L
Radium 228			1	1	pCi/L
URANIUM		30	1	1	ug/L
Microbial					
Analyte Name	MDL	MCL	Quantitation Limit	Reporting Limit	Units
Heterotrophic Plate Count	1	1	1	1	Cfu/mL
Fecal Coliform	1	1	1	1	Mpn/100mL
Total Coliform	1	1	1	1	Mpn/100mL

TABLE 4

Laboratory Quality Control Procedure Summary

WATER QUALITY SAMPLES

Analyte Batch	QC Requirements
DBPs (TTHMs, HAA & Chlorite), TOC, DOC, SOCs and IOCs	Blank, Field Duplicate, Matrix Spike, Laboratory Fortified Blank
VOC	Blank, Field Duplicate, Matrix Spike, Laboratory Fortified Blank, Analyze Field Blank when VOC detected
Turbidity, Color, Conductivity, TDS	Blank, Field Duplicate, Laboratory Fortified Blank
Microbial	Blank

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FIGURE

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MEMORANDUM

Date: July 10, 2009
To: Bruce Beauchene/
Dave Nazy/
From: Phil Brown and Steven Humphrey

Project No.: 083-99742-01
Company: City of Kennewick
Washington Department of Ecology

RE: CITY OF KENNEWICK ASR FEASIBILITY STUDY – Phase Two Scope of Work

1.0 INTRODUCTION

This Scope of Work describes the Phase Two test well drilling program for the Washington Department of Ecology (Ecology) Grant Study (G0900011) City of Kennewick (City) aquifer storage and recovery (ASR) feasibility project. This scope of work (SOW) is a Phase One deliverable, along with a Quality Assurance Project Plan (QAPP) to support the field program, and is expected to condition the preliminary permit received prior to implementing the Phase Two drilling program. This SOW is included as an attachment to the preliminary permit for drilling and testing in the second phase of the project. The purpose of the grant study is to evaluate the feasibility of using water appropriated during the winter months under Permit number S430976P (the Quad Cities water right), storing that water in the basalt aquifer system beneath the City, and withdrawing the stored water during periods of high demand. The purpose of the Phase Two drilling program is to identify and evaluate the physical characteristics of a target ASR storage zone through a test well drilling program.

The following major elements of Phase Two are described in this SOW:

1. Completing and environmental assessment of an ASR program at the Southridge site;
2. Drilling, sampling of cuttings, and construction of an ASR test well;
3. Constructing an observation well network, collect baseline information, conducting step-rate and constant-rate pumping tests;
4. Collecting rock, groundwater, and source water samples for stratigraphic characterization, chemical and geochemical characterization, compatibility analysis using thermodynamic equilibrium models, and to support an AKART analysis evaluating water treatment alternatives;
5. Using the above data and analysis to re-assess ASR feasibility and develop recommendations for Phase Three of the project, and document this work in a Phase Two report.

2.0 BACKGROUND

This SOW describes our detailed approach to drilling, sampling, aquifer testing, analysis, and reporting to collect and interpret sufficient information to analyze the feasibility of developing an ASR system for the City. The Project Description (Golder, 2009) provides a more detailed background, conceptual model and approach to the overall project work. An outline of the project structure is summarized below:

- Phase 1 – Permitting. This Phase involves preparing a preliminary Reservoir Permit Application (complete), a preliminary permit to drill a test well (complete), a work plan for drilling/ testing/ sampling, a QAPP, and an approach to the AKART analysis to evaluate water treatment and quality objectives and approaches.
- Phase 2 – Test Well Installation, Aquifer Characterization, and Phase 2 Report. This Phase will begin with an Environmental Assessment and Analysis (EAA) that may include a State Environmental Policy Act checklist and address the potential environmental impacts of the ASR project. This will be followed by a test well drilling program to collect geochemical, stratigraphic, and hydraulic information to support the

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Phase 2 Technical Report that includes the results of the AKART analysis and develops recommendations for Phase 3 ASR drilling and testing.

- Phase 3 – Project Monitoring Plan, Conditioned Reservoir Permit, and Storage Cycle Testing. This Phase begins with the development of a conditioned reservoir permit supported by a Scope of Work and QAPP for the testing of an ASR pilot well. ASR pilot testing will be completed to evaluate water quality issues, storage reservoir capacity, hydraulic response to storage and recovery, well performance issues, and storage zone development.
- Phase 4 – Complete Reservoir Permit Application. This phase is not funded or scoped as part of the current grant agreement. Once Phase Three preliminary results are evaluated by the City and Ecology, Phase Four may be implemented to complete the reservoir permit application, along with a Project Operation Plan, a description of the legal framework for the project, and an updated EAA including a SEPA and mitigation plan if one is necessary.

3.0 PHASE TWO SCOPE OF WORK

Phase Two consists of four tasks:

Task 1 – Environmental Assessment and Analysis Report – This report will address the potential environmental impacts of an ASR project at the Southridge site.

Task 2 – Test Well Construction – This includes drilling, sampling, constructing and developing a test well to assess the physical characteristics of the basalt aquifer system at the project site. Geochemical characterization of rock samples collected during drilling will assist in identifying the stratigraphy and evaluating the potential for rock/water interactions during ASR operations.

Task 3 – Aquifer Testing – This task will include construction of an observation well network and completion of a testing program to characterize aquifer hydraulics to support the projections of hydraulic response to ASR operations and storage capacity of the aquifer system. A groundwater sample collected during the testing program will assist in characterizing the native groundwater in the ASR target storage zone.

Task 4 – Technical Report – This report will summarize the work and findings for Phase Two pertaining to the ASR feasibility study. This report will include the results of the EAA and the AKART analysis which will rely on the groundwater quality samples collected in Task 3.

These tasks will be described in more detail below.

The test well for Phase Two is to be drilled at the Southridge site, located approximately 2-miles southwest of the City, adjacent to the Southridge High School (Figure 1).

3.1 Task 1 – Environmental Assessment and Analysis Report

The Environmental Assessment and Analysis (EAA) Report will be prepared in compliance with the requirements of WAC 173-157-150 (1) and (2), including a SEPA determination. The City of Kennewick will act as the lead agency for the SEPA determination. If the results indicate that there are no probable significant adverse impacts, a determination of non-significance (DNS) will be prepared. A draft EAA report will be submitted to Ecology for review and comment before preparation of the final report.

The Environmental Assessment will evaluate the potential for effects on the local hydrology that may occur as a result of ASR operations at the Southridge site, such as:

- Changes in groundwater levels and hydraulic gradients in the basalt aquifer system and overlying unconsolidated formations (relying on previous work as site-specific information will not be available to support this analysis);

- Changes in groundwater-surface water interaction (increased spring flow, discharge to streams, changes in wetlands, development of seeps/springs);
- Influence at any nearby contaminated sites (if present), and;
- Geotechnical effects – slope stability or changes in pore pressure.

3.2 Task 2 – Test Well Construction

The purpose of the test well is to identify a portion of the basalt formation beneath the project site that is likely to be able to serve as an ASR target storage zone. A test well designed to isolate that zone from overlying portions of the formation will be installed to complete hydraulic and water quality assessments to characterize this portion of the aquifer system to better evaluate the response to ASR operations. The primary attributes of a candidate ASR storage zone include:

- Sufficient permeability to a) recharge and recover at sufficiently high rates to utilize available water and have a capacity benefit to the City's supply system, and b) manage buildup and drawdown within a range that reduces the potential for lost water or impairment of nearby wells;
- Sufficiently good water quality that storage zone development will not limit the beneficial use of recovered water;
- Is sufficiently confined that there is limited potential for interaction with portions of the aquifer not intended for storage, surface water, and the surface;
- The storage zone is not excessively influenced by nearby withdrawals, and;
- The potential for geochemical reactions that negatively impact recovered water quality or downgradient water quality is limited.

The data collected through this evaluation of the test well will result in recommendations on whether (or how) to move forward with ASR pilot testing in Phase Three.

Test well depth is a critical unknown factor controlling the cost structure of Phase Two. The initial planning study for the Kennewick ASR project was published by Aspect (2005, referred to as the WRIA Study hereafter) examined existing information to evaluate the feasibility of an ASR project in the southern part of the City of Kennewick. The WRIA Study identified the Priest Rapids member of the Wanapum as the target ASR aquifer citing several factors including a relatively shallow depth, good quality ambient groundwater, and potentially large well capacities. However, it appears that the WRIA Study may have erred in the geological interpretation of the project area.

A re-interpreted geological cross section and well log data for the area were reviewed by WGS to estimate the materials and associated depths that may be encountered when installing the test well. Thicknesses from the West Richland Well #7 log were heavily favored over interpreted thicknesses from more local driller logs. A re-interpretation of basalt lithology is shown on Figure 2. This model shows that the zone coincident with the target depth range described in the WRIA Study is most likely the Umatilla member of the Saddle Mountains formation (Tsu)1. The revised conceptual stratigraphic model suggests that the Priest Rapids member of the Wanapum is a few hundred feet deeper. The WRIA Study predicted ASR performance based on hydraulic properties for the Wanapum that were evaluated at other locations, and presumably represent actual Wanapum parameters. However, the predicted response to ASR would apply to the deeper Priest Rapids basalts rather than the shallower Umatilla basalts. The Umatilla basalts in the area of the test appear to be much lower permeability than the Priest Rapids member of the Wanapum are likely to be. A comparison of Wanapum and Saddle Mountains aquifer transmissivity from the WRIA Study is provided in Table 1.

[1] This re-interpretation was identified by Ecology staff in Yakima based on correlations with XRF confirmed stratigraphy in offset wells.

At the location of the test well, it appears transmissivity is close to 30 ft^2/d in the Umatilla basalts. The WRIA Study utilized a transmissivity of 11,270 ft^2/d to predict ASR performance of the Priest Rapids. A more appropriate value for the Umatilla basalts would have been 824 ft^2/d, as shown for average regional transmissivity in the Saddle Mountains formation. Based on our review of local well logs, we conclude the WRIA Study has overestimated aquifer yield potential for the target depth range in the location of the proposed test well.

This issue was discussed by the ASR Project Team (Ecology, Kennewick, and Golder) during a February 28, 2009 planning meeting. This meeting resulted in agreement to evaluate conditions during drilling and make a decision to re-direct funding from later phases of the project if deeper drilling becomes necessary:

- If field observations made during drilling indicate a potential ASR target storage zone has been encountered in the upper 750 feet (approximate depth to top of Mabton Interbed) a recommendation for shallower well construction will be made.
- If field observations made during drilling indicate no potential ASR target storage zone has been encountered in the upper 750 feet (approximate depth to top of Mabton Interbed) test well drilling and construction will be halted until a proposal for drilling to a deeper target can be developed, approved, and funded.

However, more recent evaluation of nearby wells completed above the Mabton suggests that a successful well is unlikely above the Priest Rapids. The WRIA Study reported well data for the area that provides this direct observation of the types of yields produced. Table 2 lists several of these wells and the associated basalt formation based on the re-interpreted stratigraphy shown in Figure 2. These data tend to support the premise that a Umatilla ASR well will be more likely to produce only a few hundred gpm at best. Our review of specific well logs in the test well area indicates that a Umatilla well in this area probably will yield less than 50 gpm, and therefore will fall short of the project objectives. The Brinkley well that is located near the test well also indicates lower production potential from the Wanapum; 350 to 450 gpm. However, it may not fully penetrate the Priest Rapids member. The Willowbrook and Southgate wells indicate the potential for good yields from the Priest Rapids member.

An estimate of the anticipated well site lithology is provided in Table 3. This interpretation indicates the Priest Rapids member is likely to occur at about 1,025 ft bgs, and assumes a thickness of 200 ft. Based on this information, Golder is recommending a deeper test well than originally considered by Ecology. A drilling plan to penetrate to 1,100 to 1,200 ft bgs is more likely to result in a successful ASR test well than the 600 to 800 feet that was assumed in the project in the planning phase (no depth target is included in the final Grant Agreement). Because the funding targets in the Grant Agreement were based on the WRIA work, and presumably the shallower depth range, the cost of drilling to a depth of 1,100 feet will likely exceed the original drilling budget established by Ecology.

As part of the process to review and approve of this scope of work, Ecology and the City of Kennewick have elected to proceed with Phase Two of the project targeting a 1,200 foot completion depth with a well of sufficient diameter to allow ASR pilot testing should the project move forward to Phase 3. The remaining elements of the Phase Two test well construction scope are described below.

3.2.1 Subcontractor Selection

A drilling subcontractor licensed and bonded in Washington State will be selected to conduct the drilling and testing of this test well. The Golder team will follow the City's standard procurement procedures and/or applicable state law in awarding the drilling contracts, and Ecology's Administrative Requirements for Recipients of Grants and Loans (Publication No. 91-18). The Golder team will develop a recommendation for selecting the best drilling subcontractor considering:

- Cost;
- The conformity with the specifications, schedule and bid request;
- The ability, equipment, capacity or skill to perform the work;
- The reputation and experience and efficiency of the respondent;

- The quality of performance on previous contracts;
- Compliance history with regulatory requirements, and;
- Servicing resources, capability and capacity (schedule);

3.2.1.1 Contract Documents for Test Well Construction

The Contract Documents will utilize contractual terms and forms consistent with City of Kennewick public works projects including bid, performance and payment bonds. Technical specifications and drawings (pre-design) will be prepared to detail drilling contractor work. Project bidding will be based on unit rates and estimated quantities for individual items, such as mobilization/demobilization, borehole drilling, casing and cementing, well development, and aquifer testing. The Golder team will make all bid documents or proposals available to the Ecology Project Officer. Unless requested, we do not anticipate requesting formal written approval from Ecology before soliciting bids as the solicitation will be based on this approved scope of work.

3.2.1.2 Bidding Process

A public bidding process will be conducted to solicit contractor bids and select a contractor. Bid advertisements will be published on three consecutive weeks, with the bid opening at the end of the fourth week. A pre-bid meeting will be held to discuss the project one week prior to the bid opening. Addenda will be issued as needed during the bidding time period and clarification will be provided for questions by prospective bidders. The bid opening will be conducted at the City of Kennewick. Contract award, execution and notice to proceed shall follow. A written summary of the bids, evaluation, and recommendation for selection will be submitted to the Project Officer for written approval before making the contractor selection.

3.2.2 Proposed Well Construction

The test well will be constructed according to Chapter 18.104 RCW and companion rules Chapter 173-160 and 162 WAC. A copy of the preliminary permit will be included in the Contract Documents and maintained on-site during well construction work. Two submittals will be made to the Department of Ecology (DOE) by the Drilling Contractor, as follows:

- At least 72-hours prior to when drilling commences, a Notice of Intent will be filed with DOE, as per 173-160-151 WAC. This submittal requirement will be incorporated into the Contract Documents for the Drilling Contractor. The Engineer and City will be copied on the executed Notice of Intent prior to commencement of drilling.
- Upon completion of the test well, the Drilling Contractor will submit a well construction report to DOE compliant with 173-160-141 WAC. This well log will include the unique tag ID of the test well. This submittal will be a requirement of the Contract Documents for the test well, with copies provided to the Engineer and City.

Because the stratigraphic, hydraulic, and geochemical information gathered in Phase Two is the underpinning of the decision to proceed with ASR testing, there will be a discussion with the ASR Project Team to select the best balance between drilling depth and water quality and geochemical sampling that meets the overall project objectives considering the project budget.

A preliminary well construction diagram illustrating anticipated depths, diameter, seal, and casing will be prepared and submitted to Ecology for review prior to the bidding process.

If cumulative yield and water quality observed above the Mabton Interbed appear capable of supporting an ASR well at rates sufficient to meet the needs of this project, then a recommendation for completing the well above the Mabton will be developed and the project will advance as originally conceived. If the Umatilla basalts (or otherwise the deepest basalts above the Mabton) are determined to be unsatisfactory for an ASR target storage zone, drilling will continue to deepen the well and complete it in a suitable zone in the Priest Rapids member (assuming that funding for this depth of well has been secured). Once drilling has penetrated the dense basalt of the Priest Rapids member, casing will be set and cemented to

surface. This casing-setting depth may occur from about 5- to 30-feet into the Priest Rapids basalts. Once cement has cured, open-hole drilling will continue to total depth, estimated at about 200 feet into the Priest Rapids member, and currently estimated to be between 1,000 and 1,200 feet below ground surface.

During drilling, borehole cuttings shall be collected and examined by XRF analysis on a rush basis, making the results available on the day following sample submittal. These data shall be used to verify the Saddle Mountains stratigraphy, and confirm position in section. Additional XRF samples shall be submitted for the Wanapum basalts below the Mabton, but processing shall be according to the standard laboratory turn around. If confirmation of the Roza member is uncertain by field examination of the cuttings (i.e. identification of plagioclase phenocrysts), a rush-basis XRF sample may be submitted.

3.2.3 Drilling and Sampling

The location for the test well has been selected by the City based on a previous ASR assessment of the Southridge area, and the benefit of adding new supply capacity in this portion of the City's distribution system. The following sections describe the drilling method, formation sampling, flow monitoring, well construction, and development.

3.2.3.1 Drilling Method

Golder recommends that the test well be drilled using air-rotary methods in an open borehole. This scope of work assumes that formation-stabilizing casing and screen below the casing will not be required. The use of air prevents impact to formation permeability and enables air-lift testing while drilling proceeds. Air-lift testing will be used to assess the incremental increase (or decrease) in water production from the well as the borehole is advanced. Physical characteristics of produced water will be measured in the field, and headspace samples will be evaluated for the potential for hydrogen sulfide and methane to be present. Drilling fluids, including foam, will be confined to the well site, except that silt-free water may be allowed to runoff site without damage to property or contamination of water or soil. Additives used during drilling will be NSF 60 compliant for potable water wells. Penetration rate, fracture zones, changes in drilling rate/conditions, changes in head, and air-lift rate measurements will all be carefully logged.

3.2.3.2 Formation Sampling

During drilling, cuttings will be collected at 5-foot intervals. Samples will be stored in spun-bound drawstring sampling bags with indestructible mildew resistant labels. The depth, date, and time of sampling will be recorded on each bag. XRF analyses will be performed on a rush basis and the data will be evaluated by plotting adjacent to correlation data for the basalts. Cutting samples will be rinsed, dried, and archived to plastic vials. Each sample will be subject to detailed geological classification in an on-site laboratory, including a 6X to 40X polarizing stereomicroscope. Data will be entered into a logging program developed by Western Groundwater Services on-site. Samples collected for XRF analysis will be selected from the interior of basalt flows, washed, dried, sieved (sieving is done to remove material sloughed from above), and examined to remove contaminants, such as altered chips and sedimentary grains.

The examination for contaminants is done on-site in a portable lab, and uses a 6X-40X stereomicroscope. This procedure will be performed twice on each XRF sample before it is packaged and shipped. Additional samples will be collected from interflows in the target storage zone and submitted for chemical analysis of both whole rock chemistry and secondary mineralization that may affect stored water quality.

3.2.3.3 Water Quality Monitoring

Water samples from the air-lift discharge stream will be collected at the end of each day or when changes in lithology, fracturing, water level, or air-lift yield are noted. The physical characteristics of the samples measured in the field will include pH, electrical conductivity and temperature. Measurements will be made on-site using a calibrated instrument. Odor will be taken as an observation. Dissolved oxygen will not be measured as it is not representative of groundwater after air-lifting.

Evaluating the presence of either dissolved or free gases is problematic when using air-rotary drilling methods. The potential for encountering both methane and hydrogen sulfide exists in the project area.

Collected water samples will be stored in a sealed glass container and head-space will be monitored for both hydrogen sulfide and methane.

3.2.3.4 Flow Monitoring

Air-lift pumping measurements will be made using a graduated tank of approximately 500 to 1,000 gallons. Air-lift production rates will be measured with the drill tools set at the probable pump setting in the well. The rate of pumping will be calculated by recording volume and time.

3.2.3.5 Construction

Well construction will be in accordance with WAC 173-160. We anticipate open borehole construction below the surface casing, though field observations will be used to assess the necessity of a liner casing and screen. The actual open interval depends on the depth and thickness of the formation. The field team will keep Ecology appraised of subsurface conditions and well construction approach as the project proceeds. Well casing will be plain-end for welding or threaded and coupled. Centralizers will be located at one per 40 feet of casing. Cement grout used to seal the casing will be emplaced by positive displacement, and will consist of neat cement.

3.2.3.6 Development

Well development consisting of surging, air-lifting, and pumping will be completed prior to the aquifer testing program to ensure good hydraulic connection with the water bearing zone(s) and representative pumping test results.

3.2.3.7 Abandonment

Technical specifications will include a provision for well abandonment as per state well construction regulations.

3.2.4 Task 3 – Aquifer Testing

After the test well has been constructed and developed, pumping tests will be completed to evaluate well and aquifer performance. The testing will be designed to provide the information required by WAC 173-157-110, and allow for an assessment of hydraulic response to ASR operations. The pumping tests will be conducted in four stages; a step-rate test, baseline monitoring, constant rate testing, and recovery monitoring. The anticipated constant-rate pumping period is 72-hours. An observation network of available nearby wells will be established to monitor the aquifer's hydraulic response in the vicinity of the test well. Wells completed to similar depths will be prioritized, though shallower wells will also be targeted to evaluate the potential for vertical leakage from overlying aquifers.

The objectives of the testing program include:

- Collecting the hydrogeologic data and information required to fulfill the requirements of WAC 173-157-110 to ensure the preliminary reservoir permit application that was submitted to Ecology as part of Phase 1 can be finalized;
- Characterizing the aquifer hydraulic properties in the target ASR storage zone, such as transmissivity, storativity (if possible), vertical permeability (leakage), and the presence of any boundary conditions;
- Characterizing the ambient groundwater and source water quality, including regulated contaminants (WAC 173-200 and WAC 246-290) and additional analyses to support evaluation of geochemical compatibility between the source water, ambient groundwater, and the rock matrix;
- Collecting physical parameters such as pH, electrical conductivity, temperature, dissolved oxygen, ORP, and turbidity, during the test;
- Using the hydraulic response to evaluate the expected performance of an ASR well and the potential response to ASR operations in the storage zone, and update the impact

analysis, if necessary. This information will be used to develop preliminary design estimates for recharge and pumping rates and aquifer storage volume capacity.

The pumping test will follow procedures guidance outlined by the Washington State Department of Health and Golder Technical Procedures (See QAPP, Appendix A). The aquifer pumping test will be conducted in four stages; baseline monitoring, step-rate testing, constant-rate testing, and recovery monitoring. Prior to constant-rate pumping, baseline monitoring of groundwater levels will be conducted for 3 to 7 days to document pre-test groundwater level trends that may affect the analysis and interpretation of the test results. The constant-rate pumping test will be 72-hours and groundwater levels will be monitored at a high frequency using pressure transducers and manual measurements. Groundwater samples will be collected during (at approximately 36-hours) and at the end of the pumping phase to ensure representative samples of the background water quality. Recovery monitoring of groundwater levels will be for a duration equivalent to the pumping period to characterize the aquifer's return to static/ambient conditions. Testing data will be collected per the Preliminary Permit and QAPP.

Prior to conducting the test, an observation network of nearby wells will be established to monitor the aquifer's hydraulic response in the vicinity of the test well. The observation network will consist of available/accessible domestic, irrigation, or municipal wells. Hydraulic response in the observation network will be used to evaluate regional hydraulic properties, aquifer boundary conditions such as impermeable fault boundaries that could affect hydraulic impacts or aquifer storage capacity, the potential radius of influence of the test, anisotropy, far-field transmissivity, and storativity. Potential observation wells will be selected on the basis of depth and/or apparent formation target. This work will be completed as part of Phase Two near the end of the drilling program once well depth and stratigraphy are better understood.

The following describes in more detail the phases, equipment, and field activities of the testing program:

- **Baseline Monitoring** – Water-levels in the test well and surrounding available monitoring wells within the determined radius of interest (see third bullet) will be monitored for 3 to 7 days prior to commencing the test to establish water level trends (barometric pressure response, earth tides, water level changes in response to water use practices, etc.) that may influence analysis of the test results.
- **Step-Rate Testing** – Once the test pump is installed, a step-rate test will be completed to evaluate well performance and develop a rate target for the constant rate test. Rates and durations will depend on actual conditions, though a typical test would consist of 1-hour steps targeting 25%, 50%, 75%, and 100% of the well/pump capacity. Recovery monitoring will follow.
- **Constant Rate Pumping Test and Duration** – For the purpose of evaluating test duration and potential response, a distance-drawdown analysis utilizing a spreadsheet solution to the Cooper-Jacob Equation (1946) was completed to predict theoretical drawdown at distances to evaluate an appropriate distance from the test well to evaluate candidates for the observation well network. The following input parameters were used as the basis for this evaluation:

  - Transmissivity = 80,000 gpd/ft;
  - Storage Coefficient = $5x10^{-4}$; and
  - Pumping Rate = 400 gpm.

  This evaluation suggests that a 72-hour aquifer test would likely generate approximately 1-foot of drawdown approximately 5,000-feet from the test well. Consequently, our efforts to develop an observation network of existing wells will focus on wells located up to 1.5 miles from the test well site. Based on the results of the step test, a sustainable pumping rate will be selected for a 72-hour constant-rate aquifer test. The pumping rate during the test will be measured with an instantaneous and totalizing flow meter and an orifice weir/manometer assembly for verification. Pumping rates will be recorded with high frequency.

- **Water-Level Monitoring** – Water levels in the test well and monitoring wells will be monitored during the baseline, pumping, and recovery periods using a combination of automated submersible pressure transducers and manual electric water level sensors. The transducers will be synchronized in both time and measurement frequency to assure concurrent measurements within the observation well network. Additionally, manual water level measurements will be made regularly at the wells using a standardized electric tape to the nearest 0.01 foot to provide data redundancy and verification of transducer measurements. Barometric pressure will be recorded in close proximity of the test well to correct water levels trends if necessary.
- **Water Quality Sampling and Monitoring** – Groundwater samples will be collected to characterize groundwater quality during (at approximately 36-hours) and near the end of the constant-rate pumping test. A source water characterization sample will be collected from a location as close to the project site as practical will be collected for analysis and submitted along with the groundwater sample. Groundwater and source water samples will be collected and analyzed according to the QAPP (Appendix A). The subcontracted laboratory will provide the sampling bottles and container chests to be sent for analysis. The water quality samples will be submitted to a laboratory for analysis of regulated constituents (WAC 173-200 and WAC 246-290), geochemical characterization analytes, and other constituents of interest as described in the QAPP.
- **Recovery Monitoring** – Recovering water-levels will be monitored for the same duration as the pumping phase (expected 72 hours).
- **Water Management** – The City will pursue an agreement with the Kennewick Irrigation District (KID) to manage water produced during testing, and possibly drilling. It may be possible to use the system to convey water to the Amon wasteway outside the irrigation season to ensure that there is no beneficial use of the discharge water. If this is not possible or the water is to be used for irrigation, a temporary water right permit will be requested. ,

3.3 Task 4 – Technical Report

Golder will prepare a technical report describing:

1. The Environmental Assessment and Analysis Report;
2. The drilling and construction of the test well;
3. The pumping tests and water quality sampling;
4. Geochemical compatibility modeling of rock-water and water-water interactions
5. Hydrogeologic conceptual model
6. AKART analysis for evaluating compliance with water quality standards
7. Evaluation of storage alternatives
8. An updated assessment of the response to ASR operations.

The report will reference previous work and provide new information to address specific requirements of the hydrogeologic conceptual model described in WAC 173-157-120. The report will include an analysis of storage alternatives as described under RCW 90.90.010, including: water uses to be served by the facility, alternative means of supplying water to meet the intended water uses served by the facility, the costs of the identified alternatives, and an analysis of the extent to which long-term water supply needs can be met using these alternatives. The draft technical report will be submitted for Ecology review, and the final report will be prepared after addressing all comments received from Ecology. A report outline is included as Attachment B.

Three elements of the analysis and reporting that warrant addition description in this scope of work are:

1. Pumping Test Analysis;
2. Geochemical Compatibility Modeling; and
3. AKART Analysis.

These are described in more detail below.

3.3.1 Pumping Test Analysis

Hydraulic response to testing will be evaluated to characterize aquifer hydraulic conditions of the target storage zone (transmissivity, storativity (if possible), vertical permeability (leakage), extent, and boundary conditions). Golder will apply a unique approach to analyzing hydraulic test information with an internally-developed software package called Hydrobench. The program allows the interpretation of pumping and recovery data with complex boundary conditions or significant near-well effects (skin and/or reduced transmissivity radial zones). In addition to type-curve (Theis, 1935) and straight-line (Cooper and Jacob, 1946) analyses of aquifer systems, HydroBench helps provide key insight for the geometry of groundwater flow from single interval and hydraulic interference tests, using a multi-shell generalized radial flow system simulation. In addition, the derivative analysis incorporated in the program allows definition of fractional dimension and possible boundary controls. The results generated from HydroBench will provide useful information for understanding the overall conceptual design of the aquifer system.

3.3.2 Geochemical Compatibility Modeling

The geochemical compatibility modeling will be completed on the basis of the groundwater samples, one source water characterization sample, and laboratory analysis of cuttings samples collected during drilling. The laboratory analytical results will be used to characterize the major ion chemistry of the water, and results will be provided in both tabular and graphical formats (Stiff and Piper trilinear diagrams).

The geochemical compatibility of the source water, groundwater, and aquifer matrix has the potential to affect the recovered water quality and groundwater quality in the vicinity of the storage zone. Groundwater quality has been demonstrated to be variable in the project area through assessments at the Willowbrook well and previous work. The presence of methane and hydrogen sulfide at the Willowbrook well signifies strong reducing (anoxic) conditions in the basalt aquifer at this location/depth. The geochemical modeling work that Golder completed for that project indicated that the ambient methane and hydrogen sulfide would be attenuated by the recharge of oxygenated water from the City's distribution system, which would cause a decline in pH and an increase in sulfate concentration of the stored/recovered water. This reaction, among others, will be evaluated as part of this scope of work.

Rock chemistry will be evaluated from cuttings collected from the target storage zone to assess the potential for rock-water interactions that could influence recovered and downgradient water quality. The Wanapum Basalt aquifer contains minor amounts (about 0.1 percent) of reduced minerals such as pyrite (iron sulfide), so some potential for oxygenated recharge water to oxidize the pyrite (resulting in a decrease in pH and an increase in groundwater iron and sulfate concentrations) exists. This creates the additional possibility of iron precipitating as an iron oxyhydroxide (ferrihydrite), though typically insufficient mass of iron is available for this reaction to cause clogging. The potential for and kinetics of this reaction will be a focus of this assessment.

3.3.2.1 Thermodynamic Equilibrium Modeling

During recharge of the ASR system, injected source water will locally displace naturally-occurring groundwater in the basalt aquifer. As the source water is injected, advection and dispersion will be the dominant processes dictating the mixing of groundwater and source water. Due to their different characteristics, geochemical reactions (e.g., mineral dissolution/precipitation, adsorption/desorption) may occur when groundwater and recharge water mix. Mineral precipitation is of paramount interest, as this

can result in clogging of the aquifer and well screens, resulting in reduced well performance and yield. The potential for such reactions will be investigated using PHREEQC Version 2.8 (Parkhurst and Appelo, 1999). The oxidation of pyrite minerals within the basalt could lead to precipitation of minerals and will be assessed if pyrite minerals are present in the basalt matrix. In addition, the potential release of arsenic into the groundwater system from dissolved pyrite minerals will be evaluated. The effect of ion exchange onto charged mineral phases, such as clays, will also be evaluated.

PHREEQC is an equilibrium mass transfer code developed by the United States Geological Survey that is widely accepted by the regulatory and scientific community. PHREEQC will be used to calculate the aqueous speciation and stability of minerals with respect to dissolved constituents following mixing. The potential for mineral precipitation was assessed using the saturation index (SI) calculated according to Equation 1.

$$SI = \log \frac{IAP}{K_{sp}} \qquad (1)$$

The saturation index is the ratio of the ion activity product (IAP) of a mineral and the solubility product (Ksp). An SI greater than zero indicates that the water is supersaturated with respect to a particular mineral phase, and therefore mineral precipitation may occur. An evaluation of precipitation kinetics is then required to evaluate the likelihood that a supersaturated mineral will actually form. An SI less than zero denotes undersaturation, and that the mineral in question will have a general propensity to dissolve. Mineral stability will be evaluated for a limited number of geochemically-credible phases that are known to precipitate/dissolve relatively easy under the conditions present in the aquifer system.

Mixing simulation conditions for the modeling will range from pure groundwater to pure recharge water (source water). The greatest mixing of recharge water and groundwater is expected to occur during the early stages of injection when recharge water displaces groundwater. As injected water occupies a greater aquifer volume around the well, interaction of recharge and groundwater will likely be limited to the periphery of the recharge water under quasi-steady state conditions. Charge balance calculations will be performed to assess the accuracy of the analytical results for the source water and groundwater. A charge balance error less than 5% is generally considered indicative of a reliable and comprehensive water quality analysis (Hounslow, 1995). Three sets of mixing simulations will be conducted:

1. Direct mixing of source water and groundwater without taking into account the cation exchange capacity (CEC) of the aquifer.

2. Simulations in which the elevated CEC of a weathered/fractured basalt sample will be incorporated.

3. Simulations in which the CEC of a "fresh" basalt sample is used.

After each mixing step, the mixed solution will be equilibrated with the exchange sites (as defined by CEC) in the aquifer material, as simulated in the first step of modeling.

The potential for oxidation of pyrite minerals within the basalt aquifer matrix will be assessed if pyrite minerals are present in the rock samples. The potential release of arsenic into the groundwater system from dissolved pyrite minerals will also be evaluated. This modeling work will contribute a projection of recovered water quality to support the AKART analysis described below.

3.3.3 AKART Analysis

The project will be required to comply with water quality standards, both for drinking water and groundwater protection standards. The two sets of water quality standards are:

1. 173-200 WAC Water Quality Standards for Ground Waters of the State of Washington as administered by the Department of Ecology, and;

2. Drinking Water Standards enforced by the Department of Health (DOH) Office of Drinking Water (ODW) (WAC 246-290). Washington has an agreement with the United States Environmental Protection Agency (USEPA) to ensure that the requirements of the Federal Safe Drinking Water Act (SDWA) are met. In addition to the federal SDWA laws, the authority for the activities of the Office of Drinking Water comes from several Washington State statutes:
   - RCW 43.20.50 - SBOH authority to adopt rules protecting public water supplies
   - RCW 43.70.250 - DOH authority to charge fees for services
   - Chapter 43.70 RCW - Overall encompassing authority to protect public health and safety
   - Chapter 70.119A RCW - Washington's Safe Drinking Water Act
   - Chapter 70.119 RCW - Water Works Operator Certification
   - Chapter 70.116 RCW - Public Water System Coordination Act
   - Chapter 70.142 RCW - DOH authority to set standards for Organic chemicals

It is possible for an ASR project to meet all drinking water standards for delivered and recovered water quality, yet be in violation of groundwater protection criteria and/or the State's anti-degradation policy. To address this issue, an engineering and economic analysis known as AKART (All Known, Available, and Reasonable methods of prevention, control and Treatment) will be performed. For each pollutant, or similar groups of potential pollutants such as disinfection byproducts (DBPs) or arsenic, Ecology is requesting that the City evaluate available treatment technologies, the degree of pollutant reduction provided by each treatment alternative, and the capital and operating expenses of each treatment technology. In addition to the evaluation of the effectiveness of engineering controls to achieve compliance, this analysis will include an assessment of subsurface attenuation and compliance monitoring strategies that are allowable within the regulatory framework

The analysis will identify and evaluate water treatment alternatives available to meet applicable water quality standards. This analysis will be based on existing and available treatability data and also will consider other provisions within WAC 173- 200 for achieving compliance including public interest and establishing appropriate enforcement limits and point of compliance, as defined under WAC 173-200-050 and -060, respectively. The AKART analysis will incorporate the following elements:

- A Description of Water Quality Characteristics:
  - Background groundwater water quality at the test well, and;
  - Source water quality from the City's distribution system, to be measured as close to the ASR project site as possible.
- Water Quality Evaluation:
  - Compare projected source water quality to drinking water standards (WAC 246-290);
  - Compare project source water quality to ground water standards (WAC 173-200-040);
  - Identify any data gaps;
  - Evaluate the comparability of WTP and distal system water quality samples.
  - Evaluate existing water quality information from City records and assess whether seasonal variability (during the anticipated recharge season) will require additional source water characterization, and;
  - Identify any constituents that exceed background groundwater water quality.
- Geochemical Compatibility Analysis:

- Evaluate the potential for water-water and rock-water interactions;
- Estimate recovered water quality and compare that to drinking water standards;
- Assess potential for downgradient changes in water quality;
- Identify any changes in background or groundwater criteria exceedances, and;
- Assess time-dependency/persistence of concentrations.

■ Evaluate Treatment Methods/Technologies:

- Identify and evaluate treatment methods/technologies to remove constituents that exceed background groundwater quality prior to recharge. This evaluation will be based on treatment methods/technologies that will be identified as viable options for the Kennewick ASR project. This evaluation will focus on wellhead treatment system(s) options rather than changes to the City's Water Treatment Plant operations;
- Estimate the degree of contaminant reduction provided by each viable treatment method/technology option, and;
- Identify the viable options that could effectively reduce contaminant levels to acceptable levels.

■ Prepare Cost Estimates:

- Cost estimates to implement the viable option(s) for wellhead treatment. This evaluation will be based on the viable treatment methods/technologies that will be identified as described above. Cost estimates will include the following:
  - Capital costs
  - O&M
  - Observation wells and monitoring/sampling program

■ Identify Potential Receptors

A review of well logs will be completed to identify wells completed at depths/elevations similar to the test well, and evaluate whether they contain information that will allow an evaluation of groundwater gradient and flow direction in the target storage zone near the test well site. It is possible that nearby wells completed to similar depths will either be limited in number or will be too distant from the test well site to allow valid correlations. If no depth-specific information can be developed, the existing conceptual hydrogeologic model will be updated with test-derived hydraulic conductivity and thickness information to evaluate the likely storage zone radius, whether any wells exist within the storage zone, and which wells are likely to lay downgradient of the ASR test site. A brief analytical evaluation of mixing through dispersion, vertical continuity, and the potential for attenuation in the subsurface will be completed to assess whether downgradient wells are likely to experience analyte concentration increases above background as a result of ASR operations.

■ Compare Alternative Strategies to Treatment Methods/Technologies

- Evaluate other strategies/approaches for meeting water quality criteria and the State's antidegradation policy. Compare these alternatives to the treatment methods/technologies identified previously. This section will include a comparison of the following alternatives:
  - Pre-recharge treatment;
  - Public interest waiver, and;
  - Alternative point of compliance monitoring.

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- Develop a Recommendation for the Kennewick ASR Project to Comply with Water Quality Regulations
  - Develop a recommendation that identifies the preferred alternative from those identified and compared above. The recommendation will be based on a discussion of the balance of costs and risks.

4.0 SCHEDULE

The major components of the project and an estimated completion schedule are shown in the Gantt chart included as Attachment C. The major assumptions included in this schedule include:

1. A mitigation plan will not be required with the EAA.
2. Approval and authorization to construct test well from Ecology within two weeks of receiving EAA.
3. City will prepare bid documents and solicitation for the public bidding process to select a drilling contractor. Golder will provide supporting technical specifications.
4. Drilling contractor has an open schedule and can mobilize to the site when requested.
5. No more than one week is required for the ASR Project Team to make the decision to support a deeper drilling project with additional funding should that be required.
6. Water from the pumping test will be discharged to the KID ditch near the project site and no construction other than a discharge pipe will be required.
7. The observation network will be developed after authorization to construct the test well is granted.
8. Baseline water level monitoring will take place for one week following the construction of the test well. The pumping test will then proceed.
9. Water quality samples will be analyzed within 30 days of receipt by the laboratory. Sampling and shipping will be coordinated to ensure analyses occur within specified holding times.

5.0 COST ESTIMATE

A detailed cost estimate will be prepared to complete a final and approved scope of work as the first task in Phase Two. The Golder team will develop a cost estimate for engineering and oversight services, laboratory services, and drilling and testing services. The resulting budget will be reviewed with the ASR Project Team and any necessary adjustments to the Phase Two scope of work will be made at that time.

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6.0 REFERENCES

Aspect Consulting, LLC [Aspect]. 2005. Aquifer Storage and Recovery Assessment, City of Kennewick, WRIA 31 Supplemental Water Storage Project, Project funded through Ecology Grant No. G0500011, Washington.

Boyd, G.R., B. Hoyt and K. Trotman. 1997. Water quality aspects of full-scale aquifer storage recovery at Seattle Highline well field, *Conference Proceedings of Water Resources Management: Preparing for the 21st Century*, American Water Works Association, Seattle, WA, Aug 10-13, pages 49-57.

Boyd, G.R., K. Trotman and B. Hoyt. 1995. Water quality impacts of aquifer storage and recovery at Seattle Highline Wellfield, *American Water Works Association*

Cooper, H.H., Jr. and C.E. Jacob. 1946. A generalized graphical method for evaluating formation constants and summarizing well-field history. Trans. Amer. Geophys. Union, Vol. 27, pp. 526-534.

Golder Associates Inc. 2001. Report to City of Kennewick on Hydrogeologic Feasibility for Aquifer Storage and Recovery at the Willowbrook Well. November 19, 2001.

Golder Associates Inc., 2009. City of Kennewick ASR Feasibility Study Technical Memorandum: Project Description. Supporting Information for the Reservoir Permit Application and preliminary permit. March, 2009.

Hounslow, A.W., 1995. *Water Quality Data Analysis and Interpretation.* Lewis Publishers, Boca Raton, FL.

Parkhurst, D.L., and C.A.J. Appelo, 1999. *User's Guide to PHREEQC (Version 2) - A Computer Program for Speciation, Batch-Reaction, One-Dimensional Transport, and Inverse Geochemical Calculations*, U.S. Geological Survey Water-Resources Investigations Report 99-4259, Denver, CO.

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, Trans. Amer. Geophys. Union, Vol. 16, pp. 519-524.

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Attachments or Enclosures:

TABLES

Table 1 – Aquifer Transmissivtiy

Table 2 – Selected Local Well Data

Table 3 – Estimated Drilling Formation Data

FIGURES

Figure 1 – Test Well Site Location Map

Figure 2 – Revised stratigraphic section of the ASR target area (modified from Aspect, 2005).

ATTACHMENTS

Attachment A – Quality Assurance Project Plan (QAPP)

Attachment B – Phase Two Technical Report outline

Attachment C – Phase Two Schedule

DRAFT

TABLES

FIGURES

ATTACHMENTS

Attachment A

Quality Assurance Project Plan

(Pending)

Attachment B

Phase Two Report Outline

EXECUTIVE SUMMARY
1.0 INTRODUCTION
2.0 HYDROGEOLOGIC SETTING
- 2.1 Geology
- 2.2 Hydrology
- 2.3 Hydrogeology

3.0 DRILLING AND WELL CONSTRUCTION
- 3.1 Drilling
- 3.2 Well Design, development, alignment, survey, disinfection
- 3.3 Lithology
  - 3.3.1 Cuttings Sampling
  - 3.3.2 Cuttings Analysis (field and XRF results)
  - 3.3.3 Stratigraphic Interpretation

4.0 AQUIFER/PUMPING TESTS
- 4.1 Observation Network
- 4.2 Step Rate Test
- 4.3 Baseline Monitoring
- 4.4 Hydraulic Response to Pumping
- 4.5 Recovery Monitoring
- 4.6 Type Curve Analysis
- 4.7 Derivative Analysis
- 4.8 Well Efficiency and Capacity

5.0 HYDRAULIC EVALUATION OF ASR
- 5.1 Radius of Influence
- 5.2 Storage Capacity
- 5.3 Projected Response to ASR
- 5.4 Downgradient Wells

6.0 WATER QUALITY ANALYSIS
- 6.1 Field Measurements
- 6.2 Laboratory Analytical Results
  - 6.2.1 Groundwater
  - 6.2.2 Surface Water
- 6.3 Geochemical Compatibility Modeling
  - 6.3.1 Source Water/Groundwater Mixing
  - 6.3.2 Water-Rock Interactions
- 6.4 Discussion

7.0 AKART ANALYSIS
8.0 SUMMARY AND CONCLUSIONS
9.0 RECOMMENDATIONS
10.0 REFERENCES

Attachment C

Phase Two Schedule

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
303 S Mission St, Ste 200 • Wenatchee, WA 98801-6142 • (509) 662-0500

June 2, 2009

Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336

RE: Water Right Application No. R4-35237

Dear Mr. Beauchene:

We received your water right application and have assigned it the number above. Please include this number in all future contact with us; it will help us serve you more quickly.

Your next step is to publish a legal notice. The notice announces your proposed water use to the public and allows interested persons to comment. We have prepared and enclosed this notice for you.

Review Legal Notice Carefully
It is your responsibility to check the notice carefully before having it published. If you find an error, please contact this office for resolution. If we later find an error in your public notice, you may be required to publish an amended notice at your expense.

Publishing Legal Notice
You need to arrange and pay for publishing the legal notice in a newspaper in Benton County.

- Publish the notice in a paper from the enclosed list.
- Select a newspaper with general circulation in the area the water will be used and diverted.
- Ensure that the notice appears once a week for two consecutive weeks.

If your published notice does not meet the above criteria, you will be required to have the notice republished at your expense.

Publication should start within 30 days from the date of this letter.

FILE COF

Next Step
You must request an *Affidavit of Publication* from the newspaper in which your notice appeared. The affidavit must be an original, notarized copy of your published notice. Please forward it to our office, as soon as possible.

If you have any questions, please contact Teresa Mitchell at 509-575-2597.

Sincerely,

Taylor Horne
Office of Columbia River Program

TH:cmr (090601)

Enclosures: Legal Notice
Newspaper list

cc: Phil Brown, Golder Associates (w/enclosures)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
YAKIMA, WASHINGTON

NOTICE OF APPLICATION TO STORE PUBLIC WATERS FOR BENEFICIAL USE

TAKE NOTICE:

That CITY OF KENNEWICK of Kennewick, Washington, on May 15, 2009, under Reservoir Application No. R4-35237 applied to store public waters underground for beneficial use as part of an aquifer storage and recovery project diverted from the Columbia River under Surface Water Permit No. S4-30976P , subject to existing rights, in the amount of 900 gallons per minute, 714 acre-feet per year, for the purpose of municipal supply.

That the approximate location of the proposed storage well is within SE1/4 of Section 17, Township 8 N., R. 29 E.W.M., Benton County, Washington.

Protests or objections to approval of this application must include a detailed statement of the basis for objections. All letters of protest will become public record. Cash shall not be accepted. Fees must be paid by check or money order and are nonrefundable. Protests must be accompanied by a $50 recording fee payable to the Department of Ecology, Cashiering Unit, PO Box 47611, Olympia WA 98504-7611, within 30 days from:

(last date of publication to be entered above by the publisher)

LIST OF WEEKLY & DAILY NEWSPAPERS BY COUNTY IN STATE OF WASHINGTON FOR THE FOLLOWING COUNTIES: BENTON, CHELAN, DOUGLAS, KITTITAS, KLICKITAT, OKANOGAN, YAKIMA

BENTON COUNTY

Prosser Record Bulletin (w)	PO Box 750 Prosser, 99350	509-786-1711 ads@recordbulletin.com
Tri-City Herald (d)	PO Box 2608 Tri-Cities, 99302	509-585-7214 legals@tricityherald.com

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CHELAN COUNTY

Cashmere Valley Record (w)	PO Box N Cashmere, 98815	509-782-3781 classifieds@leavenworthecho.com
Lake Chelan Mirror (w)	PO Box 249 Chelan, 98816	509-682-2213 classifieds@leavenworthecho.com
Leavenworth Echo (w)	PO Box 39 Leavenworth, 98826	509-548-5286 classifieds@leavenworthecho.com
Wenatchee World (d)	PO Box 1511 Wenatchee, 98801	509-661-6373 legals@wenworld.com

---

DOUGLAS COUNTY

Douglas County Empire Press (w)	832 Valley Mall Parkway East Wenatchee, 98802	509-886-8668 weekly@empire-press.com
Waterville Empire Press (w)	832 Valley Mall Parkway East Wenatchee, 98802	509-886-8668 weekly@empire-press.com

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KITTITAS COUNTY

Northern Kittitas County Tribune (w)	PO Box 308 Cle Elum, 98922	509-674-2511 tribune@nkctribune.com
Ellensburg Daily Record (d)	401 North Main Ellensburg, 98926	509-925-1414 legals@kvnews.com

---

Rauert, Colleen M. (ECY)

From: Rauert, Colleen M. (ECY)
Sent: Tuesday, May 19, 2009 8:15 AM
To: Gutierrez, Erin (ECY)
Cc: Heironimus, Glenda (ECY)
Subject: RE: Water right monies received in today's mail

Hi Erin,

Thanks for FYI. Is there something we need to do next when fees have been received?

From: Gutierrez, Erin (ECY)
Sent: Friday, May 15, 2009 1:16 PM
To: Rauert, Colleen M. (ECY)
Cc: Hicks, Jane (ECY); Anderson, Sandra K. (ECY)
Subject: FW: Water right monies received in today's mail

Hi Colleen,

Looks like the additional requested fees (I'm assuming this is your doing ;) have been received at fiscal.
Hard copies should be arriving in a few days.

Thanks JANE!

Erin Gutierrez
Central Region – Yakima office
Water Resources Program
509.454.7206

From: Hicks, Jane (ECY)
Sent: Friday, May 15, 2009 12:35 PM
To: Gutierrez, Erin (ECY); Anderson, Sandra K. (ECY)
Subject: Water right monies received in today's mail

Good Morning,

Attached is a copy of a receipt we processed this morning for monies we received for a water right. To cut down on postage fee's, I am scanning it over to you since there is very little backup included with the payment. I will campus mail the original receipt and envelope to you. If you still want me to Fed Ex the receipt over to you, please let me know before 1pm today so it will go in today's mail.

RECEIPT

Department of Ecology (4610)
PO Box 47611
Olympia, WA 98504-7611
(360) 407-7095

Receipt Number **09CJ020517**
Manual Receipt

Document Number **461P1872 CJ** Date **05/18/2009** FM **23**

Remitter Name **KENNEWICK CITY** Receipt Name

Check/Draw Number **91803**

Document Amount **1,428.00**

Method of Payment **Check**

Comment Description **WATER RIGHT R4-35237**

REF DOC NR	REF DOC SFX	INV NR	ID NR	SUB ID NR	T C	R	FUND	MAJ GRP	MAG SRC	SUB SRC	CNTY	WORK CLS	PIC	AI	ORG	PRJ	SUB PRJ	PRJ PHS	SUB OBJ	SUB SUB OBJ	VAR GL	SUB DR	SID	SUB SID CR	ALLOC AMT
					001		001	02	85	000011															1,428.00

Detach and return this portion with your payment.

PLEASE SEND CHECK OR MONEY ORDER PAYABLE TO: **(DO NOT SEND CASH)**

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Amount Due: $1,428.00

Water Right No(s): R4-35237

Water Resources Program, Central Regional Office

FROM: Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336
(509) 585-4289

FOR ECOLOGY USE ONLY:

Amount rcvd: $_____ Check No.: _____

RECEIVED
MAY 18 2009
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

'09 MAY 15 A8:44
DEPT. OF ECOLOGY
FISCAL & BUDGET
001 WR1 0285 000011

ECY 070-259

WATER RIGHT FEE INVOICE

Detach and return this portion with your payment.

PLEASE SEND CHECK OR MONEY ORDER PAYABLE TO: **(DO NOT SEND CASH)**

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Amount Due: $1,428.00

Water Right No(s): R4-35237

'09 MAY 15 A8:44

FROM: Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336
(509) 585-4289

Water Resources Program, Central Regional Office

DEPT. OF ECOLOGY
FISCAL & BUDGET
001 WR1 0285 000011

FOR ECOLOGY USE ONLY:

Amount rcvd: $_____ Check No.: _____

ECY 070-259

WATER RIGHT FEE INVOICE

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

April 29, 2009

CERTIFIED MAIL
7006 0100 0002 8191 8881

Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336

RE: Water Right Application No. R4-35237

Dear Mr. Beauchene:

You recently submitted a water right application; however, no fee was included. The law requires us to return the application and notify you of the necessary fee.

Please use the enclosed invoice when mailing your check or money order in the amount of **$1,428.00**, along with your application.

If you would like further information, please contact Teresa Mitchell in our office at 509-575-2597.

Sincerely,

Sandy Anderson

Water Resources Program

SA:cmr (090406)

Enclosures: *Water Right Application Fee Schedule*
Water Right Application
Invoice
Envelope

FILE COPY

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336

R4-35237 / App fee received

2. Article Number
(Transfer from service label) 7006 0100 0002 8191 8881

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kellie Hays ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Kellie HAYS
C. Date of Delivery 5/1/09

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Water Resources Program

INVOICE

FROM: Department of Ecology
Central Regional Office
15 W. Yakima Avenue, Suite 200
Yakima WA 98902-3452
509-575-2490 Fax 509-575-2809
http://www.ecy.wa.gov/programs/wr/wrhome.html

Date: April 29, 2009

Water Right No(s): **R4-35237**

TO: Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336
(509) 585-4289

DESCRIPTION	AMOUNT
Application Fee for a Permit to Construct a Reservoir and to Store for Beneficial Use Waters of the State of Washington	$ 1,428.00
	$
	$
	AMOUNT DUE
	$ 1,428.00

For questions concerning this invoice, please contact our Central Regional office at 509-575-2490 and ask for the Water Resources Program or you may contact Teresa Mitchell directly at 509-575-2597.

PLEASE RETURN BOTTOM PORTION WITH YOUR PAYMENT

Detach and return this portion with your payment.

PLEASE SEND CHECK OR MONEY ORDER PAYABLE TO: **(DO NOT SEND CASH)**

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Amount Due: $1,428.00

Water Right No(s): R4-35237

FROM: Bruce Beauchene
City of Kennewick
PO Box 6108
Kennewick WA 99336
(509) 585-4289

Water Resources Program, Central Regional Office

FOR ECOLOGY USE ONLY: 001 WR1 0285 000011

Amount rcvd: $_____ Check No.: _____

FILE COPY

OFFICE OF COLUMBIA RIVER ROUTER

☐ ROE ☒ Preliminary Permit ☐ TW Donation ☐ Certificate ☐ Other_____

☐ ROE for Change ☐ Superseding Permit ☐ TW Extension ☐ Superseding Certificate ☐ Temp Authorization

File No.: R4-35237 Applicant: City of Kennewick

WR Doc ID: _____ Author/Date: Dave Nazy 3/11/14

SharePoint > _____ Y:\Staff_____

QA/QC Review Group: _____ County: Benton PROTESTS? ☐ Yes ☐ No

Dates drafted/edited (Admin: date/intl/note):

TRIBE	WRIA
Colville Confederated Tribes *Lois Trevino*	49 50 51 52 53 58 60 61
Yakama Nation *Philip Rigdon*	29 30 31 32 33 37 38 39 40
Both Tribes	45 46 47 48

GWIS initials/date: DK 3/13/14

GWIS remarks & edits (if more room is needed use back of page):

Cc: Philip Rigdon

Preliminary

Certified Cc: _____

PERMIT & ~~CERTIFICATE~~

☐ Letter & Invoice Sent (Cert)

☐ Fees Received (Cert)

☐ To Auditor (Cert)

☐ Letter & Permit Sent (Permit)

Peer Reviewer (initial & date)

Permit Writer(initial & date)

Section Manager(initial & date) NCS 3/14/14

Attachments:
- ☒ Your Right to Be Heard
- ☐ PTO appeal? (No Your Right to Be Heard)
- ☐ BC, CC, PA forms_____
- ☐ Important Info About Your WR
- ☐ Water Measurement Requirements
- ☐ Fish Screening Criteria
- ☐ Focus on Water Right Relinquishment
- ☐ Signed Water Service Contract (Permit)
- ☐ Other: _____

REPORT OF EXAMINATION

DRAFT ROE (30 day posting to web)

Peer Reviewer (initial & date)

Permit Writer (initial & date)

Section Manager (initial & date)

Posted to Web (Admin)

FINAL ROE (Posting to web)

Permit Writer (initial & date)

Section Manager (initial & date)

Posted to Web (Admin)

Attachments:
- ☐ Your Right to Be Heard
- ☐ PTO appeal? (No Your Right to Be Heard)
- ☐ BC, CC, PA forms_____
- ☐ Water Measurement Requirements
- ☐ Fish Screening Criteria
- ☐ Focus on Water Right Relinquishment
- ☐ Other: _____

TRUST WATER

Peer Reviewer (initial & date)

Section Manager (initial & date)

Letter Mailed (initial & date)

Letter E-Mailed/Web Post (initial & date)

NOTES

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

March 14, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to conduct recharge and recovery testing as part of the pilot test for aquifer storage and recovery (ASR) under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29E.W.M.

This letter serves as a PRELIMINARY PERMIT to conduct recharge and recovery testing as part of the pilot test for Kennewick's ASR facility under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a new reservoir permit. The source of water is a diversion from the Columbia River under Surface Water Certificate S4-25479C, Groundwater Certificate 3897-A, and Surface Water Permit S4-30976P. The proposed reservoir is an aquifer in the Wanapum Basalt Formation of the Columbia River Basalt Group. The proposed project entails diversion of source water, treatment at the City of Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer system and withdrawal of the stored water at a later date. It is anticipated that water may be available for diversion between October 15 and June 15 each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal is Kennewick's ASR well located approximately 2,500 feet north and 1000 feet west of the southeast corner of Section 17, T. 8 N., R. 29E.W.M. The associated Benton County Tax Parcel No. is 1-1789-400-0001-004. This location is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29E.W.M. in an area known as the "Southridge site."

Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a Preliminary Permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application.

This Preliminary Permit is associated with Phase 4 in Amendment No. 1 to the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick for the City of Kennewick Aquifer Storage and Recovery (ASR) Feasibility Study. Work to be performed for this preliminary permit is described in the Phase 4: ASR Cycle Testing and Reservoir Permit Application Completion ASR-1 Project Operations and Monitoring Work Plan, prepared by GSI Water Solutions, Inc., dated February 2014, as amended. The objectives of the proposed work plan are to:

- Assess the feasibility of developing a cool water storage zone that will allow the City to use the stored water for municipal drinking water supply.

FILE COPY

- Confirm the geochemical compatibility of the two waters and aquifer matrix, and ensure that the recovered water meets the City's needs for municipal supply.

- Assess groundwater quality during intermediate-scale ASR cycle testing to ensure compliance with state groundwater quality standards.

- Establish baseline and trends for pre-ASR static water levels and dynamic (long term recharge and pumping) water levels.

- Track well performance after baseline.

- Assess aquifer hydraulic response to ASR operations.

- Complete intermediate-scale ASR cycle testing that will inform operational objectives for future full-scale testing.

Data gathered during this work will assist Kennewick and Ecology in evaluating project operation, planning future testing, and collection of information that can be used to prepare a permit that meets the requirements of Chapter 173-157 WAC, as proposed in Reservoir Permit Application No. R4-35237.

This project includes injection of chlorinated drinking water from Kennewick's municipal water system into the Wanapum Basalt aquifer. Ecology's Water Quality Program has conducted a review of this project and based on the information provided determined that the benefits of the project outweigh the potential risk of adverse impacts. Kennewick must continue to follow WA DOH and US EPA guidance and requirements to minimize the formation of disinfection bi-products to the maximum extent reasonable. For the Kennewick ASR project, following the disinfection bi-product guidance and requirements is required to meet AKART and qualify to meet the groundwater quality standards for disinfection bi-products through a determination of Overriding Public Interest as recommended in WAC 173-157-200(2) and WAC 173-200-050(3)(b)(vi).

You are hereby granted a PRELIMINARY PERMIT to proceed with testing as specified in the Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

II. General Conditions

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until January 1, 2015, unless sooner revoked or revised by Ecology.

2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the aquifer test, or data collection activities, the test shall be terminated immediately.

3. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. Failure to comply with any of the terms and/or conditions of this PRELIMINARY PERMIT will result in this authorization being immediately terminated and the application on which it is based shall be automatically canceled (RCW 90.03.290(2)(a). This could include issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

4. This authorization does <u>not</u> imply or grant any right to withdraw public ground water from any well other than that authorized under this PRELIMINARY PERMIT.

5. This authorization does not imply or grant any right to withdraw water for any beneficial purpose or use; water withdrawn shall be for testing purposes only and will be discharged to the Kennewick Irrigation District canal. Kennewick Irrigation District has agreed to allow use of their canal for this purpose and will not beneficially use water resulting from this project.

6. No discharge to surface waters of the state is authorized. Kennewick shall monitor the discharge of water to the Kennewick Irrigation District canal to ensure that all discharge water infiltrates in the canal prior to reaching surface water. Water quality field parameters shall be observed during the pumping test, per the approved workplan. If any water quality problems are observed during any portion of the aquifer test, water quality samples shall be collected for laboratory analyses and/or the test shall be terminated immediately.

7. Issuance of this PRELIMINARY PERMIT does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between the applicant and owner of the land.

8. All activities shall comply with the January 9, 2014 Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan and Quality Assurance Project Plan (QAPP) prepared by Golder Associates and approved by Ecology on January 27, 2014. Copies of the approved Work Plan and Quality Assurance Project Plan can be obtained by contacting Ecology's project coordinator.

9. Deviations from the program outlined in the January 9, 2014 Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan shall be documented and request for approval shall be submitted in writing to Ecology's project coordinator. Any additional testing beyond that proposed in the approved workplan shall be documented and requested in writing from Ecology's project coordinator.

10. The scope of this PRELIMINARY PERMIT is limited as set forth below:

III. Project Management

1. The project coordinator for Ecology is:

Name:	Dave Nazy
Address:	300 Desmond Drive PO Box 47600 Lacey, WA 98504-7600 Phone: (360) 407-6038

Communications between Ecology and the applicant, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this PRELIMINARY PERMIT shall be directed through the Ecology project coordinator.

IV. Construction Demonstration Period Testing

1. The applicant shall notify the Ecology a minimum of five working days in advance, prior to the start of pumping or recharge of the ASR well. All data acquired as part of this work shall be tabulated and provided electronically (e.g. spreadsheet) to the Ecology within 30 days of completion of testing.

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ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW Ste 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
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Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:AH (140307)

Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7126 6968

CC: Philip Rigdon, Yakama Nation

7010 0290 0000 7126 6968

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Sent To
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City, State, ZIP+4

CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK, WA 99336
AH (140307)

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

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CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK, WA 99336
AH (140307)

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kelly S Beatty ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) KELLY D BEATTIE
C. Date of Delivery 3/17/14

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7010 0290 0000 7126 6968

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

OFFICE OF COLUMBIA RIVER ROUTER

☐ ROE ☒ Permit Preliminary ☐ TW Donation ☐ Certificate ☐ Other_____

☐ ROE for Change ☐ Superseding Permit ☐ TW Extension ☐ Superseding Certificate ☐ Temp Authorization

File No.: R4.35237 Applicant: City of Kennewick

WR Doc ID: 4634691 Author/Date: Dave Nazy 2/7/2014

SharePoint > Y:\Staff\

QA/QC Review Group: County: Benton PROTESTS? ☐ Yes ☐ No

Dates drafted/edited (Admin: date/intl/note):

TRIBE	WRIA
Colville Confederated Tribes *Lois Trevino*	49 50 51 52 53 58 60 61
Yakama Nation *Philip Rigdon*	29 30 31 32 33 37 38 39 40
Both Tribes	45 46 47 48

GWIS initials/date: dk 2/7/14

GWIS remarks & edits (if more room is needed use back of page):

meters & bounds off – Jemicka Dawn

Cc: Philip Rigdon

Certified Cc:

PERMIT & CERTIFICATE

☐ Letter & Invoice Sent (Cert)

☐ Fees Received (Cert)

☐ To Auditor (Cert)

☐ Letter & Permit Sent (Permit)

Peer Reviewer (initial & date)

Permit Writer (initial & date)

Section Manager (initial & date)

Attachments:
- ☒ Your Right to Be Heard
- ☐ PTO appeal? (No Your Right to Be Heard)
- ☐ BC, CC, PA forms
- ☐ Important Info About Your WR
- ☐ Water Measurement Requirements
- ☐ Fish Screening Criteria
- ☐ Focus on Water Right Relinquishment
- ☐ Signed Water Service Contract (Permit)
- ☐ Other:

REPORT OF EXAMINATION

DRAFT ROE (30 day posting to web)

Peer Reviewer (initial & date)

Permit Writer (initial & date)

Section Manager (initial & date)

Posted to Web (Admin)

FINAL ROE (Posting to web)

Permit Writer (initial & date)

Section Manager (initial & date)

Posted to Web (Admin)

Attachments:
- ☐ Your Right to Be Heard
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- ☐ Fish Screening Criteria
- ☐ Focus on Water Right Relinquishment
- ☐ Other:

TRUST WATER

Peer Reviewer (initial & date)

Section Manager (initial & date)

Letter Mailed (initial & date)

Letter E-Mailed/Web Post (initial & date)

NOTES

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

February 10, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to conduct recharge and recovery testing as part of the completion of construction of infrastructure related to aquifer storage and recovery (ASR) under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29E.W.M

This letter serves as a PRELIMINARY PERMIT to conduct recharge and recovery testing as part of the completion of construction of Kennewick's ASR facility under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a new reservoir permit. The source of water is a diversion from the Columbia River under Surface Water Certificate S4-25479C, Groundwater Certificate 3897-A, and Surface Water Permit S4-30976P. The proposed reservoir is an aquifer in the Wanapum Basalt Formation of the Columbia River Basalt Group. The proposed project entails diversion of source water, treatment at the City of Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer system and withdrawal of the stored water at a later date. It is anticipated that water may be available for diversion between October 15 and June 15 each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal is Kennewick's ASR well located approximately 2,500 feet north and 1000 feet west of the southeast corner of Section 17, T. 8 N., R. 29E.W.M. The associated Benton County Tax Parcel No. is 1-1789-400-0001-004. This location is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29E.W.M. in an area known as the "Southridge site."

Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a Preliminary Permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application.

This Preliminary Permit is associated with Phase 3 in Amendment No. 1 to the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick for the City of Kennewick Aquifer Storage and Recovery (ASR) Feasibility Study. Work to be performed for this preliminary permit is described in a Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan prepared by Golder Associates, dated January 9, 2014. The primary objective of the proposed workplan is to establish that the facility functions properly, meets the City's infrastructure needs, and collect data that will assist the Phase 4 pilot test program. Data gathered during this work will assist Kennewick and Ecology in evaluating project operation, planning future testing, and collection of information that can be used to

FILE COPY

prepare a permit that meets the requirements of Chapter 173-157 WAC, as proposed in Reservoir Permit Application No. R4-35237.

This project includes injection of chlorinated drinking water from Kennewick's municipal water system into the Wanapum Basalt aquifer. Ecology's Water Quality Program has conducted a review of this project and based on the information provided determined that the benefits of the project outweigh the potential risk of adverse impacts. Kennewick must continue to follow WA DOH and US EPA guidance and requirements to minimize the formation of disinfection bi-products to the maximum extent reasonable. For the Kennewick ASR project, following the disinfection bi-product guidance and requirements is required to meet AKART and qualify to meet the groundwater quality standards for disinfection bi-products through a determination of Overriding Public Interest as recommended in WAC 173-157-200(2) and WAC 173-200-050(3)(b)(vi).

You are hereby granted a PRELIMINARY PERMIT to proceed with testing as specified in the Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

II. General Conditions

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until January 1, 2015, unless sooner revoked or revised by the Department of Ecology.

2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the aquifer test, or data collection activities, the test shall be terminated immediately.

3. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. Failure to comply with any of the terms and/or conditions of this PRELIMINARY PERMIT will result in this authorization being immediately terminated and the application on which it is based shall be automatically canceled (RCW 90.03.290(2)(a). This could include issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

4. This authorization does <u>not</u> imply or grant any right to withdraw public ground water from any well other than that authorized under this PRELIMINARY PERMIT.

5. This authorization does <u>not</u> imply or grant any right to withdraw water for any beneficial purpose or use; water withdrawn shall be for testing purposes only and will be discharged to the Kennewick Irrigation District canal. Kennewick Irrigation District has agreed to allow use of their canal for this purpose and will not beneficially use water resulting from this project. Documentation regarding this agreement is attached to this preliminary permit.

6. No discharge to surface waters of the state is authorized. Kennewick shall monitor the discharge of water to the Kennewick Irrigation District canal to ensure that all discharge water infiltrates in the canal prior to reaching surface water. Water quality field parameters shall be observed during the pumping test, per the approved workplan. If any water quality problems are observed during any portion of the aquifer test, water quality samples shall be collected for laboratory analyses and/or the test shall be terminated immediately.

7. Issuance of this PRELIMINARY PERMIT does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between the applicant and owner of the land.

8. All activities shall comply with the January 9, 2014 Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan and Quality Assurance Project Plan (QAPP) prepared by Golder Associates and approved by Ecology on January 27, 2014. Copies of the approved Work Plan and Quality Assurance Project Plan can be obtained by contacting Ecology's project coordinator.

9. Deviations from the program outlined in the January 9, 2014 Final ASR-1 Construction Demonstration Period Hydrogeologic Work Plan shall be documented and request for approval shall be submitted in writing to Ecology's project coordinator. Any additional testing beyond that proposed in the approved workplan shall be documented and requested in writing from Ecology's project coordinator.

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III. Project Management

1. The project coordinator for Ecology is:

Name:	Dave Nazy
Address:	300 Desmond Drive PO Box 47600 Lacey, WA 98504-7600 Phone: (360) 407-6038

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Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:AH (140222)

Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7127 0279

CC: Philip Rigdon, Yakama Nation

7010 0290 0000 7127 0279

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Total Postage & Fees	$

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Sent To
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK, WA 99336

PS Form 3800, August 2006 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

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- Attach this card to the back of the mailpiece, or on the front if space permits.

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CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK, WA 99336
AH (140222)

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kelly Beauchene
☒ Agent
☐ Addressee

B. Received by (*Printed Name*) KELLY D BEAUCHENE
C. Date of Delivery 2/12/14

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7010 0290 0000 7127 0279

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

February 6, 2014

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

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Mark C. Schuppe
Operations Manager
Office of Columbia River

DN:MCS:AH (140221)

Enclosures: Your Right To Be Heard

By certified mail: 7010 0290 0000 7126 6265

7010 0290 0000 7126 6265

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Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To CITY OF KENNEWICK
Street, Apt. No.; or PO Box No. ATTN: BRUCE BEAUCHENE
PO BOX 6108
City, State, ZIP+4 KENNEWICK, WA 99336

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK, WA 99336

AH (140921)

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Alicia Hays ☐ Agent ☐ Addressee

B. Received by (Printed Name) Alicia Hays C. Date of Delivery 2/10/17

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☑ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7010 0290 0000 7126 6265

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

The Well Log Data and Image are 'As Is' with NO Warranty. Well Log ID: 737416 (page 1 of 1)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

DEPARTMENT OF ECOLOGY State of Washington

Construction/Decommission *("x" in circle)*

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION* 419879

Notice of Intent Number _____

PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☒ Other ASR

TYPE OF WORK: Owner's number of well (if more than one) _____

☒ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 16 inches, drilled ___ ft. 16" to 957'

Depth of completed well 1173ft 15" to 1108'

12 3/4" to 1173'

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 16" Diam. from +3 ft to 957 ft.

☐ Liner installed ____" Diam. from ____ ft. to ____ ft.

☐ Threaded ____". Diam. From ____ ft. to ____ ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs ____ in. by ____ in. and no. of perfs ____ from ____ ft to ____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Diam ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: ☐ Yes ☒ No Size of gravel/sand _____

Materials placed from ____ ft. to ____ ft.

Surface Seal: ☒ Yes ☐ No To what depth? 957ft.

Material used in seal Neat cement

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level 357.2ft. below top of well Date 6/13

Artesian pressure N/A lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? Driller

Yield: 1000gal./min. with 14ft. drawdown after 35hrs.

Yield: ____gal./min. with ____ft. drawdown after ____hrs

Yield: ____gal./min. with ____ft. drawdown after ____hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	370.4	15	357.44		
5	349.6	20	357.3		
10	357.5				

Date of test 6/13-6/14

Bailer test ____ gal./min with ____ft drawdown after ____hrs.

Airtest ____gal./min. with stem set at ____ft. for ____hrs

Artesian flow ____g.p.m. Date _____

Temperature of water 82 Was a chemical analysis made? ☒ Yes ☐ No

CURRENT

RECEIVED JUL 25 2011 Water Resources Program Department of Ecology

Notice of Intent No. WE12711

Unique Ecology Well ID Tag No. ALM112

Water Right Permit No. R4-35237

Property Owner Name City of Kennewick

Well Street Address W 36th Ave & Ridgeline Drive

City Kennewick County Benton

Location NE1/4-1/4 SE1/4 Sec 17 Twn 8 R 29 EWM ☒ Or WWM ☐

(s, t, r Still REQUIRED)

Lat/Long Lat Deg ____ Lat Min/Sec ____

Long Deg ____ Long Min/Sec ____

Tax Parcel No. (Required) 1-1789-400-0001-001

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Top soil	0	4
Broken -Weathered basalt	4	13
Basalt -Black - Medium	13	59
Basalt -Black/gray - Medium	59	69
Basalt -Black/Green claystone	69	80
Basalt -Black -Medium	80	139
Basalt -Black -Med/Hard	139	142
Basalt -Black -Med	142	195
Basalt -Black -Some claystone	195	253
Basalt -Gray -Med	253	300
Basalt -Black, some gray	300	325
Basalt - Drk Gray to black	325	333
Basalt -light gray - med	333	353
Basalt -gray/grn vesicular	353	385
Basalt -gray/blk w/ cinders	385	411
Basalt -blk, vesicular/clystn	411	470
Basalt -blk, grn/rd, pyrite	470	480
Basalt -blk, fractured, pyrit	480	716
Grn claystone/sandstone	716	805
Basalt -blk med w/ mica	805	888
Basalt -blk w/ gray pyrite	888	913
Basalt -blk grn/yellow depost	913	917
Basalt -blk w/ dense clayston	917	980
Basalt -blk, soft, fractured	980	995
Basalt - blk, medium	995	1040
Basalt -blk w/ claystone	1040	1075
Basalt -blk, vesicular	1075	1138
Basalt -blk, grn pyrite, vesi	1138	1173

RECEIVED JUL 29 2011 DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Start Date 3/21/11 Completed Date 7/7/11

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Gordon Burton

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 2462

IF TRAINEE: Driller's License No:

Driller's Signature:

Drilling Company Boart Longyear Company

Address 11277 SW Clay St, Suite A

City, State, Zip Sherwood , OR, 97140

Contractor's Registration No. BOARTLC941RA Date 7/18/2011

ECY 050-1-20 (Rev 02/10) *If you need this document in an alternate format, please call the Water Resources Program at 360-407-6872. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

Department of Ecology Well Log Image System

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

March 14, 2011

City of Kennewick
ATTN: Bruce Beauchene
PO Box 6108
Kennewick, WA 99336

RE: Preliminary Permit to drill a test well and conduct aquifer testing to assess the feasibility of aquifer storage and recovery under Reservoir Application No. R4-35237 within the NE$^1/_4$ SE$^1/_4$ of Section 17, T. 8 N., R. 29 E.W.M

This letter serves as a PRELIMINARY PERMIT to drill and conduct testing under Application No. R4-35237. Please read this letter carefully. In accordance with RCW 90.03.290, **failure to comply with the conditions of this Preliminary Permit shall result in the cancellation of the Preliminary Permit and the associated water right application. This Preliminary Permit does <u>not</u> authorize any beneficial use of water.**

On April 21, 2009, the City of Kennewick, Washington filed Application No. R4-35237 with the Washington State Department of Ecology (Ecology) for a new reservoir permit. The source of water is a diversion from the Columbia River under Surface Water Permit No. S4-30976P. The proposed reservoir is an aquifer in the Wanapum Basalt Formation of the Columbia River Basalt Group. The proposed project entails diversion of source water, treatment at the City Kennewick's filtration water treatment plant, conveyance through the distribution system, injection into the aquifer system and withdrawal of the stored water at a later date. It is anticipated that water may be available for diversion between October 15 and June 15 each year and that the stored water would be recovered during the summer months for municipal supply purposes.

The proposed point of injection and withdrawal is located approximately 2,600 feet north and 700 feet west of the southeast corner of Section 17, T. 8 N., R. 29 E.W.M. The associated Benton County Tax Parcel No. is 1-1789-401-0857-005. The proposed location of the test well is within the NE¼ of the SE¼ of Section 17, T. 8 N., R. 29 E.W.M. in an area known as the "Southridge site".

Due to the hydrogeologic uncertainties and the lack of site specific data, additional information is needed to sufficiently evaluate the reservoir application. The applicant has proposed the construction of an Aquifer Storage and Recovery (ASR) well for the purpose of evaluating the hydrogeologic conditions found at the site and has requested that Ecology issue a preliminary permit to authorize well construction and testing. The well is to be cased and sealed into the basalt aquifer system. The well shall be constructed in a manner that prevents significant groundwater flow between distinct aquifer zones. The test target is anticipated to be the Priest

Rapids member of the Wanapum Basalt Formation, estimated to occur between 1000 and 1200 feet below ground surface at the Southridge site.

Under the authority of RCW 90.03.290 and RCW 90.44.060, Ecology may issue a Preliminary Permit requiring the applicant to conduct studies, surveys, and investigations necessary to provide the information needed to properly assess the subject application.

This Preliminary Permit is associated with Amendment No. 1 to the grant agreement (Ecology Grant G0900011) between Ecology and Kennewick for the City of Kennewick Aquifer Storage and Recovery (ASR) Feasibility Study. Work to be performed for this preliminary permit is described in a Draft Scope of Work (SOW) prepared by Golder Associates, dated May, 2010. The primary objective of the proposed aquifer test program is to obtain data to characterize aquifer properties in the immediate area of the Southridge site and to determine the feasibility of using the well for ASR. Data gathered will assist the applicant completing the ASR Permit Application requirements of Chapter 173-157 WAC and Ecology in evaluating the ability of the above named horizon to serve as a reservoir for an ASR facility, as proposed in Reservoir Permit Application No. R4-35237

You are hereby granted a PRELIMINARY PERMIT to proceed with drilling and testing for project feasibility. This letter serves as a PRELIMINARY PERMIT subject to existing rights and the following conditions:

II. General Conditions:

1. This PRELIMINARY PERMIT becomes effective immediately and will remain in effect until March 1, 2013, unless sooner revoked or revised by the Department of Ecology.

2. All expenses, risks, and liabilities incurred during testing shall be borne by the applicant. If senior water right holders, including wells exempt from permitting under RCW 90.44.050, are adversely affected during any portion of the aquifer test, or data collection activities, the test shall be terminated immediately.

3. The granting of this PRELIMINARY PERMIT shall not be construed, by inference or otherwise, that the subject application will ultimately be approved. Failure to comply with any of the terms and/or conditions of this PRELIMINARY PERMIT will result in this authorization being immediately terminated and the application on which it is based shall be automatically canceled (RCW 90.03.290(2)(a). This could include issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

4. This authorization does not imply or grant any right to withdraw public ground water from any well other than that authorized under this PRELIMINARY PERMIT.

5. This authorization does not imply or grant any right to withdraw water for any beneficial purpose or use; water withdrawn shall be for testing purposes only.

6. Issuance of this PRELIMINARY PERMIT does not convey a right of access to, or other

right to use, land which the applicant does not legally possess. Obtaining such a right is a private matter between the applicant and owner of the land.

7. All activities shall comply with the May 2010 Scope of Work and Quality Assurance Project Plan (QAPP) prepared by Golder Associates for the Kennewick Aquifer Storage and Recovery Project, and approved by Ecology on September 24, 2009. Copies of the approved Scope of Work and Quality Assurance Project Plan can be obtained by contacted Ecology's project coordinator.

8. Deviations from the program outlined in the May 2010 Scope of Work shall be documented and request for approval shall be submitted in writing to Ecology's project coordinator. Any additional testing beyond that proposed in that QAPP shall be documented and requested in writing from Ecology's project coordinator.

9. The scope of this PRELIMINARY PERMIT is limited as set forth below:

III. Project Management

1. The project coordinator for Ecology is:

Name:	Dave Nazy
Address:	300 Desmond Drive PO Box 47600 Lacey, WA 98504-7600 Phone: (360) 407-6038

Communications between Ecology and the applicant, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this PRELIMINARY PERMIT shall be directed through the Ecology project coordinator.

III. Well Construction

1. One (1) ASR well may be drilled within the NE¼ SE¼ of Sec. 17, T. 8 N., R. 29 E.W.M, Benton County within Water Resource Inventory Area (WRIA) 37 for the purpose of investigating the hydrogeologic conditions of the aquifer and evaluating the feasibility of ASR at the site.

2. All wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under Chapter 18.104 RCW (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

3. Each well shall be tagged with an Ecology unique well identification number, issued by Ecology. This tag shall remain shall remain attached to the well. Reference this tag number when submitting water measuring reports.

4. The wells shall be drilled by a licensed well driller as set forth in Washington Administrative Code (WAC) 173-162-040. The applicant shall provide a complete copy of this PRELIMINARY PERMIT to the licensed well driller for correlation with project goals and requirements.

5. The applicant must submit the required well drilling Notices of Intent with the required fees providing the required 72 hours notice. Complete well reports shall be submitted by the licensed driller to the Department of Ecology within thirty (30) days of completion. Department staff may be on site during the drilling process.

6. In accordance with WAC 173-160-171, wells shall not be located within certain minimum distances of potential sources of contamination. In general, wells shall be located at least 100 feet from a drain field, privy, or other sources or potential sources of contamination. Wells shall not be located within 1,000 feet of a solid waste landfill. Minimum distances shall also comply with state and local health regulations.

7. Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

IV. Aquifer Testing

1. The applicant shall notify the Department of Ecology a minimum of five working days in advance, prior to pump testing of the test well. Verbal approval from the Department shall be required prior to any pump test being conducted. All data acquired during drilling and pump testing shall be tabulated and provided electronically (e.g. spreadsheet) to the Department of Ecology within 30 days of well completion.

2. A licensed hydrogeologist or engineer shall oversee well testing and provide analysis. The test(s) will include both step-drawdown and constant rate pumping components, not to exceed a pumping rate of 900 gallons per minute, for a minimum of 24 hours, with stabilization occurring for at least the last 4 of those hours. Stabilization is defined as a drop in water level of less than or equal to 0.1 feet per hour. If the response characteristic is not changing at the end of the 72-hour testing period anticipated for this project, the test may be terminated after consulting with the Ecology project manager. The applicant shall provide all equipment necessary to collect recovery data. Drawdown and recovery measurements must be made in the same manner and at the same or greater frequency as described in Water Resource Information System (WRIS) Information Bulletin No. 30, and in accordance with the Quality Assurance Project Plan for the project attached to the Scope of Work (Item 7. In Section II of this preliminary permit). Once the pump has been turned off measurements shall be taken until 95% recovery is achieved. All procedures shall conform with Bulletin No. 30 or as recommended in American Society of Testing and Materials (ASTM) Standards D4043 and D4050 and the following:

    a. A well construction report (well log) for the test well, which shall include the well's total depth, screened interval depths, pump intake depth, and construction specifications.
    b. A well construction report (well logs) for each observation well, including the

well's total depth, screened interval depths, and construction specifications.

c. A map and description (¼, ¼, Section, Township, Range, distance to nearest section corner, GPS coordinates) accurately indicating all well locations.

d. A legible table including the pumping rate and all water measurement data collected for all wells observed during pumping and recovery. The report should include information on methods, and any other data collected or analyzed. An Excel spreadsheet, or tab-delimited text electronic table shall be prepared including all these data.

e. The above information shall be incorporated into the report that will detail all reconnaissance information on hydrology and geology for the area, standard hydraulic estimates of well efficiency and standard aquifer parameters. The report shall also include discussions regarding whether the well would capture waters in hydraulic continuity with area surface water bodies. The applicant shall make this report available to the Department as part of the Phase 2 report submittals.

3. The Driller or on-site hydrogeologist shall keep the Department project coordinator informed of progress during the drilling of the well.

4. After the project testing has been completed, the pump shall be removed from the test well. The test well and observation wells shall then be securely capped.

5. The well must remain accessible to Ecology field staff for periodic readings unless it is mutually agreed by City of Kennewick and Ecology that the well should be decommissioned.

V. Appeal

Any person has a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearing Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.

- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.

- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board:

Mail appeal to:	OR	Deliver your appeal in person to:
Pollution Control Hearings Board PO Box 40903 Olympia WA 98504-0903		Pollution Control Hearings Board 1111 Israel Rd SW Ste 301 Tumwater WA 98501

2. To serve your appeal on the Department of Ecology:

Mail appeal to:	OR	Deliver your appeal in person to:
Department of Ecology Appeals Coordinator PO Box 47608 Olympia WA 98504-7608		Department of Ecology Appeals Coordinator 300 Desmond Dr SE Lacey WA 98503

3. And send a copy of your appeal packet to:

Derek I. Sandison
Office of Columbia River
Department of Ecology
15 W Yakima Ave Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser

If you have any questions or concerns about this decision, or if we can otherwise provide further assistance, please contact Dave Nazy at (360) 407-6038 or dnaz461@ecy.wa.gov.

Sincerely,

Derek I. Sandison, Director
Office of Columbia River

DN:DIS:RAZ (110317)

Enclosures: Your Right To Be Heard

cc: Phil Brown, Golder Associates

By certified mail: 7007 2560 0001 7675 5479

PERMIT & CERTIFICATE REVIEW ROUTER

☐ Permit (no fee)

☐ Superseding Permit (no fee)

☐ Temporary Authorization (4 months or more - more than 1 time) (fee)

☐ Short-Term Authorization (4 months & under; one time only) (fee)

☐ Certificate (fees) Applicant pays ☐ Agency pays ☐

☐ Superseding Certificate Applicant pays ☐ Agency pays ☐

☒ Other: PRELIMINARY PERMIT

WR Doc ID No.: 4634691

File No.: R4-35237

Author/Date: DAVENAZM, 9/24/09

QA/QC Review Group (Initial/date):

Y:\Staff

Dates drafted/edited (Admin): 10/6/09 CMR

GWIS Mapping Review (review changes **BEFORE** final)
GWIS initials/date:
GWIS remarks & edits (if more room is needed use back of page):

~~**Date Letter sent to Applicant requesting fees (Cert):**~~
(Admin sends letter; applicant has 30 days to ~~respond)~~

~~**Date fees received & document sent for recording (Cert):**~~
(Admin sends ~~letter/document/&~~ check to State Auditor for recording)

~~**Reviewer/Date**~~
(Initial/Date if Temp/~~Short Term Auth~~ is ready for POSTING to WEB)

~~**Supervisor/Date**~~
(Initials/Date indicate doc is ready for ~~Mailing or~~ Posting to WEB)

~~**Section Mgr/Date**~~
(Initials/Date indicate doc is ready for ~~Mailing or Posting~~ to WEB)

Date Letter mailed: 10/8/09
(Admin initial & date when doc if finalized & mailed/posted)
Date Temp/Short Term Authorization is posted on Web:

Circle appropriate WRIA:

County: BENTON

TRIBE	WRIA
Colville Confederated Tribes	49 50 51 52 53 58 60 61
Yakama Nation	29 30 31 32 33 37 38 39 40
Both Tribes	45 46 47 48

Remarks, Special Instructions, Related Files:

cc's:

Minimum Flow River List? (Y:\Adm\Rivers)
Name of River
Add name to the appropriate River Data Source: ☐

Attachments:
☐ Your Right to Be Heard
☐ PTO appeal? No Your Right to Be Heard
☐ BC, CC, PA forms
☐ Water Measurement Requirements
☐ Fish Screening Criteria
☐ Important Information Sheet (Permits)
☐ Other:

7010 0290 0000 7131 4409

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CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage $

Certified Fee

Return Rec
(Endorsement R

Restricted Deli
(Endorsement R

Total Postage

CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK WA 99336

Sent To

Street, Apt. No.; or PO Box No.

City, State, ZIP+4

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits. 40701 RAK

1. Article Addressed to:

CITY OF KENNEWICK
ATTN: BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK WA 99336

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kelly D Beatty ☒ Agent ☐ Addressee

B. Received by (*Printed Name*) KELLY D BEATTIE
C. Date of Delivery 7/3/14

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. Article Number (*Transfer from service label*) 7010 0290 0000 7131 4409

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

OFFICE OF COLUMBIA RIVER ROUTER

☐ ROE ☐ Permit ☐ TW Donation ☐ Certificate ☐ Other _____

☐ ROE for Change ☐ Superseding Permit ☐ TW Extension ☐ Superseding Certificate ☒ Temp Authorization

File No.: RA-35237 **Applicant:** City of Kennewick

WR Doc ID: 4634691 **Author/Date:** Dave Nagy

SharePoint > _____ **Y:\Staff** _____

QA/QC Review Group: _____ **County:** Benton PROTESTS? ☐ Yes ☐ No

Dates drafted/edited (Admin: date/intl/note):
6/27 - Becky

TRIBE	WRIA
Colville Confederated Tribes *Lois Trevino*	49 50 51 52 53 58 60 61
Yakama Nation *Philip Rigdon*	29 30 31 32 33 37 38 39 40
Both Tribes	45 46 47 48

GWIS initials/date: VLC 6/30/14

GWIS remarks & edits (if more room is needed use back of page):

Cc: Philip Rigdon ✓

Certified Cc: _____

PERMIT & CERTIFICATE

☐ **Letter & Invoice Sent** (Cert)

☐ **Fees Received** (Cert)

☐ **To Auditor** (Cert)

☐ **Letter & Permit Sent** (Permit)

Peer Reviewer (initial & date)

Permit Writer(initial & date)

Section Manager(initial & date)

Attachments:
- ☐ Your Right to Be Heard
- ☐ PTO appeal? (No Your Right to Be Heard)
- ☐ BC, CC, PA forms
- ☐ Important Info About Your WR
- ☐ Water Measurement Requirements
- ☐ Fish Screening Criteria
- ☐ Focus on Water Right Relinquishment
- ☐ Signed Water Service Contract (Permit)
- ☐ Other: _____

REPORT OF EXAMINATION

DRAFT ROE (30 day posting to web)

Peer Reviewer (initial & date)

Permit Writer (initial & date)

Section Manager (initial & date)

Posted to Web (Admin)

FINAL ROE (Posting to web)

Permit Writer (initial & date)

Section Manager (initial & date)

Posted to Web (Admin)

Attachments:
- ☒ Your Right to Be Heard
- ☐ PTO appeal? (No Your Right to Be Heard)
- ☐ BC, CC, PA forms
- ☐ Water Measurement Requirements
- ☐ Fish Screening Criteria
- ☐ Focus on Water Right Relinquishment
- ☐ Other: _____

TRUST WATER

Peer Reviewer (initial & date)

Section Manager (initial & date)

Letter Mailed (initial & date)
7/1/2014 - RAB

Letter E-Mailed/Web Post (initial & date)

NOTES

WATER RIGHTS

G4-35338A

$ 50.00
Ck #97158
6-1-10
WRB

For Ecology Use
(Date Stamp)
RECEIVED
JUN 01 2010
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

WASHINGTON STATE DEPARTMENT OF ECOLOGY

State of Washington
Application for a Water Right Permit

☐ **SURFACE WATER** ☒ **GROUND WATER**
☒ **Permanent** ☐ **Temporary** ☐ **Short Term**

Follow the attached instructions. Attach additional sheets as necessary.

A NON-REFUNDABLE **MINIMUM** FEE OF $50.00 PAYABLE TO THE DEPARTMENT OF ECOLOGY MUST ACCOMPANY THIS APPLICATION.

Section 1. APPLICANT

Applicant/Business Name: City of Kennewick	Phone No: (509) 585-4289	Other No:
Address: P.O. Box 6108		
City: Kennewick	State: WA	Zip:99336-0108
Email Address (optional): bruce.beauchene@ci.kennewick.wa.us		

Contact Name (if different from above):	Phone No:	Other No:
Relationship to Applicant:		
Address:		
City:	State:	Zip:
Email Address (optional):		

Section 2. STATEMENT OF INTENT

Briefly describe the purpose of your proposed project: Construct groundwater well for the development of an ASR project and to provide additional groundwater for muncipal use. This application is intended to replace existing perfected surface water rights secured by Ecology as part of the development of the ASR project.

Anticipated length of time to complete your project: 50 years

Water Use List all purposes for which water will be applied to a beneficial use and list quantity required for each.

Purpose(s) of Use	Rate (check one box only) ☐Cubic Feet per Second (CFS) ☒Gallons per Minute (GPM)	Acre-Feet per Year (AF/YR) (If known)	Period of Use (Continuously or Seasonal)
Muncipal Water	2,500	Unknown	Continuously
TOTAL:	2,500	Unknown	

Short Term/Temporary Water Use

Is this a request for a short term project (less than four months and non-recurring)? ☐ YES ☒ NO

Is this request for a temporary permit? ☐YES ☒ NO

If yes to either question above, indicate the dates that the water will be needed:

FROM: ____/____/____ TO: ____/____/____

For Ecology Use	
	APPLICATION NO: G4-35338 SEPA: Exempt/Not Exempt
	Fee Paid: $555.50 Check No: ECY Coding: 001-001-WR1-0285-000011
	priority: 06-01-2010 WRIA: 31 Benton Co

Section 3. POINT OF DIVERSION OR WITHDRAWAL

Complete A or B, and C below

A.) If Surface Water Source	B.) If Ground Water Source
☐ Spring ☐ Creek ☐ River ☐ Lake ☐ Other:_____	☒ Well(s) ☐ Other:_____
Source Name:_____	Well diameter & depth: 12"-16", 1000 - 1500 ft.
Tributary to:_____	Number of proposed points of withdrawal: 1
	Do you have an existing well? ☐ YES ☒ NO
Number of proposed diversion points:_____	If available, attach Water Well Report and pump test.
Do you have an existing diversion? ☐ YES ☐ NO	Well Tag ID No._____

C.) Point of Diversion/Withdrawal – Legal Description

Parcel No.	¼	¼	Section	Township	Range	County
	NE	SE	17	8N	29E	Benton

Lot(s)	Block(s)	Subdivision

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____ Feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐ ____) corner of Section_____.

Parcel No.	¼	¼	Section	Township	Range	County

Lot(s)	Block(s)	Subdivision

If known, enter the distances in feet from the point of diversion or withdrawal to the nearest section corner:

_____feet (☐ North/☐ South) and _____feet (☐ East/☐ West)

from the (☐NW ☐SW ☐NE ☐SE ☐____) corner of Section_____

NOTE: If more than two points of diversion/withdrawal attach additional information on a separate sheet of paper.

Do you own the land on which the proposed point of diversion/withdrawal is located? ☐ YES ☒ NO
If no, do you have legal authority to make this application for use of another's land? ☒ YES ☐ NO
Provide the owner name(s), address, and phone number: The proposed ASR well site is owned by: Kennewick Acquisition Co. III, LLC, c/o Matthew W. Smith, 15 S.W. Colorado Avenue, Suite A, Bend Oregon 97702, (541) 382-6691. The City is in the process of securing the proposed ASR well site from the current property owner.

Section 4. PLACE OF USE

Attach a copy of the legal description of the property (on which the water will be used) taken from a real estate contract, property deed or title insurance policy, or copy it carefully in the space below.

City of Kennewick service area per current Washington State Department of Health approved Water System Plan.

¼	¼	Section	Twp.	Range	County	Parcel No.

Do you own all the lands on which the proposed place of use is located? ☐ YES ☒ NO.

If no, do you have legal authority to make this application for use of another's land? ☒ YES ☐ NO
Provide owner name(s), address, and phone number: N/A

Are there any other water rights or claims associated with this property or water system? ☒ YES ☐ NO

If yes, provide the water right and/or claim numbers: G4-01390C, G4-04539C, and S4-25479C

Attach a map of your project showing the point of diversion/withdrawal and place of use. If platted property, be sure to include a complete copy of the plat map.

Section 5. WATER SYSTEM DESCRIPTION

Describe your proposed water system (include type and size of devices used to divert or withdraw water from source): Vertical turbine pump installed in well. Size to be determined through well development.

Section 6. DOMESTIC WATER SUPPLY SYSTEM INFORMATION

Complete A or B, and C below

A.) Domestic Water Systems only	**B.) Municipal Water Systems only** *(defined under RCW 90.03.015)*
Projected number of connections to be served: _____ Type of connections: _____ *(e.g., home, recreational cabin)*	Present population to be served water: 69,454 Estimate future population to be served: 93,306 (133,451 50-year projection) (20 year projection)

C.) Water System Planning

Do you have a Water System Plan approved by the Washington State Department of Health, Drinking Water Division? ☒ YES ☐ NO

If yes, date plan was approved 10/29/2002 Water System Number: 38100

Name of water system: City of Kennewick

Are you within the service area of an existing water system? ☐ YES ☒ NO

If yes, explain why you are unable to connect to the system: _____

Section 7. IRRIGATION/STOCKWATER/OTHER FARM USES

Irrigation

Total number of acres requested to be irrigated under this application = _____ ACRES

NOTE: Outline the area to be irrigated on your attached map.

Stockwater

List number and kind of stock: _____

Is the proposed project for a dairy farm? ☐ YES ☐ NO

Other Proposed Farm Uses

Describe all proposed uses: _____

Family Farm Water Act (RCW 90.66):

Calculate the acreage in which you have a controlling interest, including only:

- Acreage irrigated under water rights acquired after December 8, 1977,
- Acreage proposed to be irrigated under this application, and
- Acreage proposed to be irrigated under other pending application(s).

Is the combined acreage under existing rights greater than 6000 acres? ☐ YES ☐ NO

Do you have a controlling interest in a Family Farm Development Permit? ☐ YES ☐ NO

If yes, enter Permit No: _____

Section 8. OTHER WATER USES

Hydropower

Indicate total feet of head _____ and proposed capacity in kilowatts:_____

Describe works:_____

Indicate all uses to which power is to be applied:_____

FERC License No: _____

Mining/Industrial Use

Describe use, method of supplying and utilizing water:_____

Other Use

Section 9. WATER STORAGE

Will you be using a dam, dike, or other structure to retain or store water? ☒ YES ☐ NO

Are you proposing to store more than 10 acre-feet of water? ☒ YES ☐ NO

Will the water depth be 10 feet or more? ☒ YES ☐ NO

If you answered yes to any of the above questions, please describe: Water will be stored in a concrete reservoir structure.

NOTE: If you will be storing 10 acre-feet or more of water and/or if the water depth will be 10 feet or more at the deepest point and some portion of the storage will be above grade, you must also complete an Application for Permit to Construct a Reservoir and a Dam Construction Permit and Application.

Section 10. DRIVING DIRECTIONS

Provide detailed driving directions to the project site: Exit I-82 northbound on US 395. Turn left off of US 395 onto Christiansen Road. Drive southwest on Christiansen Road and turn right onto Southridge Boulevard. Drive northeasterly on Southridge Boulevard and turn left onto 36th Avenue. Well sites are located west of Southridge Boulevard near 36th Avenue.

Site Address: _____

Section 11. REQUIRED SIGNATURES

I certify that the information provided in this application is true and accurate to the best of my knowledge. I understand that in order to process my application, I grant staff from the Department of Ecology access to the site for inspection and monitoring purposes. Even though the employees of the Department of Ecology may have assisted me in the preparation of the above application, all responsibility for the accuracy of the information rests with me, the applicant.

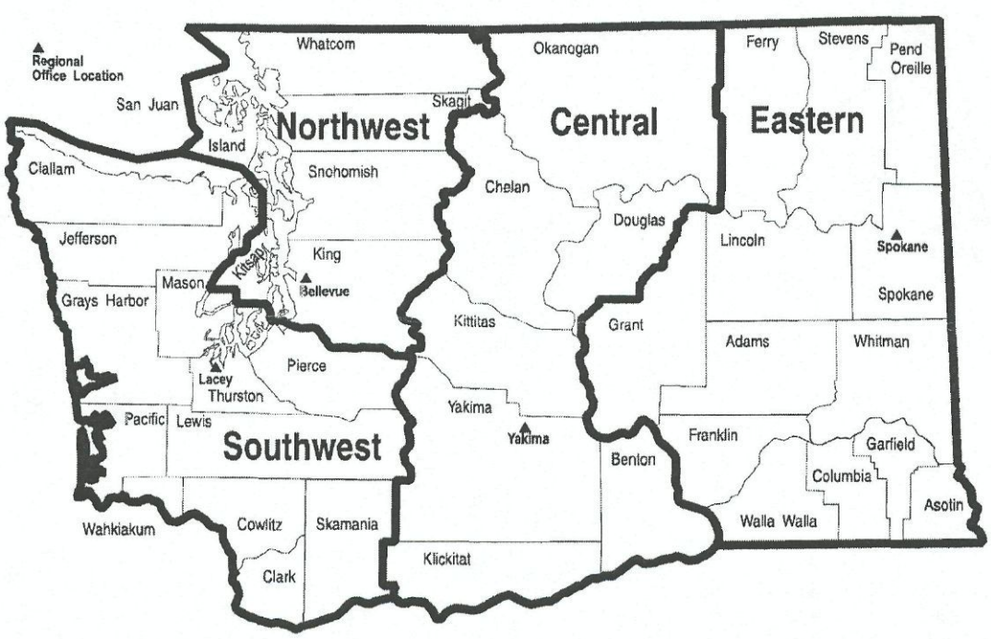
Print Name (Applicant or authorized representative)	Signature	Date
BRUCE BEAUCHEMC	Bruce Beauchemc	5/14/10

Print Name (Landowner of Place of Use)	Signature	Date

Submit your application to: DEPARTMENT OF ECOLOGY
CASHIERING SECTION
PO BOX 5128
LACEY WA 98509-5128

Please check the region in which your proposed project is located.
☐ Southwest ☐ Northwest ☒ Central ☐ Eastern

Below is a map of the State of Washington, with outlines of the four Ecology regional offices. If you have questions about your application, contact the Water Resources program at the regional office in which your project is located.



Southwest Regional Office: 360-407-6300

Northwest Regional Office: 425-649-7000

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 West Yakima Avenue, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

June 3, 2010

City of Kennewick
c/o Bruce Beauchene
PO Box 6108
Kennewick WA 99336-0108

Re: Water Right Application No. G4-35338

Dear Mr. Beauchene:

The Department of Ecology has received your application. We have assigned your application the number shown above. Please include this number if you contact us regarding your application.

The minimum application fee is $50.00. In addition to the $50.00 that you have already submitted, an additional fee of **$505.56** is now due. Refer to the enclosed Water Right Application Fee Schedule to see how your fees were calculated. Please use the enclosed invoice to return your check or money order.

No action will be taken on your application until the fee is paid in full. Your application will be rejected if the additional fees are not submitted within 60 days of this notice.

Be sure to notify Ecology of changes such as address, property ownership, or variations in your proposed water use plans. If you have any questions, contact Teresa Mitchell at 509-575-2597.

Sincerely,

Sandy Anderson

Sandy Anderson
Water Resources Program

SA:gh/100617

Enclosures: *Water Right Application Fee Schedule*
Invoice & Envelope

By certified mail: 7007 2560 0001 9535 9368

App-addfee.doc

FILE COPY

7007 2560 0001 9535 9368

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

6-3-10

Sent To: City of Kennewick

Street, Apt. No.; or PO Box No.:

City, State, ZIP+4:

PS Form 3800, August 2006 — See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

CITY OF KENNEWICK
C/O BRUCE BEAUCHENE
PO BOX 6108
KENNEWICK WA 99336-0108

WR/gh (add'tl fees) G4-35338

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Kellie Hays ☐ Agent ☐ Addressee

B. Received by (Printed Name): Kellie Hays
C. Date of Delivery: 6-7-10

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
7007 2560 0001 9535 9368

PS Form 3811, February 2004 — Domestic Return Receipt — 102595-02-M-1540

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Water Resources Program

INVOICE

FROM: Department of Ecology
Central Regional Office
15 W. Yakima Avenue, Suite 200
Yakima WA 98902-3452
509-575-2490 Fax 509-575-2809
http://www.ecy.wa.gov/programs/wr/wrhome.html

Date: June 3, 2010

Water Right No(s): G4-35338

TO: City of Kennewick
c/o Bruce Beauchene
PO Box 6108
Kennewick WA 99336-0108
509-585-4451

DESCRIPTION	AMOUNT
Additional fees required for Application for a Water Right Permit	$ 505.56
	$
	$
	AMOUNT DUE
	$ 505.56

For questions concerning this invoice, please contact our Central Regional office at 509-575-2490 and ask for the Water Resources Program or you may contact Teresa Mitchell directly at 509-575-2597.

PLEASE RETURN BOTTOM PORTION WITH YOUR PAYMENT

Detach and return this portion with your payment.

PLEASE SEND CHECK OR MONEY ORDER PAYABLE TO: **(DO NOT SEND CASH)**

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Amount Due: $505.56

Water Right No(s): G4-35338

FROM: City of Kennewick
c/o Bruce Beauchene
PO Box 6108
Kennewick WA 99336-0108
509-585-4451

Water Resources Program, Central Regional Office

FOR ECOLOGY USE ONLY: 001 WR1 0285 000011

Amount rcvd: $_____ Check No.: _____

Detach and return this portion with your payment.

PLEASE SEND CHECK OR MONEY ORDER PAYABLE TO: **(DO NOT SEND CASH)**

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Amount Due: $505.56

'10 JUN 14 A8:44

Water Right No(s): G4-35338

DEPT. OF ECOLOGY

Water Resources Program, Central Regional Office

FROM: City of Kennewick
c/o Bruce Beauchene
PO Box 6108
Kennewick WA 99336-0108
509-585-4451

FOR ECOLOGY USE ONLY: 001 WR1 0285 000011

Amount rcvd: $_____ Check No.: _____

ECY 070-259

WATER RIGHT FEE INVOICE

$50.00
Ck# 97158
6-1-10
VRg

CITY OF KENNEWICK WASHINGTON

RECEIVED
JUN 01 2010
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

May 28, 2010

Mr. Rick Roeder
Washington Department of Ecology
15 West Yakima Avenue, Suite 200
Yakima, WA 98902-3452

Subject: Application for Water Right Permit

Dear Mr. Roeder:

Enclosed is an application for a water right permit for a well being proposed in the Southridge area of Kennewick. This application is being submitted per Item 5c of the Kennewick Underground Artificial Storage and Recovery Project Development Memorandum of Understanding between the City and the DOE dated January 2, 2008. Also enclosed is our check number 97158 in the amount of $50 for the permit fee.

Please call me at (509) 585-4289 if you have any questions or comments regarding this application.

Sincerely,

Bruce Beauchene

Bruce Beauchene, P.E.
Utility Services Manager

BB:sb
BWB-120

Attachment

MUNICIPAL SERVICES

1010 E. Chemical Drive • PO Box 6108 • Kennewick, WA 99336-0108
(509) 585-4289 • Fax (509) 585-4451 • bruce.beauchene@ci.kennewick.wa.us

RECEIPT

Department of Ecology (4610)
PO Box 47611
Olympia, WA 98504-7611
(360) 407-7095

Receipt Number **10CJ020317**
Manual Receipt

Document Number **461J1537 CJ** Date **06/04/2010** FM **12**

Remitter Name **KENNEWICK CITY** Receipt Name

Check/Draw Number **97158**

Document Amount **50.00**

Method of Payment **Check**

Comment Description **WATER RIGHTS - G4-01390C, G4-04539C, S4-25479C**

I see no evidence of these Water Right numbers. Only R4-35237. Verna Rae is unsure where she got them from.

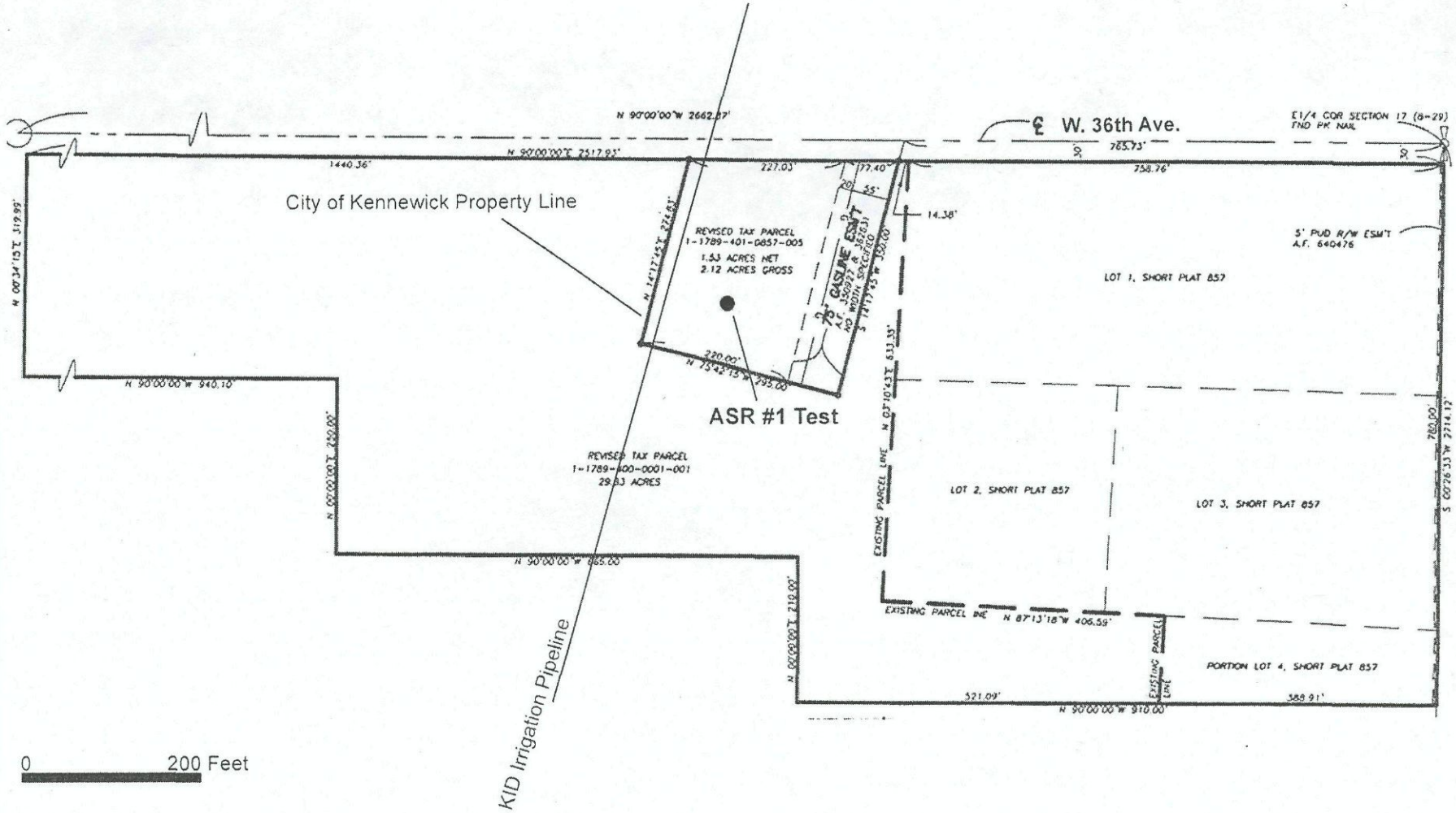
REF DOC NR	REF DOC SFX	INV NR	ID NR	SUB ID NR	T C	R	FUND	MAJ GRP	MAG SRC	SUB SRC	CNTY	WORK CLS	PIC	AI	ORG	PRJ	SUB PRJ	PRJ PHS	SUB OBJ	SUB SUB OBJ	VAR GL	SUB SID DR	SUB SID CR	ALLOC AMT
					001		001	02	85	000011														50.00

No paperwork was sent over with this check. Please see Verna Rae if you have any questions.

Terenna
360-407-7095

App/bee Rec'd 6/1/2010 at CRO. Routed to RR.

RECEIVED
JUN 07 2010
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE



City of Kennewick ASR Pilot Study	Site Layout	Drawing No. TS01-2

WATER RIGHTS

G4-29926C

KENNEWICK CITY *
PO BOX 6108
KENNEWICK WA 99336-0108

DOCUMENT TITLE: CERTIFICATE OF WATER RIGHT

REFERENCE NUMBER:

GRANTOR
STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
OFFICE OF COLUMBIA RIVER (ECY CRO)
15 WEST YAKIMA AVE, STE 200
YAKIMA, WASHINGTON 98902-3452
(509) 575-2490

GRANTEE
KENNEWICK CITY *
PO BOX 6108
KENNEWICK, WA 99336-0108

LEGAL DESCRIPTION

Source Name	Parcel	Township	Range	Sec	QQ Q
WELL	106804BP3452002	08 N	30 E.W.M.	06	NE SE

AUTHORIZED PLACE OF USE
A portion of a 26.95 acre industrial park located between the southerly right-of-way of chemical Drive and the northerly right-of-way of the Union Pacific Railroad and located within the N½SE¼ of Section 6, T. 8N., R. 30 E.W.M.

PARCELS: 106804BP3452002

ADDITIONAL LEGAL IS ON PAGE ____ OF ATTACHED DOCUMENT

State of Washington
Department of Ecology
CERTIFICATE OF WATER RIGHT

DEPARTMENT OF ECOLOGY
State of Washington

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown, but is limited to an amount actually beneficially used

PRIORITY DATE	WATER RIGHT NUMBER
February 9, 1989	G4-29926

MAILING ADDRESS	SITE ADDRESS (IF DIFFERENT)
KENNEWICK CITY PO BOX 6108 KENNEWICK, WA 99336-0108	1010 E. CHEMICAL DRIVE KENNEWICK, WA 99336-0108

Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
100	GPM	7.2

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE ADDITIVE	WITHDRAWAL OR DIVERSION RATE NON-ADDITIVE	UNITS	ANNUAL QUANTITY (AF/YR) ADDITIVE	ANNUAL QUANTITY (AF/YR) NON-ADDITIVE	PERIOD OF USE (mm/dd)
Irrigation	100		GPM	7.2		04/01 - 12/31

IRRIGATED ACRES ADDITIVE	IRRIGATED ACRES NON-ADDITIVE	PUBLIC WATER SYSTEM INFORMATION WATER SYSTEM ID	PUBLIC WATER SYSTEM INFORMATION CONNECTIONS
1.6			

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Benton	Groundwater		31-Rock-Glade

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
WELL	106804BP3452002		08N.	30E.W.M.	06	NESE	46.2041	-119.10132

Datum: NAD83 HARN

Place of Use

PARCELS (NOT LISTED FOR SERVICE AREAS)

106804BP3452002

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

A portion of a 26.95 acre industrial park located between the southerly right-of-way of Chemical Drive and the northerly right-of-way of the Union Pacific Railroad and located within the N½SE¼ of Section 6, T. 8N., R. 30 E.W.M.

Measurement of Water Use

How often must water use be measured?	Once Annually
How often must water use data be reported to Ecology?	Annually by Jan 31
What volume should be reported?	Total Annual Quantity
What rate should be reported?	Peak

Provisions

Wells, Well Logs and Well Construction Standards

All wells constructed in the state shall meet the construction requirements of Chapter 173-160 WAC titled "Minimum Standards for the Construction and Maintenance of Wells" and Chapter 18.104 RCW titled "Water Well Construction". Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.

Installation and maintenance of an access port as described in WAC 173-160-291(3) is required.

Any replacement or additional wells constructed under this authorization shall be cased and sealed to a depth of 20 feet into the first confining basalt layer.

Measurements, Monitoring, Metering and Reporting

An approved measuring device must be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter173-173 WAC," which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Recorded water use data shall be submitted via the Internet. To set up an Internet reporting account, contact the Central Regional Office. If you do not have Internet access, you can still submit hard copies by contacting the Central Regional Office for forms to submit your water use data.

The right to use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCWs 90.03.380, 90.03.390, and 90.44.100.

This certificate of water right is specifically subject to relinquishment for non-use of water as provided in Chapter 90.14 RCW.

Given under my hand and the seal of this office at Yakima, Washington, this 13TH *day of* July *2011.*

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Ted Sturdevant, Director
Department of Ecology

DATA REVIEW
OK

Derek I. Sandison, Director
Office of Columbia River

If you need this document in an alternate format, please call the Water Resources Program at 360-407-6872. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

DEPARTMENT OF ECOLOGY
State of Washington

Water Resources Program

Assignment of Application or Permit to Appropriate or Store Water

To change the ownership of an application/permit

A NON-REFUNDABLE $50.00 FEE MUST ACCOMPANY THE FILING OF THIS ASSIGNMENT

PLEASE COMPLETE THIS FORM IN INK

I/We, Cascade Columbia Foods, Ltd. (F. Daniel Frost) ***(Applicant/Permittee)***
(Please print)

Address: P.O. Box 7285 City: Kennewick State: WA Zip: 99336 Telephone: (___) ___ - ____

E-mail address: RICKBYLANDANDCAATLE @ MSN.COM

Hereby assign to: City of Kennewick (Robert Hammond) ***(Assignee)***
(Please print)

Address: P.O. Box 6108 City: Kennewick State: WA Zip: 99338 Telephone: (509) 585-4289

E-mail address: robert.hammond@ci.kennewick.wa.us

'10 JUN 29 A8:59
DEPT. OF ECOLOGY
FISCAL & BUDGET

All my right, title, and interest in and to Application/Permit No. G4-29926P to appropriate the public waters of the State of Washington.

OR (for partial assignments)

The following described portion of my right, title, and interest in and to Application/Permit

No. _____ to appropriate the public waters of the State of Washington.

Describe portion of the application/permit assigned, listing the number of acres (only for irrigation rights), point of diversion/withdrawal location(s), and amount of the water in gallons per minute or cubic feet per second and acre feet per year.

_____

_____

_____

_____

Provide the latitude and longitude of the Point(s) of Diversion or Withdrawal. If unable to do so, provide the distance and direction from the nearest Section, Township, and Range using the Public Land Survey System.

_____

If for a partial assignment, attach a copy of the property deed or title insurance policy and a detailed map of the proposal.

This assignment is being made for the following reason(s): _____ REET 07-22-2010

_____

_____

_____

If for a permit to appropriate or store water:

- ☐ The development schedule can be met.
- ☐ The development schedule cannot be met. A proposal for a new development schedule is included.

Applicant/Permittee Section:

I/We, F. Daniel Frost, have read the above assignment of application or permit to appropriate or store water; that I/we know the contents thereof; and that the facts therein stated are true.

Signed this 28th day of May, in the year 2010.

Applicant/Permittee Signature

Applicant/Permittee Signature

Applicant/Permittee Signature

State of ~~Washington~~ ARIZONA

County of PIMA

I hereby certify that I know or have satisfactory evidence that F. Daniel Frost Applicant(s)/Permittee(s) is the person who appeared before me, and said person acknowledged that he/she signed this instrument and acknowledged it to be his/her free and voluntary act for the uses and purposes mentioned in this document.

Subscribed and sworn before me this 28 day of May, in the year 2010.

DOROTHY J. MILLER
Notary Public - Arizona
Pima County
My Comm. Expires Feb 14, 2013

Notary Signature

My commission expires: 2-14-2013

Assignee Section:

I/We, Robert Hammond, have read the above assignment of application or permit to appropriate or store water; that I/we know the contents thereof; and that the facts therein stated are true.

Signed this 9th day of June, in the year 2010.

Robert R Hammond

Assignee Signature

Assignee Signature

Assignee Signature

State of Washington

County of Benton

I hereby certify that I know or have satisfactory evidence that Robert Hammond Assignee(s) is the person who appeared before me, and said person acknowledged that he/she signed this instrument and acknowledged it to be his/her free and voluntary act for the uses and purposes mentioned in this document.

Subscribed and sworn before me this ~~28~~ 9th day of ~~May~~ June, in the year 2010.

JACQUELYN L. AMAN
COMMISSION EXPIRES
NOTARY
PUBLIC
8-01-13
STATE OF WASHINGTON

Jacquelyn L Aman

Notary Signature

My commission expires: ~~2-14-2013~~ 8/1/13

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

RECEIVED JUN 28 1991 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

PROOF OF APPROPRIATION OF WATER

APPLICATION NUMBER:

PERMIT NUMBER: G4-29926P

NAME OF PERMITTEE: CASCADE COLUMBIA FOODS, LTD

BUS. TEL. 509-586-6749
HOME TEL. 509-735-4070
OTHER TEL.

POST OFFICE ADDRESS: P.O. BOX 7285 (CITY) KENNEWICK (STATE) WA (ZIP CODE) 99336

ACTUAL SOURCE OF APPROPRIATION: WELL 1200 FEET WEST, 600 FEET SOUTH OF EAST 1/4 CORNER, S.6

PURPOSE OR PURPOSES WATER IS USED FOR: FRESH VEGETABLE PACKAGING

DATE WATER WAS COMPLETELY APPLIED TO PERMITTED USE: DECEMBER '90 - COMPLETION OF FIRST PROCESSING SEASON

IF USED FOR IRRIGATION: NUMBER OF ACRES ACTUALLY IRRIGATED:

IF SOURCE IS A WELL, IS AN ACCESS PORT NOW INSTALLED: ☒ YES ☐ NO

MONTHS DURING WHICH WATER IS USED: APRIL — DECEMBER

PUMP SIZE: 15 HP - IMPELLER MODIFICATION TO 1/2 CAPACITY

ACTUAL AMOUNT WITHDRAWN OR DIVERTED FROM PERMANENT SYSTEM: 114,000 G. TO DATE 6/26/91 ☐ GPM = 80 ☐ CFS

HAVE ALL PROVISIONS AS REQUIRED BY PERMIT BEEN ACCOMPLISHED: ☒ YES ☐ NO

IF NO, EXPLAIN:

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED (USE ADDITIONAL SHEET IF NECESSARY)

LOCATED WITHIN THE N1/2 SE1/4 OF SECTION 6
T. 8N., R. 30E.W.M.
LATITUDE 46 DEG, 12 MIN, 00 SEC
LONGITUDE 119 DEG, 06 MIN, 45 SEC

ok for PA
KO

STATE OF WASHINGTON,
County of BENTON } ss.

I, JACK H. SALEMME, being first duly sworn, depose and say that I have read the above and foregoing proof of appropriation; that I know the contents thereof; and that the facts therein stated are true.

IN WITNESS WHEREOF, I have hereunto set my hand this 26th day of JUNE, 1991.

Jack H. Salemme
Permittee Signature

Subscribed and sworn to before me this 26th day of June, 1991.

Lynn E. Winters
Notary Public

LYNN E. WINTERS NOTARY PUBLIC COMMISSION EXPIRES JUN. 19, 1992 STATE OF WASHINGTON

P/A

ECY 040-1-26
Rev. 1/85 QX A-209

file

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
February 9, 1989	G4-29926	G4-29926P	

NAME
Cascade Columbia Foods, Ltd.

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
2211 West Court Street	Pasco,	Washington	99301

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following described public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
a well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	100	10

QUANTITY, TYPE OF USE, PERIOD OF USE
Industrial vegetable washing (including a spray field of approximately 2 acres in area) from April 1 to December 31 each year.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1200 feet west and 600 feet south of the east quarter corner of Section 6;

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
NE¼SE¼	6	8	30 E	37	Benton

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Cascade Columbia Foods, Ltd. vegetable packing facility at 350 East Juniper, Kennewick, WA, being a portion of a 26.95 acre industrial park located between the southerly right-of-way of Chemical Drive and the northerly right-of-way of the Union Pacific Railroad and located within the N½SE¼ of Section 6, T. 8 N., R. 30 E.W.M.

DESCRIPTION OF PROPOSED WORKS

A well which is to be cased and sealed into the first confining basaltic rock layer will be used to fill and supplement water within a vegetable washing system, which includes on-site water treatment for water reuse.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	June 1, 1990	June 1, 1991

PROVISIONS

Any well constructed under this authorization shall be cased and sealed to a depth of 20 feet into the first confining basalt layer.

Since an accurate forecast of the actual annual water requirement of this industrial use cannot be made, a totalizing flow meter must be permanently installed upon the well discharge in such a manner as to measure the total withdrawal of water under this authorization.

Should a Certificate of Water Right issue upon completion of the project, it shall be limited to that volume of water actually put to use as measured by the totalizing flow meter or 10 acre-feet, whichever is less.

A Waste Water Discharge Permit is required for this project.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gage may be installed in addition to the access port.

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Yakima, *Washington, this* 31st *day of* July, *19* 89

Department of Ecology

by Doug Clausing
DOUG CLAUSING, SECTION SUPERVISOR

ENGINEERING DATA
OK ....
2x31 FR:ska

file

BEFORE THE
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

IN THE MATTER OF APPLICATION NUMBER G4-29926 FOR PERMIT TO APPROPRIATE PUBLIC WATERS	)))	FINDINGS OF FACT AND ORDER Docket No. DE 89-C175

Upon review of the Examiner's report, I find that all facts relevant and material to the subject application have been thoroughly investigated. Furthermore, in accordance with the Examiner's conclusions and recommendations, I find that water may be appropriated for beneficial use and that said use will not impair existing rights or be detrimental to the public welfare.

IT IS ORDERED that a permit issue under Application Number G4-29926 authorizing appropriation of public waters in the amount, and for the use, and subject to the provisions set forth in the Examiner's report.

Any person feeling aggrieved by this order may obtain review thereof by application, within thirty (30) days of receipt of this order, to the Washington Pollution Control Hearings Board, Lacey, Washington 98504, with a copy to the Director, Department of Ecology, Olympia, Washington 98504, pursuant to the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

Signed at Yakima, Washington this 1st day of June, 1989.

Doug Clausing

Doug Clausing, Section Supervisor
Water Resources Program
Department of Ecology

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
February 9, 1989	G4-29926		

NAME
Cascade Columbia Foods, Ltd.

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
2211 West Court Street	Pasco,	Washington	99301

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
a well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	100	10

QUANTITY, TYPE OF USE, PERIOD OF USE
Industrial vegetable washing (including a spray field of approximately 2 acres in area) from April 1 to December 31 each year.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1200 feet west and 600 feet south of the east quarter corner of Section 6;

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
NE¼SE¼	6	8	30 E	37	Benton

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Cascade Columbia Foods, Ltd. vegetable packing facility at 350 East Juniper, Kennewick, WA, being a portion of a 26.95 acre industrial park located between the southerly right-of-way of Chemical Drive and the northerly right-of-way of the Union Pacific Railroad and located within the N½SE¼ of Section 6, T. 8 N., R. 30 E.W.M.

DESCRIPTION OF PROPOSED WORKS

A well which is to be cased and sealed into the first confining basaltic rock layer will be used to fill and supplement water within a vegetable washing system, which includes on-site water treatment for water reuse.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	June 1, 1990	June 1, 1991

REPORT

Background

On February 9, 1989, Cascade Columbia Foods, Ltd., of Pasco, Washington filed an application to withdraw public ground waters. The application was accepted and assigned number G4-29926. Public notice was properly made and a letter of protest filed by Scott and Linda Carpenter within the thirty (30) day protest period. The application and letter of protest are fully described and considered within the following report.

Investigation

The following information was collected through research of office records, a telephone interview with Wallace W. Hickerson, P. E., representing the applicants, and the author's knowledge of the proposed project area.

The author attempted to contact the protestants by telephone and left a message on their telephone answering machine on May 9 and 11, 1989, requesting they respond. To date they have not responded.

The applicants have proposed withdrawing 100 gallons per minute (gpm) from a well to be constructed at a point approximately 1200 feet west and 600 feet south from the east quarter corner of Section 6, to be used for industrial purposes upon a 7.5 acre site located within the City of Kennewick, Washington. The street address of the place of use, which is a portion of a 26 acre industrial park owned by the applicant and located between Chemical Drive and the Union Pacific Railroad tracks within the SE1/4 of Section 6, T. 8 N., R. 30 E.W.M. is 350 East Juniper, Kennewick, Washington.

The specific nature of the industrial use is the washing of vegetables, primarily carrots. The vegetable washing process basically consists of the following: vegetables are dumped into a washing reservoir with a capacity of approximately 7500 gallons of water. Soil is removed by water spray and agitation. A conveyor belt at the opposite end of the reservoir removes the clean vegetables from the washing reservoir. To prevent water within the washing reservoir from becoming too turbid for effective washing, water is pumped from the washing reservoir to a settling pond were suspended solids are allowed to settle out. Water is pumped from the settling pond to a clear water reservoir for reuse within the washing reservoir.

On a regular basis, approximately 4 hours every 24 hours during peak processing periods, water within the washing reservoir is pumped into a spray field consisting of a grassy area of about 2 acres in size. The purpose of this spray field is to dispose of highly silted water to allow dilution of the wash water with fresh water from the proposed well.

Discharge of silted water to the spray field will require that an Industrial/Commercial Waste Discharge Permit be obtained from the Department of Ecology. To prevent water loss to the ground through the semi-closed water use and recovery system, the reservoirs have been constructed using an impervious membrane liner. The primary water losses to this system will be evaporation, water remaining upon the vegetables after washing, and water removed from the system to the spray field to maintain a level of clarity to the wash water.

Mr. Hickerson estimates that on an annual basis, during the period of operation from April through December, this industrial use will not consume in excess of 10 acre-feet of water. Water for domestic use at the plant and as a back-up supply to the washing operation will be provided by the City of Kennewick municipal water supply. There will be no intertie, however, between the municipal supply and the private water supply provided by the proposed well.

As a matter of comparison, the spray irrigation of an acre of pasture in the Kennewick area can require an annual water quantity of as much as 5 acre-feet depending upon soils, slope and other site specific factors. Pasture irrigation of 2 acres, normally occurring between April and October, would place a similar annual demand upon the ground water source as the proposed water use, but would do so during a shorter season.

The actual quantity of consumptive water use will depend upon the volume of crop to be washed and may be substantially less than estimated. Ten acre-feet of annual water use will, as a permit condition, become the upper limit of authorized water withdrawal during development.

A totalizing water meter should be installed upon the well in such a manner that the actual annual water use can be determined through the development period and initial operation of the facility. The actual consumptive use, up to the limitations of the permit, can then be used if a Certificate of Water Right issues to the applicant.

Office records indicate that there have been many wells constructed within the general vicinity of the proposed project. Some domestic wells have only been constructed to depths of 30 to 40 feet while other wells, constructed for the purpose of obtaining greater instantaneous quantities, are generally of depths of 100 feet or more.

Certificate of Ground Water Right No. 6828-A authorizes the withdrawal of 1000 gpm, 1600 acre-feet per year from a well located within the Gum Street Industrial Site of Kennewick, of the SW1/4NE1/4 of Section 6, for the purpose of industrial supply (including refrigeration) within a portion of the W1/2NE1/4 of Section 6, T. 8 N., R. 30 E.W.M. located south of the Northern Pacific Railroad.

The well constructed during 1969 under authorization of the permit which resulted in Certificate No. 6828-A penetrated clay and gravel to a depth of 30 feet. This substantial water withdrawal is located about 1000 feet north from the proposed project well site.

Water well reports on file within the Central Region Office of the Department of Ecology indicate that the project site is probably underlain by beds of sand and gravel to a depth of approximately 100 feet below the surface. These sand and gravel layers are saturated with water which is in hydraulic continuity with the waters of the Columbia River and the shallow ground waters relied upon by domestic water uses within the general project vicinity.

Below the sand and gravel layers, at approximately 100 feet in depth, water wells within the project vicinity have penetrated basalt rock. Basalt is a rock of volcanic origin, which has formed in Eastern Washington when extremely fluid lava flowed laterally from fissures across the existing land surface. Through repeated volcanic episodes that deposited layer after layer of basalt rock, the Columbia plateau of Eastern Washington was formed.

The individual basaltic layers vary in thickness from a few feet thick to 100 feet or more and can cover areas of thousands of square miles. The uppermost basalt layer within the project vicinity appears to be approximately 12 to 20 feet thick.

The time period between volcanic eruptions was generally sufficient to allow the development of soils and vegetation. When covered by a succeeding layer of basalt, the soil layers are called interbeds. These interbeds and the porous portions of the confining basalt layers form aquifers.

Thus, by requiring that the project well be constructed such that it is cased and sealed into the the first basaltic layer, shallow ground water relied upon by many wells within the project area should be adequately protected.

Consideration of Objections

On April 10, 1989, a letter of protest was received from Scott and Linda Carpenter of Kennewick, Washington. The Carpenter's have raised objections to the proposed water withdrawal on the basis that the withdrawal would have an adverse effect on the ground water aquifer including the aquifer into which their own well is constructed and that the applicants have Kennewick Municipal water available for their project needs.

The protestants have calculated the project water needs as being 11,700,000 gallons per year based upon a 10 hour work day, five work days per week, for the period from April to December.

Since the actual water withdrawal will be intermittent, the proposed project is estimated to require an annual water quantity of less then 10 acre-feet (3,258,550 gallons per year), and shall be so limited by the permit, rather than the quantity of nearly 36 acre-feet (11,700,000 gallons) calculated by the protestants.

A municipal water supply will be used at the project site for domestic purposes. Due to the cost of the municipal supply and the lesser standard of water purity that is required for this industrial purpose than is provided by the municipal water system, it is considered more economical to provide a private industrial water source.

The City of Kennewick, as lead agency for compliance with the State Environmental Policy Act, Chapter 41.23C, Revised Code of Washington, and as permitting authority of the site plan, has approved the project.

Office records include a water well report of a well constructed within Lot 4, Short Plat No. 187, part of the SW1/4NE1/4 of Section 5, T. 8 N., R. 30 E.W.M. owned by Scott Carpenter. This 6 inch diameter well was constructed by B&H Drilling during September, 1976 to a depth of 36 feet below the ground surface. It penetrated sand, boulders, hard pan, and at a depth of 24 feet below the surface entered water bearing gravels and sands. The well was sealed into the hard pan with an 18 foot surface seal and the well cased to 36 feet in depth with no perforations.

The static water level of the protestant's well was measured as being 17 feet below the land surface on September 27, 1976.

The protestant's well appears to be one of the many shallow wells within the project area that rely upon the unconfined aquifer within saturated sands and gravels above the uppermost layer of basalt rock. Adequate protection of this aquifer and the protestant's water use will be provided by imposing well construction requirements upon the applicant's well to isolate his proposed withdrawal from this aquifer.

Conclusions

Based upon the forgoing information, the following conclusions are made:

The proposed water use is beneficial and is not contrary to the public interest.

Water is available for the proposed industrial use up to an annual appropriation of 10 acre-feet and the water withdrawal will not impair existing rights provided that any well constructed under authority of this permit be cased and sealed to a depth of 20 feet into the first confining basalt layer.

Since an accurate forecast of the actual annual water requirement of this industrial use cannot be made, a totalizing flow meter must be permanently installed upon the well discharge in such a manner as to measure the total withdrawal of water under authority of this permit.

Should a Certificate of Water Right issue upon completion of the project, it shall be limited to that volume of water actually put to use as measured by the totalizing flow meter or 10 acre-feet, whichever is less.

Recommendations

In light of the information obtained through investigation, and the conclusions drawn, the author respectfully recommends that a permit be issued to Cascade Columbia Foods, Ltd. authorizing the withdrawal of up to 100 gpm, 10 acre-feet per year, from a well during the period from April 1 to December 31 each year for the industrial purpose of vegetable washing.

The following provisions shall apply:

Any well constructed under this authorization shall be cased and sealed to a depth of 20 feet into the first confining basalt layer.

Since an accurate forecast of the actual annual water requirement of this industrial use cannot be made, a totalizing flow meter must be permanently installed upon the well discharge in such a manner as to measure the total withdrawal of water under this authorization.

Should a Certificate of Water Right issue upon completion of the project, it shall be limited to that volume of water actually put to use as measured by the totalizing flow meter or 10 acre-feet, whichever is less.

A Waste Water Discharge Permit is required for this project.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gage may be installed in addition to the access port.

REPORT BY: Fred Rajala DATE: 5-31-89
Fred Rajala

APPROVED BY: Doug Clausing DATE: 6/1/1989
Doug Clausing, Section Supervisor

2x31
ska

Tri-City Herald

P.O. BOX 2608
PASCO, WASHINGTON 99302-2608
(509) 582-1500

-2992 **LEGAL ADVERTISING**
INVOICE

DATE: 0308 LEGAL NO. 008031

ACCOUNT NO. 90076

DESCRIPTION: Water Application No. G4

TIMES: 002 LINES: 42

RECEIVED MAR 15 1989

SOLD TO:

Cascade Columbia Food, Ltd.

2211 West Court
Pasco
WA 99301

TOTAL $ 57.62

NOTICE: This is an invoice for legal advertising space. Please pay from this invoice as no statement will be rendered.

Please detach at perforation and return with payment.

AFFIDAVIT OF PUBLICATION

STATE OF WASHINGTON DEPTARTMENT OF ECOLOGY NOTICE OF APPLICATION TO APPROPRIATE PUBLIC WATERS

TAKE NOTICE:

That Cascade Columbia Foods, LTD. of Pasco, Washington on February 9, 1989 under Application No. G4-29926 filed for permit to appropriate public waters, subject to existing rights, from a well in the amount of 100 gallons per minute each year, for industrial use.

The source of the proposed appropriation is located within the N½SE¼ of Section 6, Township 8 N., Range 30 E.W.M., in Benton County.

Protests or objections to approval of this application must include a detailed statement of the basis for objections; protests must be accompanied by a two dollar ($2.00) recording fee and filed with the Department of Ecology, at the address shown below, within thirty (30) days from March 8, 1989.

State of Washington
Department of Ecology
3601 W. Washington
Yakima, WA 98903
#8031 - 3/1,8/89

OK
SMB

COUNTY OF BENTON
ss.
STATE OF WASHINGTON

TRACY E. HOEVET, being duly sworn, deposes and says, I am the Legal Clerk of the Tri-City Herald, a daily newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and it is now and has been for more than six months prior to the date of the publication hereinafter referred to, published countinually as a daily newspaper in Benton County, Washington. That the attached is a true copy of a Water Application No. G4-29926 as it was printed in the regular and entire issue of the Tri-City Herald itself and not in a supplement thereof, 002 time(s), commencing on 030189, and ending on 030889, and that said newspaper was regulary distributed to its subscribers during all of this period.

Tracy E. Hoevet

SUBSCRIBED AND SWORN BEFORE ME THIS 9

DAY OF March, 1989.

Phyllis Getchell

Notary public in and for the State of Washington, residing at PASCO

COMMISSION EXPIRES 7-15-92

RECEIVED
MAR 29 1989
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

State of Washington
Department of Ecology

APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

RECEIVED FEB - 9 1989 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
G429926	31	Benton	2-9-89		SMB

APPLICANT'S NAME — PLEASE PRINT: Cascade Columbia Foods, Ltd.

BUSINESS TEL. 509/547-6337
HOME TEL. 509/783-4640

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
2211 W. Court	Pasco	WA	99301

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION:

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE): N/A	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.): A Well
TRIBUTARY: N/A	SIZE AND DEPTH: 8" Dia. x 60' Deep

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)

Manufacturing - Washing Fresh Carrots (applied to turf areas as needed)

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF: CUBIC FEET PER SECOND ..... CFS **OR** GALLONS PER MINUTE 100 GPM | ACRE FEET PER YEAR

(Industrial use)

TIMES DURING YEAR WATER WILL BE REQUIRED

Early April through early December

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, 1-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY
25	N/A	N/A

DATE PROJECT WAS OR WILL BE STARTED	DATE PROJECT WAS OR WILL BE COMPLETED
December 1988	June 1989

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY
~~SE 1/4~~ N1/2 SE1/4	6	8	30	Benton

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER

Yes

5. LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED*

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM **A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY.** OR, COPY CAREFULLY IN THE SPACE BELOW.

See attached Deed.

APPLICATION

ECY-040-1-14
Rev. 3/81
3

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH WATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONTRACT PURCHASER, ETC.)

Property Owner

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.) ☐ YES ☐ NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

Pump: 7½ hp motor, 3550 rpm, 460 volt (3 phase) capable of delivering 100 gpm @ 180' head

Well Casing: Welded steel pipe conforming to ASTM A53, Type E or S, Grade B

Receiver Pressure Tanks: 2 tanks @ 85 gallons each w/bladder, maximum working pressure of 100

The well water will be utilized to wash dirt off from freshly dug carrots as they are delivered to the packing plant.

The carrot wash water containing soil particles will be pumped to a two cell settling pond on site to remove soil particles. Clarified water will be recycled to the carrot receiving pit. Fresh well water will be added as make-up water as needed to hold carrot wash water at desired turbidity levels. As make-up water is added, water from the settling ponds will be utilized to irrigate planted areas on site. As no water is consumed in the fresh pack operation, all make-up water volumes, less evaporation losses, will be utilized to irrigate vegetation on the 28 acre site. Estimated flows are as follows: average flow - 9000 gpd; and maximum flow - 20,000 gpd.

REMARKS

7.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

CASCADE COLUMBIA FOODS LTD.
By Alan F Caldwell VP Oper
APPLICANT'S SIGNATURE

F. Daniel Frost
LEGAL LANDOWNERS NAME (PLEASE PRINT)

LEGAL LANDOWNER'S SIGNATURE

333 S. Grand Ave., #4961, Los Angeles, CA 90071
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY } *ss.*

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before....., *19*.....

Witness my hand this.....*day of*....., *19*.....

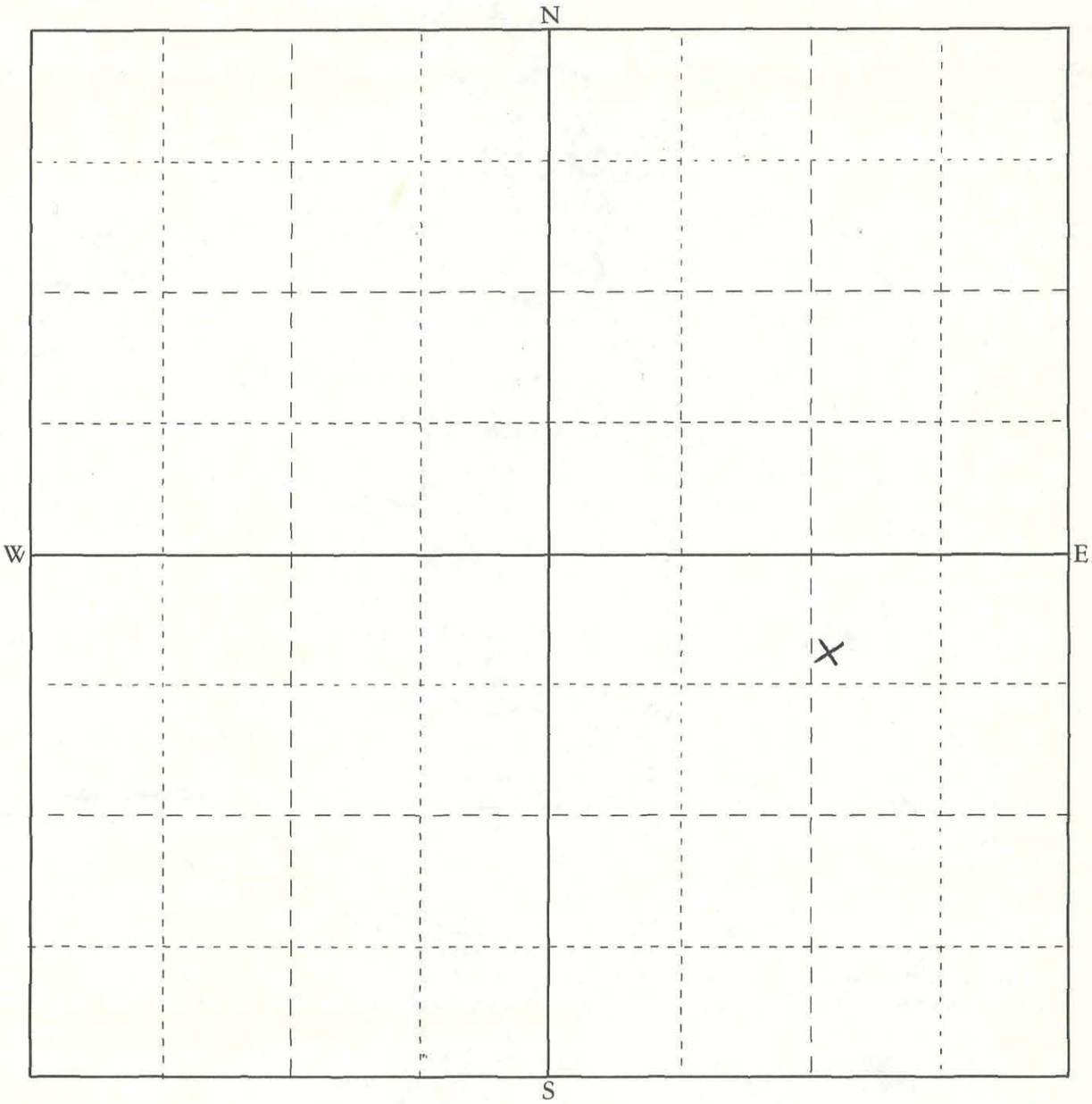
.....
Department of Ecology

ECY-040-1-14
Rev. 3/81

1[illegible]926

SECTION MAP

Sec. 6 Twp. 8 N. R. 30 E



Scale: 1 inch = 800 feet (each small square = 10 acres)

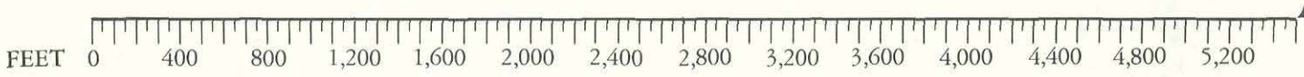
Show by a cross (X) the location of point of diversion (surface water source) or point of withdrawal (ground water source). For ground water applications, show by a circle (O) the locations of other wells or works within a quarter of a mile.

Indicate traveling directions from nearest town in space below.

The proposed well site is inside the Kennewick City limits on a 28 acre site owned by the applicant, Cascade Columbia Foods, Ltd. (See attached record survey) The site is near the intersection of Chemical Drive and E. 3rd Avenue at the fresh vegetable packing facility now under construction; the plant address is 350 E. Juniper, Kennewick, WA.

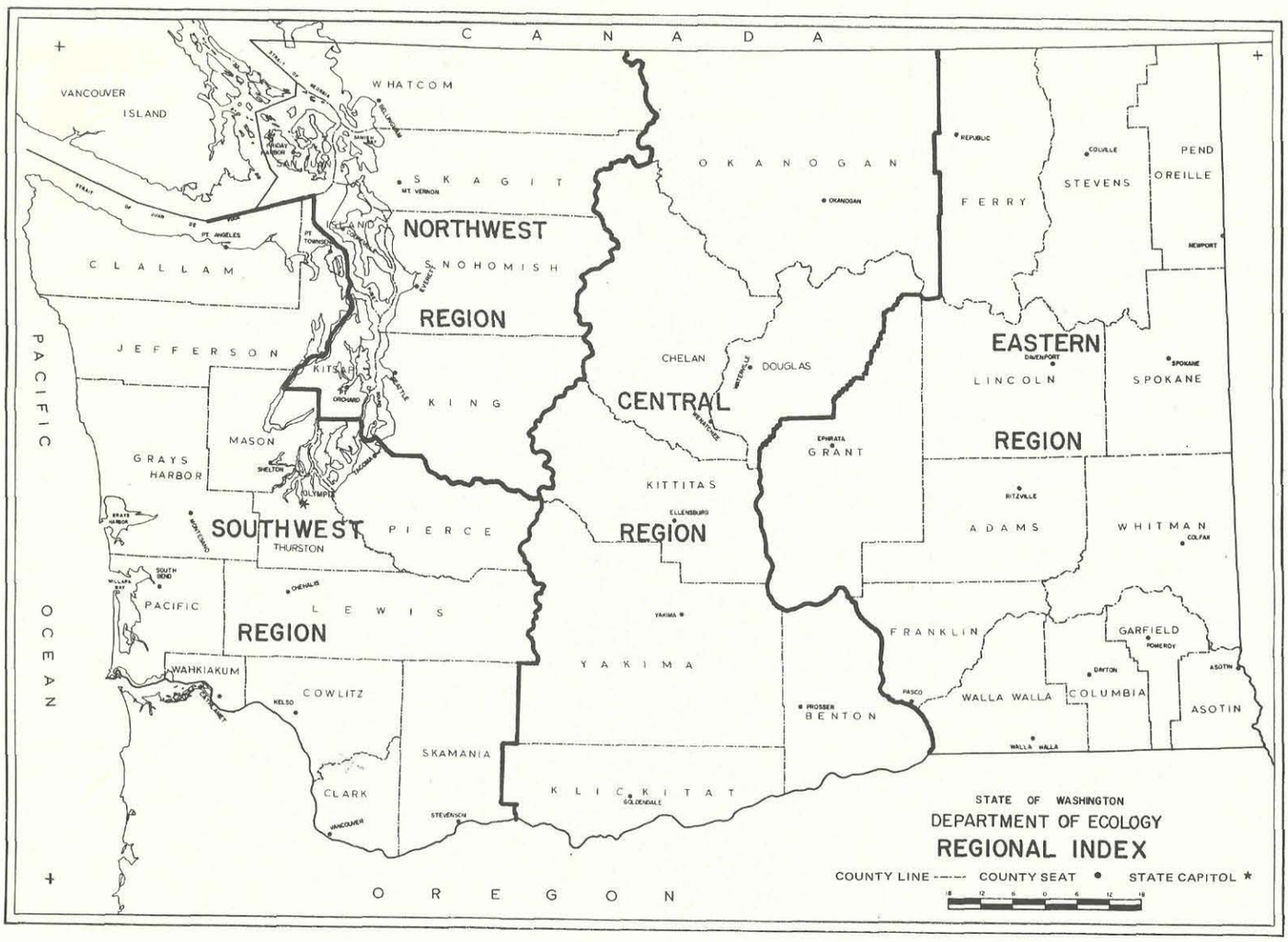
Detach here

Fold along scale



Detach this scale at the perforation, fold excess paper under or cut off excess by cutting along the scale line. This scale corresponds to the SECTION MAP above. You can read feet directly from this scale to outline property and locate points of diversion or withdrawal on the SECTION MAP. Enclose this map along with the application and $10.00 examination fee.

ECY-040-1-14
Rev. 3/81



Your water right application will be processed by the Regional Office of the Department of Ecology having jurisdiction in the area in which your water works are located. **Please submit your completed application form, maps, sketches and $10.00 examination fee to the appropriate Regional Office.**

Northest Regional Office
4350 150th Avenue N.E.
Redmond, Washington 98052
Tel. (206) 885-1900

Central Regional Office
3601 West Washington
Yakima, Washington 98903
Tel. (509) 575-2800

Southwest Regional Office
7272 Cleanwater Lane
Olympia, Washington 98504
Tel. (206) 753-2309

Eastern Regional Office
103 East Indiana Avenue
Spokane, Washington 99207
Tel. (509) 456-2926

The appropriate Regional Office will be happy to answer any further questions you may have.

429926

COMPLETE THIS FORM ONLY IF THIS APPLICATION INCLUDES IRRIGATION AS A USE

In order to implement the provisions of Initiative Measure Number 59, the Family Farm Water Act which was passed by the voters on November 3, 1977, we must ask the following question:

Does the total number of acres in which you have controlling interest in the State of Washington exceed 2000 acres for the following three categories:

1. Lands that are being irrigated under water rights acquired after December 8, 1977.
2. Lands that may be irrigated under applications now on file with the Department of Ecology.
3. Lands that may be irrigated under this application.

☐ YES

☒ NO

CASCADE COLUMBIA FOODS LTD.

Please sign and return By _____
(Signature of Landowner)

2/7/89
(Date)

ATTACHMENT TO APPLICATION

ECY 040-1-14(a)

HICKERSON - JACOBS, INC., P.S.
ARCHITECTS • ENGINEERS • CONSULTANTS

February 8, 1989

Ms. Susan Billings
Department of Ecology
3601 W. Washington
Yakima, WA 98903

429926

RECEIVED
FEB - 9 1989
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

Re: Groundwater Permit Application
Cascade Columbia Foods
SE 1/4 S6 T8N R30E WM
Benton County

Dear Ms. Billings,

Attached please find a completed application for permit to appropriate groundwater, together with a check from Cascade Columbia Foods, Ltd. for $10.00.

A letter and a copy of the permit has been sent under separate cover to Howard Powell, see copy attached. As we discussed on the phone and is mentioned in my letter to Howard, we need to proceed with drilling this well as soon as possible. Copies of the pertinent environmental information and a preliminary application for utilization of wastewater are also attached.

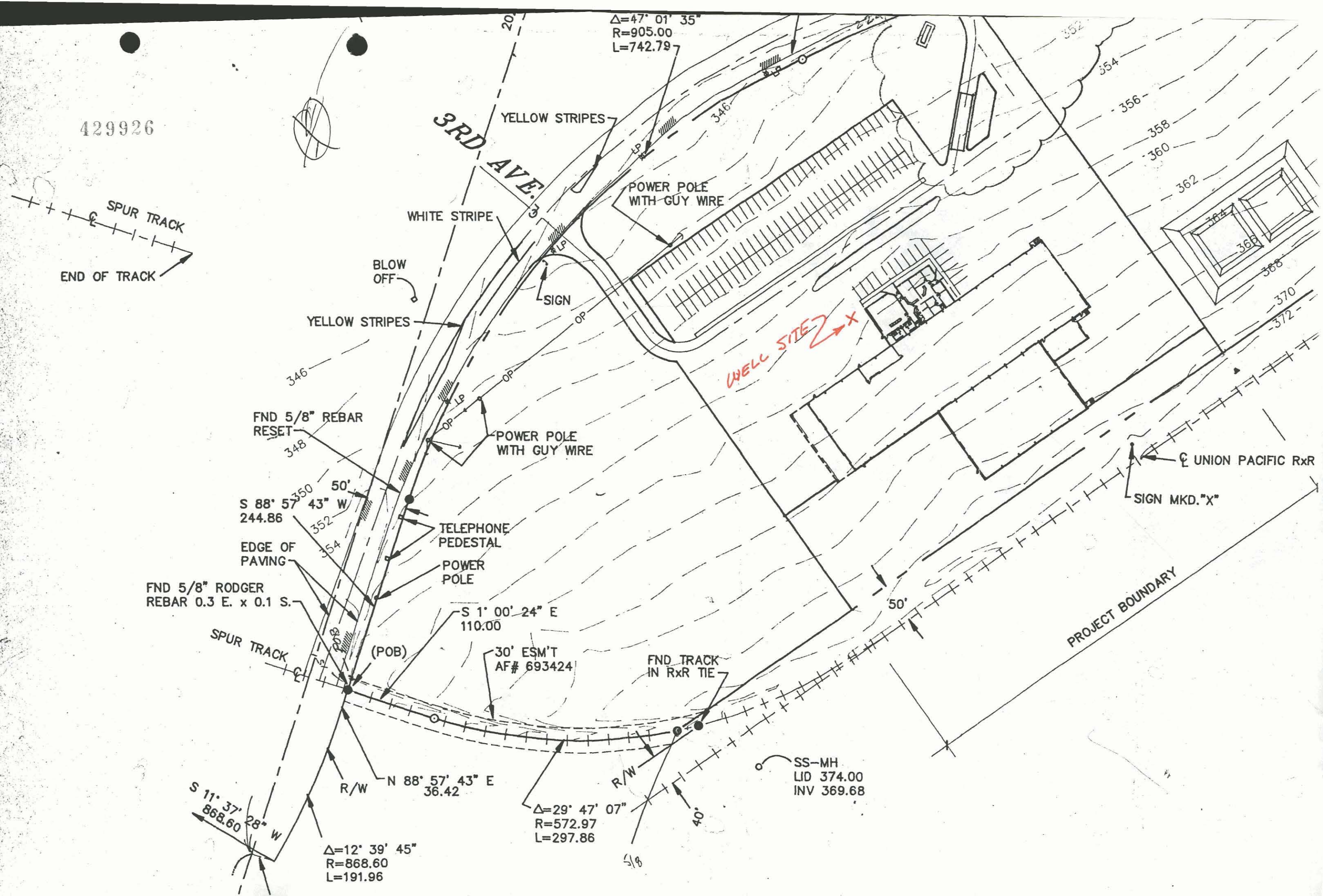
Please advise as to the time table in this so we can schedule the work needed to complete the well installation.

Respectfully submitted,

Wallace W. Hickerson, P.E.

Encl.

A Professional Service Corporation
P.O. Box 2297, Tri-Cities, Washington 99302 • (509) 545-4402 Fax (509) 547-8752 • 1807 W. Bonneville St., Pasco


429926
SPUR TRACK
END OF TRACK
3RD AVE.
Δ=47° 01' 35"
R=905.00
L=742.79
YELLOW STRIPES
POWER POLE
WITH GUY WIRE
WHITE STRIPE
BLOW
OFF
SIGN
YELLOW STRIPES
WELL SITE 2
FND 5/8" REBAR
RESET
POWER POLE
WITH GUY WIRE
S 88° 57' 43" W
244.86
50'
TELEPHONE
PEDESTAL
EDGE OF
PAVING
POWER
POLE
FND 5/8" RODGER
REBAR 0.3 E. x 0.1 S.
S 1° 00' 24" E
110.00
SPUR TRACK
(POB)
30' ESM'T
AF# 693424
FND TRACK
IN RxR TIE
℄ UNION PACIFIC RxR
SIGN MKD."X"
PROJECT BOUNDARY
50'
R/W
N 88° 57' 43" E
36.42
R/W
SS-MH
LID 374.00
INV 369.68
S 11° 37' 28" W
868.60
Δ=29° 47' 07"
R=572.97
L=297.86
40'
Δ=12° 39' 45"
R=868.60
L=191.96

81005

CASCADE COLUMBIA FOOD LTD.
6010 SHEFFIELD RD.
MESA, WASHINGTON 99343

1168

Feb 8 19 89 19-3 / 1250

PAY TO THE ORDER OF State of WASHINGTON, Department of Ecology $ 10.00

Ten and No/100 DOLLARS

CLARKE-B

RAINIERBANK
A SECURITY PACIFIC COMPANY
Kennewick Office - P.O. Box 6210
Kennewick, Washington 99336

FOR Application

Albert W Dispon

FAX

TRANSMITTALL SHEET

HICKERSON-JACOBS, INC.
ARCHITECTS • ENGINEERS • CONSULTANTS

A Professional Service Corporation
P.O. Box 2297 • Tri-Cities, WA 99302
(509) 545-4402 • Fax (509) 547-8752
1807 W. Bonneville St. • Pasco, WA

DATE: 12/14/88

TIME: 4:45 P.M

REFERENCE: CASCADE COL. FOODS

SENT TO:
JIM MILTON DOE
STEVE PROCTOR TRIDEL ✓ 735-6609

FAX NUMBER: (509) 575-2809

FROM: WALLY HICKERSON

NUMBER OF PAGES (INCL. THIS PAGE) 10

PHONE: (509) 545-4402

MESSAGE:

JIM

A LETTER & APPLICATION FOR A DISCHARGE PERMIT ARE ATTACHED. WE NEED EITHER A DETERMINATION THAT NO PERMIT IS REQUIRED OF APPROVAL OF THIS PERMIT IMMEDIATELY.

THE LETTER IS SELF EXPLANATORY!

PLEASE ADVISE ASAP!

Wally

PLEASE CALL (509) 545-4402 IF ALL PAGES OF THIS TRANSMITTAL WERE NOT RECEIVED. THANK YOU.

HICKERSON - JACOBS, INC., P.S.
ARCHITECTS • ENGINEERS • CONSULTANTS

December 14, 1988

Mr. Jim Milton
Department of Ecology
3601 W. Washington Avenue
Yakima, WA 98903

Re: Industrial Waste Discharge Permit
Cascade Columbia Foods, Ltd.

Dear Jim,

A completed permit application for the utilization of waste water from the carrot fresh pack operation currently under construction in Kennewick is attached. If after reviewing the application and this letter, DOE feels that a State Waste Discharge Permit under the provisions of Chapter 173-216 WAC is required, please file the application as of todays date.

Please consider the following facts in your determination as to applicability of a discharge permit for this project:

- The water we are utilizing to irrigate some of the on-site lawn turf area is not "process" water; rather it is water used to wash field dirt off of field run carrots.

- This project is under construction with a very tight construction schedule to allow start up in late spring of 1989.

- A delay in completion of the project would be very costly to CCF in terms of meeting contract obligations (neither CCF, the A/E design firm or Hickerson-Jacobs, Inc. were advised by the City of Kennewick, at the time we submitted the Environmental Checklist with the Site Plan for approval, that a Discharge Permit would be required).

- It was the City of Kennewick's obligation as lead agency to notify DOE if there was a DOE permit required per the Checklist.

- This project will provide 100 jobs per shift with two shifts working daily; a very valuable addition to an already troubled economy in the Tri-Cities.

- CCF could have located this plant in Oregon or Idaho and it is essential that Washington not spare any effort to get them in production quickly and at the least cost.

A Professional Service Corporation

P.O. Box 2297, Tri-Cities, Washington 99302 • (509) 545-4402 Fax (509) 547-8752 • 1807 W. Bonneville St., Pasco

Also, there will be no waste water to discharge until the plant is in operation, approximately July 1, 1989. Under the SEPA process, as the settling basins are part of the overall project, the City of Kennewick is now indicating that they must delay issuance of a building permit until after the fifteen (15) day period following the date of this application to DOE has expired. We are formally requesting that DOE and the City of Kennewick cooperate to waive this delay so that critical work on construction of building footings can be initiated immediately.

Please call me if you have any questions or need additional information. Timing is very, very critical due to the potential for weather delays and the scheduled start up of this plant.

Respectfully submitted,

Wallace W. Hickerson

cc: Bill Kennedy, Planning Director
City of Kennewick

Steve Proctor
Director of Ag Development
TRIDEC

Sue Watkins, Manager
Port of Kennewick

State of Washington
Department of Ecology

RECEIVED
FEB - 9 1989
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

For Office Use Only

Date Received _____
Application/Permit No. _____
Type of Industry _____
Waterway Segment No. _____

INDUSTRIAL/COMMERCIAL WASTE DISCHARGE
PERMIT APPLICATION FORM

Application is hereby made for a permit to discharge wastewater to state waters or to a municipal sewerage system in accordance with Chapter 90.48 RCW and Chapter 372.24 WAC.

1. NAME OF FIRM Cascade Columbia Foods, Ltd.

   Type of Industry (description of industrial or commercial activity) Fresh packing of carrots, asparagus and corn.

2. MAILING ADDRESS 2211 W. Court Street, Pasco, WA 99301

3. PLANT LOCATION 350 E. Juniper St., Kennewick, WA (Near E. 3rd Ave. & Chemical Dr.)

   PHONE (509) 547-6337 CONTACT PERSON Alvie Caldwell

   EMERGENCY PHONE (nights, weekends) (509) 783-4640

4. TYPE OF WASTEWATER TREATMENT (if any) Screening out & mechanical removal of all organic solids plus settling of soil particles.

5. WASTE FLOW: (Submit on separate sheet)

   Describe in detail the sources, treatment and disposal of all liquid wastes at the plant. Include a schematic flow diagram showing the sources and flow pattern of all wastes.

6. SOLID WASTE DISPOSAL: (Submit on separate sheet)

   Describe the types of solid wastes accumulated at the plant and list the source, volume, storage provision, frequency of removal, and final disposal of each solid waste. Include all sludges, dusts, scraps, trimmings and left-over, spoiled or returned products.

7. WASTEWATER DISPOSAL:

	Maximum Gallons/Day
☒ ~~Evaporation~~ Settling Lagoon or Pond/Turf Irrigation	75,000
☐ Subsurface Ground Disposal	N/A
☐ To Surface Waterway _____ (name of waterway)	N/A
☐ To Sanitary Sewerage System N/A (name of municipal system)	

Location of Discharge Point(s) and/or connection to municipal sewer system: (Include latitude and longitude)

Area to be irrigated is the storm water retention area planted to lawn grass at the front of the plant site (Long. 119° 06' 45" west, Lat. 46° 12' 00" north).

ECY 040-2-52

8. WATER SUPPLY:

☒ Private Well — Recorded Water Right No. Application Pending

☐ Surface Water N/A (name of waterway) — Recorded Water Right No. _____

☒ Public System City of Kennewick Municipal Water System (name of system)

Location of private well or plant surface water intake:

Section 6, Township 8N, Range 30E

9. WATER SUPPLY VOLUMES:

	Average Gallons/Day	Maximum Gallons/Day
Private Well	20,000	75,000
Surface water	N/A	N/A
Public System	20,000 (Alt)	75,000 (Alt)
TOTAL	20,000	75,000

10. WASTEWATER DESCRIPTION:

	Average Gallons/Day	Maximum Gallons/Day
Sanitary Wastes	-0-	-0-
Process Wastewater	-0-	-0-
Cooling Water Discharge	-0-	-0-
Other (Specify) Produce wash water	20,000	75,000
TOTAL	20,000	75,000

11. EFFLUENT ANALYSIS: (Submit on separate sheet)

List the significant physical and chemical properties of the effluent(s) to be discharged, and include a description of the sampling and analytical methods used to derive this information. Include BOD, COD, suspended solids, pH, fecal coliform bacteria, heavy metals, etc.

12. DOES YOUR DISCHARGE CONTAIN ONE OR MORE OF THE FOLLOWING SUBSTANCES: cyanide, aluminum, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols.

☐ Yes ☒ No

13. PLANNED WASTE TREATMENT IMPROVEMENTS: (Submit on separate sheet)

Describe any additional treatment or changes in waste disposal methods in planning or under construction.

14. STORMWATER TREATMENT AND CONTROL: Name of Waterway or Storm Sewer

☒ No Treatment — On site retention

☐ Treated Stormwater to Waterway — N/A

Type of Treatment: _____

☐ Contaminated Stormwater to Sanitary Sewer — Type of Treatment (if any)

Size of Intercepted Area — N/A

N/A Square Feet

15. PLANT OPERATION:

	Days per Year	Number of Employees per Shift		
		Day	Night	Swing
Average	175	60	N/A	N/A
Maximum	88	100	100	N/A

16. RAW MATERIALS AND CHEMICALS USED IN PROCESSES:

Brand Name	Chemical, Scientific or Actual Name	Quantity Used per Day	
		Average	Maximum
None	None	N/A	N/A

17. Are there any oil products or hazardous materials stored or used at the plant site?

☐ Yes ☒ No

If yes, give quantities and type and indicate whether a spill could reach a sewer, storm drain, or public waters.

N/A

The information given on this application is complete and accurate to the best of my knowledge.

Signature

Wallace W. Hickerson, P.E.
Printed

Project Manager
Title

December 14, 1988
Date

5. WASTE FLOW

The operation of this fresh pack plant does not generate organic loading of waste water. No water, other than the water utilized to remove soil particles from carrots delivered from the field, is required for processing and packing the fresh vegetables. Any trimming or by-products are recovered mechanically and collected in hoppers for sale as animal feed. Water for wash down of the plant operation area is supplied from the carrot receiving pit area, collected in floor drains, screened to remove solids and returned to the carrot receiving pit.

Particles of soil that cling to the harvested carrots will be removed in the carrot receiving pit. Water containing these soil particles is pumped to a two cell settling basin on site where the soil particles are allowed to settle out and the clarified water is recycled back to the carrot receiving pit. Periodically, when the turbidity of the wash water becomes higher than desirable, clarified water from the settling basins will be utilized to irrigate lawn turf areas on site. Water from an on site well or from the City of Kennewick municipal water system will be utilized to replace the water utilized for turf irrigation. It is anticipated that water in the settling basins may be replaced once or twice weekly during peak periods of carrot packing. It is estimated that approximately 20,000 gallons of water would be removed and replaced during each cycle.

The soil particles that are collected in the settling basins will be removed annually during the early spring period when the plant is not processing carrots. To accomplish this, the settling basins will be emptied of water, the collected soils particles allowed to air dry, and the soil will then be mechanically removed and placed on agricultural crop areas.

The actual volume of waste water generated by the plant is very low due to the fact that the wash water is recycled constantly after the soil particles are removed in the settling basin. On an average daily basis the volume of wastewater would be approximately 20,000 gallons (0.02 Mgd).

The operational cycle for the plant is as follows: The carrot receiving pit is at maximum water volume when each new load of carrots is dumped; water is rapidly pumped to the settling basins as carrots are dumped; clarified water from the settling basins is returned to the carrot processing pit to agitate carrots, remove dirt particles and direct carrots onto the receiving conveyor; water containing soil particles is collected at the bottom of the receiving pit and pumped to the settling basins and subsequently replaced with clarified water from the settling basins.

When wash down of the plant area occurs, normally at the end of each shift, water is pumped from the receiving pit for wash down purposes, the water is collected in floor drains, screened to remove any organic solid particles (trimmings, scraps, etc. that may have not been collected by the by-product line), and returned to the receiving pit.

11. EFFLUENT ANALYSIS

The raw product wash water that will be utilized to irrigate the lawn turf areas in the storm water retention areas will have chemical properties similar to those found in shallow ground water wells in this area (See attached water analysis from the City of Kennewick). Turbidity in the form of fine soil particles suspended in the water is the main physical property.

TYPICAL RANGES FOR INORGANIC CHEMICAL ANALYSES
URBAN AREA WATER SYSTEMS
(Kennewick, Pasco, Richland & West Richland)

TEST	MCL (1)	RANGE OF TEST RESULTS (mg/l) LOW	HIGH
Arsenic - As	0.05	0.003	0.010
Barium - Ba	1.0	0.100	0.250
Cadmium - Cd	0.01	0.002	0.005
Chromium - Cr	0.05	0.010	0.010
Iron - Fe	0.3	0.050	0.050
Lead - Pb	0.05	0.010	0.010
Manganese - Mn	0.05	0.010	0.031
Mercury - Hg	0.002	0.0005	0.0005
Selenium - Se	0.01	0.001	0.003
Silver - Ag	0.05	0.010	0.010
Sodium - Na	N/A	5.0	39.0
Hardness - $CaCO_3$	N/A	70.0	190.0
Conductivity (2)	700	160.0	520.0
Turbidity (3)	1.0	0.1	0.5
Color	15.0	1.0	5.0
Fluoride - F	2.0	0.2	0.6
Nitrate - N	10.0	0.2	3.5
Chloride - Cl	250	5.0	15.0

NOTES:

(1) MCL is the maximum contaminant level allowed by the Washington State Department of Social & Health Services.

(2) Conductivity is measured in Micromhos/cm @ 25°C.

(3) Turbidity is measured in National Turbidity Units, NTU.

5. WASTE WATER (continued)

Thus the process, as related to waste water, is a closed system except for periodic removal and replacement of clarified water from the settling ponds. Some water will also be lost due to evaporation from the ponds during the hot, summer months.

See attached sketch for further details of operation.

RECEIPT 161919

WASHINGTON STATE

DEPARTMENT OF ECOLOGY

2-17-, 1989

RECEIVED FROM Cascade Columbia Ford Mesa

Ten DOLLARS 10.00

FUND:

General ✓ Rec. Rev. Basic Data Other Cash

SOURCE: ✓

Check 1168

Water Code Publications Adjudications Refunds

Per. and Lic. Investments Registration Other M.O.

App fee #64-29926

By Jenny Wade

Thank You

ECY 010-144

3

CITY OF KENNEWICK WASHINGTON
CIVIC CENTER
(509) 586-4181 / SCAN-526-2237
210 WEST SIXTH AVENUE/P.O. BOX 6108/KENNEWICK, WASHINGTON 99336-0108

December 30, 1988

Alvie Caldwell
Cascade Columbia Foods, LTD
2211 West Court Street
Pasco, WA 99301

Dear Mr. Caldwell:

The Senior Planner, on October 26, 1988, approved your Site Plan Approval Permit 88-25, for property located at E. 3rd and Chemical Drive, Kennewick, WA, and on December 29, 1988, your request for a Building Permit.

As part of the approval, the Responsible Official for the State Environmental Policy Act (SEPA) has declared that your request will not have a probable significant adverse impact on the quality of the environment and has issued a determination of Non-Significance (ED 88-16).

This Determination is subject to an open appeal period unless the procedure for the enclosed Notice of Action is followed.

1. The Notice of Action must be published on the same day of each week for two consecutive weeks in the Tri-City Herald.

2. Filing a copy of the Notice with the Department of Ecology, Environmental Review, Mail Stop PV-11, Olympia, WA 98504, prior to the last publication date.

3. Either mailing a copy of the notice to all real property owners as shown by the records of the Benton County Treasurer who share a common boundary line with the property on which the project is proposed through the United States mail, postage prepaid; or

4. By posting the Notice in a conspicuous manner on the property on which the project is to be constructed.

Enclosed is a copy of the Notice of Action. It is completed up to the point of the dates of publication and the final date for commencing appeal which is at least 30 days from the date of last publication in the paper. Please complete #1 with the date which is at least 30 days after the date of last publication.

The responsibility for publishing and mailing the Notice is yours. If you choose to comply with these requirements, please send copies of all notices, names, and dates to the Kennewick Planning Department, P.O. Box 6108, Kennewick, WA 99336, for our records.

file

HICKERSON - JACOBS, INC., P.S.

ARCHITECTS • ENGINEERS • CONSULTANTS

office copy

January 16, 1989

Mr. Rick White
Senior Planner
City of Kennewick
210 West Sixth Avenue
Kennewick, WA 99336

RE: Cascade Columbia Foods
Notice of Action

Dear Rick,

Per instruction from Cascade Columbia Foods, we have requested that the Tri-City Herald publish the attached Notice of Action on Monday, January 23 and Monday, January 30, 1989. Also a copy of our letter filing a copy of the Notice with the Department of Ecology is attached.

We will post the notice at the entrances to the construction site and near the doorway of our office trailer on the jobsite.

A copy of the Notice as published in the Tri-City Herald will be mailed to you along with a Certification of Publication.

Very truly yours,

Wallace W. Hickerson,
President

P.O. Box 2297, Tri-Cities, Washington 99302 • (509) 545-4402 Fax (509) 547-8752 • 1807 W. Bonneville St., Pasco

HICKERSON - JACOBS, INC., P.S.
ARCHITECTS • ENGINEERS • CONSULTANTS

January 16, 1989

Environmental Review Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504

RE: Cascade Columbia Foods
Notice of Action
City of Kennewick

To Whom it May Concern

A copy of the Notice of Action issued by the City of Kennewick is attached for your files. Copies of a letter from the City and a response to the determination of non-significance from Barbara Ritchie, Environmental Review Section, DOE is also attached.

Please be advised that the Notice will be published in the tri-City Herald on Monday January 23 and Monday January 30, 1989. We will also post this notice in a conspicuous manner on the jobsite.

Respectfully submitted,

Wallace W. Hickerson,
President

P.O. Box 2297, Tri-Cities, Washington 99302 • (509) 545-4402 Fax (509) 547-8752 • 1807 W. Bonneville St., Pasco

HICKERSON - JACOBS, INC., P.S.
ARCHITECTS • ENGINEERS • CONSULTANTS

January 16, 1989

Classified Ads
Tri-City Herald
PO Box 2608
Pasco, WA 99302

Please publish the attached Notice of Action under Public Notices in the Tri-City Herald on Monday, January 23, 1989 and on Monday, January 30, 1989.

Please mail the billing for publication of this notice to Cascade Columbia Foods, Ltd. (CCF), 2211 West Court Street, Pasco, WA 99301. Also could you provide CCF with a Certification of Publication so that we can send the Certification to the City of Kennewick.

Thank you,

Wallace W. Hickerson

P.O. Box 2297, Tri-Cities, Washington 99302 • (509) 545-4402 Fax (509) 547-8752 • 1807 W. Bonneville St., Pasco

CITY OF KENNEWICK

NOTICE OF ACTION

Notice is given under SEPA, rcw 43.21c.080, that the City of Kennewick took the action described in (2) below on December 29, 1988.

1. Any action to set aside, enjoin, review or otherwise challenge such action on the grounds of non-compliance with the provisions of Chapter 43.21C RCW (State Environmental Policy Act) shall be commenced on or before March 2, 1989.

2. Description of City action: Application for Building Permit and Site Plan approval Permit 88-25.

3. Description of proposal (if not covered by (2)): Construction of a fresh vegetable packing and processing plant.

4. Location proposal: East 3rd Avenue and Chemical Drive.

5. Type of environmental review under SEPA: Determination of Non-Significance.

6. Documents may be examined during regular business hours at Kennewick City Hall, 210 W. 6th Avenue, Kennewick,WA 99336.

7. Name of agency, proponent, or applicant giving notice: City of Kennewick, Washington.

8. This notice is filed by:

Cascade Columbia Foods, LTD
2211 West Court Street
Pasco, WA 99301

Publication Dates:

Monday, January 23, 1989
Monday, January 30, 1989.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

July 14, 2011

Benton County Auditor
620 Market Place
Prosser, WA 99350-1300

Dear Sir or Madam:

Enclosed is Certificate of Water Right No. G4-29926 and a check or money order in the amount of $64.00, to cover the cost of recording.

After recording, please forward the Certificate of Water Right to:

Kennewick City
PO Box 6108
Kennewick, WA 99336-0108

Sincerely,

Rebecca A. Zahler, Secretary Sr.
Office of Columbia River
(509) 454-4239

110707

Enclosures: Certificate of Water Right
Check No. 103841

FILE COPY

RECEIPT

Department of Ecology (4610)
PO Box 47611
Olympia, WA 98504-7611
(360) 407-7095

Receipt Number **12CJ000307**
Manual Receipt

Document Number **461R0029 CJ** Date **07/12/2011** FM **01**

Remitter Name KENNEWICK CITY Receipt Name

Check/Draw Number **104016**
Document Amount **50.00**
Method of Payment **Check**
Comment Description **WATER RIGHTS - G4-29926**

REF DOC NR	REF DOC SFX	INV NR	ID NR	SUB ID NR	T C	R	FUND	MAJ GRP	MAG SRC	SUB SRC	CNTY	WORK CLS	PIC	AI	ORG	PRJ	SUB PRJ	PRJ PHS	SUB OBJ	SUB SUB OBJ	VAR GL	SUB SID DR	SUB SID CR	ALLOC AMT
					001		001	02	85	000011														50.00

RECEIVED
JUL 13 2011
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

PLEASE SEND ALL CHECK(S) OR MONEY ORDER(S) TO:

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Make Checks Payable to:
Department of Ecology: **$50.00**
BENTON County Auditor: **$64.00**

Water Right No(s): G4-29926

Ecology Central Regional Office (ECY CRO)
Office of Columbia River

11 JUL 11 A9:18
DEPT OF ECOLOGY
FISCAL & BUDGET

FROM:
City of Kennewick
PO Box 6108
Kennewick, WA 99336-0108
110613

FOR ECOLOGY USE ONLY: 001WR1 0285 000011

Amount rcv'd: $_____ Check No.: _____

ECY 070-259

Fee Invoice

CITY OF KENNEWICK WASHINGTON

CITY OF KENNEWICK
P.O. BOX 6108
KENNEWICK, WA 99336-0108

neopost
07/08/2011
US POSTAGE $00.44⁰
ZIP 99336
041L11209782

98504\$7611

CITY OF KENNEWICK, WA

ACCOUNTS PAYABLE CHECK

NO. 103841

INVOICE NUMBER	DATE	P.O. NUMBER	DESCRIPTION	DISCOUNT	AMOUNT
G4-29926	06/21/2011		RECORDING FEE	0.00	64.00
					64.00

PLEASE DETACH BEFORE DEPOSITING

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

June 27, 2011

City of Kennewick
PO Box 6108
Kennewick, WA 99336-0108

Re: Water Right No. G4-29926

Dear Sir or Madam:

Ecology will issue your Certificate of Water Right when we receive the required filing and recording fees.

Please send **two** separate checks or money orders and the enclosed invoice within 30 days from the date of this letter.

$50.00 made payable to the Department of Ecology (and)
$64.00 made payable to the Benton County Auditor, which Ecology will forward with your Certificate for filing.

Please mail the two checks and your invoice to:

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

If you have any questions, please contact me at (509) 454-4239.

Sincerely,

Rebecca A. Zahler, Secretary Sr.
Office of Columbia River

110613

Enclosures: Invoice
Return envelope

FILE COPY

DEPARTMENT OF ECOLOGY
State of Washington

Office of Columbia River Program
Ecology Central Regional Office (ECY CRO)
15 West Yakima Ave, Ste 200
Yakima, Washington 98902-3452

INVOICE

TO: City of Kennewick
PO Box 6108
Kennewick, WA 99336-0108

June 27, 2011

BENTON COUNTY RECORDING FEES

Water Right No.	Document	Pages	Recording Fee
G4-29926	Certificate of Water Right	3	$64.00

Total Amount payable to BENTON COUNTY AUDITOR $64.00

For each document: $62.00 for first page, $1.00 for each additional page.

DEPARTMENT OF ECOLOGY STATUTORY FILING FEES

Document Count	Fee Per Certificate
1	$50.00

Total Amount payable to DEPT OF ECOLOGY $50.00

For questions concerning this invoice, please contact us at (509) 575-2490 and ask for the Office of Columbia River Program or you may contact Becky Zahler directly at (509) 454-4239 or bzah461@ecy.wa.gov

---

Please return bottom portion with your payment

PLEASE SEND ALL CHECK(S) OR MONEY ORDER(S) TO:

Department of Ecology
Cashiering Unit
PO Box 47611
Olympia WA 98504-7611

Make Checks Payable to:
Department of Ecology: **$50.00**
BENTON County Auditor: **$64.00**

Water Right No(s): G4-29926

FROM: City of Kennewick
PO Box 6108
Kennewick, WA 99336-0108
110613

Ecology Central Regional Office (ECY CRO)
Office of Columbia River

FOR ECOLOGY USE ONLY: 001 WR1 0285 000011

Amount rcv'd: $_____ Check No.: _____

110613

Benton

CERTIFICATE REVIEW ROUTER

Office of Columbia River

FILE NO: 42-29926 **APPLICANT:** City of Kennewick

STEP 1

☒ Certificate ☐ Superseding Certificate

Author: Hutton | Date: 6-17-11

STEP 2 LOCATION

DATE: 6-17-11 SHAREPOINT> OCR → Admin folders → certs → in process → 29926 → Edited

DATE: SHAREPOINT>

STEP 3 PEER REVIEW

DATE: 6-12-11 NAME: Perkow CHANGES: ☒ YES ☐ NO

STEP 4 ADMIN EDITS

DATE: 6/20/2011 6/21/11 INITIALS: RA TO: Debra

DATE: INITIALS: TO:

STEP 5 SUPERVISOR REVIEW

DATE: 7/13/11 NAME: DCS CHANGES: ☒ YES ☐ NO Done

STEP 6 GWIS MAPPING REVIEW / LEGAL DESCRIPTION REVIEW

DATE: 6/23/11 NAME: KLH CHANGES: ☐ YES ☒ NO

NOTES: See change on CRIA

STEP 7 CERTIFICATE FEES REQUEST - TO CLIENT

☒ LETTER & INVOICE SENT DATE: 6/27/11 INITIAL: RA

☐ FEES RECEIVED DATE: INITIAL:

STEP 8 DIRECTOR REVIEW

DATE: 7/13/2011 SIGNATURE: Derek J. Sandison

STEP 9 FINALIZATION - TO AUDITOR

☒ DOCUMENT SENT TO AUDITOR DATE: 7/14/11 INITIAL: RA

NOTES

THE END

City of Kennewick – G4-29926

Exam Date: 4/8/2010

Trevor Hutton, Gary Steele, John Griffin and Bruce Beauchene

I conducted a proof of appropriation exam on this water right. The permit issued to Cascade Columbia Foods for 100 gpm and 10 afy for the purpose of industrial vegetable washing, discharging to a spray field. The water has not been used for vegetable washing since the mid 1990's when the plant closed, but water was continuously applied to a spray field that measures approximately 1.6 acres in size. The property had a few other tenants, and was gifted to the City of Kennewick in 2005. It is now used as their city utilities facility. While the purpose of irrigation was not expressly noted on the permit, the fate of the water has always been the consumptive use in the grass field, which is used as landscaping. The applicant stated that no power records were available, and that the meter had been installed prior to the 2010 irrigation season. After the Irrigation season, the applicant reported problems with the well that resulted in switching to city potable supply for the remainder of the season while the well was repaired. As such, I used the WIG values for turf and the average efficiency for sprinklers from Guid-1210 to calculate a water duty of 7.2 afy. This is slightly higher than their predicted water use of 5.0 afy based on the early season meter readings provided by the city. Because we didn't have a full years water use on the meter, extrapolating is difficult and the WIG value provides a fair allotment that allows for changes in efficiency or climate. All the permit provisions have been met, and the well is cased and sealed into the first confining layer of basalt. Any replacement wells would need to conform to this standard as well.

CONTROL
VALVE

Current Scale: 1 : 7,018

1813

'e Original and First Copy with
'epartment of Ecology
'econd Copy—Owner's Copy
'ird Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 6276

Water Right Permit No. _____

(1) OWNER: Name Cascade Columbia Foods Address _____

(2) LOCATION OF WELL: County Benton NW¼ NW¼ SE¼ Sec. 6 T. 8 N., R. 30E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 350 So Juniper

(3) PROPOSED USE: Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☒ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) _____

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 12 to 8 inches.
Drilled 365 feet. Depth of completed well 365 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" Diam. from +2 ft. to 139 ft.
Welded ☒ Liner installed ☐ Threaded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 139 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off Pressure Grout - 139 To 0

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 26 ft. below top of well Date 5-17-89
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? LW Smith
Yield: 100 gal./min. with 80 ft. drawdown after 4 hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

RECEIVED JUN 14 1989 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Gravel Cobbles Sand	0	14
Gravel, Sand, Blk	14	
Water Bearing @ 26		42
Gravel, Sand, TAN	42	50
Clay TAN	50	56
Clay Blue	56	104
Basalt Black	104	106
Basalt Black Scoria	106	
Water Bearing		117
Basalt Black Firm	117	205
Basalt Black with Trace	205	
Blue Clay		207
Basalt Black	207	225
Basalt Red Scoria	225	
Water Bearing		229
Basalt Black	229	240
Basalt Brown Trace	240	242
Blue Clay		
Basalt Black	242	244
Claystone Brown	244	245
Basalt Brown	245	247
Basalt Black Scoria	247	
With Blue Claystone		252
Basalt Black	252	314
Clay Brown	314	323
Clay Blue	323	327
Clay Gray	327	334
Clay Green	334	343
Sand Blue Water Bearing	343	347
Basalt Blk Scoria	347	358
Basalt Gray	358	365

Work started May 8, 19. Completed 5-17, 1989

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Nelson Well Drilling Inc (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 10036 W Argent Pasco

(Signed) James Nelson (WELL DRILLER) License No. 361

Contractor's Registration No. NELSONWD195CQ Date 5-22, 1989

(USE ADDITIONAL SHEETS IF NECESSARY)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Hutton, Trevor (ECY)

From: John Griffin [John.Griffin@ci.kennewick.wa.us]
Sent: Tuesday, February 08, 2011 1:54 PM
To: Hutton, Trevor (ECY)
Cc: Vince Gonzalez
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hi Trevor:

We have only a few months of the 2010 irrigation season water use because we started pumping sand from the well & thus we switched over to City potable water system. Hence, we would like to go with the irrigation duty for the turf area we currently irrigate and get our well casing serviced.

Please call me if you have any questions and/or comments.

John F. Griffin
Plant Services Supervisor
City of Kennewick
(509) 585-4534

From: Hutton, Trevor (ECY) [mailto:thut461@ECY.WA.GOV]
Sent: Friday, February 04, 2011 1:44 PM
To: John Griffin
Subject: FW: G4-29926 - Dan Frost Building Water right follow-up

Hi John,

I sent the e-mail below back in September and got an out of office reply, but I don't recall ever getting any feedback. Do you have the finalized numbers for the water use at the Frost campus? If so, let's jump back on this and get things wrapped up.

Hope to hear from you soon. Thanks.

Trevor Hutton

Environmental Specialist
Office of Columbia River
Washington Department of Ecology
509.454.4240
trevor.hutton@ecy.wa.gov

Please consider the environment before printing this e-mail

From: Hutton, Trevor (ECY)
Sent: Thursday, September 16, 2010 4:11 PM
To: 'John Griffin'
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hi John,

I wanted to take another look at this now that we are getting toward the end of the irrigation season and see if you had some more complete numbers on the water use at the Frost Campus. I just ran some calculations on using the WIG values and came up with a Total irrigation requirement of ~7.2 Acre-feet. This is assuming an average efficiency for your sprinkler system (set at 75% in Ecology Guide 1210). The WIG has 40.66 in/yr as the crop requirement in Kennewick for pasture/turf and the land irrigated is 1.6 acres from aerial photography. This is higher than your initial estimate, I'm assuming it may be because the system may be a bit more efficient and/or the grass isn't being water to maximum capacity. I think our best approach is to see what you have, and work out a number that is consistent with both.

A couple notes on some technicalities related to your email below.

Since this is only a permit right now, relinquishment doesn't necessarily apply. Certificates can be relinquished, but I believe our current stance is that a permit can be out of compliance, or not fully developed, but relinquishment doesn't affect permits. We just won't certificate water that hasn't been perfected.

As to putting the unused portion into trust, we can't do that either because the water in the trust program has to have evidence of beneficial use. Since we can't establish that use occurred (which means you would have it included on your cert), it cannot be put into trust.

Anyway, let me know what you've come up with for readings thus far into the season and we'll try to get a number pinned down for the certificate so I can get it processed and finalized for you.

Thanks.

Trevor Hutton

Environmental Specialist
Office of Columbia River
Washington Department of Ecology
509.454.4240
trevor.hutton@ecy.wa.gov

Please consider the environment before printing this e-mail

From: John Griffin [mailto:John.Griffin@ci.kennewick.wa.us]
Sent: Wednesday, August 04, 2010 2:17 PM
To: Hutton, Trevor (ECY)
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hi Trevor:

Discrete historical power use records are simply not available. Attached you will find a spreadsheet estimating 2010 irrigation usage. It also includes an ultimate forecasted groundwater usage of 5 acre feet per year. We can use these figures as the basis for proof of appropriation or we can go with the standard annual turf duty volume for the acreage we currently have under irrigation. Either way, we will likely realize a relinquishment of a portion of the initial permitted water right withdrawal volume of 10 acre feet per year. This is a benefit for the State and can be put in trust. However, like I told you earlier this year, we will deliver whatever water is needed at the Frost Campus. Hence, any water above the final proofed amount for the subject water right permit will be treated drinking water diverted from the Columbia River.

Should you have any questions and/or comments regarding this matter, please do not hesitate to contact me!

John F. Griffin
Plant Services Supervisor
City of Kennewick
(509) 585-4534

From: Hutton, Trevor (ECY) [mailto:thut461@ECY.WA.GOV]
Sent: Tuesday, August 03, 2010 12:56 PM
To: John Griffin
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hi John,

I just tried giving you a call but you were out, so I thought I would just shoot off an Email instead.

It sounds like you've got some meter readings from this season. I'd certainly be willing to take a look at these and run some numbers. I can't recall if you ever had any luck finding power records from the period that the vegetable plant was in operation.

If you could send me what you've got so far, I can take a look at it early next week. I will be out of the office for the remainder of this week.
Thanks.

Trevor Hutton
Environmental Specialist
Office of Columbia River
Washington Department of Ecology
509.454.4240
trevor.hutton@ecy.wa.gov

Please consider the environment before printing this e-mail

From: John Griffin [mailto:John.Griffin@ci.kennewick.wa.us]
Sent: Tuesday, June 01, 2010 2:26 PM
To: Hutton, Trevor (ECY)
Cc: Bruce Beauchene; Gary Deardorff; Vince Gonzalez
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hello Trevor:

Attached you will find the best information we have found available, i.e., an ROE prepared by DOE staff approved exactly 21 years ago. Based on this ROE, we should discuss how we best determine what has been put to beneficial use focusing on ultimate certification. Discrete power readings I believe are available and we have been taking actual meter readings this season. I'd like to match these two data strings over a statistically valid time period and go from there. Please give me your thoughts?

Thank you.....John

From: Hutton, Trevor (ECY) [mailto:thut461@ECY.WA.GOV]
Sent: Tuesday, June 01, 2010 2:06 PM
To: John Griffin
Cc: Bruce Beauchene; Gary Deardorff
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hi John,

Just wondering what sort of headway you have made in finding some documentation that we could use to help quantify the historic use of this right?
I'm not sure what records the plant would have kept, but we could use water meter data, dedicated power records (if available), pumping records, etc.

Trevor Hutton

Environmental Specialist
Office of Columbia River
Washington Department of Ecology
509.454.4240
trevor.hutton@ecy.wa.gov

Please consider the environment before printing this e-mail

From: John Griffin [mailto:John.Griffin@ci.kennewick.wa.us]
Sent: Wednesday, April 21, 2010 2:17 PM
To: Hutton, Trevor (ECY)
Cc: Bruce Beauchene; Gary Deardorff
Subject: RE: G4-29926 - Dan Frost Building Water right follow-up

Hi Trevor:

This sounds good and we will seek to provide the necessary documentation identified below. I will be in touch soon.

Thank you very much.....John

From: Hutton, Trevor (ECY) [mailto:thut461@ECY.WA.GOV]
Sent: Wednesday, April 21, 2010 11:55 AM
To: John Griffin; Bruce Beauchene
Subject: G4-29926 - Dan Frost Building Water right follow-up

John and Bruce,

First off, let me say sorry for the delay in getting this to you. I spent most of last week out sick, and have been playing catch-up this week.

I think I've got some encouraging news regarding what we discussed about the water right for the Dan Frost building. The approach we can take on this is to essentially look into the past at what was being perfected at the time of the PA being filed. If we could see some sort of records showing the highest amount that was used by the commercial businesses operating the building prior to their closure, we can certificate that amount, despite current non-use of part of the right. Are there records that you could provide to us that would demonstrate that higher level of water use?

Obviously, we cannot certificate water that was never perfected, but we can certificate the highest beneficial quantity that has been shown. Let me know if this sounds like a good strategy to you, or if you have any other questions.

Again, sorry for the delay. Hope to hear from you soon.

Trevor Hutton

Environmental Specialist
Office of Columbia River
Washington Department of Ecology
509.454.4240
trevor.hutton@ecy.wa.gov

Please consider the environment before printing this e-mail

1.6ac
2009 image

KENNEWICK	**COUNCIL AGENDA ITEM NO. :** 3.h. **MEETING DATE:** March 1, 2005 **SUBJECT:** Amendment to Agreement for Gift (Frost Property) **Prepared by:** John S. Ziobro, City Attorney **Approved by:** Robert R. Hammond, City Manager	CONSENT AGENDA x PUBLIC HEARING PUBLIC MEETING ORDINANCE/RES OTHER

Recommendation: Authorize Mayor and City Clerk to sign Amendment to Agreement for Gift.

Motion for Consideration: I move to authorize the Mayor and City Clerk to sign the Amendment to Agreement for Gift between Daniel Frost, Cascade Columbia Foods, Ltd., and City of Kennewick.

Summary: The City entered into an Agreement for Gift with Daniel Frost and Cascade Columbia Foods, Ltd. on December 7, 2004. Mr. Frost generously gifted approximately 8.18 acres of land located at 350 Juniper (west of Chemical Drive at 3rd Avenue), including buildings and improvements consisting of 35,000 square feet of clear span warehouse space, 15,000 square feet of warehouse space, 5,500 square feet of office space, scale house, parking, and landscaped areas. The property is to be used exclusively by the City for municipal services and purposes.

The amendment to the agreement changes the name of "Cascade Columbia Foods, Ltd." to "C K WA Corporation." This amendment is necessary because there is already a Cascade Columbia Foods, Ltd. registered with the State of Washington, thereby making the name unavailable.

Alternatives: None recommended.

AMENDMENT TO AGREEMENT FOR GIFT

An Agreement for Gift dated December 7, 2004, was made and entered into by and between **F. DANIEL FROST**, individually and as Trustee of the F. Daniel Frost Trust, **CASCADE COLUMBIA FOODS, LTD.**, a Washington corporation, and the **CITY OF KENNEWICK**, a Washington municipal corporation.

CITY OF KENNEWICK FOUNDATION, a Washington nonprofit corporation, became a party to said Agreement for Gift by Joinder in Agreement for Gift dated December 28, 2004.

The parties to said Agreement for Gift have agreed to amend Section 1.3 of said Agreement for Gift and do hereby amend said Section 1.3 in its entirety to read as follows:

> "1.3 CHANGE OF CCF NAME. It is agreed the name of CCF may be changed by Frost to "C K WA Corporation" prior to the gift of shares of stock of CCF as set forth herein. All rights in and to the names of CCF and Cascade Columbia Foods shall belong to and be retained by Frost. Any reference herein to CCF which is applicable to said corporation and its assets after the date the name of the corporation is changed shall be a reference to said corporation as it is then named and continue to be binding upon said corporation as renamed."

Except as amended herein, said Agreement for Gift shall remain in full force and affect.

Dated this _____ day of January, 2005.

F. DANIEL FROST

CASCADE COLUMBIA FOODS, LTD., a Washington corporation

By_____
F. Daniel Frost, Chairman

CITY OF KENNEWICK, a Washington municipal corporation

Attest:_____ By_____
Valorie J. Loffler, C.C. James R. Beaver, Mayor

Approved by the City Manager, the Executive Director of Municipal Services and the City Attorney

_____
ROBERT R. HAMMOND, City Manager

_____
E. RUSSELL BURTNER, Executive Director of Municipal Service

Approved as to Form:

_____
JOHN S. ZIOBRO, City Attorney

CITY OF KENNEWICK FOUNDATION, a Washington nonprofit corporation

By_____
E. Russell Burtner, President

Cascade Columbia closes plant

By LAURIE WILLIAMS
and BOB WOEHLER
Herald staff writers

Cascade Columbia Foods has closed its carrot and asparagus packing plant in Kennewick and leased the building to Welch Foods Inc.

Dan Frost, owner and founder of the Kennewick-based vegetable processor, said Monday the decision will not affect Cascade's sister companies that operate vegetable and fruit packing and processing operations at the ports of Pasco and Sunnyside.

"This will be the best use of the (Kennewick) facility .... The timing is good for both companies," Frost said in a news release.

In a telephone interview, he declined to comment on whether he is considering re-opening the packing operation elsewhere.

The 4-year-old plant off Chemical Drive was built for about $3.5 million and employed 63 to 130 people during its peak season. Its workers were laid off in November when the ground froze and carrots could no longer be harvested.

They were expecting to be rehired this spring for the asparagus harvest, said Larry Hall, a union representative for the United Food & Commercial Workers Local 1439.

"We just received notice of (the closing) today," Hall said Monday from Spokane. "With this happening just today, nobody knows for sure what's going to happen."

Both Frost and Hall said last year's labor dispute did not cause the shutdown. Frost said the matter was resolved when union workers abandoned strike plans and accepted raises of 10 to 25 cents an hour. Wages at the plant ranged from $4.65 to $6.25 an hour.

Jack Salemme of Kennewick, general manager of Cascade Columbia Foods until last November, said there were rumors in December about the lease plan.

Salemme said his departure was a mutual agreement with Frost.

Today, Salemme and his wife, Kim, operate their own produce brokerage firm called Northwest Growers Marketing.

He said Cascade had decided last year it probably would not pack any fresh asparagus after 1992. Cascade also packed sweet corn, but it is not known whether that operation will end or move elsewhere.

Bud Mercer, who owns a competing carrot packing firm near Paterson, said he had heard that Cascade Columbia Foods would not be packing carrots in 1993.

"They probably made a mistake when they got into the carrot business because the market was pretty well saturated by the existing packers," Mercer said.

He said even without Cascade, his plant and three other carrot-packing plants in Portland and Tacoma could amply supply the Pacific Northwest.

Meanwhile, Tom Elitharp, Welch's director of plant operations, said he's pleased to find a building finally where he can consolidate scattered operations.

Currently, Welch's products are stored in freezers and warehouses throughout the Tri-Cities, making it difficult to track inventory, said Elitharp.

And he said Welch's needs Cascade's 15,000-square-foot freezer.

Welch's downtown Kennewick plant processes grape juice concentrate, which will be frozen and stored at the new building.

The terms of the lease, including its length, remain confidential. Welch's plans to move in sometime this spring.

Elitharp said Welch's will not take over any of the fresh produce packing business.

Welch Foods Inc. of the National Grape Cooperative Association is a farmer-owned company. It is the nation's largest Concord grape processor, with plants in Grandview, Kennewick, Michigan, Pennsylvania and New York.

It was founded in 1869 and came to Kennewick in 1953 when it acquired Church's Grape Juice.

"Our sales have been growing steadily as a company, especially in the West," said Elitharp.

The Kennewick plant, which has 180 workers, provides juice, jellies and jams west of Denver, in particular Southern California. No new employees are expected to be hired immediately as a result of the lease.

Cascade Columbia's nearly 60,000-square-foot packing plant opened in June 1989 when 300 Mid-Columbia business and civic leaders attended an open house.

The plant was built on a 27-acre site purchased from the Port of Kennewick. The building has about 40,000 square feet of main packing space, 15,000 square feet of cold storage and 5,000 feet of office space.

The project was financed through a $3.5 million, 19-year revenue bond issued by the Port of Kennewick.

Cascade Columbia Foods is solely responsible for paying off the debt, said Port Manager Sue Watkins.

Frost, a former Los Angeles attorney with farming ties to the Mid-Columbia, is chairman of the group that bought the bankrupt River Processing Inc. in Sunnyside.

A related firm, Cascade Fresh Foods, leases a warehouse from the Port of Pasco to pack yellow onions. On Monday, Pasco Port Manager Jim Toomey said he is not aware of plans to expand or end that operation.

Feb 2, 1993

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 West Yakima Avenue, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

July 28, 2010

City of Kennewick
Attn: Robert Hammond
PO Box 6108
Kennewick WA 99336-0108

Re: Water Right Permit No. G4-29926P

Dear Mr. Hammond:

We have processed your request for assignment. Our records have been changed to reflect the assignment and we will send all future correspondence to you. We have enclosed a copy of the permit for your information and records.

If you have any questions, please contact Teresa Mitchell at 509-575-2597.

Sincerely,

Sandy Anderson

Sandy Anderson
Water Resources Program

SA:hd
100717

Enclosure: Copy of Permit

Assignment letter.doc

FILE COPY

DEPARTMENT OF ECOLOGY
State of Washington

Water Resources Program

Assignment of Application or Permit to Appropriate or Store Water

To change the ownership of an application/permit

A NON-REFUNDABLE $50.00 FEE MUST ACCOMPANY THE FILING OF THIS ASSIGNMENT

PLEASE COMPLETE THIS FORM IN INK

I/We, Cascade Columbia Foods, Ltd. (F. Daniel Frost) ***(Applicant/Permittee)***
(Please print)

Address: P.O. Box 7285 City: Kennewick State: WA Zip: 99336 Telephone: (___) ___ - ____

E-mail address: RICKBYLANDANDCAATLE @ MSN.COM

Hereby assign to: City of Kennewick (Robert Hammond) ***(Assignee)***
(Please print)

Address: P.O. Box 6108 City: Kennewick State: WA Zip: 99338 Telephone: (509) 585-4289

E-mail address: robert.hammond@ci.kennewick.wa.us

'10 JUN 29 A8:59
DEPT. OF ECOLOGY
FISCAL & BUDGET

All my right, title, and interest in and to Application/Permit No. G4-29926P to appropriate the public waters of the State of Washington.

OR (for partial assignments)

The following described portion of my right, title, and interest in and to Application/Permit

No. _____ to appropriate the public waters of the State of Washington.

Describe portion of the application/permit assigned, listing the number of acres (only for irrigation rights), point of diversion/withdrawal location(s), and amount of the water in gallons per minute or cubic feet per second and acre feet per year.

_____

_____

_____

_____

Provide the latitude and longitude of the Point(s) of Diversion or Withdrawal. If unable to do so, provide the distance and direction from the nearest Section, Township, and Range using the Public Land Survey System.

_____

If for a partial assignment, attach a copy of the property deed or title insurance policy and a detailed map of the proposal.

This assignment is being made for the following reason(s): _____ REET 07-22-2010

_____

_____

_____

If for a permit to appropriate or store water:

- ☐ The development schedule can be met.
- ☐ The development schedule cannot be met. A proposal for a new development schedule is included.

Applicant/Permittee Section:

I/We, F. Daniel Frost, have read the above assignment of application or permit to appropriate or store water; that I/we know the contents thereof; and that the facts therein stated are true.

Signed this 28th day of May, in the year 2010.

Applicant/Permittee Signature

Applicant/Permittee Signature

Applicant/Permittee Signature

State of ~~Washington~~ ARIZONA

County of PIMA

I hereby certify that I know or have satisfactory evidence that F. Daniel Frost Applicant(s)/Permittee(s) is the person who appeared before me, and said person acknowledged that he/she signed this instrument and acknowledged it to be his/her free and voluntary act for the uses and purposes mentioned in this document.

Subscribed and sworn before me this 28 day of May, in the year 2010.

DOROTHY J. MILLER
Notary Public - Arizona
Pima County
My Comm. Expires Feb 14, 2013

Notary Signature

My commission expires: 2-14-2013

Assignee Section:

I/We, Robert Hammond, have read the above assignment of application or permit to appropriate or store water; that I/we know the contents thereof; and that the facts therein stated are true.

Signed this 9th day of June, in the year 2010.

Robert R Hammond

Assignee Signature

Assignee Signature

Assignee Signature

State of Washington

County of Benton

I hereby certify that I know or have satisfactory evidence that Robert Hammond Assignee(s) is the person who appeared before me, and said person acknowledged that he/she signed this instrument and acknowledged it to be his/her free and voluntary act for the uses and purposes mentioned in this document.

Subscribed and sworn before me this ~~28~~ 9th day of ~~May~~ June, in the year 2010.

JACQUELYN L. AMAN
COMMISSION EXPIRES
NOTARY
PUBLIC
8-01-13
STATE OF WASHINGTON

Jacquelyn L Aman

Notary Signature

My commission expires: ~~2-14-2013~~ 8/1/13

Use of this form is needed when the ownership of a water right application or permit needs to be transferred from the current owner to a new owner or additional owners. A water right application requests that a proposed beneficial water use be authorized, while a permit grants authority to develop a beneficial water use. A water right is established if water is put to beneficial water use(s) as authorized by a permit. A water right, once established, attaches to the land upon which it is legally used. It is not necessary to assign a water right certificate or a water right claim. It is required by statute that an assignment be filed for applications and permits (90.03.310 RCW).

To remain a viable application or permit, the person(s) owning it must maintain the ability to develop a water use(s) upon the property identified as the place of water use. Normally only the property owner, a lessee, or a legally recognized water system has authority to develop a water use upon a parcel of land.

An assignment of an application or permit is not valid until filed with the Department of Ecology. An assignment is made whenever it is desired to transfer all or part of the responsibility and/or interest in an application or a permit to appropriate or store water. Normally an assignment is made if the application/permit holder(s) sells the place water is to be used to another person.

The person(s) receiving the application/permit may be required to provide additional information prior to acceptance of the assignment. For example, information may be requested showing that the assignment is in compliance with the provisions of the Family Farm Water Act, Chapter 90.66 RCW.

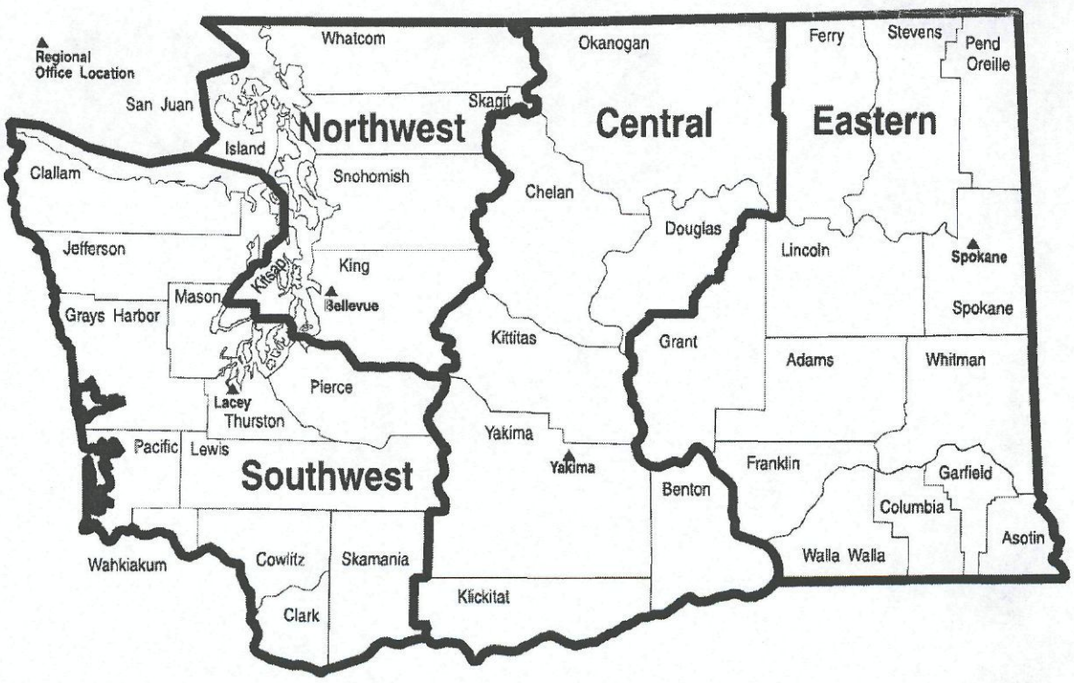
This assignment may result in a real estate excise tax liability for the seller. The Department of Ecology notifies the Department of Revenue of potential taxable water right related actions. Please contact the state Department of Revenue for further information. The phone number is (360) 570-3265. The mailing address is: Department of Revenue, Real Estate Excise Tax, P.O. Box 47477, Olympia, WA 98504-7477. You may also contact them through the internet at: http://dor.wa.gov or e-mail REETSP@DOR.WA.GOV

Submit the assignment to: **DEPARTMENT OF ECOLOGY**
CASHIERING UNIT
PO BOX 47611
OLYMPIA, WA 98504-7611

Below is a map of the State of Washington, with outlines of the four Ecology regional offices. If you have questions about the assignment, contact the Water Resources Program at the regional office in which your project is located.

Please check the region in which the project is located:

☐ Southwest Regional Office (360) 407-6300	☐ Northwest Regional Office (425) 649-7000
☒ Central Regional Office (509) 575-2490	☐ Eastern Regional Office (509) 329-3400



RECEIPT

Department of Ecology (4610)
PO Box 47611
Olympia, WA 98504-7611
(360) 407-7095

Receipt Number **10CJ021549**
Manual Receipt

Document Number **461J1649 CJ** Date **06/29/2010** FM **12**

Remitter Name **KENNEWICK CITY** Receipt Name

RECEIVED
JUN 30 2010
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Check/Draw Number **97907**

Document Amount **50.00**

Method of Payment **Check**

Comment Description **WATER RIGHTS - G4-29926P** - Assignment

REF DOC NR	REF DOC SFX	INV NR	ID NR	SUB ID NR	T C	R	FUND	MAJ GRP	MAG SRC	SUB SRC	CNTY	WORK CLS	PIC	AI	ORG	PRJ	SUB PRJ	PRJ PHS	SUB OBJ	SUB SUB OBJ	VAR GL	SUB SID DR	SUB SID CR	ALLOC AMT
					001		001	02	85	000011														50.00

Mitchell, Teresa (ECY)

From: Mitchell, Teresa (ECY)
Sent: Tuesday, March 02, 2010 8:35 AM
To: 'johng@ci.kennewick.wa.us'
Subject: Ground Water Permit No. G4-29926P

Hello John,

You requested a copy of Ground Water Permit No. G4-29926P for your records. This link directs you to a copy of the application, report of examination, permit, and proof of appropriation for G4-29926P. Please download the documents from the link within two weeks of this email.

Our discussion also included assigning the permit from Cascade Columbia Foods to the City of Kennewick. The form, at this link, needs to be completed, including notarized signatures, by Cascade Columbia Foods *AND* the City of Kennewick. Please submit the completed form along with the statutory $50 processing fee to the address noted in the instructions.

I hope you find this information helpful. Let me know if you need anything else.

Teresa Mitchell | WA Department of Ecology | CRO Water Resources Program | 509-575-2597 | Fax 509-575-2809

Please consider the environment before printing this e-mail

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

February 12, 2010

Cascade Columbia Foods Ltd
PO Box 7285
Kennewick WA 99336-0617

Re: Water Right No. G4-29926

Our records indicate that you have a Proof Exam inspection pending. This is to remind you that while you await the field inspection, beneficial use of water should continue. By continuing beneficial use as asserted on the *Proof of Appropriation of Water* form, your water right will remain in good standing if:

1. Beneficial use remains within the parameters of the authorization.
2. Beneficial use is consistent with the *Proof of Appropriation of Water* form submitted.
3. The use complies with the provisions stated in the underlying authorization, including any provisions for meter reading and reporting.

Though it may be some time before we are able to conduct the inspection, we will contact you regarding scheduling prior to the inspection.

If you anticipate a period of non-use of this water right, an option to consider is the Trust Water Program, which could protect the water right from relinquishment. You can find out more about putting your water into the Trust Water Right Program: http://www.ecy.wa.gov/biblio/92088.html or contact Scott Turner at 509-457-7106 or Kelsey Collins at 509-575-2640.

Complete the enclosed pre-paid postcard and return no later than **March 1, 2010**. If you have questions about your water right, please contact Teresa Mitchell at 509-575-2597.

Sincerely,

Mark C. Schuppe

Mark C. Schuppe
Section Manager
Water Resources Program

100137/gh

Enclosure: Pre-paid postcard

new landowner

FILE COPY

Water Right No(s). G4-29926

Please complete the following:

Are you the **legal land owner(s)** of the referenced water right? ☐ Yes ☑ No

If not, who is the **legal land owner(s)**?

CITY OF KENNEWICK

Name

P.O. BOX 6108

Address

KENNEWICK, WA 99336

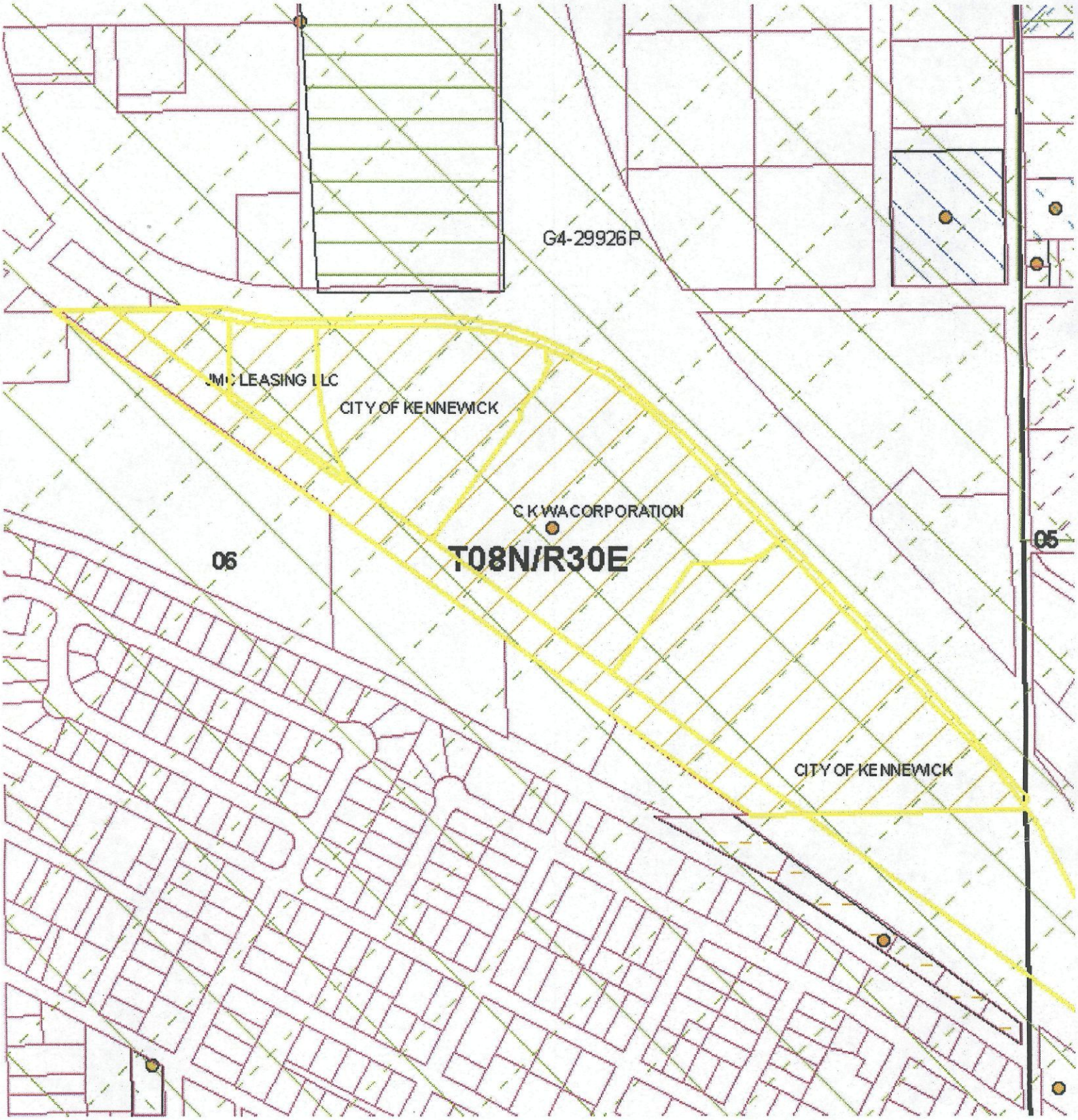
(509) 585-4289 (509) 585-4534

City, State Zip Phone

Return Postcard No Later Than: March 1, 2010

DEPARTMENT OF ECOLOGY
State of Washington

Parcel_ID	owner1	owner2	locaddr	mailaddr	mailcity	mailstat	mailzip
106804RS2130...							
106804BP3452...	C K WA CORPORATION		1010 E CHE...	PO BOX 6108	KENNEWICK	WA	99336-0108
106804BP3452...	CITY OF KENNEWICK		UNKNOWN,...	PO BOX 6108	KENNEWICK	WA	99336-0108
106804BP3452...	CITY OF KENNEWICK		UNKNOWN,...	PO BOX 6108	KENNEWICK	WA	99336-0108
106804000008000	JMC LEASING LLC		900 E CHEM...	23201 S VERBENA ST	KENNEWICK	WA	99337
106804000008001	JMC LEASING LLC		UNDETERM...	23201 S VERBENA ST	KENNEWICK	WA	99337


G4-29926P
JMC LEASING LLC
CITY OF KENNEWICK
CKWA CORPORATION
06
T08N/R30E
05
CITY OF KENNEWICK

CHRISTINE GREGOIRE
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3601 W. Washington • Yakima, Washington 98903-1164 • (509) 575-2800

July 31, 1991

Cascade Columbia Foods, Ltd.
P.O. Box 7285
Kennewick, WA 99336

RE: Ground Water Permit No. G4-29926P

We acknowledge receipt of the Proof of Appropriation in connection with the above-numbered permit.

An on-site inspection of your project will be conducted by a representative of this Department prior to issuance of a Certificate of Water Right. Your permit will remain in good standing with no further action on your part until the aforesaid inspection has been completed.

You will be notified when we have received the report of our inspector and at that time we will request that the statutory fees be submitted for recording a final Certificate of Water Right.

Sincerely,

Water Resources Program

SC

p-3a:Form
(02/91)

APPENDIX N

2016 REGIONAL WATER FORECAST AND CONSERVATION PLAN

Regional Water Forecast and Conservation Plan

City of Kennewick
City of Pasco
City of Richland
City of West Richland

January 2016

Prepared By RH2 Engineering, Inc., Richland, Washington

Regional Water Forecast and Conservation Plan

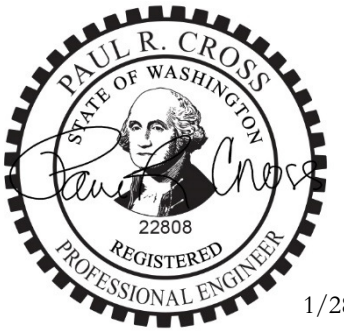
City of Kennewick
City of Pasco
City of Richland
City of West Richland

January 2016

Prepared by RH2 Engineering, Inc.

Prepared for the City of Kennewick.

Note: This Plan was completed under the direct supervision of the following Licensed Professional Engineers registered in the State of Washington.



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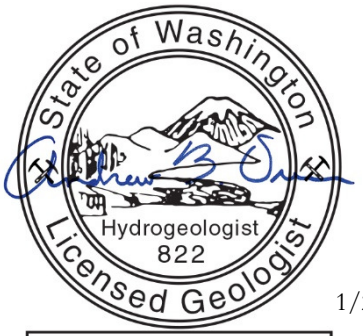

1/28/2016

ANDREW B. DUNN

City of Kennewick
Regional Water Forecast and Conservation Plan
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Introduction and Background 1

AUTHORIZATION AND PURPOSE

The Cities of Kennewick, Pasco, Richland, and West Richland authorized RH2 Engineering, Inc., (RH2) to prepare this Regional Water Forecast and Conservation Plan (RWFCP) to update the 2010 version of the RWFCP. These four cities share the Quad City Water Right (QCWR) issued under Surface Water Permit No. S4-30976P on September 15, 2003. This updated RWFCP combines the water conservation and demand projection data presented in each city's individual water system plan, and presents them in one document. Additionally, the purpose of this RWFCP is as follows:

- To describe the local area geology, climate, population, and municipal subdivisions;
- To summarize the municipal water rights for each city and the mechanisms for transmitting regional supplies to each city;
- To describe existing and proposed water conservation measures within each jurisdiction and regionally;
- To perform a water balance and determine net consumptive use within the municipal service areas;
- To tabulate the 2021 (6-year) and 2035 (20-year) allocation of the QCWR and where it is anticipated to be used; and
- To describe mitigation required by each city based on the allocation of the QCWR.

Combining the water conservation plans for the quad cities in this document will provide consistency with the Settlement Agreement terms of the QCWR, assist in ensuring a reliable future water supply for the region, and protect fish, wildlife, and the environment. Effective water conservation and efficiency plans can delay the need for new or replacement water system infrastructure within the existing quad cities water systems. Each city recognizes that water is a valuable and essential natural resource that needs to be used wisely, and the individual water use efficiency plans for each city meet or exceed the current Washington State Department of Health (DOH) requirements.

Water supply to the quad cities is provided by surface water treatment plants, Ranney collector wells, and groundwater wells. Each city has a variety of additive and non-additive water rights that define the quantity of water that can be used to supply each water system. The majority of the future water supply to each city will be regulated by the QCWR, which permits a maximum instantaneous use of 178 cubic feet per second (cfs), and an annual use of 96,619 acre-feet per year (afy). An initial 10 cfs (instantaneous) and 7,227 afy (annual) portion of the QCWR has been distributed evenly between the four cities, with a priority date of June 24, 1980. Additional quantities of water may be made available following review of this or subsequent RWFCPs, which are required to be updated on a 6-year basis, as described in the water right permit presented as **Appendix A**.

SUMMARY OF PLAN CONTENTS

A brief summary of the content of each chapter in this RWFCP is as follows.

- **Chapter 1** introduces the reader to the purpose of the RWFCP and its organization.
- **Chapter 2** presents a description of the local area geology, climate, population, and municipal subdivisions.
- **Chapter 3** presents the conservation program components.
- **Chapter 4** presents the regional joint use strategy for the QCWR.

DEFINITION OF TERMS

The following terms are used throughout this RWFCP.

Consumption: The true volume of water used by a water system's customers. The volume is measured at each customer's connection to the distribution system.

Demand: The quantity of water required from a water supply source over a period of time necessary to meet the needs of domestic, commercial, industrial, and public uses, and to provide enough water to supply fire fighting, system losses, and miscellaneous water uses. Demands are normally discussed in terms of flow rate, such as million gallons per day (MGD) or gallons per minute (gpm), and are described in terms of a volume of water delivered during a certain time period. Flow rates pertinent to the analysis and design of water systems are:

- **Average Day Demand (ADD):** The total amount of water delivered to the system in a year divided by the number of days in the year;
- **Maximum Day Demand (MDD):** The maximum amount of water delivered to the system during a 24-hour time period of a given year; and
- **Peak Hour Demand (PHD):** The maximum amount of water delivered to the system, excluding fire flow, during a 1-hour time period of a given year. A system's PHD usually occurs during the same day as the MDD.

Distribution System Leakage (DSL): Water that is measured as going into the distribution system but not metered as going out of the system.

Potable: Water suitable for human consumption.

Purveyor: An agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or persons or other entity owning or operating a public water system. Purveyor also means the authorized agents of such entities.

Supply: Water that is delivered to a water system by one or more supply facilities, which may consist of supply stations, booster pump stations, springs, and wells.

Storage: Water that is "stored" in a reservoir to supplement the supply facilities of a system and provide water supply for emergency conditions.

Area Description

2

INTRODUCTION

This chapter provides a thorough description of the quad cities area, specifically including the Cities of Kennewick, Pasco, Richland, and West Richland.

GEOLOGY AND CLIMATE

The Cities of Kennewick, Pasco, Richland, and West Richland, referred to herein as the quad cities, are located in the Columbia Basin, approximately at the confluence of the Columbia, Snake, and Yakima rivers, in southcentral Washington. Columbia River basalts lie beneath the quad cities, which stretch from Idaho, through Oregon and Washington, to the Pacific Ocean. The topography of the quad cities area varies greatly, with low elevations of approximately 320 feet above mean sea level adjacent to the Columbia River, and high elevations of approximately 3,000 feet above mean sea level at the top of surrounding peaks.

The climate is semi-arid with precipitation arriving in the spring and fall as rain, and falling in the winter as snow. The summers are warm and dry. The climatic data for the City of Kennewick, which is representative of the quad cities, is shown in **Table 2-1**.

Table 2-1
Historical Climatic Data

Year	Temperature (°F)			Annual Rainfall (inches)
	Annual Average	Annual High	Annual Low	
1995	55	100	9	10.81
1996	53	104	-11	13.66
1997	55	103	13	7.80
1998	57	108	7	7.58
1999	56	101	25	4.05
2000	54	104	18	9.04
2001	55	102	22	6.16
2002	55	106	22	5.32
2003	57	107	15	6.81
2004	56	103	-6	5.23
2005	55	102	10	6.85
2006	56	109	13	10.18
2007	55	105	10	5.73
2008	54	104	3	6.24
2009	54	105	5	6.72
2010	55	101	5	12.05
2011	54	99	11	5.24
2012	56	105	15	9.44
2013	55	108	10	5.49
2014	57	108	9	5.59

POPULATION

The quad cities have experienced rapid population growth and extensive physical development in recent years. The populations of Kennewick, Pasco, Richland, and West Richland increased approximately 24, 35, 16, and 26 percent, respectively, between 2007 and 2014. Historical and projected future growth for Kennewick, Richland, and West Richland was presented in Benton County's *2013 Comprehensive Plan* update through 2034, and for Pasco in Franklin County's *2008 Comprehensive Plan* through 2030. These projections, which are shown in **Table 2-2**, include the population within the city limits, as well as the unincorporated areas of each city's urban growth area (UGA). Population projections beyond 2034 for Kennewick, Richland, and West Richland were assumed to occur at an average annual growth rate that is the same as the 2029 to 2034 projections for each city. Pasco provided the projected 2035 city limit population. The population projections for Kennewick, Pasco, and Richland are in accordance with each city's current comprehensive plan. West Richland's comprehensive plan projections are more aggressive than the Benton County's projections. Future calculations and analyses will be based on West Richland's more aggressive comprehensive plan and water system plan population projections for conservatism.

Table 2-2
Historical and Population Projections for Each City

Description	Year	Kennewick	Pasco	Richland	West Richland	Total
City Population						
Historical	2007	62,520	50,210	45,070	10,850	168,650
Historical	2010	73,917	59,781	48,058	11,811	193,567
Base Year	2014	77,700	67,770	52,090	13,620	211,180
+6 Years	2021	86,444	78,898	60,254	14,550	240,145
+20 Years	2035	103,931	101,153	76,581	16,410	298,075
Water Service Area Population						
Historical	2007	67,871	54,060	45,409	10,850	178,190
Historical	2010	70,286	61,221	50,047	11,965	193,520
Base Year	2014	74,720	70,770	56,232	13,626	215,347
+6 Years	2021	83,319	80,224	62,133	18,509	244,185
+20 Years	2035	101,160	111,862	73,700	25,308	312,030

The actual number of people served by each city's water system is different than the population within each city. Projected future growth for each city's water service area is shown in the bottom portion of **Table 2-2**. The projected water service area population data is presented in each city's existing water system plan, through either 2029 or 2030. The water service area projections beyond these years were assumed to occur at an average annual growth rate that is the same as the preceding years. The projections for Kennewick, Pasco, and Richland's water service area are in accordance with the current Benton and Franklin County planning documents. West Richland's projections, presented in the 2013 update to the West Richland comprehensive plan, are more aggressive than the Benton County's projections. The water service area projections for each city will be used to calculate the future water demands of each water system.

COMPOSITION OF CUSTOMERS SERVED

In 2014, Kennewick provided water service to 23,205 connections; Pasco to 18,643 connections; Richland to 18,414 connections; and West Richland to 4,472 connections, as shown in **Table 2-3**.

Of the 64,734 connections served in all four water systems in 2014, 55,700 connections (86 percent) were single-family residential customers, 2,273 connections (4 percent) were multi-family residential customers, 5,406 connections (8 percent) were commercial and industrial customers, and 1,355 connections (2 percent) were municipal, educational, and all other land use types. Information regarding the number of multi-family residential units served was not immediately available from each city; therefore, a breakdown of the single- and multi-family residential population was not considered in this study.

Table 2-3
2014 Connections by Customer Class

City/Service Area	Single-family Residential	Multi-family Residential	Commericial/ Industrial	Municipal/ Educational/Other	Total
Kennewick	19,540	1,220	2,274	170	**23,205**
Pasco	16,142	492	1,493	516	**18,643**
Richland	15,807	468	1,510	629	**18,414**
West Richland	4,210	93	129	40	**4,472**
Total	**55,700**	**2,273**	**5,406**	**1,355**	**64,734**

MUNICIPAL WATER SYSTEMS AND IRRIGATION DISTRICTS

City of Kennewick

Kennewick's potable water system is supplied by two Ranney collector wells on Clover Island, which have an existing combined capacity of approximately 10,417 gallons per minute (gpm) (15 million gallons per day (MGD)), and by the city's Columbia River Water Treatment Plant (WTP), which also has an existing capacity of 10,417 gpm (15 MGD), with the infrastructure to be expanded to 30 MGD in the future.

Kennewick also operates two wells in Columbia Park: the Kiwanis Well is a 25 gpm well used for irrigation in the park; and the Columbia Park Campground Well is a 70 gpm well that is a separate water system used to supply a seasonal campground.

Separate irrigation systems operated by the Kennewick Irrigation District (KID) and Columbia Irrigation District (CID) are available for some of Kennewick's potable water system customers. Potable water is used for irrigation by Kennewick customers outside of KID and CID's operating areas.

City of Pasco

Pasco's potable water system is supplied by two Columbia River WTPs. The Butterfield WTP has an existing capacity of 19,444 gpm (28 MGD), and the West Pasco WTP has an existing capacity of 4,200 gpm (6 MGD).

In addition to the potable water system, Pasco operates a separate irrigation system supplied by Columbia River surface water and multiple groundwater wells to provide irrigation water to some potable water customers. Franklin County Irrigation District No. 1 also operates a separate irrigation system to provide irrigation water to some of Pasco's potable water system customers. Potable water is used for irrigation by Pasco customers in areas without separate irrigation systems.

City of Richland

Richland's main source of potable water supply is the 36 MGD Columbia River WTP, with five other well fields providing additional supply. Water is pumped from the Columbia River to the WTP and to the North Richland Well Field (NRW). At the NRW the water is used for aquifer recharge before being repumped to the treatment and distribution systems. Richland also operates well pumps at the Columbia, Duke, and Wellsian well fields, which pump naturally occurring groundwater into Richland's water system. The total treatment capacity of Richland's water system is 36,900 gpm (53.1 MGD).

In addition to the potable water system, Richland operates two separate irrigation systems that supply irrigation water to some customers within the city limits. Badger Mountain Irrigation District (BMID), KID, and CID also operate separate irrigation systems to provide irrigation water to some of Richland's potable water system customers. A small percentage of Richland potable water system customers are also served by private irrigation systems. Potable water is used for irrigation by Richland customers in areas without separate irrigation systems.

City of West Richland

West Richland's potable water system is supplied by six groundwater wells and an intertie with Richland's water system. The existing pumping capacity of West Richland's non-emergency wells is approximately 4,860 gpm (7 MGD). An intertie with Richland's water system is used to meet the peak demands of the system during the summer months. The current joint contract allows up to 2,500 gpm (3.6 MGD) of water from Richland's water system, but the cities have planned for as much as 5,000 gpm to be transferred from Richland to West Richland's water system through this intertie. The intertie is located at the intersection of Kennedy Road and Arena Road.

Separate irrigation systems operated by KID and CID, as well as private irrigation systems, supply irrigation water to some West Richland potable water system customers. Potable water is used for irrigation by West Richland customers in areas without separate irrigation systems.

MUNICIPAL WATER RIGHTS

The Cities of Kennewick, Pasco, Richland, and West Richland share the Quad City Water Right (QCWR) issued under Surface Water Permit No. S4-30976P on September 15, 2003. This water right permits a maximum instantaneous use of 178 cubic feet per second (cfs), and an annual use of 96,619 acre-feet per year (afy). An initial 10 cfs (instantaneous) and 7,227 afy (annual) portion of the QCWR has been distributed evenly between the four cities, with a priority date of June 24, 1980. Additional quantities of water may be made available following review of this and subsequent RWFCPs, which are updated on a 6-year interval, as described in the water right permit. A summary of the potable water rights evaluation for each city, both with and without the QCWR, is shown in **Table 2-4**. Standalone irrigation water rights are not included in the values presented in **Table 2-4**, and water utilized by the standalone irrigation systems operated by the Cities of Pasco and Richland are not included in future projections. The water rights evaluation presented in Richland's water system plan included four categories: potable non-additive, potable additive, potable claims, and other sources. These categories are presented in **Table 2-4** for consistency with Richland's water system plan.

Table 2-4
Existing Water Rights

Description[1]	Existing Water Rights		
	Maximum Qi		Maximum Qa
	(gpm)	(cfs)	(afy)
Kennewick Municipal without QCWR[2]	***44,850***	***99.93***	***16,200.00***
Kennewick Domestic with QCWR[3]	45,972	102.43	18,006.75
Kennewick Irrigation	100	0.22	7.20
Kennewick Total Water Rights[4]	46,072	102.65	18,013.95
Pasco Domestic without QCWR[2]	***16,784***	***37.40***	***7,849.00***
Pasco Domestic with QCWR[3]	17,906	39.89	9,655.75
Pasco Irrigation	17,164	38.24	7,152.80
Pasco Total Water Rights[4]	35,070	78.14	16,808.55
Richland Municipal without QCWR[5]	***42,664***	***95.06***	***33,141.20***
Richland Domestic with QCWR[3]	43,786	97.56	34,947.95
Richland Other	27,129	60.44	14,148.92
Richland Total Water Rights[4]	70,915	158.00	49,096.87
West Richland Domestic without QCWR[5]	***7,420***	***16.53***	***4,661.00***
West Richland Domestic with QCWR[3]	8,542	19.03	6,467.75
West Richland Irrigation	200	0.45	150.00
West Richland Total Water Rights[4]	8,742	19.48	6,617.75
Municipal Total without QCWR	***111,718***	***248.91***	***61,851.20***

(1) Water rights descriptions (municipal, domestic, irrigation, and other) for each city are consistent with the descriptions presented in water rights documents.

(2) Pre-QCWR municipal/domestic annual volume of Kennewick and Pasco consistent with 2009 RWFCP Table 2-4.

(3) QCWR split evenly for each City resulting in 1,122 gpm (2.5 cfs) and 1,806.75 afy shown for each city.

(4) All water rights held by each city are suitable for municipal water supply purposes. The water rights are broken down in this table for consistency with each city's water rights documents.

(5) Pre-QCWR municipal/domestic annual volume of Richland and West Richland inconsistent with 2009 RWFCP Table 2-4, which showed a higher water right value for both cities.

Richland and West Richland have a wholesale water service agreement that states that Richland will withdraw, treat, and pump West Richland's portion of the QCWR. The official agreement can be found in **Appendix B**.

Conservation Program Components

3

INTRODUCTION

Throughout the past 10 years, beginning with the quad cities *2005 Interim Regional Water Forecast and Conservation Plan* (RWFCP), the Cities of Kennewick, Pasco, Richland, and West Richland have implemented water conservation plans to ensure that the region has a reliable supply of water and is using water in an efficient manner. The quad cities have been implementing individual water use efficiency programs since 2007 that comply with the Washington State Department of Health Water Use Efficiency (WUE) Rule. Additionally, the RWFCP serves as a combined and unified WUE program for the quad cities to ensure that WUE is a key component in the regional supply and demand strategy.

The Washington State Department of Health (DOH) implemented the WUE Rule, effective on January 22, 2007, as required by the Municipal Water Supply – Efficiency Requirements Act, also known as the Municipal Water Law, passed by the Washington State Legislature in September 2003. The intent of this rule is to help reduce the demand that growing communities, agriculture, and industry have placed on our state's water resources, and to better manage these resources for fish and other wildlife. Municipal water suppliers are obligated under the WUE Rule to enhance the efficient use of water by the system and/or its consumers.

The WUE Rule applies to all municipal water suppliers and requires suppliers to:

- Develop WUE goals through a public process and report annually on their performance;
- Maintain distribution system leakage at or below 10 percent of production based on a 3-year rolling average;
- Meter all existing and new service connections;
- Collect production and consumption data, calculate distribution system leakage (DSL), and forecast demands;
- Evaluate WUE measures; and
- Implement a WUE program.

WATER USE EFFICIENCY GOALS AND OBJECTIVES

The original combined WUE goals and objectives of the quad cities, developed in the 2005 Interim RWFCP, have proven to be effective and will continue to be met through implementation of the WUE measures in each city's WUE program. These goals and objectives, as most recently presented in the 2008 RWFCP, are as follows.

- Inform customers of simple, effective water wise activities.
- Develop a regional marketing campaign.

- Encourage customers to reduce water waste and become more water wise.
- Encourage commercial, industrial, and residential customers to use water wisely.
- Ensure all municipal activities and programs are water wise.
- Encourage wise water use to irrigate large park-like areas.
- Measure the net consumptive water use from the Columbia River.
- Perform a water balance for the region every 6 years as part of each city's comprehensive water system plan updates.
- Focus conservation program on using water efficiently.

The proposed goals and objectives of each city's currently-adopted or proposed WUE programs consist of the following.

City of Kennewick

- Maintain annual average demand per capita below 170 gallons per day (gpd), based on the 6-year period between 2008 and 2013.

City of Pasco

- Supply-side goals
  - Maintain DSL at 8 percent or less on an annual basis.
  - Develop an integrated water shortage and drought response plan by 2018.
  - Continue with regular water meter replacement program.
  - Implement installation of "Smart Meters".
- Demand-side goals
  - Maintain average demand per ERU at 470 gpd per ERU, excluding DSL through 2020.
  - Develop a large water user water audit program by December 31, 2018.
  - Encourage the utilization of xeriscaping and specialized turf seed mixes to lower irrigation water consumption.
  - Continue to offer Pasco residents retrofit kits that include low flow shower heads, toilet tank displacement bags, leak detection tablets, and other water use efficiency measures. The City will phase out this residential retrofit program before the next planning cycle as the City is close to reaching saturation of its target audience.
  - Continue to perform WUE education in the Pasco School District.

- Continue to promote public education on conservation through annual consumer confidence reports, customer billing statements, and other educational materials.

City of Richland

- Maintain DSL at 10 percent or less on an annual basis.
- Promote education on water conservation.
- Offer a residential retrofit program for the public.
- Consider a conservation rate in a water rate study.
- Maintain the average demand per equivalent residential unit (ERU) at 534 gpd per ERU.

City of West Richland

- Maintain DSL at 10 percent or less based on a 3-year rolling average.
- Maintain average demand per ERU at 455 gpd per ERU through 2022.

CONSERVATION MEASURES

Each city's evaluation of WUE measures and selected levels of implementation are presented within this section. The measures fall within three categories of implementation: 1) mandatory measures that must be implemented; 2) measures that must be evaluated; and 3) additional measures selected by the city that must be either evaluated or implemented.

Based on the number of each city's water service connections in 2014 (as presented in **Chapter 2**), Kennewick, Pasco, and Richland must evaluate or implement at least nine WUE measures, and West Richland must evaluate or implement at least six WUE measures. Measures that are mandatory cannot be credited towards the system's WUE measures. **Table 3-1** shows each city's compliance with the mandatory implementation and evaluation measures, as well as the WUE measures currently implemented by each city. As can be seen in **Table 3-1**, each city implements more than the required number of WUE measures, as many of the implemented measures apply to all four customer classes.

Table 3-1
WUE Measures

WUE Measure	Kennewick				Pasco				Richland				West Richland			
Mandatory WUE Measures																
Source Meters Installed	✓				✓				✓				✓			
Service Meters Installed	✓				✓				✓				✓			
Meter Calibration Compliance	✓				✓				✓				✓			
Water Loss Control Action Plan	Not Applicable				Not Applicable				Not Applicable				Not Applicable			
Customer Education	✓				✓				✓				✓			
WUE Measures That Must Be Evaluated																
Rate Structure	✓				✓				✓				✓			
Reclamation Opportunities	✓				✓				✓				✓			
Selected WUE Measures																
Customer Class	**SF**	**MF**	**CI**	**MEO**	**SF**	**MF**	**CI**	**MEO**	**SF**	**MF**	**CI**	**MEO**	**SF**	**MF**	**CI**	**MEO**
Plumbing Retrofit Program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Displays at Fairs and Events	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water Use Audits			✓				✓				✓					
School Outreach	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Water Bill Showing Consumption History	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Irrigation Management												✓				
Using Reclaimed Water							✓									
Total Selected WUE Measures	**17**				**18**				**18**				**16**			

SF = Single-family Residential
MF = Multi-family Residential
CI = Commerical/Industrial
MEO = Municipal/Institutional/Other

Mandatory Measures

Source Meters

The volume of water produced by the each system's sources must be measured using a source meter or other meter installed upstream of the distribution system. Source meters are currently installed and operating at each city's sources. If any new sources are installed in the future, they will be equipped with a source meter. A description of each city's source meter testing and repair history and protocols is as follows.

- Kennewick tests source meters for proper operation on an annual basis, and calibrates the meters if needed. In 2014, the city verified that the source meters at the Ranney collectors and the Kennewick Water Treatment Plant met American Water Works Association standards.

- Pasco calibrates all source meters every 5 years. All West Pasco Water Treatment Plant source meters were calibrated in 2014. Butterfield Water Treatment Plant raw water meters were replaced in 2014, and finished water meters were replaced in 2011.
- Richland services all source meters on an annual basis, and performs repairs if needed. Two source meters are scheduled for replacement in winter 2015.
- West Richland tests source meters for proper operation on an annual basis, and calibrates the meters if needed. In 2014, West Richland calibrated source meters at Wells 1, 2, 7, and 9.

Service Meters

All public water systems that supply water for municipal purposes must install individual service meters for all water users. Service meters are currently installed and operating at all connections throughout each city's distribution system. All future connections that are installed or activated will be equipped with a service meter.

Meter Calibration – Large Meters (2-inch and Larger)

The cities must calibrate and maintain meters based on generally accepted industry standards and manufacturer information. A description of each city's large meter testing and repair history and protocols is as follows.

- Kennewick has tested all large meters on an annual basis over the last 5 years. As of 2014, 87 large meters were installed in Kennewick's water system. Of the 87 large meters, 83 met the 95 percent or better accuracy target over the three flow ranges (low, medium, and high) used in the tests. Meters not meeting this goal were repaired, replaced, or scheduled for replacement.
- Pasco tests all large meters on a regular schedule, consistent with generally accepted industry standards and manufacturer information. As of 2014, 321 large meters were installed in Pasco's water system. Pasco replaces meters outside of the regular testing schedule if they are discovered to be leaking, have stopped reading, or if the dial has rolled over two or more times.
- Richland tests all 2-inch meters every 4 years, and all 3-inch meters every 2 years. Meters not meeting generally accepted industry or manufacturer standards are replaced or scheduled for replacement.
- West Richland tests all large meters based on manufacturer recommendations. As of 2014, eight large meters were installed in West Richland's water system.

Meter Calibration – Small Meters (Less than 2-inch)

Each city has procedures to test the performance of small meters and to repair and replace the meters if they are found not to be within generally accepted industry standards and manufacturer information. A description of each city's small meter testing and repair history and protocols is as follows.

- Kennewick repairs or replaces small meters if they are discovered to be defective or not properly measuring water use. Kennewick periodically replaces old meters with meters compatible with an automatic read system.
- Pasco repairs or replaces small meters on a recurring 10-year schedule, consistent with manufacturer recommendations.
- Richland repairs of replaces small meters if they are discovered to be defective or not properly measuring water use. All small meters originally installed prior to 1990 have been replaced. No small meters installed prior to 1990 are currently installed in Richland's water system.
- West Richland repairs or replaces small meters if they are discovered to be defective or not properly measuring water use.

Water Loss Control Action Plan

To control leakage, systems that do not meet the distribution system leakage (DSL) standard must implement a Water Loss Control Action Plan (WLCAP). Each city's rolling 3-year average DSL is below 10.0 percent in 2014, based on the 3-year period of 2012 through 2014. Therefore, a WLCAP is not required to be implemented.

Customer Education

Annual customer education regarding the importance of using water efficiently is a required element of all WUE programs. Customer education is provided in each city's annual Consumer Confidence Report (CCR) to customers and includes information on the system's DSL, progress towards meeting WUE goals, and tips for customers on using water more efficiently.

Measures That Must Be Evaluated

Rate Structure

A rate structure that encourages WUE and provides economic incentives to conserve water must be evaluated by each city, but is not required to be implemented. Each city's current utility rates are designed to discourage excessive water use, with additional charges applied to customers that use more water than allocated within a base allotment.

Reclamation Opportunities

Each city has evaluated reclamation opportunities, and Pasco currently uses reclaimed water to irrigate city-owned agricultural land. A description of each city's evaluation and implementation of reclaimed water use is as follows.

- Kennewick has evaluated using reclaimed water based on the existing wastewater treatment plant effluent quality (Class D – Reclaimed Water), but no reclaimed water is currently used within Kennewick's water service area.
- Pasco uses reclaimed water from food processors to irrigate city-owned agricultural land. Pasco continues to evaluate additional uses for reclaimed water within its water service area.

- Richland has evaluated using reclaimed water to irrigate golf courses and parks adjacent to the wastewater treatment plant. However, Richland has existing irrigation rights from the Columbia River through a separate non-potable system; using reclaimed water is not cost effective in comparison. The non-potable systems are in place and have very low relative costs.
- West Richland has evaluated using reclaimed water within its water service area, including for irrigation of the golf course adjacent to the wastewater treatment plant. However, it has been determined that using reclaimed water is not currently cost effective.

Selected Measures

Each city has chosen to implement a variety of WUE measures in addition to those that are mandatory or required to be evaluated. Many of the measures are implemented for multiple customer classes.

Plumbing Retrofit Program

Each city currently distributes water conservation items to all customer classes, including low flow showerheads, kitchen and bathroom faucet aerators, and toilet dye kits, at no cost to the customers. The program has had mixed success, especially in West Richland, where a majority of structures were constructed after 1993 when the updated plumbing code required water conservation fixtures for new construction.

Displays at Fairs and Events

Each city currently participates in WUE education by providing information on city websites and in educational brochures and displays at the annual Benton-Franklin County Fair. Additionally, Pasco provides educational brochures and displays at the annual Home and Garden Show, which is attended by customers living in all four cities.

Water Use Audits

Each city currently has an audit program for large commercial and industrial users. Additionally, Richland performs audits for city-owned facilities connected to the potable water system.

School Outreach

Schools within each city are provided WUE education programs presented through partnerships with the Benton-Franklin Health Department and the Franklin Conservation District. These outreach programs helps students and teachers learn about water quality and WUE. Richland also provides an environmental education school outreach program relating to municipal operations and the environment.

Water Bill Showing Consumption History

Each city currently shows consumption history charts and information on water bills for all customer classes.

Irrigation Management

Richland has installed a centralized irrigation computer system that communicates via radio to automatically shut down laterals or systems that have received programmed volumes of water, sends alarms in the event of unexpected flows or malfunctions, and remotely controls system flows based on weather conditions.

WUE PROGRAM DATA COLLECTION, ANALYSIS, AND EVALUATION

One way to evaluate the WUE program's effectiveness is through a regional water balance, which measures net consumptive use. This net consumptive use is the volume of water that is not returned to the supply sources, and is therefore "consumed" by water system customers. The value of the net consumptive use is found from the difference in production volumes and return flow volumes, as measured by source and customer meters. Additional unmetered data is included in the water balance, such as return flows from septic systems, irrigation water, and water loss within the water system. Estimates have been made to approximate the return flows for these unmetered cases. The 2014 regional water balance is shown in **Table 3-2**, and a more detailed water balance for each city is shown in **Table 3-3**.

Table 3-2
2014 Regional Water Balance

Description	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total
Source of Supply Meter Readings (MG)													
Kennewick (Includes Recharge Volume)	184.56	166.90	214.35	352.29	450.54	515.32	562.79	510.48	404.38	299.41	193.09	192.84	4,046.97
Pasco	187.90	170.70	217.10	341.00	445.60	538.20	650.50	647.90	560.80	416.20	225.10	196.50	4,597.50
Richland - WTP Influent	213.22	180.63	263.47	485.63	695.98	805.12	981.22	872.84	718.91	472.07	220.77	197.19	6,107.06
Richland - Raw Water for Recharge	0.00	0.00	0.00	0.00	455.40	440.60	439.90	434.85	417.40	427.00	34.36	0.00	2,649.51
West Richland	19.09	12.52	21.07	53.50	71.10	74.53	91.78	89.82	74.97	48.63	28.94	27.93	613.89
West Richland - Intertie	0.00	12.79	25.79	32.18	41.22	58.77	71.81	51.36	44.64	21.77	2.62	4.09	367.02
Total Supply	**604.77**	**543.54**	**741.79**	**1,264.60**	**2,159.84**	**2,432.55**	**2,798.01**	**2,607.26**	**2,221.09**	**1,685.09**	**704.88**	**618.55**	**18,381.95**
Non-revenue Water Use (MG)													
Kennewick (Includes Recharge Volume)	4.43	13.35	1.23	19.02	33.01	43.71	20.76	0.29	1.35	0.61	3.71	0.18	141.65
Pasco	7.90	7.50	11.10	14.50	16.80	23.60	25.70	25.30	23.00	16.50	6.40	5.80	184.10
Richland	12.12	12.16	15.42	22.77	19.55	15.37	22.53	12.68	19.75	12.56	6.20	7.41	178.53
West Richland	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	4.83
Total Non-revenue Water Use	**24.85**	**33.41**	**28.16**	**56.69**	**69.76**	**83.08**	**69.39**	**38.68**	**44.51**	**30.07**	**16.71**	**13.79**	**509.11**
Billable Water Use (MG)													
Kennewick	194.83	178.92	182.12	207.37	255.05	521.34	521.34	598.65	402.48	474.30	285.26	196.45	4,018.12
Pasco	186.00	179.90	168.70	196.20	317.20	404.60	533.90	585.30	628.90	570.90	428.60	238.70	4,438.90
Richland - within City	187.36	155.93	167.58	423.86	528.38	597.72	866.31	779.49	743.81	559.36	247.31	174.03	5,431.13
Richland - to West Richland	13.73	12.80	25.80	23.19	41.24	58.80	71.84	51.38	44.66	21.78	2.62	1.09	368.92
West Richland	26.64	27.06	18.88	46.18	84.46	118.41	124.43	149.66	135.00	92.63	40.70	28.75	892.79
Total Billable Water Use	**608.56**	**554.61**	**563.08**	**896.81**	**1,226.33**	**1,700.86**	**2,117.82**	**2,164.48**	**1,954.85**	**1,718.96**	**1,004.48**	**639.02**	**15,149.87**
Total Authorized Consumption (MG)													
Kennewick	199.26	192.27	183.35	226.39	288.06	565.05	542.10	598.94	403.83	474.91	288.97	196.63	4,159.77
Pasco	193.90	187.40	179.80	210.70	334.00	428.20	559.60	610.60	651.90	587.40	435.00	244.50	4,623.00
Richland	213.21	180.88	208.81	469.83	589.17	671.88	960.68	843.55	808.22	593.70	256.13	182.53	5,978.58
West Richland	27.04	27.46	19.28	46.58	84.87	118.81	124.83	150.07	135.40	93.03	41.10	29.15	897.62
Non-revenue + Billable Water Use	**633.41**	**588.01**	**591.24**	**953.50**	**1,296.09**	**1,783.95**	**2,187.21**	**2,203.16**	**1,999.35**	**1,749.04**	**1,021.19**	**652.81**	**15,658.97**
Distribution System Leakage (MG)													
Kennewick	(14.70)	(25.37)	31.00	125.90	162.48	(49.74)	20.69	(88.46)	0.54	(175.49)	(95.87)	(3.79)	(112.80)
Pasco	(6.00)	(16.70)	37.30	130.30	111.60	110.00	90.90	37.30	(91.10)	(171.20)	(209.90)	(48.00)	(25.50)
Richland	0.01	(0.25)	54.66	15.81	106.81	133.24	20.54	29.29	(89.31)	(121.63)	(35.36)	14.66	128.47
West Richland	(7.96)	(2.15)	27.58	39.09	27.45	14.49	38.76	(8.88)	(15.79)	(22.63)	(9.55)	2.86	83.28
Total DSL (MG)	**(28.64)**	**(44.47)**	**150.55**	**311.10**	**408.35**	**208.00**	**170.89**	**(30.76)**	**(195.66)**	**(490.95)**	**(350.68)**	**(34.26)**	**73.46**
Total DSL (%)	**(4.74%)**	**(8.18%)**	**20.30%**	**24.60%**	**18.91%**	**8.55%**	**6.11%**	**(1.18%)**	**(8.81%)**	**(29.14%)**	**(49.75%)**	**(5.54%)**	**0.40%**
Population													
Retail Water Service Area	215,347	215,347	215,347	215,347	215,347	215,347	215,347	215,347	215,347	215,347	215,347	215,347	215,347
City Limits Only	211,180	211,180	211,180	211,180	211,180	211,180	211,180	211,180	211,180	211,180	211,180	211,180	211,180
Connections by Customer Class													
Single-family Residential	38,926	39,120	39,209	39,265	39,372	39,387	39,549	39,548	39,608	39,704	39,665	39,736	55,700
Multi-family Residential	2,269	2,274	2,272	2,276	2,272	2,273	2,274	2,275	2,273	2,273	2,277	2,280	2,273
Commercial/Industrial	3,851	3,854	3,863	3,872	3,888	3,885	3,897	3,903	3,913	3,924	3,955	3,942	5,406
Municipal/Educational/Other	2,209	2,808	2,813	2,818	2,842	2,840	2,832	2,842	2,845	2,847	2,888	2,900	1,355
Total Connections	**47,255**	**48,056**	**48,157**	**48,231**	**48,374**	**48,385**	**48,552**	**48,568**	**48,639**	**48,748**	**48,785**	**48,858**	**64,734**
McNary Pool Return Flows (MG)													
Wastewater Treatment Plant	470.74	424.48	470.89	471.15	502.63	501.68	540.55	548.80	522.87	519.79	475.52	483.60	5,932.70
Septic Systems	24.12	24.23	24.21	24.24	24.21	24.25	24.26	24.26	24.27	24.24	24.13	24.21	290.63
City Irrigation	0.00	0.00	0.00	31.34	53.26	67.59	85.84	76.59	58.21	31.01	0.00	0.00	403.84
Unaccounted-for Water Return	(11.46)	(17.79)	60.22	124.44	163.34	83.20	68.36	(12.30)	(78.27)	(196.38)	(140.27)	(13.71)	29.38
Source Backflow	11.81	10.72	16.72	25.00	25.70	33.02	36.21	34.54	30.97	22.55	10.01	9.25	266.50
Infiltration and Recharge	0.00	0.00	0.94	18.70	485.40	483.60	453.60	434.85	417.40	427.00	34.36	0.00	2,755.84
Total Return Flows	**495.21**	**441.64**	**572.97**	**694.87**	**1,254.55**	**1,193.34**	**1,208.82**	**1,106.72**	**975.45**	**828.21**	**403.75**	**503.35**	**9,678.89**
Net Withdrawals and Consumption													
Net Withdrawals (MG)	109.56	101.90	168.81	569.73	905.29	1,239.21	1,589.18	1,500.53	1,245.64	856.88	301.12	115.20	8,703.05
Net Consumption	18%	19%	23%	45%	42%	51%	57%	58%	56%	51%	43%	19%	47%

Table 3-3
2014 Water Balance by City

Description	Kennewick			Pasco			Richland			West Richland			Quad Cities Combined Total		
	February	July	Annual	February	July	Annual	February	July	Annual	February	July	Annual	Low	High	Annual
Withdrawals (MG)															
Surface Water	166.90	553.94	3,977.94	170.70	650.50	4,597.50	173.35	1,154.01	7,162.49	0.00	0.00	0.00	510.95	2,358.46	15,737.92
Ground Water	0.00	8.85	69.04	0.00	0.00	0.00	7.28	267.11	1,594.08	12.52	91.78	613.89	19.80	367.74	2,277.00
Intertie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.79	71.81	367.02	12.79	71.81	367.02
Withdrawal Total	**166.90**	**562.79**	**4,046.97**	**170.70**	**650.50**	**4,597.50**	**180.63**	**1,421.12**	**8,756.57**	**25.31**	**163.59**	**980.91**	**543.54**	**2,798.01**	**18,381.95**
Returns (MG)															
Wastewater Treatment Plant	137.70	185.32	1,955.10	115.29	147.34	1,642.84	152.51	184.73	2,079.20	18.98	23.15	255.55	424.48	540.55	5,932.70
Septic Systems	15.52	15.52	186.30	5.52	5.52	66.18	0.38	0.38	4.59	2.80	2.84	33.56	24.23	24.26	290.63
City Irrigation	0.00	18.56	87.86	0.00	22.48	109.85	0.00	38.19	175.76	0.00	6.61	30.37	0.00	85.84	403.84
Unaccounted-for Water Return	---	---	(45.12)	---	---	(10.20)	---	---	51.39	---	---	33.31	---	---	29.38
Source Backflow	---	---	---	7.30	25.40	181.50	3.42	10.81	85.00	---	---	---	10.72	36.21	266.50
Infiltration and Recharge	0.00	13.70	106.33	---	---	---	0.00	439.90	2,649.51	---	---	---	0.00	453.60	2,755.84
Returns Total	**153.23**	**233.11**	**2,290.47**	**128.10**	**200.73**	**1,990.17**	**156.32**	**674.01**	**5,045.45**	**21.78**	**32.61**	**352.80**	**459.43**	**1,140.47**	**9,678.89**
Net Consumption															
Net Consumption (MG)	13.68	329.68	1,756.50	42.60	449.77	2,607.33	24.31	747.11	3,711.11	3.52	130.98	628.11	84.11	1,657.54	8,703.05
Net Consumption	8%	59%	43%	25%	69%	57%	13%	53%	42%	14%	80%	64%	15%	59%	47%

The net consumption of the four water systems is 47 percent based on 2014 water system data, compared to 48 percent based on the 2007 water system data presented in the 2009 RWFCP. The net consumption is presented for each month of 2014, but is typically analyzed on an annual basis to eliminate monthly inconsistencies with meter reading dates and for comparison with annual water rights. A definition of each water balance component is as follows.

Source of Supply Meter Readings – Volume of water supplied to each water system as measured with a source meter. The water produced by each city's sources, the volume of water transferred to and from each city via an intertie connection, the volume of water Kennewick uses for aquifer recharge, and the volume of water Richland uses for groundwater infiltration is presented individually for each city in **Table 3-2**. Total supply to all four cities in 2014 was 18,381,950,000 gallons.

Non-revenue Water Use – Volume of water supplied to each water system for an authorized, but non-revenue use, such as fire hydrant usage, water main flushing, and filter backwashing. Although real losses from the distribution system, such as reservoir overflows and leaking water main, should be tracked for accounting purposes, these losses must be considered leakage, and not non-revenue water use. Each city has an ongoing leak detection program to identify and fix water system leaks in an effort to minimize DSL. Total non-revenue water use for all four cities in 2014 was 509,110,000 gallons.

Billable Water Use – Volume of water used by all customers of each water system, as measured by the customers' meters. Total billable water use in all four cities in 2014 was 15,149,870,000 gallons.

Total Authorized Consumption – Sum of billable and non-revenue water use. Total authorized consumption in all four cities in 2014 was 15,658,970,000 gallons.

Distribution System Leakage – Difference between the total supply and total authorized consumption is the amount of DSL. Total DSL in all four cities in 2014 was 73,460,000 gallons, which equates to 0.40 percent of the total supply. Kennewick's DSL includes the volume of water used for groundwater recharge because this water is conveyed through the city's distribution system to the recharge location. Richland's DSL does not include the volume of water used for groundwater infiltration because raw water from the Columbia River is pumped directly to the city's infiltration basins, and the water does not enter the distribution system. The 2014 and historical DSL percentages for each city's water system is shown in **Table 3-4**.

Table 3-4
Distribution System Leakage

Water System	Year			
	2000 [1]	2004 [1]	2007 [1]	2014
Kennewick	7.1%	8.0%	5.9%	(2.8%)
Pasco	8.1%	5.0%	4.2%	(0.6%)
Richland	27.2%	9.5%	4.4%	2.1%
West Richland	30.0%	14.0%	1.8%	8.5%

(1) Reproduced from Table 3-4 in the 2009 RWFCP.

Population – Each city's retail water service area and city limits population is presented in **Table 3-2**. The total population served by the four cities in 2014 was 215,347.

Connections by Customer Class – Number of water service connections within each customer class. The total number of water service connections in all four cities in 2014 was 64,734.

McNary Pool Return Flows – Volume of water supply returned to the McNary Pool, including wastewater treatment plant (WWTP) effluent, filter backwashing, irrigation infiltration, and septic system draining. A description of each return flow element is as follows.

- WWTP Effluent – Volume of water discharged by each city's WWTP. Kennewick, Pasco, and Richland's WWTPs discharge into the Columbia River (McNary Pool), and West Richland's WWTP discharges into the Yakima River just upstream of the McNary Pool.

- Septic Systems – Volume of water discharged from septic drain fields and returned to the McNary Pool. The return flow from septic tanks was calculated based on the winter-time ratio of WWTP effluent water to total water consumption, which was calculated to be 82 percent. The septic system return flow is calculated as 82 percent of the winter-time single-family residential consumption, as measured by each city's customer meters. The resulting septic system return flow in 2014 is estimated to be 290,630,000 gallons.

  It was assumed that the septic system return flows were consistent year-round, and therefore the winter-time return flows calculated based on the preceding equation were assumed to be the same septic system return flows that occur during the other seasons. The resulting septic system return flow in 2014 is estimated to be approximately 24 million gallons (MG) per month, or 294 MG on an annual basis.

  The septic system return flow calculations were compared with the return flow calculation methods presented in *Return Flow to Ground Water from Onsite Wastewater Systems*, prepared by the New Mexico Environment Department[1]. Two calculation methods were presented in this evaluation. Applying these calculation methods to the quad cities, the resulting septic system return flows are calculated as 306 MG and 338 MG based on 2014 data. These results are very similar to the results calculated based on the quad cities actual WWTP effluent and water consumption data. The septic system return flows were assumed to be 290,630,000 gallons for conservatism and to better represent the local data and conditions.

- City Irrigation – Volume of water returned to the McNary Pool through infiltration of irrigation water. The average supply during non-irrigation months (November through March) was applied to the supply of the irrigation months (April through October) to estimate the volume of water used for irrigation. Based on the 2009 RWFCP and the *2006 Tri-Cities Urban Area Landscape Irrigation Plan*, 5 percent of irrigation supply is estimated to return to the McNary Pool. Each city's irrigation return flows shown in **Table 3-2** are based on 5 percent of the 2014 irrigation supply returning to the McNary Pool.

[1] McQuillan, D.M. and Bassett. 2009. Return Flow to Ground Water from Onsite Wastewater Systems. 18th Annual NOWRA Technical Conference and Expo, April 6-9, 2009, Milwaukee, Wisconsin. https://www.env.nm.gov/fod/LiquidWaste/documents/McQuillanandBassettNOWRA09.pdf

- Unaccounted-for Water Return – Volume of DSL that leaks into aquifers that are under the influence of surface water and ultimately return to the McNary Pool. Consistent with the 2009 RWFCP, 40 percent of all DSL was assumed to return to the McNary Pool.
- Source Backflow – Volume of water used to backwash filters at each city's supply sources. Kennewick's backwashing water is discharged to the wastewater system, and is considered within the WWTP effluent values. West Richland does not have a surface water source and therefore does not have filter backwash volumes. Pasco and Richland's filter backwashing at surface water treatment plants is included in this category.
- Infiltration and Recharge – Volume of water used by Kennewick and Richland for groundwater recharge and infiltration, respectively.

The resulting 47 percent net consumption in 2014 is consistent with the 48 percent net consumption value calculated for 2007 in the 2009 RWFCP. The cities will continue to evaluate the performance of the individual WUE programs and implemented measures by analyzing demand data and determining the long-term trend towards reducing water usage per equivalent residential unit (ERU) and meeting WUE goals. Source meter records will be reviewed on an annual basis to determine the effectiveness of each of the implemented WUE measures and to determine if the estimated water savings are being met. If the results of the program monitoring show that WUE goals for water use per ERU are not being met, more rigorous program implementation or additional program items will be considered.

The cities will continue to provide WUE performance reports to the consumers in the annual consumer confidence reports, and will detail the results of water use monitoring and progress towards achieving each system's WUE goals.

Regional Joint Use Strategy

4

AGREEMENT ON WATER RIGHTS CONDITIONS

The Cities of Kennewick, Pasco, Richland, and West Richland signed a Memorandum of Understanding with the Washington State Department of Ecology (Ecology) on July 15, 1999, to manage the existing domestic water rights of the four individual cities as well as the regional Quad City Water Right (QCWR), which, after the cities entered into a Settlement Agreement (shown in **Appendix C**) with Ecology and the Center for Law and Policy (CELP) on August 19, 2003, was ultimately issued under Surface Water Permit No. S4-30976P on September 15, 2003. The permit contains many requirements, one of which is the preparation of this Regional Water Forecast and Conservation Plan update.

Prior to issuance of the QCWR, minimal collaboration took place between the four cities for water system planning purposes, with coordination typically taking place only during planning or design of a joint-use facility. As a result of issuance of the QCWR and the Settlement Agreement, the cities agreed to integrate future water system hydraulics to minimize capital improvements and to facilitate regionally-efficient water systems. The cities also agreed to voluntarily relinquish selected individual city water rights and to withdraw some pending water right applications in the spirit of utilizing the QCWR to meet future water system demands.

The cities, Ecology, and CELP participated in identifying which individual city water rights, combined with the QCWR, are anticipated to be necessary to meet the forecasted water demands of each city.

The QCWR includes a provision requiring that all consumptive use under this water right be fully mitigated when flows in the Columbia River do not meet specific target flows. The cities have developed and implemented procedures for complying with the mitigation provision. A copy of the BiOp compliance procedures are shown in **Appendix D**.

HISTORICAL QCWR ALLOCATION AND USE

INITIAL QCWR HISTORY

The QCWR permit was issued on September 15, 2003. While this permit identified a total allocation of 178 cubic feet per second (cfs) and 96,619 acre-feet per year (afy), this instantaneous rate and annual volume were projected to meet the needs of the cities through 2051. The permit was written in such a way that the allocation would be distributed in phases, once there was adequate mitigation in place and a demand demonstrated, the next phase would be authorized. Ecology agreed to provide the first phase of mitigation, which was based on the use being 80-percent consumptive, which meant that the mitigation totaled 8 cfs and 5,781.6 afy. With Ecology's mitigation agreement, an initial phase of 10 cfs and 7,227 afy of the QCWR was authorized to be diverted by the four cities, with a priority date of June 24, 1980 (consistent with the water reserved in the John Day/McNary Pools reach for municipal supply, as specified in WAC 173-531A-050(3)). The

cities agreed to divide the initial allocation evenly, with 2.5 cfs and 1,806.75 afy allocated to each city. The initial allocation allowed some of the cities to resolve existing and near-term water right deficiencies.

As part of the QCWR allocation, Ecology was required to provide the water right mitigation for the Phase 1 authorization, with the cities required to procure water rights to mitigate their consumptive use for future QCWR phases of authorization.

RECENT QCWR CHANGES

Ecology procured the Buckley and Byerly water rights for mitigation, but these water rights only accounted for 7 cfs and 1,767.23 afy of the full mitigation requirement, which left a deficit of 1 cfs and 4,013.37 afy. The Simplot water rights that were mentioned in the report of examination (ROE) (identified as the Grandview Farm Water Right Certificates and Permit) were not able to be acquired by Ecology. Failure to acquire the Simplot water rights meant that Ecology had not fulfilled its mitigation requirement for the first phase of municipal supply under the permit.

In 2006, Ecology instituted the Lake Roosevelt Incremental Storage Release Program, through the newly formed Office of Columbia River, which allowed for the issuance of up to 25,000 afy in municipal and industrial water rights for water right applicants located downstream of Grand Coulee Dam, and that could prove that the tapped water was in hydraulic connection with the Columbia River. The perpetual cost of this water is $35 per afy, and is billed, based on the annual volume of water allocated, as opposed to the annual volume of water actually used. The cities and Ecology entered into a memorandum of agreement (MOA) in December 2011 that intended to resolve the remaining uncertainty in the 2003 Settlement Agreement and QCWR permit provisions (**Appendix E**). This report contains the mutual agreement and understanding of the provisions of the QCWR with respect to the mitigation provided by Ecology and the consumptive use under the water right that needed to be mitigated.

Ecology agreed that it would provide at least 8 cfs and 5,781.6 afy of mitigation, which was the previously-calculated mitigation needed for the original municipal allocation of 10 cfs and 7,227 afy, based on 80-percent consumptive use.

In the 2011 MOA, Ecology agreed to make 13.25 cfs and 4,014.37 afy available from the Lake Roosevelt program to fulfill its mitigation obligation of 5,781.6 afy under the QCWR. According to the 2011 MOA, the Lake Roosevelt mitigation water is available for mitigation for the months of April through August. Ecology and the cities agree that the Lake Roosevelt water, combined with the Buckley and Byerly water rights, fulfill the mitigation requirement promised by Ecology when the permit issued.

The 2011 MOA documented the consumptive use, that needed to be mitigated, was reduced from 80 percent, as had been indicated in the permit, to 60 percent, based on data that had been presented in the 2008 Regional Water Forecast and Conservation Plan (RWFCP). The reduction in consumptive use from 80 percent to 60 percent had the effect of reducing the rate and volume of mitigation needed to cover the initial QCWR phase of 10 cfs and 7,227 afy that was allocated to the cities for municipal supply under the permit from 8 cfs and 5,781.6 afy to 6 cfs and 4,336.2 afy. According to the 2011 MOA, this leaves 2 cfs and 1,445.4 afy of Lake Roosevelt water available to mitigate Phase 2 of the municipal allocation. It should be noted that the instantaneous rate needed to produce 1,445.4 afy over the months of April through August is actually 4.77 cfs. The cities have

assumed that the mention of 2 cfs being available for Phase 2 is a minimum, and that the actual rate available is at least 4.77 cfs, since it is the rate that is physically necessary.

The MOA states that Ecology will be responsible for paying for the Lake Roosevelt water used to mitigate the first phase of municipal use ($35 per af per year * 2,568.97 af equals $89,913.95 per year), whereas the cities will be responsible for paying for any of the Lake Roosevelt water used to mitigate future phases of the municipal allocation. At a cost of $35 per afy, the cost to the cities of the Lake Roosevelt water that has already been set aside by Ecology, but that is beyond the mitigation requirement for Phase 1, will be $50,589 per year (($35 per af per year * 1,445.4 af equals $50,589 per year), and it will provide the cities with an additional 2,409 afy of water for municipal use (1,445.4 afy / 60 percent consumptive = 2,409 afy).

On November 28, 2011, the cities jointly filed water right application S4-33044. This application requests 165 cfs and 86,983 afy of water from the same points of diversion identified under the QCWR (S4-30976P). This application was filed to cover the as-of-yet unmitigated municipal allocation that was made under the QCWR. If the cities decide to have this application processed, they could have Ecology process the application in the Lake Roosevelt Incremental Storage Release queue with the other qualifying applications. Issuance of a mitigated water right in this manner would mean that the cities would have to pay Ecology for the entire water right, not just the consumptively-used portion. So, if the cities wanted an additional 4,000 afy of water (1,000 afy per city) the annual cost of that water right would be $140,000, as opposed to the potential cost of 60 percent of that, or $84,000 per year, if it is used to mitigate consumptive use under the existing QCWR.

MITIGATION DOCUMENTATION

The cities document the mitigation requirements on a monthly basis for compliance with the Columbia River BiOp. Historical QCWR mitigation requirements are shown for 2011 through 2014 in **Table 4-1** and **Chart 4-1**. The total available mitigation volume increased beginning in 2012, based on the procurement of the Lake Roosevelt water for mitigation. The Buckley, Byerly, and the Phase 1 Lake Roosevelt mitigation water rights have provided sufficient mitigation water for all months between 2012 and 2014. The 2008 RWFCP presented retroactive mitigation compliance reviews for 2005 and 2007, which are presented in **Table 4-2** and **Chart 4-2**, for reference.

Table 4-1
2011 to 2014 QCWR Phase 1 Mitigation Requirements

Month	Daily Diverted Volume (AF/day)	Daily Return Volume (AF/day)	Daily Volume Difference (CF/day)	Days to be Mitigated	Monthly Required Mitigation Volume (AF)	Phase 1 Mitigation			
						Buckley (AF)	Byerly (AF)	Lake Roosevelt (AF)	Total Phase 1 Mitigation (AF)
2011									
January	19.40	12.76	6.64	0	0.00	0.00	22.47	0.00	22.47
February	19.44	12.79	6.65	0	0.00	0.00	20.30	0.00	20.30
March	20.93	13.76	7.17	0	0.00	0.00	22.47	0.00	22.47
April	0.13	0.05	0.08	10	0.80	187.35	18.40	0.00	205.75
May	0.21	0.05	0.16	9	1.44	406.95	19.02	0.00	425.97
June	0.27	0.07	0.20	0	0.00	299.97	18.40	0.00	318.37
July	3.53	0.85	2.68	0	0.00	21.78	14.32	0.00	36.10
August	5.04	1.21	3.83	11	42.13	0.00	14.49	0.00	14.49
September	34.43	8.29	26.14	0	0.00	251.46	14.02	0.00	265.48
October	37.66	13.90	23.76	0	0.00	355.61	22.22	0.00	377.83
November	21.97	14.19	7.78	3	23.34	13.46	21.75	0.00	35.21
December	18.71	12.08	6.63	0	0.00	0.00	22.47	0.00	22.47
Total					**67.71**				**1,766.91**
2012									
January	0.00	0.00	0.00	2	0.00	0.00	22.47	0.00	22.47
February	0.00	0.00	0.00	0	0.00	0.00	20.30	0.00	20.30
March	0.00	0.00	0.00	0	0.00	0.00	22.47	0.00	22.47
April	26.80	10.29	16.51	0	0.00	187.35	18.40	503.72	709.47
May	39.02	9.85	29.17	0	0.00	406.95	19.02	520.51	946.48
June	41.75	10.53	31.22	0	0.00	299.97	18.40	503.72	822.09
July	40.54	10.23	30.31	0	0.00	21.78	14.32	520.51	556.61
August	23.22	5.86	17.36	12	208.32	0.00	14.49	520.51	535.00
September	11.14	2.81	8.33	0	0.00	251.46	14.02	0.00	265.48
October	6.61	2.54	4.07	9	36.63	355.61	22.22	0.00	377.83
November	0.00	0.00	0.00	5	0.00	13.46	21.75	0.00	35.21
December	0.00	0.00	0.00	0	0.00	0.00	22.47	0.00	22.47
Total					**244.95**				**4,335.88**
2013									
January	0.00	0.00	0.00	0	0.00	0.00	22.47	0.00	22.47
February	0.00	0.00	0.00	0	0.00	0.00	20.30	0.00	20.30
March	0.00	0.00	0.00	1	0.00	0.00	22.47	0.00	22.47
April	33.83	12.73	21.10	7	147.70	187.35	18.40	503.72	709.47
May	43.37	10.24	33.13	1	33.13	406.95	19.02	520.51	946.48
June	53.08	12.54	40.54	4	162.16	299.97	18.40	503.72	822.09
July	21.01	4.96	16.05	14	224.70	21.78	14.32	520.51	556.61
August	17.62	4.16	13.46	31	417.26	0.00	14.49	520.51	535.00
September	17.79	4.20	13.59	3	40.77	251.46	14.02	0.00	265.48
October	0.37	0.14	0.23	0	0.00	355.61	22.22	0.00	377.83
November	0.00	0.00	0.00	19	0.00	13.46	21.75	0.00	35.21
December	0.00	0.00	0.00	0	0.00	0.00	22.47	0.00	22.47
Total					**1,025.72**				**4,335.88**
2014									
January	1.39	0.96	0.43	2	0.86	0.00	22.47	0.00	22.47
February	1.40	0.99	0.41	0	0.00	0.00	20.30	0.00	20.30
March	9.55	6.76	2.79	0	0.00	0.00	22.47	0.00	22.47
April	17.90	6.36	11.54	0	0.00	187.35	18.40	503.72	709.47
May	18.57	4.37	14.20	0	0.00	406.95	19.02	520.51	946.48
June	19.83	4.67	15.16	0	0.00	299.97	18.40	503.72	822.09
July	23.03	5.42	17.61	0	0.00	21.78	14.32	520.51	556.61
August	21.23	5.00	16.23	12	194.76	0.00	14.49	520.51	535.00
September	19.03	4.48	14.55	0	0.00	251.46	14.02	0.00	265.48
October	9.29	3.30	5.99	9	53.91	355.61	22.22	0.00	377.83
November	0.27	0.19	0.08	5	0.40	13.46	21.75	0.00	35.21
December	0.40	0.29	0.11	0	0.00	0.00	22.47	0.00	22.47
Total					**249.93**				**4,335.88**

Chart 4-1
2011 to 2014 QCWR Phase 1 Mitigation Requirements

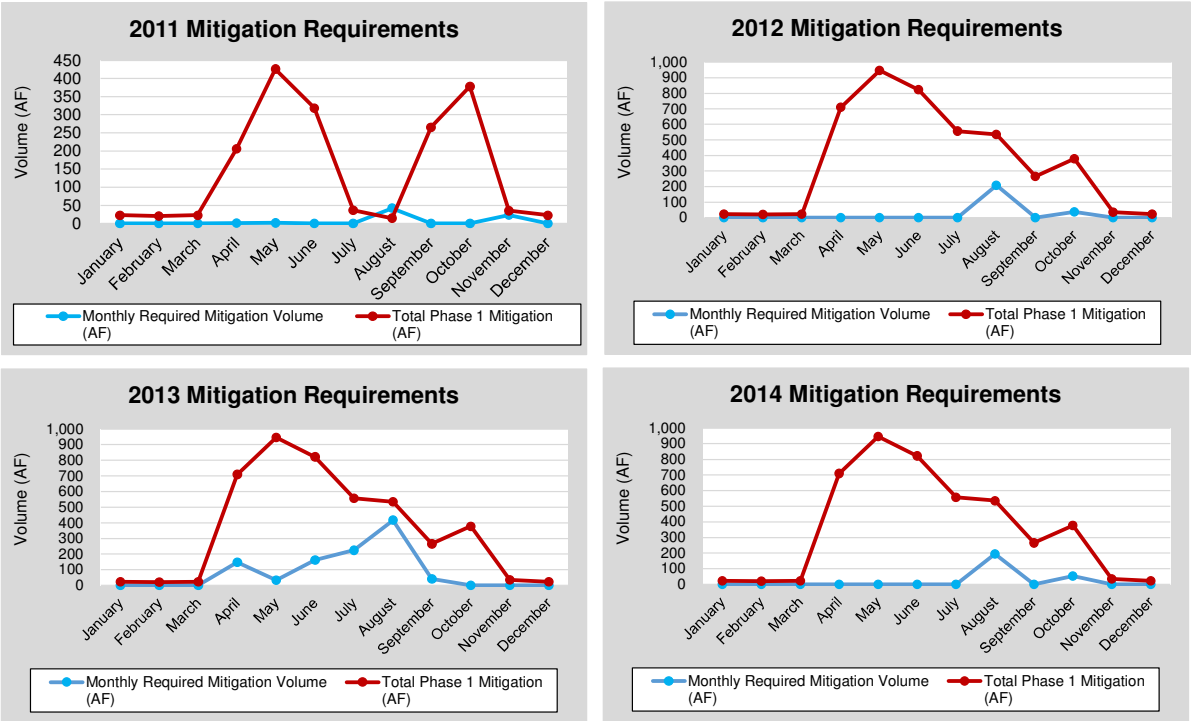
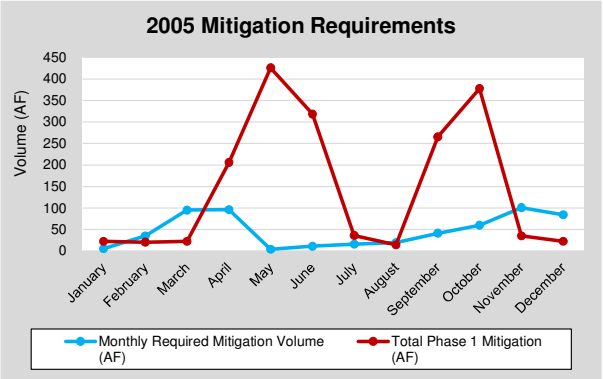
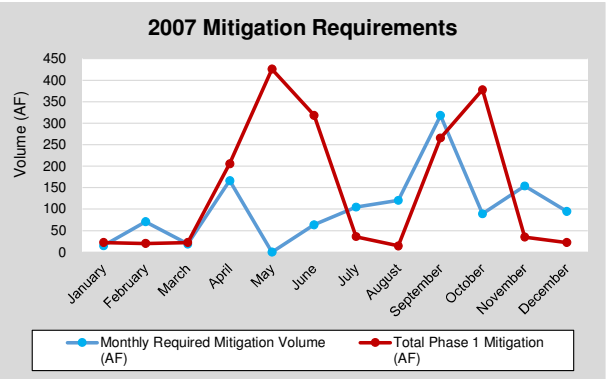


Table 4-2
2005 and 2007 QCWR Phase 1 Mitigation Requirements

Month	Daily Diverted Volume (AF/day)	Daily Return Volume (AF/day)	Daily Volume Difference (CF/day)	Days to be Mitigated	Monthly Required Mitigation Volume (AF)	Phase 1 Mitigation			
						Buckley (AF)	Byerly (AF)	Lake Roosevelt (AF)	Total Phase 1 Mitigation (AF)
2005									
January	16.01	10.90	5.11	1	5.11	0.00	22.47	0.00	22.47
February	15.81	10.77	5.04	7	35.28	0.00	20.30	0.00	20.30
March	21.32	14.52	6.80	14	95.20	0.00	22.47	0.00	22.47
April	8.40	4.03	4.37	22	96.14	187.35	18.40	0.00	205.75
May	0.35	0.00	0.35	11	3.85	406.95	19.02	0.00	425.97
June	0.42	0.00	0.42	26	10.92	299.97	18.40	0.00	318.37
July	0.66	0.00	0.66	24	15.84	21.78	14.32	0.00	36.10
August	0.63	0.00	0.63	31	19.53	0.00	14.49	0.00	14.49
September	7.55	2.41	5.14	8	41.12	251.46	14.02	0.00	265.48
October	28.99	14.00	14.99	4	59.96	355.61	22.22	0.00	377.83
November	16.61	11.31	5.30	19	100.70	13.46	21.75	0.00	35.21
December	15.52	10.57	4.95	17	84.15	0.00	22.47	0.00	22.47
Total					**567.80**				**1,766.91**
2007									
January	15.68	10.68	5.00	3	15.00	0.00	22.47	0.00	22.47
February	15.85	10.79	5.06	14	70.84	0.00	20.30	0.00	20.30
March	19.62	13.34	6.28	3	18.84	0.00	22.47	0.00	22.47
April	17.87	8.64	9.23	18	166.14	187.35	18.40	0.00	205.75
May	0.23	0.00	0.23	0	0.00	406.95	19.02	0.00	425.97
June	4.44	0.70	3.74	17	63.58	299.97	18.40	0.00	318.37
July	4.59	0.70	3.89	27	105.03	21.78	14.32	0.00	36.10
August	4.58	0.70	3.88	31	120.28	0.00	14.49	0.00	14.49
September	33.12	10.39	22.73	14	318.22	251.46	14.02	0.00	265.48
October	34.60	16.76	17.84	5	89.20	355.61	22.22	0.00	377.83
November	17.86	12.16	5.70	27	153.90	13.46	21.75	0.00	35.21
December	15.69	10.69	5.00	19	95.00	0.00	22.47	0.00	22.47
Total					**1,216.03**				**1,766.91**

Chart 4-2
2005 and 2007 QCWR Phase 1 Mitigation Requirements





INITIAL QCWR WATER USE PLAN

Each city has prepared a preliminary plan for utilizing the initial QCWR allocation within their own water systems. A summary of each city's historical use of the QCWR water is presented in the subsequent section, and **Table 4-3** presents the annual water volume diverted by each city from 2011 through 2014 that counts toward the QCWR. These values were calculated on an annual basis by the cities based on assumptions and understandings that the cities no longer deem applicable for future water use. The diversion volumes presented in **Table 4-3** have not been revised to reflect the cities revised water use strategy in order to provide consistency with historical reports provided by the cities to regulatory agencies.

Table 4-3
QCWR Annual Diversions

City/Service Area	QCWR Annual Diversion Volume (AF)			
	2011	2012	2013	2014
Kennewick	0.00	0.00	0.00	0.00
Pasco	5,077.68	5,282.02	5,013.86	3,059.04
Richland	71.04	82.89	180.43	109.10
West Richland	369.05	416.70	500.65	1,168.46
Total	**5,517.77**	**5,781.61**	**5,694.94**	**4,336.60**

City of Kennewick

The City of Kennewick's (Kennewick) individual water rights have been sufficient to meet the needs of the water system, and therefore Kennewick has not diverted any QCWR water. Kennewick has completed construction of an aquifer storage and recovery (ASR) project, and is currently performing cycle testing and finalizing permitting of the ASR well with Ecology. The ASR well allows Kennewick to store water in an underground aquifer during non-peak demand periods when mitigation is minimal or not required. Kennewick can then pump the water out of the aquifer and into the water system during high demand periods without requiring mitigation. To be conservative, the ASR project has not been included as a future supply at this point since it is not yet fully authorized.

City of Pasco

The City of Pasco's (Pasco) individual water rights are not sufficient to meet recent water demands. Pasco, therefore, relies on the inclusion of the QCWR to provide adequate water rights to meet the water system's demand requirements. Prior to issuance of the QCWR in 2003, Pasco did not have sufficient water rights to meet the 2003 water demands of the system. Pasco continues to maximize the use of their individual water rights in an attempt to minimize the use of the QCWR and to minimize the impact on the Columbia River instream flows. Examples of Pasco's attempts at minimizing QCWR water right utilization includes the use of reclaimed water at a Pasco-owned agricultural property, and the use of groundwater wells for outdoor residential irrigation.

City of Richland

The City of Richland's (Richland) individual water rights are currently sufficient to meet recent water demands, but small quantities of QCWR water have been assigned to the city's historical supply for accounting purposes. Richland has limited the use of QCWR water through the use of an aggressive leak-elimination program that included the replacement of 82 miles of thin-walled steel water main. Richland also has separate, non-potable, irrigation systems in portions of the retail water service area that utilize irrigation water rights, providing Richland the flexibility to maximize the use of the existing potable water rights for potable water needs.

City of West Richland

The City of West Richland's (West Richland) individual water rights are currently sufficient to meet recent water demands. For accounting purposes, the cities have historically considered supply to West Richland via the Intertie Booster Pump Station (BPS) to be QCWR water instead of being considered from Richland's individual water rights. The cities plan to begin using Richland's water rights to supply West Richland via the Intertie BPS to maximize the availability of the QCWR for the region. West Richland has limited the use of QCWR water with the implementation of an aggressive water use efficiency (WUE) program and improvements to the overall water system management strategy.

PROJECTED QCWR ALLOCATION AND USE

FUTURE WATER DEMANDS

Table 4-4 presents the projected 6- and 20-year supply projections for each city, based on the 2014 per-capita demands for each city, and the projected population data from **Chapter 2**. The actual 2014 supply without groundwater infiltration and recharge volumes is also shown in **Table 4-4** for comparison purposes.

Table 4-4
Future Water Supply Projections

Description	Kennewick	Pasco	Richland	West Richland
2014				
Water Service Population	74,720	70,770	56,232	13,626
Total Supply (gallons)[1]	3,871,602,000	4,597,500,000	6,022,058,000	980,906,000
Supply per Capita (gallons/year)	51,815	64,964	107,093	71,988
2021				
Water Service Population	83,319	80,224	62,133	18,509
Total Supply (gallons)[1]	4,317,154,535	5,211,669,351	6,654,037,924	1,332,422,512
Supply per Capita (gallons/year)	51,815	64,964	107,093	71,988
2035				
Water Service Population	101,160	111,862	73,700	25,308
Total Supply (gallons)[1]	5,241,622,024	7,266,999,364	7,892,756,941	1,821,845,065
Supply per Capita (gallons/year)	51,815	64,964	107,093	71,988

(1) Kennewick and Richland supply does not include groundwater infiltration or recharge volumes, as these volumes were assumed to be independent of actual supply per capita.

The projected maximum day demand (MDD) for each city was also calculated, based on the peaking factors presented in each city's water system plan, and is shown in **Table 4-5**. The resulting 6- and 20-year MDDs are compared with each city's instantaneous water right in a subsequent section of this chapter. The calculated 2014 MDDs are shown in **Table 4-5,** for comparison.

Table 4-5
Maximum Day Demand Projections

Description	Kennewick	Pasco	Richland	West Richland
Peaking Factors				
Maximum Day Demand / Average Day Demand	1.79	2.11	2.00	2.49
2014				
Average Day Demand (gpm)	7,366	8,747	11,457	1,866
Maximum Day Demand (gpm)	13,185	18,456	22,915	4,647
Maximum Day Demand (cfs)	29.38	41.12	51.05	10.35
2021				
Average Day Demand (gpm)	8,214	9,916	12,660	2,535
Maximum Day Demand (gpm)	14,703	20,922	25,320	6,312
Maximum Day Demand (cfs)	32.76	46.61	56.41	14.06
2035				
Average Day Demand (gpm)	9,973	13,826	15,017	3,466
Maximum Day Demand (gpm)	17,851	29,173	30,033	8,631
Maximum Day Demand (cfs)	39.77	65.00	66.91	19.23

WATER RIGHTS EVALUATION

Annual Water Rights

An evaluation of each city's existing water rights was performed to determine the sufficiency of the water rights to meet both existing and future water demands. **Table 4-6** compares each city's annual supply volume (presented in **Table 4-4**) with each city's annual water right (presented in **Chapter 2**). The QCWR diversion volumes presented in **Table 4-6** are based on the cities revised water use strategy, which differs from the past strategy which resulted in the QCWR diversion volumes presented in **Table 4-3**. The cities revised strategy consists of utilizing city-held water rights on an annual and instantaneous basis prior to utilizing the QCWR in order to reduce the need for additional QCWR volumes and to reduce the mitigation requirements associated with utilizing the QCWR. As shown in **Table 4-6**, Kennewick, Richland, and West Richland have sufficient annual water rights to meet the 2014 through 2021 demands of their customers. In 2014, Pasco had a 6,260 acre-feet (AF) deficiency that was met by utilizing the QCWR. In 2021, Pasco is projected to have an 8,145 AF annual water right deficit, which exceeds the Phase 1 QCWR volume of 7,227 AF, resulting in an annual water right deficiency of 918 AF if Pasco is allotted the entirety of the Phase 1 QCWR.

Table 4-6
Annual Water Rights Evaluation

Description	Kennewick	Pasco	Richland	West Richland	Total
2014 [1]					
Annual Supply Volume (AF)	11,882	14,109	18,481	3,010	---
Annual Water Right (City Rights Only) (AF)	16,200	7,849	33,141	4,661	---
QCWR Needed to Meet Annual Supply Volume (AF)	0	6,260	0	0	6,260
QCWR Available (AF)	0	6,260	0	0	7,227
Surplus (or Deficient) Water Rights (AF)	0	0	0	0	967
2021					
Annual Supply Volume (AF)	13,249	15,994	20,421	4,089	---
Annual Water Right (City Rights Only) (AF)	16,200	7,849	33,141	4,661	---
QCWR Needed to Meet Annual Supply Volume (AF)	0	8,145	0	0	8,145
QCWR Available (AF)	0	7,227	0	0	7,227
Surplus (or Deficient) Water Rights (AF)	0	(918)	0	0	(918)
2035					
Annual Supply Volume (AF)	16,086	22,302	24,222	5,591	---
Annual Water Right (City Rights Only) (AF)	16,200	7,849	33,141	4,661	---
QCWR Needed to Meet Annual Supply Volume (AF)	0	14,453	0	930	15,383
QCWR Available (AF)	0	6,297	0	930	7,227
Surplus (or Deficient) Water Rights (AF)	0	(8,156)	0	0	(8,156)

(1) Richland and West Richland's QCWR volume assumed to be zero due to the surplus of each city's existing water rights, instead of each city utilizing a portion of the QCWR for accounting purposes, as has been historically reported and shown in Table 4-3.

In 2035, Kennewick and Richland are projected to have annual demands that can be met by its existing annual water rights. West Richland has a projected annual water rights deficiency of 930 AF, which is less than West Richland's portion of the initial increment of the QCWR (1,806.75 AF per city). Therefore, West Richland's 2035 projected demands can be met by utilizing the necessary volume of the QCWR. The remaining QCWR volume of 6,297 AF is shown in **Table 4-6** as being applied to Pasco's water rights, resulting in an annual water deficiency of 8,156 AF in 2035.

Instantaneous Water Rights

Table 4-7 compares each city's MDD (presented in **Table 4-5**), with each city's instantaneous water right limit (presented in **Chapter 2**). As shown in **Table 4-7**, Kennewick, Richland, and West Richland have sufficient instantaneous water rights to meet the 2014 and 2021 MDDs of their customers. In 2014, Pasco had a 3.73 cfs deficiency that was met by utilizing the QCWR. In 2021, Pasco is projected to have a 9.22 cfs deficiency, which can also be met by utilizing the QCWR.

Table 4-7
Instantaneous Water Rights Evaluation

Description	Kennewick	Pasco	Richland	West Richland	Total
2014 [1]					
Maximum Day Demand (cfs)	29.38	41.12	51.05	10.35	---
Instantaneous Water Right (City Rights Only) (cfs)	99.93	37.40	95.06	16.53	---
QCWR Needed to Meet Maximum Day Demand (cfs)	0.00	3.73	0.00	0.00	3.73
QCWR Available (cfs)	0.00	3.73	0.00	0.00	10.00
Surplus (or Deficient) Water Rights (cfs)	0.00	0.00	0.00	0.00	6.27
2021					
Maximum Day Demand (cfs)	32.76	46.61	56.41	14.06	---
Instantaneous Water Right (City Rights Only) (cfs)	99.93	37.40	95.06	16.53	---
QCWR Needed to Meet Maximum Day Demand (cfs)	0.00	9.22	0.00	0.00	9.22
QCWR Available (cfs)	0.00	9.22	0.00	0.00	10.00
Surplus (or Deficient) Water Rights (cfs)	0.00	0.00	0.00	0.00	0.78
2035					
Maximum Day Demand (cfs)	39.77	65.00	66.91	19.23	---
Instantaneous Water Right (City Rights Only) (cfs)	99.93	37.40	95.06	16.53	---
QCWR Needed to Meet Maximum Day Demand (cfs)	0.00	27.60	0.00	2.70	30.30
QCWR Available (cfs)	0.00	7.30	0.00	2.70	10.00
Surplus (or Deficient) Water Rights (cfs)	0.00	(20.30)	0.00	0.00	(20.30)

(1) Richland and West Richland's QCWR volume assumed to be zero due to the surplus of each city's existing water rights, instead of each city utilizing a portion of the QCWR for accounting purposes, as has been historically reported and shown in Table 4-3.

In 2035, Kennewick and Richland are projected to have sufficient instantaneous water rights to meet the projected MDDs of their systems. Pasco and West Richland are projected to have 27.60 and 2.70 cfs instantaneous water right deficiencies, respectively. Each city's portion of the initial increment of QCWR is 2.5 cfs per city. With this initial increment allocated to Pasco and West Richland, Pasco is projected to have a 25.10 cfs deficiency and West Richland is projected to have a 0.20 cfs deficiency. The unused 5.0 cfs (2.5 cfs each) from Kennewick and Richland can be credited toward Pasco and West Richland's deficiencies, resulting in West Richland's instantaneous water rights needs being met, and Pasco's instantaneous water right deficiency being reduced to 20.30 cfs, as shown in **Table 4-7**.

FUTURE MITIGATION

When the QCWR was originally issued, the average annual consumptive use estimate was 80 percent. As specified in the 2011 MOA, and supported by the 2008 RWFCP, the consumptive-use estimate used for planning purposes was lowered to 60 percent. **Chapter 3** presents calculations showing the consumptive use by the cities. Based on these calculations, the consumptive use is 47 percent for the cities. The data presented in **Chapter 3** supports continuing to use 60 percent as the average annual consumptive-use rate for mitigation calculations within this RWFCP and over the next 6-year period.

While the previous plan identified a habitat conservation project in the Amon Creek basin, the cities decided that was not a sufficient form of mitigation, and so it has been removed from consideration in this RWFCP update.

Per the January 2008 Memorandum of Understanding between Ecology and Kennewick, Ecology will obtain funding from the Columbia River Management Program toward Kennewick's ASR project in order to provide additional water storage along the Columbia River to capture water during high-flow periods in the river, and reduce the water need during low-flow periods in order to enhance instream flows for endangered and protected species. State money contributed toward Kennewick's ASR project will also serve to partially mitigate Kennewick's portion of the initial increment (2.5 cfs of the initial 10 cfs) of the QCWR that Ecology is responsible for mitigating. Since the ASR permit has not been finalized yet, this will not be included in the calculations for the next 6-year period.

Ecology provided two mitigation alternatives for the cities to evaluate. The two alternatives reflect differences in how the Buckley and Byerley water rights are accounted for throughout the year. Alternative 1 is the original mitigation alternative presented by Ecology, which uses the Buckley and Byerley monthly breakdown from Appendix A of the MOA (**Appendix E**). Alternative 1 mitigation is presented for the historical mitigation calculations in **Tables 4-1** and **4-2**. Alternative 2 uses the Buckley and Byerley monthly breakdown from a table titled "Amended Appendix A" of the MOA, which was obtained from Ecology on November 15, 2015, and is presented as **Appendix F** of this plan. The mitigation required for each alternative is calculated in the following sections for the 6 and 20-year planning periods.

Projected 2021 Mitigation

Tables 4-6 and **4-7** identify the projected 2021 QCWR usage as 8,145 afy (annual) and 9.22 cfs (instantaneous). Although the projected 2021 annual QCWR needs exceed the initial 7,227 afy allotment, 8,145 afy was used to calculate the projected mitigation requirements for conservatism, should additional QCWR be issued.

Projected 2021 Mitigation – Alternative 1 (Original)

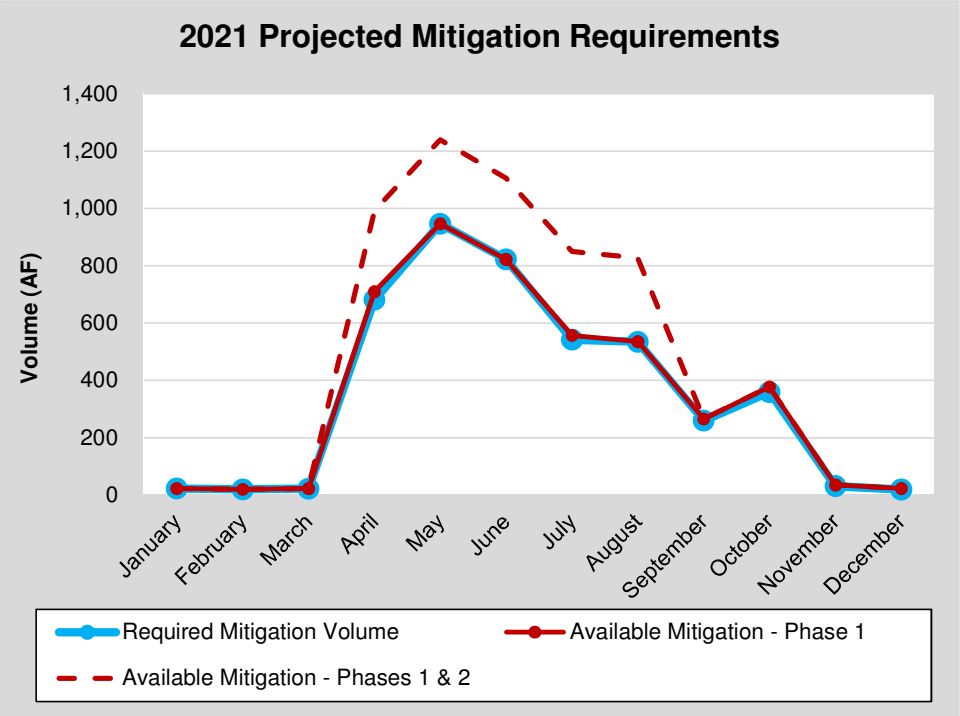
The mitigation volume available within Alternative 1 decreases between the spring and fall months. The mitigation required, if 8,145 afy of QCWR is diverted in 2021, is presented in **Table 4-8** and **Chart 4-3**. Buckley and Byerly mitigation volumes are shown in **Table 4-8**, as is the Phase 1 Lake Roosevelt mitigation volume, which does not require payment from the cities. As described previously in this chapter, additional Lake Roosevelt mitigation water is available for purchase by the cities at a rate of $35 per afy. The additional Lake Roosevelt mitigation volume available for purchase is shown with a dashed line in **Chart 4-3**. The results of the projected 2021 Alternative 1 mitigation calculations indicate sufficient mitigation volume is available in each month if each city's existing annual water rights are allocated strategically to result in nearly-full utilization of the mitigation available each month. Based on the calculations presented in **Table 4-8**, Phase 2 Lake Roosevelt mitigation water will not be required in 2021.

Table 4-8
Projected 2021 Mitigation Volumes – Alternative 1

Month	Daily Diverted Volume (AF/day)	Daily Return Volume (AF/day)	Daily Volume Difference (AF/day)	Days to be Mitigated	Monthly Required Mitigation Volume (AF)	Phase 1 Mitigation				Mitigation Difference (Available - Required)[1] (AF)
						Buckley (AF)	Byerly (AF)	Lake Roosevelt (AF)	Available Mitigation (AF)	
2021 Projections										
January	4.12	2.52	1.60	14	22.41	0.00	22.47	0.00	22.47	0.06
February	3.46	2.11	1.34	15	20.17	0.00	20.30	0.00	20.30	0.13
March	2.04	1.25	0.79	28	22.21	0.00	22.47	0.00	22.47	0.26
April	39.54	16.83	22.71	30	681.33	187.35	18.40	503.72	709.47	28.14
May	48.62	18.10	30.52	31	946.17	406.95	19.02	520.51	946.48	0.31
June	43.64	16.25	27.40	30	821.96	299.97	18.40	503.72	822.09	0.13
July	27.84	10.36	17.48	31	541.77	21.78	14.63	520.51	556.92	15.15
August	27.48	10.23	17.25	31	534.83	0.00	14.49	520.51	535.00	0.17
September	25.86	9.63	16.24	16	259.80	251.46	14.02	0.00	265.48	5.68
October	39.06	16.63	22.43	16	358.95	355.61	22.22	0.00	377.83	18.88
November	2.94	1.79	1.14	27	30.82	13.46	21.75	0.00	35.21	4.39
December	2.08	1.27	0.81	24	19.44	0.00	22.47	0.00	22.47	3.03
Total					**4,259.86**				**4,336.19**	**0.00**

(1) The total mitigation difference only includes months requiring mitigation in excess of the mitigation available in Phase 1 (i.e. negative values in the mitigation difference column).

Chart 4-3
Projected 2021 Mitigation Volumes – Alternative 1



A description of each column in **Table 4-8** is as follows:

Daily Diverted Volume – The calculated average day diversion of QCWR water from the four cities. This volume is calculated for each city, based on the projected QCWR water used by each city to meet the projected monthly supply. For each month in 2021, Kennewick, Richland, and West Richland are projected to not use any QCWR water. Pasco's projected use of the QCWR water was based on diverting QCWR volumes that result in nearly-full utilization of the mitigation available each month.

Daily Return Volume – The calculated daily return volume is based on the product of the monthly QCWR diverted volume and a monthly return flow percentage calculated individually for each city. These monthly return flow percentages are calculated for each season, based on the 2014 supply and return volumes for each city presented in **Chapter 3**, and are shown in **Table 4-9**.

Table 4-9
Seasonal Return Flow Percentages

City	Winter	Spring and Fall	Summer
Kennewick	81.5%	53.8%	43.3%
Pasco	61.1%	42.6%	37.2%
Richland	81.3%	36.1%	28.9%
West Richland	78.9%	37.6%	25.7%

(1) Winter months include January, February, March, November, and December.
(2) Spring and Fall months include April and October.
(3) Summer months include May through September.

Daily Volume Difference – The calculated difference between the diverted and return volumes.

Days to be Mitigated – The number of days requiring mitigation, which is described in the BiOp Compliance Procedures, and is based on the seasonal instream flows at Bonneville (November 1 through April 9) and McNary Dams (April 10 through October 31). The estimated number of days requiring mitigation for the future mitigation calculations was assumed to be the same as the number of days requiring mitigation in 2001, which has been the year with the most mitigation days required since 2000, and is also consistent with the calculations presented in the 2008 RWFCP. As shown in **Table 4-1**, the number of days requiring mitigation between 2011 and 2014 has been much less than was required in 2001.

Monthly Required Mitigation Volume – The calculated product of the volume difference and the days to be mitigated columns.

Buckley, Byerly, and Lake Roosevelt Mitigation – Volume of water available for mitigation from each source. Includes only Phase 1 of the Lake Roosevelt Mitigation, which requires no monthly or annual payments from the cities.

Available Mitigation – Sum of the Buckley, Byerly, and Lake Roosevelt mitigation columns.

Mitigation Difference – The calculated difference between the available mitigation and the required mitigation volumes.

Projected 2021 Mitigation – Alternative 2 (Amended)

The mitigation volume available within Alternative 2 is approximately constant throughout the spring and summer months, with less mitigation volume available in the fall months compared to Alternative 1. The total mitigation available for Alternative 2 is approximately 4 afy greater than that

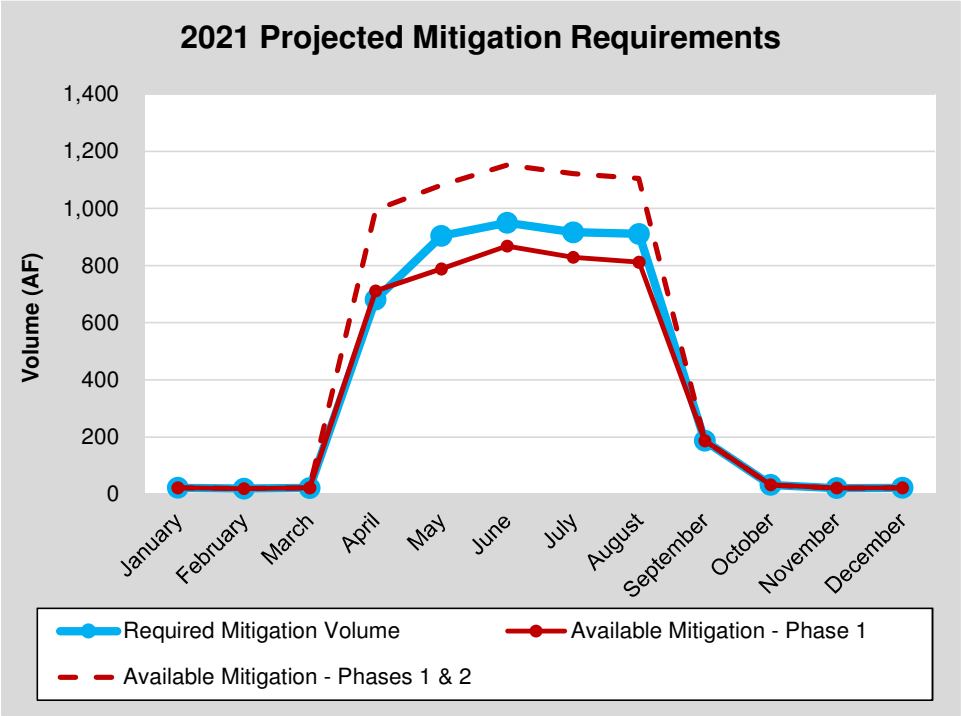
of Alternative 1. The mitigation required for Alternative 2 if 8,145 afy of QCWR is diverted in 2021, is presented in **Table 4-10** and **Chart 4-4**. Buckley and Byerly mitigation volumes are shown in **Table 4-10**, as is the Phase 1 Lake Roosevelt mitigation volume, which does not require payment from the cities. The additional Lake Roosevelt mitigation volume available for purchase is shown with a dashed line in **Chart 4-4**. The results of the projected 2021 Alternative 2 mitigation calculations indicate sufficient Phase 1 mitigation volume is available for January through April, and September through December, but Phase 2 Lake Roosevelt mitigation water is required between May and August. Based on the calculations presented in **Table 4-10**, approximately 383 AF of mitigation volume is required beyond the Buckley, Byerly, and Phase 1 Lake Roosevelt mitigation.

Table 4-10
Projected 2021 Mitigation Volumes – Alternative 2

Month	Daily Diverted Volume (AF/day)	Daily Return Volume (AF/day)	Daily Volume Difference (AF/day)	Days to be Mitigated	Monthly Required Mitigation Volume (AF)	Phase 1 Mitigation				Mitigation Difference (Available - Required)[1] (AF)
						Buckley (AF)	Byerly (AF)	Lake Roosevelt (AF)	Available Mitigation (AF)	
2021 Projections										
January	4.12	2.52	1.60	14	22.41	0.00	22.47	0.00	22.47	0.06
February	3.46	2.11	1.34	15	20.17	0.00	20.30	0.00	20.30	0.13
March	2.04	1.25	0.79	28	22.21	0.00	22.47	0.00	22.47	0.26
April	39.54	16.83	22.71	30	681.33	189.54	18.40	503.72	711.66	30.33
May	46.46	17.29	29.16	31	904.11	249.43	19.02	520.51	788.96	-115.15
June	50.41	18.76	31.65	30	949.40	346.61	18.41	503.72	868.74	-80.66
July	47.11	17.54	29.58	31	916.86	293.83	14.63	520.51	828.97	-87.89
August	46.82	17.43	29.39	31	911.19	277.13	14.49	520.51	812.13	-99.06
September	18.63	6.94	11.70	16	187.14	173.25	14.02	0.00	187.27	0.13
October	3.58	1.52	2.05	16	32.87	10.80	22.22	0.00	33.02	0.15
November	2.07	1.27	0.80	27	21.72	0.00	21.75	0.00	21.75	0.03
December	2.41	1.47	0.94	24	22.45	0.00	22.47	0.00	22.47	0.02
Total					**4,691.87**				**4,340.21**	**-382.76**

(1) The total mitigation difference only includes months requiring mitigation in excess of the mitigation available in Phase 1 (i.e., negative values in the mitigation difference column).

Chart 4-4
Projected 2021 Mitigation Volumes – Alternative 2



Projected 2035 Mitigation

Tables 4-6 and **4-7** identify the projected 2035 QCWR usage as 15,383 afy (annual) and 30.30 cfs (instantaneous). Although the projected 2035 annual QCWR needs exceed the initial 7,227 afy allotment, 15,383 afy was used to calculate the projected mitigation requirements for conservatism, should additional QCWR be issued.

Projected 2035 Mitigation – Alternative 1 (Original)

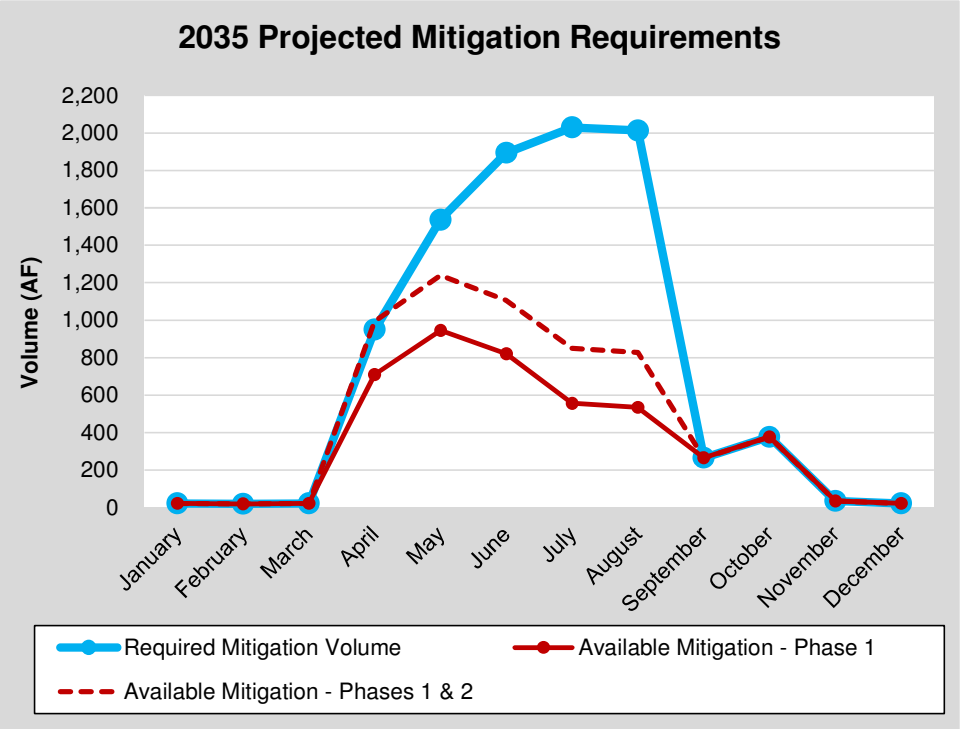
The mitigation volume available within Alternative 1 decreases between the spring and fall months. The mitigation required for Alternative 1, if 15,383 afy of QCWR is diverted in 2035, is presented in **Table 4-11** and **Chart 4-5**. A breakdown of the Phase 1 and Phase 2 Lake Roosevelt mitigation volumes is presented in **Table 4-11**. Similar to the 2021 mitigation calculations described in the previous section, the QCWR diversion volume was calculated for each month to result in nearly-full utilization of the mitigation available each month. Phase 1 mitigation water is sufficient for January through March, and September through December, but Phase 2 Lake Roosevelt mitigation water is required between April and August. The diversion volumes were adjusted to show that the Phase 2 Lake Roosevelt mitigation water is sufficient for April, with exceedances projected for May, June, July, and August. Based on the calculations presented in **Table 4-11**, approximately 4,853 AF of mitigation volume is required beyond the Buckley, Byerly, and Phase 1 Lake Roosevelt mitigation, and approximately 3,450 AF is required in excess of the Buckley, Byerly, and Phases 1 and 2 Lake Roosevelt mitigation.

Table 4-11
Projected 2035 Mitigation Volumes – Alternative 1

Month	Daily Diverted Volume (AF/day)	Daily Return Volume (AF/day)	Daily Volume Difference (AF/day)	Days to be Mitigated	Monthly Required Mitigation Volume (AF)	Phase 1 Mitigation					Phases 1 & 2 Mitigation	
						Buckley (AF)	Byerly (AF)	Lake Roosevelt (AF)	Available Mitigation (AF)	Mitigation Difference (Available - Required)[1] (AF)	Available Mitigation (AF)	Mitigation Difference (Available - Required)[1] (AF)
2035 Projections												
January	4.11	2.51	1.60	14	22.38	0.00	22.47	0.00	22.47	0.09	22.47	0.09
February	3.47	2.12	1.35	15	20.21	0.00	20.30	0.00	20.30	0.09	20.30	0.09
March	2.04	1.24	0.79	28	22.16	0.00	22.47	0.00	22.47	0.31	22.47	0.31
April	55.14	23.47	31.67	30	950.03	187.35	18.40	503.72	709.47	-240.56	992.88	42.85
May	76.94	27.36	49.58	31	1,537.07	406.95	19.02	520.51	946.48	-590.59	1,239.33	-297.74
June	98.43	35.32	63.11	30	1,893.30	299.97	18.40	503.72	822.09	-1,071.21	1,105.50	-787.80
July	102.19	36.72	65.47	31	2,029.52	21.78	14.63	520.51	556.92	-1,472.60	849.79	-1,179.73
August	101.40	36.47	64.93	31	2,012.68	0.00	14.49	520.51	535.00	-1,477.68	827.85	-1,184.83
September	26.41	9.83	16.58	16	265.29	251.46	14.02	0.00	265.48	0.19	265.48	0.19
October	41.09	17.49	23.60	16	377.63	355.61	22.22	0.00	377.83	0.20	377.83	0.20
November	3.33	2.04	1.29	27	34.96	13.46	21.75	0.00	35.21	0.25	35.21	0.25
December	2.39	1.46	0.93	24	22.33	0.00	22.47	0.00	22.47	0.14	22.47	0.14
Total					**9,187.53**				**4,336.19**	**-4,852.63**	**5,781.58**	**-3,450.10**

(1) The total mitigation difference only includes months requiring mitigation in excess of the mitigation available in Phase 1 (i.e., negative values in the mitigation difference column).

Chart 4-5
Projected 2035 Mitigation Volumes – Alternative 1



Projected 2035 Mitigation – Alternative 2 (Amended)

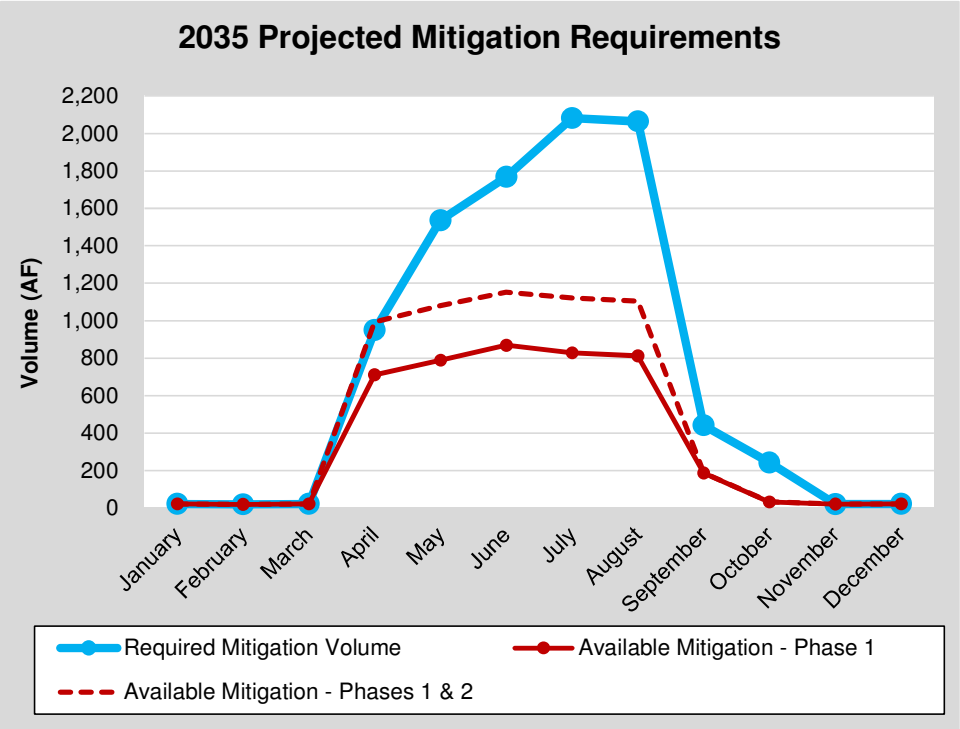
The mitigation volume available within Alternative 2 is approximately constant throughout the spring and summer months, with less mitigation volume available in the fall months compared to Alternative 1. The total mitigation available for Alternative 2 is approximately 4 afy greater than that of Alternative 1. The mitigation required for Alternative 2, if 15,383 afy of QCWR is diverted in 2035, is presented in **Table 4-12** and **Chart 4-6**. Similar to the other mitigation calculations described in previous sections, the QCWR diversion volume was calculated for each month to result in nearly-full utilization of the mitigation available each month. Phase 1 mitigation water is sufficient for January through March, and November and December, but Phase 2 Lake Roosevelt mitigation water is required between April and August. The diversion volumes were adjusted to show that the Phase 2 Lake Roosevelt mitigation water is sufficient for April, with exceedances projected between May and October. Based on the calculations presented in **Table 4-12**, approximately 4,855 AF of mitigation volume is required beyond the Buckley, Byerly, and Phase 1 Lake Roosevelt mitigation, and approximately 3,454 AF is required in excess of the Buckley, Byerly, and Phases 1 and 2 Lake Roosevelt mitigation. The annual Alternative 2 mitigation volume exceedances are approximately equivalent to those presented for mitigation Alternative 1.

Table 4-12
Projected 2035 Mitigation Volumes – Alternative 2

Month	Daily Diverted Volume (AF/day)	Daily Return Volume (AF/day)	Daily Volume Difference (AF/day)	Days to be Mitigated	Monthly Required Mitigation Volume (AF)	Phase 1 Mitigation					Phases 1 & 2 Mitigation	
						Buckley (AF)	Byerly (AF)	Lake Roosevelt (AF)	Available Mitigation (AF)	Mitigation Difference (Available - Required)[1] (AF)	Available Mitigation (AF)	Mitigation Difference (Available - Required)[1] (AF)
2035 Projections												
January	4.11	2.51	1.60	14	22.38	0.00	22.47	0.00	22.47	0.09	22.47	0.09
February	3.47	2.12	1.35	15	20.21	0.00	20.30	0.00	20.30	0.09	20.30	0.09
March	2.04	1.24	0.79	28	22.16	0.00	22.47	0.00	22.47	0.31	22.47	0.31
April	55.14	23.47	31.67	30	950.03	189.54	18.40	503.72	711.66	-238.37	995.07	45.04
May	76.94	27.36	49.58	31	1,537.07	249.43	19.02	520.51	788.96	-748.11	1,081.81	-455.26
June	91.76	32.84	58.92	30	1,767.75	346.61	18.41	503.72	868.74	-899.01	1,152.15	-615.60
July	104.85	37.71	67.14	31	2,081.31	293.83	14.63	520.51	828.97	-1,252.34	1,121.84	-959.47
August	104.06	37.46	66.60	31	2,064.47	277.13	14.49	520.51	812.13	-1,252.34	1,104.98	-959.49
September	44.01	16.38	27.63	16	442.07	173.25	14.02	0.00	187.27	-254.80	187.27	-254.80
October	26.42	11.24	15.17	16	242.75	10.80	22.22	0.00	33.02	-209.73	33.02	-209.73
November	2.06	1.26	0.80	27	21.66	0.00	21.75	0.00	21.75	0.09	21.75	0.09
December	2.39	1.46	0.93	24	22.33	0.00	22.47	0.00	22.47	0.14	22.47	0.14
Total					**9,194.17**				**4,340.21**	**-4,854.69**	**5,785.60**	**-3,454.34**

(1) The total mitigation difference only includes months requiring mitigation in excess of the mitigation available in Phase 1 (i.e., negative values in the mitigation difference column).

Chart 4-6
Projected 2035 Mitigation Volumes – Alternative 2



BIOP COMPLIANCE PLAN

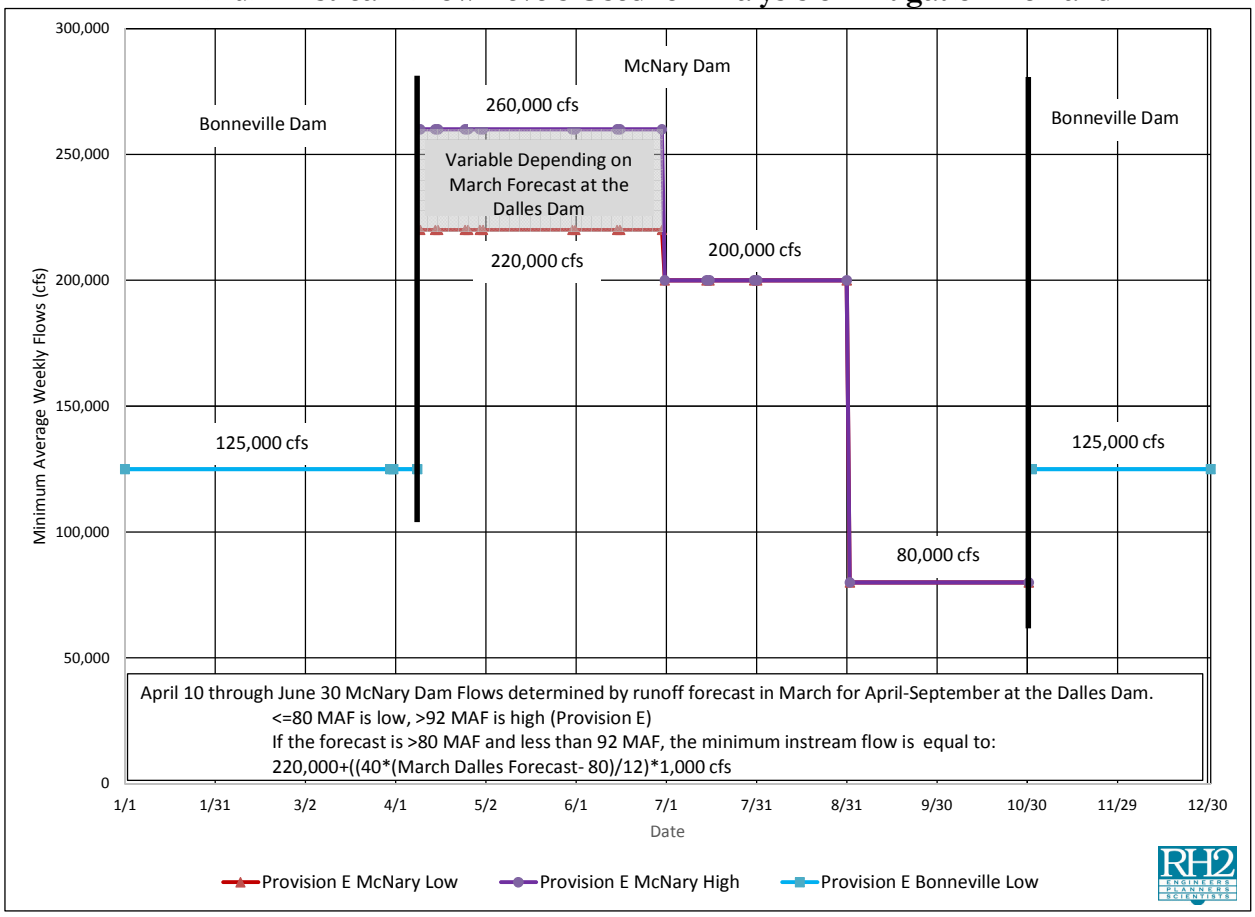
The cities have been making calculations consistent with those provided in the BiOp Compliance Plan, which was Appendix G of the 2008 RWFCP update. There are a few revisions to the BiOp Compliance Plan in this RWFCP update, to allow the plan to better match how the calculations were actually being made, and those are specifically called-out here (**Appendix D**).

First, the older plan stated that "The trigger for this procedure shall be an early March forecast of Columbia River in-stream flow at the Dalles Dam of less than sixty (60) million acre feet." This language is similar to the language contained in WAC 173-563-056, which identifies the trigger for when interruptible water rights issued under the Instream Resources Protection Program for the Main Stem Columbia River in Washington State were to be regulated, based on the actual flow of the river compared to the minimum instream flows. However, the instream flow provision on the QCWR is different from the minimum instream flow provision in Chapter 173-563 WAC. The minimum instream flows specified in the QCWR are in effect every day of the year, regardless of the early March forecast. Therefore, that language has been removed from the BiOp Compliance Plan.

Second, in the QCWR, the minimum instream flows specified for the period of November 1 through April 9 is specified as follows: "Between November 1 and April 9, the minimum flow measured at Bonneville Dam will range from 125,000 to 160,000 cfs, with the specific flow objective to be set by the FCRPS Technical Management Team every two weeks during that period." Ms. Nancy Aldrich, City of Richland, indicated that the Federal Columbia River Power System (FCRPS) Technical Management Team does not actively meet and set specific flow objectives for the period of

November 1 through April 9, as envisioned in the QCWR permit provision. In the absence of variable flow recommendations from this group, the cities have been using a consistent minimum instream flow of 125,000 cfs during this period. The minimum instream flow levels that have been used throughout the year are displayed graphically in **Chart 4-7**.

Chart 4-7
Minimum Instream Flow Levels Used for Analysis of Mitigation Demand



Using the updated BiOp Compliance Plan (**Appendix D**), the cities have demonstrated, in **Table 4-1** and **Chart 4-1**, that the mitigation for Phase 1 has adequately mitigated the cities' consumptive use under the QCWR since 2012. The only years in which the mitigation was insufficient were those years prior to Ecology fulfilling its obligation to provide the full mitigation for the first phase of the allocation.

The BiOp Compliance Plan was also used to project forward and determine if the existing mitigation would be sufficient to mitigate if the actual stream flows were consistent with those observed during 2001, during which the Columbia River experienced the lowest flows in recent years. **Tables 4-8** and **4-10**, and **Charts 4-3** and **4-4** summarize the results for year 2021, and **Tables 4-11** and **4-12**, and **Charts 4-5** and **4-6** summarize the results for year 2035.

REQUEST FOR ADDITIONAL AUTHORIZATION UNDER QCWR

Based on the analysis and justification provided in this report, the cities would like to make the following requests to Ecology:

1. Alteration of the instantaneous rate allowed under Phase 1.

The Phase 1 municipal allocation under the QCWR was 10 cfs and 7,227 afy. This allocation is very close to being equal to the instantaneous rate diverted continuously over the entire year to equal the annual volume. This allocation represents a baseload supply, which does not match the actual use of water by the cities and does not allow the cities to pump at a high enough rate to fully utilize the mitigation secured by Ecology for Phase 1. For the month of May, Ecology secured 946.48 AF of mitigation water under Phase 1. Assuming each city is using its share of the QCWR, the combined measured consumptive use for the cities during that month is 66 percent (**Table 4-9**). That means that for this month, the mitigation water would support municipal diversion of 1,434 AF. In order to be able to divert 1,434 AF for municipal supply during the month of May, the cities will need to divert water under the QCWR at a constant rate of 23.3 cfs for that month.

The cities request that Ecology issue an additional 13.3 cfs under Phase 2, to make the combined municipal water right equal to 23.3 cfs and 7,227 afy to match the mitigation that was obtained by Ecology for the first phase of development.

2. Within the next six years, the City of Pasco is projected to use more municipal water rights than was allocated to all of the cities under Phase 1 of the QCWR.

Pasco has requested a new individual water right from the Lake Roosevelt Incremental Storage Release Program. Based on the facts that water is still available to be allocated from this program, and the city has an identified immediate and future need, it is assumed that this water right will be granted. Granting of this water right, making sure that appropriate instantaneous rate and annual volume are authorized, will allow the cities to continue to equally share and use Phase 1 of the QCWR through the next six-year period.

The cities request that Ecology process the individual water right, split out from application S4-33044, for the City of Pasco.

3. Identification of a future mitigation alternative.

Based on the projected 2021 mitigation requirements, no Phase 2 mitigation is required within mitigation Alternative 1, whereas 383 AF is required within mitigation Alternative 2. Based on the projected 2035 mitigation requirements, 3,450 AF of Phases 1 and 2 mitigation is required for Alternative 1, and 3,454 AF of Phases 1 and 2 mitigation is required for Alternative 2. Although mitigation Alternative 2 provides 4 afy of additional mitigation volume, the monthly Phase 1 mitigation allotments of Alternative 1 are sufficient through 2021.

The cities request that mitigation Alternative 1 (presented as Appendix E of this study and consistent with the 2011 MOA) be utilized for future mitigation.

4. Recalculation of the level of mitigation needed for Phase 1 and future phases.

Based on the BiOp Compliance Plan, approved in the 2008 RWFCP, the cities plan for the future by looking at the days that flows were not met during the 2001 drought year. In that year, target flows

were not met on 293 out of 365 days, or 80 percent of the year. The months where mitigation is only required on some of the days include January (14 days), February (15 days), March (28 days), September (16 days), October (16 days), November (27 days), and December (24 days). This means that to mitigate the consumptive use when target flows are not met, mitigation is only needed for 80 percent of the water diverted if it is diverted equally year round. So, while diverting 7,227 afy for municipal supply, the actual volume of diverted water that will be subject to mitigation could be approximately 5,782 afy, although this number is variable depending on when the water is diverted throughout the year because of monthly return flow variations and days per month requiring mitigation. An average 60 percent of that volume is equal to a total-needed Phase 1 mitigation volume of 3,469 afy. This volume is less than the 4,336.2 afy described in the 2011 MOA, due to the fact that it is not anticipated that mitigation will be needed on more than 80 percent of the days and that the actual calculated average consumptive use is less than 60 percent. If this level of mitigation certainty is approved, that would mean that a total of 2,312.6 afy of Lake Roosevelt mitigation water that has been reserved by Ecology for the cities would be available to the cities to mitigate future phases of the municipal allocation, and the cities would be responsible for covering the cost of the Lake Roosevelt water in Phase 2 and beyond.

If this recalculation of mitigation volume needed is not approved, then the cities will cease to use the 2001 flow data in their forecasts and will be forced to assume that mitigation will be required every day that the QCWR is used in the future. The BiOp Compliance Plan (**Appendix D**) will no longer be necessary.

The cities request that Ecology consider planning to mitigate 80 percent of the time (consistent with the 2001 flow data and BiOp compliance plan) is deemed sufficient, and 2,312.6 afy of Lake Roosevelt mitigation water is considered to be reserved for use by the cities for mitigation of future phases of the QCWR.

5. Phase 2 of the QCWR mitigated by previously reserved Lake Roosevelt mitigation water.

This request is based on the outcome of the above requests.

If Pasco is able to obtain new individual water rights of sufficient rate and volume such that its 2021 demand is satisfied by its existing rights, the new water right, and its portion of Phase 1 of the QCWR, then the cities will only need to request the additional additive instantaneous rate under Phase 2 of the QCWR, as discussed under request 1 above, at this time (Table 4-13).

If Pasco is unable to acquire additional individual water rights, then the cities will need an annual volume allocation under Phase 2 to meet their 2021 demand, as identified in Table 4-14. Ecology's response to request 4, above, will alter the amount of water necessary to mitigate Phase 1. However, since the Lake Roosevelt mitigation water is only utilized in April through August, which require mitigation on every day (per the 2001 instream flow data), the same volume of mitigation water is requested for Phase 2, regardless if either 80 percent or 100 percent mitigation is required. When Phase 2 is issued, the cities consider that the municipal combined instantaneous rate of the two phases (26.4 cfs) can be utilized to divert the combined annual volume of the two phases (8,145 afy).

Table 4-13
Phase 2 QCWR Request for 2021 if Pasco Does Get a New Water Right

Phase	Municipal Supply		Mitigation if 80 percent accepted			Mitigation if 100 percent required		
	Instantaneous Rate	Annual Volume	Byerly and Buckley	Lake Roosevelt	Total	Byerly and Buckley	Lake Roosevelt	Total
	(cfs)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)
1	10.0	7,227	1,767.23	1,701.73	3,468.96	1,767.23	2,568.97	4,336.20
2 (2021)	13.3	0	0.00	0.00	0.00	0.00	0.00	0.00
Total	**23.3**	**7,227**	**1,767.23**	**1,701.73**	**3,468.96**	**1,767.23**	**2,568.97**	**4,336.20**
Remaining mitigation water				**2,312.64**			**1,445.40**	

Assumes that the additional instantaneous rate needed to perfect the Phase 1 annual volume is provided under Phase 2.
Phase 2 (2021) represents the water associated with the forecast demand through the next 6 years, which is through 2021.

Table 4-14
Phase 2 QCWR Request for 2021 if Pasco Does Not Get a New Water Right

Phase	Municipal Supply		Mitigation if 80 percent accepted			Mitigation if 100 percent required		
	Instantaneous Rate	Annual Volume	Byerly and Buckley	Lake Roosevelt	Total	Byerly and Buckley	Lake Roosevelt	Total
	(cfs)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)	(afy)
1	10.0	7,227	1,767.23	1,701.73	3,468.96	1,767.23	2,568.97	4,336.20
2 (2021)	16.4	918	0.00	605.88	605.88	0.00	605.88	605.88
Total	**26.4**	**8,145**	**1,767.23**	**2,307.61**	**4,074.84**	**1,767.23**	**3,174.85**	**4,942.08**
Remaining mitigation water				**1,706.76**			**839.52**	

Instantaneous rate under Phase 2 sufficient to divert Phase 1 and 2 annual volume, given mitigation available.
Phase 2 (2021) represents the water associated with the forecast demand through the next 6 years, which is through 2021.
Lake Roosevelt mitigation water is used in the summer months when consumptive use is approximately 66 percent.

APPENDIX A

SURFACE WATER PERMIT NO. S4-30976P

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☒ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☐ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
September 23, 1991 *	S4-30976	S4-30976P	

* The first ten cubic feet per second of this water right has a priority date of June 24, 1980, pursuant to WAC 173-531A-050(3).

NAME
Cities of Richland, Kennewick, Pasco and West Richland (c/o Richland)

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
PO Box 190	Richland	WA	99352-0190

The applicant is, pursuant to the Report of Examination which has been accepted by the applicant, hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Columbia River

TRIBUTARY OF (IF SURFACE WATERS)
Pacific Ocean

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
178 [1]		96,619 [1]

QUANTITY, TYPE OF USE, PERIOD OF USE
Municipal, industrial, commercial. Year-round Period of Use.

[1]The projected maximum instantaneous and annual diversions from 2002-2008 are 10 cubic feet per second and 7227 acre-feet per year; additional quantities to meet projected demands beyond 2008 are to be determined by a six year review process as described in the Provisions of this permit. The maximum cubic feet per second and acre-feet per year quantities shown above are the maximums that can be used by 2051.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
Approximate location: Multiple points within the Cities of Kennewick, Pasco, and Richland service areas, including all the existing municipal diversions and treatment facilities in Kennewick, Pasco and Richland (see table below).

Location of Points of Withdrawal/Diversion on the Columbia River

CITY	MAP ID NO.	WATER RIGHT/OTHER ID NO.	LOCATION
Richland	R-1	Energy NW	NENW Section 2, T. 11 N., R. 28 E.W.M.
	R-2	Battelle	SWNE Section 14, T. 10 N., R. 28 E.W.M.
	R-3	S4-29941P	SWNE Section 14, T. 10 N., R. 28 E.W.M.
	R-4	W.S.U.	SWSW Section 24, T. 10 N., R. 28 E.W.M.
	R-5	SWC 9004	SWSW Section 24, T. 10 N., R. 28 E.W.M.
	R-6	S4-26404C Water Treatment Plant	NWNW Section 36, T. 10 N., R. 28 E.W.M.
		S4-27121C	
		SWC 9005	
	R-7	14030C Columbia Point	SWNE Section 13, T. 9 N., R. 28 E.W.M.
		G4-29214P	
		G4-29799P	
	R-8	Badger Mountain Irrigation District	SWSE Section 23, T. 9 N., R. 28 E.W.M.
Pasco	P-1	Water Treatment Plant	SWNE Section 31, T. 9 N., R. 30 E.W.M.
	P-2	S3-28791P (Kidwell)	W½ Section 18, T. 9 N., R. 29 E.W.M.
Kennewick	K-1	S4-25479C (SW Filter Plant)	SWSW Section 31, T. 9 N., R. 30 E.W.M.
	K-2	3897-A (Ranney Wells)	Govt. Lots 1 and 2, Section 35, T 9 N, R 29 EWM
	K-3	Corps of Engineers-Columbia Park (Multiple Points)	Sections. 27, 28, 29, 34, 35, T. 9 N., R. 29 EWM

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
Refer to table above				37, 40, 31	Benton, Franklin

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The water will be used within the area provided with urban water service by Kennewick, Pasco, Richland and West Richland, as identified in the six-year updates of the Quad Cities' Water System Plans, and as currently shown on Figure 1 (attached).

FILE COPY

DESCRIPTION OF PROPOSED WORKS

The cities of Kennewick, Pasco and Richland will initially use their existing Columbia River water diversion and treatment facilities. Additional diversion/withdrawal facilities, including the potential construction of facilities capable of delivering water for storage and later withdrawal as part of an Aquifer Storage and Recovery (ASR) project and other pumps and pipes, will be added to the system incrementally as needed to respond to demand. Use of any new point of diversion will require the applicant to apply for and receive approval of a change of water right.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
October 1, 2003	October 1, 2050	October 1, 2051

PROVISIONS

Over the duration of this permit, diversion of water will not be permitted at any time the applicable flow objectives are not met UNLESS the consumptive portion of the diverted water is properly mitigated through such means as water transfers, replacements, habitat enhancements, or trust water right arrangements. The first ten cubic feet per second (cfs) of this water right are allocated from the John Day/McNary Pools reservation for municipal water use pursuant to WAC 173-531A-050.

The following conditions apply to this approval:

A. The Quad Cities shall provide municipal water to all municipal, industrial, and commercial users and uses within their urban service areas based on the Quad Cities' six-year updates of their Regional Water Forecast and Conservation Plan (RWFCP) described in Provision H.5.

B. This authorization is subject to Washington Department of Fish and Wildlife juvenile salmon and gamefish screening criteria (pursuant to RCW 75.20.040). Permit holders should contact the Department of Fish and Wildlife, 600 Capitol Way N., Olympia, WA 98501-1091, Attention: Habitat Management Division, Phone: (360) 753-3318 or call (509) 575-2734 for the Yakima Screen Shop to obtain specific gamefish (trout, bass, etc.) requirements for their projects.

C. An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC.

Water use data shall be recorded daily. The maximum monthly rate of diversion/withdrawal and the monthly total volume shall be submitted to Ecology by January 31st of each calendar year. Ecology is requiring submittal of monthly meter readings to collect seasonal information for water resource planning, management and compliance.

The following information shall be included with each submittal of water use data: owner, contact name if different, mailing address, daytime phone number, WRIA, Permit/Certificate, source name, annual quantity used including units, maximum rate of diversion including units, monthly meter readings including units, peak monthly flow including units, Department of Health WFI water system number and source number(s), purpose of use, fish screen status, open channel flow or pressurized diversion and period of use. In the future, Ecology may require additional parameters to be reported or more frequent reporting. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

(Continued on page 3)

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand the seal of this office at Yakima, Washington,

this 15th *day of* SEPTEMBER *2003.*

Department of Ecology

by _____

Robert F. Barwin, Section Manager

DATA REVIEW

OK RD

Provisions Continued

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

D. Following each six-year period, Ecology will issue a certificate for the amount of water put to beneficial use during that period after an investigation has been conducted. Compliance with any Ecology Order issued as part of the water use associated with the six-year period is a requirement of the certificate for that six-year increment.

E. Unless a new instream flow rule for the mainstem Columbia River is promulgated and Ecology approves an application by the Quad Cities to substitute these flows as conditions to this water right, the following flow objectives will apply:

Water may be appropriated under this permit ONLY when the following minimum instream flow requirements are EQUALLED OR EXCEEDED, or when the consumptive water use associated with appropriations under this permit are fully mitigated:

1. Between April 10 and June 30, the minimum flow measured at McNary Dam will depend on the April-September runoff forecast at The Dalles Dam, such that:

   a. if the forecast is 80 million acre-feet (MAF) or less, the minimum flow is 220,000 cfs;

   b. if the forecast is greater than 80 MAF and less than 92 MAF, the minimum flow is 220,000+((40(forecast-80)/12) x 1000) cfs;

   c. if the forecast is greater than 92 MAF, the minimum flow is 260,000 cfs.

2. Between July 1 and August 31, the minimum flow measured at McNary Dam is 200,000 cfs.

3. From September 1 through October 31, the minimum flow measured at McNary Dam is 80,000 cfs.

4. Between November 1 and April 9, the minimum flow measured at Bonneville Dam will range from 125,000 to 160,000 cfs, with the specific flow objective to be set by the FCRPS Technical Management Team every two weeks during that period.

Any future proposed mitigation plans submitted by the Quad-Cities for review by Ecology shall be governed by the following terms:

- Mitigation for appropriations beyond the first ten cfs will be according to the following "fifty percent or more/fifty percent or less" formula: fifty percent or more of water consumptively used by the Quad Cities during times when flows established in Provision E are not met will be mitigated by flow replacement using water upstream of the McNary Dam in the Columbia River system; the balance of the mitigation will be accounted for by fish habitat improvements that benefit Columbia River system fish at least to the same extent as would replacement water.

- For any habitat project mitigation proposed by the Quad-Cities under this provision, the Quad-Cities will demonstrate based upon best available science and other applicable legal requirements that the proposed mitigation will benefit Columbia River system fish at least to the same extent as would replacement water.

- In determining whether any habitat project mitigation proposed under this provision is acceptable, Ecology will consult with and give a high degree of deference to the Washington State Department of Fish and Wildlife, the Confederated Tribes and Bands of the Yakama Nation, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

- Any time Ecology approves the use of mitigation to offset diversion increments after the first increment (the first increment is defined as the first 10 cfs of diverted water), Ecology shall issue an order that is subject to appeal to the Pollution Control Hearings Board or any successor body with jurisdiction to hear appeals from Ecology water right decisions.

- To determine the amount of perpetual mitigation for the first increment of water use, Ecology has used an 80 percent consumptive use estimate; *i.e.*, Ecology has assumed that for the first 10 cfs of diverted water, there will be a consumptive use of 8 cfs. Concurrent with the times that the Quad Cities submit each successive Regional Water Forecast and Conservation Plan (RWFCP) Ecology will reevaluate this 80 percent consumptive use estimate based on then-current metering and other data showing actual water returned to the system, and will assure that the appropriate amount of water-for-water mitigation is in place. If consumptive use increases above 80%, in order to keep the diversion for the first 10 cfs not subject to interruption, Ecology will transfer into trust additional water rights from the McNary Pool to offset the additional consumptive use.

F. If a new instream flow rule for the mainstem Columbia River is promulgated, the Quad Cities may apply to Ecology to have these new flows substituted as permit conditions for the above flows. The application must be in a form and manner that sufficiently explains the basis for the request and the effect of the request on public interest, existing rights and water availability. Upon approval by Ecology, the new flow objectives will replace the conditions described above. Until different instream flow objectives are established through formal rulemaking and Ecology approval of an application by Quad Cities to have these flows applied as new conditions to this water right, the flows set forth above shall remain in effect for the duration of this permit.

G. Based on the flow replacement mitigation agreed to be supplied by Ecology for the first six-year increment, the maximum water diversion allowed under this permit shall be 10 cfs. If additional water is required prior to 2008, the process to obtain it is the same as that described in Provisions E and H.

H. To access water beyond the initial 10 cfs, the Quad Cities shall submit an updated RWFCP to the Department of Health and the Department of Ecology on a six-year schedule consistent with the schedule for review of water right quantities. The Quad Cities shall coordinate the preparation and completion of their individual water system plans and related supply, demand, and conservation programs. Prior to completion of the plans, the RWFCP will be completed jointly by the Quad Cities to compare demand to available supply and to evaluate the conservation achieved and the conservation projected resulting from implementation of the program described in section 6. The Quad Cities may submit the RWFCP for access to additional water, under the same process described in this condition, prior to any six-year interval if demand forecasts or other circumstances warrant earlier review. The full quantities of water recommended for a permit in this report may be appropriated in six-year increments associated with submittal of the RWFCP, and only when the applicable minimum instream flow is equaled or exceeded, or when the consumptive water use associated with appropriations under this permit is mitigated. Ecology will review the demand estimates, the water conservation elements of the plan, return flows estimates, and other relevant information contained in the plan that comprises the mitigation or flow replacement proposal. Following public comment, Ecology would approve, conditionally approve, or deny the proposed mitigation plan through an Order. If the Order denies the proposed mitigation or flow replacement proposal, then the appropriation for that 6-year increment would be subject to interruption when the flow objectives in this permit are not met, as described in Provision E.

1. The non-interruptibility of water use beyond the first 10 cfs requires that the Quad Cities submit a mitigation plan to Ecology for approval. Unless extraordinary circumstances exist, when the Quad Cities propose a mitigation plan for future diversion increments under their water right, the Quad Cities will submit their plan at least one year before the Quad Cities need a final decision from Ecology. Ecology will use this one year period for public notice, consultation, and to accomplish any necessary water right trust transfers. For purposes of this section "extraordinary circumstances" is defined only as factual circumstances that establish the need for an Ecology response time of less than one year. In no case will Ecology shorten its review and decision time so as to preclude Ecology from fulfilling its public notice and consultation obligations. The mitigation required for withdrawals of water in the succeeding six-year periods shall be proposed by the Quad Cities in their six-year RWFCPs for approval by the Department of Ecology.

2. Upon issuance of an Order by Ecology approving, in conformance with Provision E of this permit, one or more trust water rights or approving another replacement water program or a mitigation program proposed by the permittee to offset the full projected consumptive use during periods when flow objectives are not met, the six-year appropriation will not be conditioned as interruptible.

3. The maximum quantity of withdrawals of water requiring mitigation during the succeeding six-year periods will be presented in the RWFCPs and determined by subtracting estimated return flow from the maximum diversion amount. Return flow calculations shall be based on best available science and shall reflect seasonal conditions. During the course of that six-year period, actual quantities to be mitigated will depend on daily recording and monthly reporting of actual water use under this permit, return flow estimates corresponding to the season of water use, and whether or not the then current flow objectives are achieved during that period.

4. Each RWFCP shall include a Conservation Program demonstrating how the best available and reasonable conservation technology will be implemented in the subsequent six-year period. The Conservation Program shall meet, as a minimum for the entire life of this permit, current (as of date prepared) Department of Health requirements as well as the conservation conditions described below. In addition, the RWFCP with its Conservation Program shall be submitted to the Department of Ecology for review and approval consistent with the six-year schedule for reviewing water rights. The RWFCP shall propose and implement water conservation activities in the following areas: reducing leakage and unaccounted for water from the municipal water supply system; and monitoring, accounting for (separately) and reducing commercial, industrial, residential (indoor) and landscape water use. The Conservation Program shall include a detailed profile of current water use characteristics for each conservation category defined above including their total annual demand, average demand, unit demand and peak demand. Compliance with the Conservation Program for each six year period shall be a condition of the permit.

5. The Quad Cities RWFCP shall comply with Department of Health rules (*Conservation Planning Requirements, Washington State Department of Health PUB 331-008, March 1994*) which currently require that these plans contain, as a minimum:

   - *Water Use Data Collection Requirements*. Systems must report the best currently available data on water use for the categories of use, which are identified by the department.

- *Water Demand Forecast.* A complete forecast, including an estimate of reduction of water use from implementation of water conservation measures, must be developed.
- *Conservation Program.* A Conservation Program must be developed and implemented. The Conservation Program elements must include: Conservation Objectives; Evaluation of Conservation Measures; and Identification of Selected Conservation Activities.

If the Department of Health adopts more stringent rules relating to water conservation, the Quads Cities will plan and implement their plans to meet or exceed the more stringent rules.

6. In addition to the general water conservation requirements described above, the following Conservation Program activities are required as conditions of this permit. The Quad Cities will initiate development of the following programs within one year after issuance of the permit and will adopt them for implementation within two years of the date of permit issuance.

For the purposes of the following conservation program elements, the term "implement" means obtaining and expending funding for capital facilities and operational staff, program assessment, and monitoring and reporting associated with each program element in a manner and on a schedule to achieve, and once achieved to maintain, the stated goal or target.

i. Leak Detection Program

The Quad Cities shall implement a program to reduce leakage and unaccounted for water for each water supply system within the Quad Cities area. Leakage and unaccounted for water includes water loss due to leaking water mains and smaller distribution lines and inefficient fixtures, including inaccurate metering. Unaccounted for or unmetered water consumption also includes uses such as street sweeping, contractors, flushing hydrants, dust control, and erosion control by the Cities, County and private parties. The goal of the program is to reduce unaccounted for water to no more than 10% of the total diversion by 12/31/2010.The improvements to achieve the goal that are not concluded by 2010 must be identified and incorporated in the State approved Water System Plan for the city's capital improvement program with a completion date of no more than 2016.

ii. Large Meter Testing Program

The Quad Cities shall implement a program by December 31, 2005 to test all large meters (greater than 2-inches diameter, primarily used in commercial/industrial connections) and repair or replace all meters found to be defective. The testing and maintenance program will continue after the December 31, 2005 date on a schedule consistent with the manufacturer's recommendations.

iii. Residential Meter Repair/Replacement Program

The Quad Cities shall implement a program by December 31, 2005 to test and repair or replace all residential water meters on a schedule consistent with manufacturers' recommendations. The testing and replacement program will continue after the December 31, 2005 date on an appropriate schedule to ensure that the users meters are reasonably accurate.

iv. Residential Retrofit Program

The Quad Cities shall implement a residential retrofit program by December 31, 2004 to provide the public with low-flow shower heads, toilet tank displacement bags, leak detection tablets and other residential water conservation measures. The initial program will be completed by December 31, 2008.

v. Source Metering Replacement and Improvement

The Quad Cities shall implement a source metering replacement and improvement program by December 31, 2005 to ensure that all water sources are accurately monitored.

vi. Develop a Water Audit Program for Large Water Users

The Quad Cities shall develop and implement a water audit program for large (commercial, industrial and institutional) water users. At least 50% of the large water users will be audited by December 31, 2007 and the remainder of the audits completed by 2010. The water audit program shall continue on an ongoing repeat schedule for those large customers where the audit suggests that reasonable additional water use reduction is possible.

vii. **Develop a Joint Plan with Irrigation Districts to address Urban Area Irrigation Needs**

The Quad Cities shall pursue development of a Joint Plan with Irrigation Districts whose service areas overlap with the Quad Cities service area. The Plan shall address irrigation water supplies for landscape use (e.g., which entity supplies landscape water and Quad Cities policies on serving those areas) and landscape water demands during water-short periods when Irrigation Districts may prorate their water users. This plan will be completed by December 31, 2009.

viii. **Develop an Integrated Water Shortage and Drought Response Plan**

The Quad Cities shall develop an integrated Water Shortage and Drought Response Plan for periods when water demands exceed allowed diversions. This plan will be completed by December 31, 2007.

ix. **Develop a recommended School Education Program**

The Quad Cities will work with the school districts within the UGA for the Quad Cities to define appropriate classroom materials and assist the school districts with implementation of the program. The plan will be outlined and a recommended program be adopted for initial implementation by the cities within two years from the issuance of the permit. The implementation in the schools will be on the schedule approved by the school districts.

x. **Develop a General Public Education Program.**

The Quad Cities will develop a public education program as committed to in the Regional Water Supply Plan that will include outreach to all customers emphasizing the efficient use of both indoor and outdoor watering, consumptive use records on water bills, the promotion of water efficient devices such as low flow shower heads, and regional publications explaining conservation programs. This program shall be developed by December 31, 2005 and implemented on an on-going basis.

I. This permit herein recommended is specifically subordinate to any future permits that may be issued under applications No. S4-29956, S4-30052, R4-30102, S4-30185, S4-30465, and S4-30584.

APPENDIX B

WHOLESALE WATER SERVICE AGREEMENT FOR CITIES OF RICHLAND AND WEST RICHLAND

C08-08

WHOLESALE WATER SERVICE AGREEMENT BETWEEN CITY OF RICHLAND AND CITY OF WEST RICHLAND

THIS AGREEMENT IS ENTERED into by and between the CITY OF RICHLAND, a municipal corporation of Benton County, Washington, hereinafter referred to as "Richland" and CITY OF WEST RICHLAND, a municipal corporation of Benton County, Washington, hereinafter referred to as "West Richland", and is effective upon execution by both parties.

WHEREAS, the City of Richland and the City of West Richland are authorized to enter into interlocal cooperation agreements as set forth in Chapter 39.34 RCW, and

WHEREAS, the City of Richland, City of West Richland, City of Kennewick, and City of Pasco are co-owners of Surface Water Permit No. S4-30976, commonly known as and hereinafter referred to as the "Quad City Water Right"; and

WHEREAS, Surface Water Permit No. S4-30976 appropriates a maximum instantaneous quantity of 178 cubic feet per second with a maximum annual quantity of 96,619 acre-feet per year from the Columbia River; and

WHEREAS, in November 2005, the Cities of Richland, West Richland, Kennewick, and Pasco executed a Memorandum of Agreement for Management of Quad City Water Right and Related Programs hereinafter referred to as "MOA"; and

WHEREAS, the City of West Richland does not own or operate a water treatment facility and or intake facility on the Columbia River to utilize their portion of the Quad City Water Right as a water supply; and

WHEREAS, the City of West Richland desires to enter into an agreement for domestic water supply with Richland; and

WHEREAS, the City of Richland is willing to withdraw, treat, and pump West Richland's portion of the Quad City Water Right and deliver said domestic water to the City of West Richland; and

WHEREAS, it is proposed that a wholesale rate be established which fairly and reasonably compensates the City of Richland for the operation and maintenance costs associated with making a domestic water supply from the Columbia River available to the City of West Richland through metered delivery points on Richland's potable water distribution system as established in this agreement.

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which is acknowledged, Richland and West Richland agree to the following terms and conditions as follows:

Section 1. GENERAL TERMS AND CONDITIONS

1.1 Richland agrees to sell potable water to West Richland and West Richland agrees to purchase from Richland, according to the terms of this Agreement.

1.2 Apart from the contract right to purchase water from Richland under the terms of this Agreement, Richland has no right or claim to West Richland's water system or to any water right, West Richland's portion of the Quad City Water Right, and or claim held by West Richland. Water supplied from Richland to West Richland, up to that portion of the Quad City Water Right allocated to West Richland, shall be credited to West Richland's portion of the Quad City Water Right Permit and once certificated by Washington State Department of Ecology shall be the property of West Richland.

1.3 Apart from the contract right to purchase water from Richland under the terms of this Agreement, West Richland has no right or claim to Richland's water system or to any water right, permit, or claim held by Richland.

1.4 The existing water inter-tie agreement dated April 18th, 1994 between Richland and West Richland shall be considered null and void.

1.5 In consideration of West Richland deeding over parcel # 1-3498-103-0003-012 located in the NE ¼ of Section 34, Township 9 North, Range 28 East, W.M. Plat of Crested Hills, No. 9, Block 3, Lot 12 commonly known as 884 Rand Drive, Richland, WA. 99352 along with the associated groundwater well located on said parcel to Richland, West Richland shall have no obligation to pay a connection fee to Richland.

Section 2. TERM OF AGREEMENT.

2.1 This Agreement shall take effect upon the signature of both parties and shall remain in effect until January 1, 2051 unless earlier terminated as set forth below. This agreement may be extended upon terms mutually agreed upon by the parties.

2.2 At the expiration of the term of this Agreement or if earlier terminated as set forth below, West Richland shall have the right to continue to purchase the amount of water then purchased from Richland. Further, Richland agrees to offer to supply West Richland an amount of water equal to the amount of water supplied under this Agreement, subject to the terms and conditions to be negotiated consistent with Richland pricing policies in effect at the time.

2.3 This Agreement may be terminated earlier upon mutual agreement by the parties or upon one year written notice if:

a. Quad City Water Right becomes null and void

b. West Richland decides to no longer purchase domestic water from Richland.

c. Richland ceases to treat and distribute Columbia River water to its customers.

Section 3. DOMESTIC WATER SUPPLY AND LOCATION OF CONNECTION POINTS

3.1 From the effective date of this Agreement, Richland shall make available a peak day demand equal to that portion of the Quad City Water Right allocated to West Richland at the agreed connection point(s). Richland, at its sole discretion, may also make available any of their excess or surplus water to West Richland at the agreed connection point(s). The current connection point(s) are:

1) Duportail Drive and Keene Road – HGL = 654' (Pump Station with maximum capacity of 2,500 gpm)

2) Kennedy Road and Arena Road – HGL = 795' (Gravity Feed Connection with maximum capacity of 750 gpm)

3.1.1 The maximum capacity of the agreed connection point(s) shall be adjusted through the agreement amendments to accompany each City's Water System Plan Updates.

3.2 West Richland shall be obligated to purchase a minimum quantity of water annually under this agreement beginning in FY 2008 as specified below:

3.2.1 West Richland's initial minimum quantity of water shall be 133,333 ccf per year (approximately 100,000,000 million gallons per year).

3.2.2 The minimum quantity of water to be purchased shall be adjusted through the agreement amendments to accompany each City's Water System Plan Updates.

3.3 The Duportail Drive connection point shall be the primary connection point once constructed. The Kennedy Road connection point will serve as the connection point until completion of the Duportail connection point. After the Duportail connection point is operational the Kennedy Road connection point will serve as an emergency connection, to be used only when the Duportail connection point is out of service or when authorized by Richland

3.4 West Richland and Richland shall review their respective water demand forecasts every six years as part of the State required updates to their Water System Plans. Future increases in water supplied through this agreement shall be coordinated in each City's Water System Plan, and documented in an amendment to this agreement. If future increases in peak day demand require capital investments to increase Richland's treatment and distribution capacity West Richland and Richland agree that such capital investments shall be reflected in each Cities' Water System Plans and amendments to this agreement.

3.5 West Richland may desire, at a future date, additional connection points to Richland's water system. Richland agrees that such future connections maybe allowed and shall not be unreasonably withheld. West Richland shall be responsible for all costs to plan, engineer, permit, and construct

said additional connection point(s). Richland agrees to financially participate in future waterline extensions from Richland's existing water system to a new connection point(s) if said waterline extension can be tapped and utilized by other Richland customers. Nothing in this agreement shall obligate Richland to accept a proposed connection point that will result in Richland compromising service to its retail customers. Approval of a new connection point(s) will be subject to an amendment of this agreement between the parties prior to the time of connection.

3.6 The quantity of water delivered shall be measured by a "Master Meter" referred to in Section 5 herein.

3.7 This Agreement by Richland to make domestic water supply available to West Richland shall be subject to and limited by unavoidable accidents, acts of God, and any conditions beyond the reasonable control of Richland. West Richland agrees that Richland's existing facilities provide adequate redundancy and reliability to satisfy Richland's obligations under this agreement. Richland will treat any major interruption to the water supply to West Richland as an urgent matter and will attempt to restore or cause to be restored normal service to West Richland as expeditiously as reasonably possible. Accordingly, West Richland agrees to save and hold harmless Richland, it officers, agents, elected officials, and employees, from and against any and all liabilities, claims, actions, or damages (including costs of defense and reasonable attorney fees) by West Richland and customers thereof relating to or arising out of unavoidable accidents, acts of God, catastrophe, limitations by Richland either through contract or its own emergency, and any and all such conditions beyond the reasonable control of Richland. Any and all claims arising out of such circumstances by customers of West Richland shall be referred directly to West Richland and it shall review, adjust, and/or defend said claims at it own expense, as appropriate.

3.8 Any emergency water use restriction imposed by Richland, due to treatment plant capacity or water system capacity, shall be borne proportionately by Richland and West Richland.

Section 4. CONNECTION POINT AND ASSOCIATED PIPING

4.1 West Richland shall be responsible for and shall pay for the total cost of design and construction of the Duportail Drive / Keene Road connection point, associated piping, and pump station except that Richland shall reimburse West Richland $15 per linear foot of 24" waterline installed from the intersection of Keene Road and Duportail Drive to the City Limits of West Richland as other Richland residents or businesses may connect to this waterline in the future.

4.2 Richland, at no cost, shall grant West Richland a permit to install a 24" waterline from the intersection of Duportail Drive and Keene Road to the City Limits of West Richland along Keene Road at a mutually agreeable location.

4.3 The engineering design of the connection point, associated piping and pump station shall be subject to review and approval by Richland prior to

construction. Construction shall be subject to inspection and approval by Richland.

4.4 As discussed in paragraph 1.5 above no water facility assessment charge or any other connection charge shall be required to be paid by West Richland to Richland in connection with this agreement.

4.5 Approval of this agreement and the connection point, associated piping, and pump station shall be subject to all other local, state, federal regulations, including but not limited to any requirements imposed by the Washington State Department of Ecology and Washington State Department of Health.

4.6 Richland shall be responsible for maintaining and repairing the waterline within its City limit and up to the downstream valve of the connection point meter vault.

Section 5. MASTER METER

5.1 All water delivered by Richland to West Richland through a connection point shall be metered by a master flow meter including any necessary control functions and shall meet all specifications and approval of Richland. The master meter installation shall include telemetry equipment complying with Richland specifications for remote monitoring of the connection point. The master meter installation shall include valving as specified by Richland, including a check valve as necessary to prevent backflow.

5.2 West Richland shall be responsible for furnishing, installing, and replacing the master flow meter and valves at its own cost.

5.3 Richland shall test accuracy of the master meter every two years as part of normal maintenance. Richland shall provide West Richland with notice of the biennial test of the master meter sufficient to provide West Richland with reasonable opportunity to observe the testing process. Richland shall provide West Richland a copy of the written biennial test results within ten days following completion of such testing. Either party, at its option, may request the master meter to be tested for accuracy at any time between the biennial checks, at the requesting parties cost. In the event the master meter is not performing within the manufacture's allowable accuracy limits, the master meter shall be promptly calibrated, repaired or replaced as needed.

5.4 Richland shall be responsible for and accomplish all maintenance, normal biennial accuracy tests, calibration and repair of the master water meter and check valve, West Richland shall pay the cost thereof.

5.5 The master meter installation shall include test ports for testing of the master meter with appropriate valving and bypass around said meter to facilitate testing. Richland will provide and insert a test meter for accuracy certification of the master meter.

Section 6. WATER QUALITY

6.1. Richland shall be responsible for water quality within the Richland water system and Richland shall supply water to West Richland that meets or exceeds federal and state drinking water quality standards, as those standards may change from time to time.

6.1.1. Should state or federal water quality regulations require Richland to make improvements to its Columbia River water treatment facilities and/or distribution facilities prior to planning those improvements through a Water System Plan update Richland may initiate an amendment to this agreement to address the increased cost of delivering water to West Richland.

6.2. Richland shall share available water quality data with West Richland.

6.3. West Richland shall be responsible for compliance with all applicable Federal, State, and local water quality laws and regulations applicable to water in its distribution system including any water from supply sources that West Richland may own or operate. Water from West Richland's distribution system shall not enter Richland's water system at any time unless requested by Richland.

6.4. Water quality monitoring, sufficient to comply with all state and federal regulations, shall be performed by Richland in the Richland water system. Richland shall report the results of such monitoring to West Richland.

6.5. Each party shall prepare at its sole cost, periodic water quality notifications or Consumer Confidence Reports to its respective customers and regulatory agencies as required by law. Richland shall provide West Richland all water quality data from the previous year by March 1st regarding Richland water supply system that West Richland may be legally required to report in such notices.

Section 7. Water Rate & Billing

7.1. West Richland shall pay Richland for water delivered under this agreement at a rate of $0.63 per 100 cubic feet from that date this agreement is executed through December 31, 2014 or until amended. The water rate shall be renegotiated and adjusted in coordination with each City's Water System Plan update and the associated water demand forecast or when Richland updates its water rates via a system-wide rate study and provides West Richland with a one-year written notice that the water rate is being amended.

7.1.1. The above rate and future rates shall be based on a cost of service calculation of Richland's cost of providing West Richland's desired demand. The methodology for the current rate is documented in Appendix A of this agreement. The rate shall include:

7.1.1.1. Operations costs for treatment and distribution of treated water to Richland's distribution system; and

7.1.1.2. A fraction of maintenance and engineering costs defined by the proportion of infrastructure used to supply water to the connection points divided by the total infrastructure inventory of Richland's potable water supply system; and

7.1.1.3. A fraction of water utility administration costs defined by the proportion of water supplied to West Richland divided by the total water supplied to Richland's customers

7.1.1.4. Depreciation costs for infrastructure utilized to deliver water to the approved connection points; and

7.1.1.5. A return on Richland's debt service costs equal to Richland's cost of debt plus 1.5%

7.1.2. Richland reserves the right to introduce charges or surcharges during future rate calculations to compensate it for the impacts of peak demands from West Richland.

7.2. Richland agrees to negotiate rate amendments and future agreement renewals in a good faith. The rate that West Richland pays shall not exceed Richland's actual cost to provide the water, as determined by a cost of service calculation. Richland shall bill West Richland on a monthly basis for water supplied through the inter-tie. West Richland shall pay said bill within thirty (30) days of Richland's billing.

Section 8. Notices

8.1 Written notice shall be directed to the parties as follows:

To Richland:

City of Richland
505 Swift Boulevard, MS#26
Richland, WA. 99352
Attn: Public Works Director

To West Richland:

City of West Richland
3801 W. Van Giesen
West Richland, WA. 99353
Attn: City Clerk

Section 9. Dispute Resolutions

9.1 The parties desire to avoid and settle without litigation future disputes which may arise between them relative to this Agreement. Accordingly, the parties agree to engage in good faith negotiations to resolve any such disputes. Such negotiations shall first be conducted at the water utility staff level and if unsuccessful, may then proceed to the level of water utility management (Public Works Directors), then to the City's City

Manager, Mayor or City Administrator. Should settlement negotiations prove unsuccessful or not be resolved within ninety (90) days, either party may proceed with other legal remedies including, but not limited to litigation.

9.2 Jurisdiction and venue for any action relating to the interpretation, enforcement, or any dispute arising from this agreement shall be in Benton County Superior Court.

9.3 This Agreement shall be construed, and the legal relations between the parties hereto, shall be determined in accordance with the substantive law of the State of Washington.

9.4 The substantially prevailing party in any litigation brought to enforce rights or obligations of either party under this Agreement or any appeal of judgment in such litigation shall be entitled to its costs and reasonable attorney fees.

9.5 In no case, except for non-payment of charges for water served, shall the supply of water from Richland to West Richland as provided for in this agreement be interrupted, discontinued, or terminated because of a pending, current or proposed dispute, litigation, or negotiations.

Section 10. Liability / Hold Harmless

10.1 West Richland shall indemnify, defend, and hold harmless the City of Richland, its officers, agents and employees, from and against any and all claims, losses or liability, including attorney's fees, arising from injury or death to persons or damage to property occasioned by an act, omission or failure of the City of West Richland, its officers, agents and employees, in the performance of the Agreement. With respect to the performance of this Agreement and as to claims against Richland, its officers, agents and employees, West Richland expressly waives its immunity under Title 51 of the Revised Code of Washington, the Industrial Insurance Act, for injuries to its employees and agrees that the obligation to indemnify, defend and hold harmless provided in this paragraph extends to any claim brought by or on behalf of any employee of West Richland. This paragraph shall not apply to any damage resulting from the negligence of Richland, its agents, and employees. To the extent any of the damages referenced by this paragraph were caused by or resulted from the concurrent negligence of Richland, its agents or employees, this obligation to indemnify, defend and hold harmless is valid and enforceable only to the extent of negligence of West Richland, its officers, agents, and employees.

10.2 Richland shall indemnify, defend, and hold harmless the City of West Richland, its officers, agents and employees, from and against any and all claims, losses or liability, including attorney's fees, arising from injury or death to persons or damage to property occasioned by an act, omission or failure of the City of Richland, its officers, agents and employees, in the performance of the Agreement. With respect to the performance of this Agreement and as to claims against West Richland, its officers, agents and employees, Richland expressly waives its immunity under Title

51 of the Revised Code of Washington, the Industrial Insurance Act, for injuries to its employees and agrees that the obligation to indemnify, defend and hold harmless provided in this paragraph extends to any claim brought by or on behalf of any employee of Richland. This paragraph shall not apply to any damage resulting from the negligence of West Richland, its agents, and employees. To the extent any of the damages referenced by this paragraph were caused by or resulted from the concurrent negligence of West Richland, its agents or employees, this obligation to indemnify, defend and hold harmless is valid and enforceable only to the extent of negligence of Richland, its officers, agents, and employees.

Section 10. Waiver and Entirety

10.1 Waiver: No waiver by either party hereto of any terms or conditions of this Agreement shall be deemed or construed to be a waiver of any other term or conditions, nor shall the waiver of any breach be deemed to construed to constitute a waiver of any subsequent breach, whether of the same or any other term or condition of this Agreement.

10.2 Entirety: Except as provided in the MOA between the parties, as specifically modified herein, all prior negotiations and agreements between the parties hereto relating to the subject matter hereof are merged into and superseded by this Agreement, and shall constitute the entire final and exclusive agreement between Richland and West Richland concerning the sale of water to West Richland for the use as hereinbefore provided.

10.3 This Agreement shall be executed in two duplicate counterparts, each of which shall be deemed an original, but both of which together shall constitute one and the same instrument.

Dated this 11 day of February, 2008

City of Richland

By: _____
CYNTHIA D. JOHNSON
City Manager

Attest: _____ (Seal)
DEBRA BARHAM
Deputy City Clerk

Approved As to Form: _____
THOMAS O. LAMPSON
City Attorney

City of West Richland

By: _____
DALE E. JACKSON
Mayor

Attest: _____
JULIE RICHARDSON
City Clerk

Approved As to Form: _____
TERRY TANNER
City Attorney

APPENDIX C

SETTLEMENT AGREEMENT BETWEEN THE CITIES AND ECOLOGY/CELP

RECD BY AUG 27 2003

Pollution Control Hearing Board
Shorelines Hearings Board
Forest Practices Appeals Board
Hydraulics Appeals Board

(360) 459-6327
FAX (360) 438-7699
E-Mail: EHO@EHO.WA.GOV
INTERNET: http://www.eho.wa.gov

STATE OF WASHINGTON

ENVIRONMENTAL HEARINGS OFFICE

4224 - 6th Avenue SE, Bldg. 2, Rowe Six
P.O. Box 40903, Lacey, WA 98504-0903

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AUG 20 2003
LAW OFFICES OF
THOMAS M. PORS

August 19, 2003

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and Karen Allston
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Sarah Bendersky & Barbara Markman
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Kennewick WA 99336

Leland B. Kerr
PAINE HAMBLEN COFFIN BROOK
& MILLER LLP
7025 W Grandridge Blvd.
Suite A
Kennewick WA 99336 (for City of Pasco)

RE: PCHB NO. 02-216
CENTER FOR ENVIRONMENTAL LAW & POLICY v. ECOLOGY and CITIES OF RICHLAND, KENNEWICK, PASCO & WEST RICHLAND

Dear Parties:

Enclosed is the Stipulation, Settlement Agreement and Order of Dismissal in this matter.

The Board appreciates your efforts in reaching this settlement.

Sincerely yours,

Robert V. Jensen
Presiding

RVJ/P 02-216 ltr
Cc: Water Resources Hearing Coordinator
Enc.

CERTIFICATION
On this day, I forwarded a true and accurate copy of the documents to which this certificate is affixed via United States Postal Service postage prepaid to the attorneys of record herein. I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and cc
DATED 8-19-03 at Lacey, WA.

ORIGINAL

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AUG 11 2003
ENVIRONMENTAL
HEARINGS OFFICE

BEFORE THE POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

CENTER FOR ENVIRONMENTAL LAW & POLICY, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, and CITIES OF RICHLAND, KENNEWICK, PASCO and WEST RICHLAND, Respondents.	PCHB No. 02-216 STIPULATION, SETTLEMENT AGREEMENT AND ORDER OF DISMISSAL

The parties, Center For Environmental Law and Policy (CELP), the Washington State Department of Ecology (Ecology), and the Cities of Richland, Kennewick, Pasco and West Richland (collectively Quad-Cities), through their attorneys, Karen Allston and Shirley Nixon (for CELP), Assistant Attorneys General Barbara Markham and Sarah Bendersky (for Ecology), and Tom Pors (for the Quad-Cities) enter into the following:

STIPULATION

1. On November 19, 2002, Ecology issued a Report of Examination to the Quad-Cities approving with conditions application S4-30976 for a municipal, industrial, and commercial water right from the Columbia River.

2. On December 18, 2002, CELP appealed the Report of Examination to the Pollution Control Hearings Board.

3. To avoid the costs, time, and uncertainty associated with litigation, the parties have entered into the following SETTLEMENT AGREEMENT to fully and finally resolve CELP's appeal.

SETTLEMENT AGREEMENT

1. Within 30 days of dismissal of this case by the PCHB as contemplated by this SETTLEMENT AGREEMENT, Ecology will issue a water right permit to the Quad-Cities.[1] Except as modified by the terms of this SETTLEMENT AGREEMENT, the permit will be consistent with the terms contained in the November 19, 2002, Report of Examination. The permit will include the ROE conditions and Recommendations A through I, and the terms specified in paragraphs 2, 3, 6, 7, 8, and 11 of this SETTLEMENT AGREEMENT.

2. The permit issued to the Quad-Cities will expressly specify that any time Ecology approves the use of mitigation to offset diversion increments after the first increment (the first increment is defined as the first 10 cubic feet per second (cfs) of diverted water), Ecology shall issue an order that is subject to appeal to the Pollution Control Hearings Board or any successor body with jurisdiction to hear appeals from Ecology water right decisions.

3. The permit issued to the Quad-Cities will expressly set forth the additional conservation requirements set forth in Exhibit A to this Settlement Agreement. The permit will specify that these conservation requirements will be the minimum conservation requirements that the Quad-Cities shall meet during the entire life of the permit. If the Department of Health adopts more stringent rules relating to water conservation, the Quad-Cities will plan and implement their plans to meet or exceed the more stringent rules.

4. With respect to the Quad-Cities' diversion of the first increment (10 cfs) of water, the right to divert water will be interrupted when the specified flow conditions described in Condition E are not met, unless the following mitigation for consumptive use is in place. Table 5 in the November 19, 2002 Report of Examination identifies the two groups of

water rights Ecology currently intends to use as mitigation for the first increment of Quad-Cities' water use. The first group is listed in the first 6 columns of Table 5 under the heading "Department of Ecology Trust Water Rights" (hereafter referred to as "the Buckley trust water rights"). The second group is listed in the second half of the table and labeled as the Grandview Farm Water Rights (hereafter referred to as "the Simplot water"). To make the Buckley trust water rights eligible to be considered as mitigation for the Quad-Cities' water right, Ecology will change the purpose and place of use of the Buckley water rights so that the purpose of use includes "mitigation for municipal use" and so that the place of use includes "the McNary Pool of the Columbia River". To make the Simplot water eligible to be considered as mitigation for the Quad-Cities' water right, Ecology will complete the steps necessary to put the Simplot water into trust with the purpose of use designated as "mitigation for municipal use" and the place of use designated as "the McNary Pool of the Columbia River." If Ecology is unable to complete the acquisition of the Simplot water, Ecology must acquire and put into trust other water rights from the McNary Pool of an equivalent quantity as the Simplot water. The intent of this paragraph is that trust water rights used for mitigation shall be from the McNary Pool and of equivalent quantity and period of use as shown in Table 5 of the ROE.

5. CELP believes that water already placed in trust should not subsequently serve as mitigation for later appropriations. CELP does not believe that the Buckley trust water rights constitute sufficient mitigation to offset the Quad-Cities' diversion of water from the Columbia River. In the interests of settlement, however, and so long as the trust water right certificates are amended as described in the preceding paragraph, above, CELP is accepting the use of these rights as mitigation for a portion of the first 10 cfs of the Quad-Cities' diversion. The Parties agree that they will not cite the use of this mitigation, or the fact of entry into this SETTLEMENT AGREEMENT, for legal or policy precedent for future mitigation efforts.

6. To determine the amount of perpetual mitigation for the first increment of water use, Ecology has used an 80 percent consumptive use estimate. *I.e.*, Ecology has assumed that for the first 10 cfs of diverted water, there will be a consumptive use of 8 cfs. Concurrent with the times that the Quad Cities submit each successive Regional Water Forecast and Conservation Plan (RWFCP) Ecology will reevaluate this 80 percent consumptive use estimate based on then-current metering and other data showing actual water returned to the system, and will assure that the appropriate amount of water-for-water mitigation is in place. If consumptive use increases above 80%, in order to keep the diversion for the first 10 cfs not subject to interruption, Ecology will transfer into trust additional water rights from the McNary Pool to offset the additional consumptive use.

7. Any future proposed mitigation plans submitted by the Quad-Cities for review by Ecology shall be governed by the following terms:

a. Mitigation for appropriations beyond the first ten cfs will be according to the following "fifty percent or more/fifty percent or less" formula: fifty percent or more of water consumptively used by the Quad Cities during times when flows established in Condition E are not met will be mitigated by flow replacement using water upstream of the McNary Dam in the Columbia River system; the balance of the mitigation will be accounted for by fish habitat improvements that benefit Columbia River system fish at least to the same extent as would replacement water.

b. For any habitat project mitigation proposed by the Quad-Cities under this provision, the Quad-Cities will demonstrate based upon best available science and other applicable legal requirements that the proposed mitigation will benefit Columbia River system fish at least to the same extent as would replacement water.

c. In determining whether any habitat project mitigation proposed under this provision is acceptable, Ecology will consult with and give a high degree of deference to the Washington State Department of Fish and Wildlife, the Confederated Tribes and

Bands of the Yakama Nation, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

d. *Reopener.* During the life of the Quad-Cities' permit, any party hereto may request that the other parties accept a mitigation formula using a percentage different than the fifty or more-fifty or less percentages specified in paragraph 7a. Any agreement among the parties to revise these percentages shall be documented through a written amendment to this agreement signed by all of the parties.

8. The permit issued to the Quad-Cities will expressly specify that 10 cfs of the Quad-Cities' water right is allocated from the John Day/McNary Pools reservation for municipal water use pursuant to WAC 173-531A-050. Ecology will reduce the amount of water available from the municipal reservation established under WAC ch. 173-531A to reflect this allocation to the Quad-Cities.

9. Thirty-one days after: (a) the permit is issued, provided there are no appeals, or (b) after all appeals are finally terminated, Quad-Cities has the affirmative obligation to:

a. Withdraw all pending applications for new water rights except for certain groundwater applications that are for supplemental rights for alternate places of withdrawal. A list of all pending applications to be withdrawn pursuant to this section is attached to this agreement as Exhibit B. The City of Richland shall request to Ecology in writing that Applications G4-30990, G4-30981 and G4-30980 be issued as supplemental to the annual quantity of the Quad-Cities' permit S4-30976. The City of West Richland shall request to Ecology in writing that Applications G4-32304 and G4-32395 be issued as supplemental to the annual quantity of the Quad-Cities' permit S4-30976.

b. Abandon or voluntarily relinquish all water rights that the Quad-Cities are not currently using. A list of all water rights (represented by claims, certificates, or permits) to be abandoned or voluntarily relinquished pursuant to this section is attached to this agreement as Exhibit C.

10. Ecology considers the top three paragraphs at the top of page 11 of the November 19, 2002, Report of Examination stricken from the ROE. The permit will include no reference to the top three paragraphs at the top of page 11 of the Report of Examination or the content therein, and Ecology agrees that the language and content therein has no precedential effect.

11. The non-interruptibility of water use beyond the first 10 cfs requires that the Quad Cities submit a mitigation plan to Ecology for approval. Unless extraordinary circumstances exist, when the Quad-Cities proposes a mitigation plan for future diversion increments under their water right, the Quad-Cities will submit their plan at least one year before the Quad-Cities needs a final decision from Ecology. Ecology will use this one year period for public notice, consultation, and to accomplish any necessary water right trust transfers. For purposes of this section "extraordinary circumstances" is defined only as factual circumstances that establish the need for an Ecology response time of less than one year. In no case will Ecology shorten its review and decision time so as to preclude Ecology from fulfilling its public notice and consultation obligations.

12. Ecology will provide input and actively participate in the Department of Health's statewide rulemaking efforts required by the Laws of 2003, E2SHB 1338, Section 7, addressing (a) conservation requirements, (b) needs assessments and (c) needs projections for water systems plans.

13. By April 30, 2004, Ecology will complete its development of a guidance document describing how and when it will perform a "maximum net benefits analysis" in the context of water resource rulemaking. In developing this guidance document Ecology will

seek input from CELP and other interested parties. At a minimum, Ecology agrees to meet with representatives from CELP every other month between September 2003 and April 2004 to review, discuss, and consider CELP proposals regarding the scope and content of this guidance document.

14. Ecology will not file a CR 102 containing draft rule language pertaining to the rulemaking for the Columbia River pursuant to the Columbia River Regional Initiative until after Ecology receives a final report and recommendations from the National Academy of Sciences (NAS) panel.

15. Subject to the limitations contained in this section, Ecology will not process any applications for new water rights permits from the Columbia River during the pendency of the Columbia River Regional Initiative process and before the date that rules related to that process become effective, or until January 1, 2005, whichever date is earlier. Ecology will abide by this suspension to the extent it is authorized to do so by law. Ecology will process applications during the suspension only: (a) if a court orders it to process an application, or (b) if an application is for a nonconsumptive use that would substantially enhance or protect the quality of the natural environment, or (c) if the agency must process an application to address a public health and safety emergency. The Quad-Cities agree not to sue or otherwise seek court orders compelling Ecology to process any pending application for a new water right from the Columbia River during the time frame set forth in this paragraph.

16. CELP agrees not to appeal, or assist anyone else in an appeal, of the permit issued pursuant to this SETTLEMENT AGREEMENT or any modification to the purpose or place of use of the Buckley trust rights, except that the permit issued may be appealed if its terms varies from the terms of this SETTLEMENT AGREEMENT. CELP and the Quad-Cities reserve the right to appeal any other future appealable orders of Ecology, including those described in paragraph 2 of this SETTLEMENT AGREEMENT.

17. Based upon the terms of this SETTLEMENT AGREEMENT, the parties jointly request that the PCHB enter the following order dismissing this case with prejudice.

CHRISTINE O. GREGOIRE
Attorneys for Department of Ecology

Dated: 8/7/03

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(360) 586-6749

Dated: 8/7/03

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CENTER FOR ENVIRONMENTAL LAW & POLICY

Dated: 8/8/03

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Dated: 8/8/03

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CITY OF KENNEWICK

Dated: 7-30-03

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CITY OF WEST RICHLAND

Dated: 7-29-03

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CITY OF RICHLAND

Dated: 8/6/03

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CITIES OF RICHLAND, KENNEWICK, PASCO AND WEST RICHLAND

Dated: 8/6/03

THOMAS M. PORS, WSBA #1778
LAW OFFICE OF THOMAS M PORS
(206) 340-4396

CITY OF PASCO

Dated: 7/29/03

LELAND B. KERR, WSBA #6059
PAINE, HAMBLEN COFFIN
BROOKE & MILLER LLP
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I. ORDER OF DISMISSAL

This matter having come before the Pollution Control Hearings Board upon the joint motion of the parties and based upon the SETTLEMENT AGREEMENT, and the Board having reviewed the SETTLEMENT AGREEMENT and the records and files herein, and having determined that the parties have agreed to a full and complete settlement of this appeal, now, therefore,

IT IS ORDERED that:

1. The appeal of *CELP v. Ecology and the Cities of Richland, Kennewick, Pasco and West Richland*, PCHB No. 02-216 is dismissed with prejudice;

2. Each party is to bear its own costs and fees.

Dated this 19th day of August, 2003.

POLLUTION CONTROL HEARINGS BOARD

ROBERT V. JENSEN, Presiding

KALEEN COTTINGHAM, Member

WILLIAM H. LYNCH, Member

Presented by:

CHRISTINE O. GREGOIRE
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H. To access water beyond the initial 10 cfs, the Quad Cities shall submit an updated RWFCP to the Department of Health and the Department of Ecology on a six-year schedule consistent with the schedule for review of water right quantities. The Quad Cities shall coordinate the preparation and completion of their individual water system plans and related supply, demand, and conservation programs. Prior to completion of the plans, the RWFCP will be completed jointly by the Quad Cities to compare demand to available supply and to evaluate the conservation achieved and the conservation projected resulting from implementation of the program described in section 6. The Quad Cities may submit the RWFCP for access to additional water, under the same process described in this condition, prior to any six-year interval if demand forecasts or other circumstances warrant earlier review. The full quantities of water recommended for a permit in this report may be appropriated in six-year increments associated with submittal of the RWFCP, and only when the applicable minimum instream flow is equaled or exceeded, or when the consumptive water use associated with appropriations under this permit is mitigated. Ecology will review the demand estimates, the water conservation elements of the plan, return flows estimates, and other relevant information contained in the plan that comprises the mitigation or flow replacement proposal. Following public comment, Ecology would approve, conditionally approve, or deny the proposed mitigation plan through an Order. If the Order denies the proposed mitigation or flow replacement proposal, then the appropriation for that 6-year increment would be subject to interruption when the flow objectives in this permit are not met, as described in Condition E.

1. The non-interruptibility of water use beyond the first 10 cfs requires that the Quad Cities submit a mitigation plan to Ecology for approval. Unless extraordinary circumstances exist, when the Quad Cities propose a a mitigation plan for future diversion increments under their water right, the Quad Cities will submit their plan at least one year before the Quad Cities need a final decision from Ecology. Ecology will use this one year period for public notice, consultation, and to accomplish any necessary water right trust transfers. For purposes of this section "extraordinary circumstances" is defined only as factual circumstances that establish the need for an Ecology response time of less than one year. In no case will Ecology shorten its review and decision time so as to preclude Ecology from fulfilling its public notice and consultation obligations. The mitigation required for withdrawals of water in the succeeding six-year periods shall be proposed by the Quad Cities in their six-year RWFCPs for approval by the Department of Ecology.

2. Upon issuance of an Order by Ecology approving in conformance with Recommendation E of this permit one or more trust water rights or approving another replacement water program or a mitigation program proposed by the permittee to offset the full projected consumptive use during periods when flow objectives are not met, the six-year appropriation will not be conditioned as interruptible.

3. The maximum quantity of withdrawals of water requiring mitigation during the succeeding six-year periods will be presented in the RWFCPs and determined by subtracting estimated return flow from the maximum diversion amount. Return flow calculations shall be based on best available science and shall reflect seasonal conditions. During the course of that six-year period, actual quantities to be mitigated will depend on daily recording and monthly reporting of actual

water use under this permit, return flow estimates corresponding to the season of water use, and whether or not the then current flow objectives are achieved during that period.

4. Each RWFCP shall include a Conservation Program demonstrating how the best available and reasonable conservation technology will be implemented in the subsequent six-year period. The Conservation Program shall meet, as a minimum, current (as of date prepared) Department of Health requirements as well as the conservation conditions described below. In addition, the RWFCP with its Conservation Program shall be submitted to the Department of Ecology for review and approval consistent with the six-year schedule for reviewing water rights. The RWFCP shall propose and implement water conservation activities in the following areas: reducing leakage and unaccounted for water from the municipal water supply system; and monitoring, accounting for (separately) and reducing commercial, industrial, residential (indoor) and landscape water use. The Conservation Program shall include a detailed profile of current water use characteristics for each conservation category defined above including their total annual demand, average demand, unit demand and peak demand. Compliance with the Conservation Program for each six year period shall be a condition of the permit.

5. The Quad Cities RWFCP shall comply with Department of Health rules (*Conservation Planning Requirements, Washington State Department of Health PUB 331-008, March 1994*) which currently require that these plans contain, as a minimum:

   - *Water Use Data Collection Requirements.* Systems must report the best currently available data on water use for the categories of use, which are identified by the department.
   - *Water Demand Forecast.* A complete forecast, including an estimate of reduction of water use from implementation of water conservation measures, must be developed.
   - *Conservation Program.* A Conservation Program must be developed and implemented. The Conservation Program elements must include: Conservation Objectives; Evaluation of Conservation Measures; and Identification of Selected Conservation Activities.

   If the Department of Health adopts more stringent rules relating to water conservation, the Quads Cities will plan and implement their plans to meet or exceed the more stringent rules.

6. In addition to the general water conservation requirements described above, the following Conservation Program activities are required as conditions of this permit. The Quad Cities will initiate development of the following programs within one year after issuance of the permit and will adopt them for implementation within two years of the date of permit issuance.

   For the purposes of the following conservation program elements, the term "implement" means obtaining and expending funding for capital facilities and operational staff, program assessment, and monitoring and reporting associated

with each program element in a manner and on a schedule to achieve, and once achieved to maintain, the stated goal or target.

i. **Leak Detection Program**

The Quad Cities shall implement a program to reduce leakage and unaccounted for water for each water supply system within the Quad Cities area. Leakage and unaccounted for water includes water loss due to leaking water mains and smaller distribution lines and inefficient fixtures, including inaccurate metering. Unaccounted for or unmetered water consumption also includes uses such as street sweeping, contractors, flushing hydrants, dust control, and erosion control by the Cities, County and private parties. The goal of the program is to reduce unaccounted for water to no more than 10% of the total diversion by 12/31/2010.The improvements to achieve the goal that are not concluded by 2010 must be identified and incorporated in the State approved Water System Plan for the city's capital improvement program with a completion date of no more than 2016.

ii. **Large Meter Testing Program**

The Quad Cities shall implement a program by December 31, 2005 to test all large meters (greater than 2-inches diameter, primarily used in commercial/industrial connections) and repair or replace all meters found to be defective. The testing and maintenance program will continue after the December 31,2005 date on a schedule consistent with the manufacturers recommendations.

iii. **Residential Meter Repair/Replacement Program**

The Quad Cities shall implement a program by December 31, 2005 to test and repair or replace all residential water meters on a schedule consistent with manufacturers' recommendations. The testing and replacement program will continue after the December 31,2005 date on an appropriate schedule to ensure that the users meters are reasonably accurate.

iv. **Residential Retrofit Program**

The Quad Cities shall implement a residential retrofit program by December 31, 2004 to provide the public with low-flow shower heads, toilet tank displacement bags, leak detection tablets and other residential water conservation measures. The initial program will be completed by December 31, 2008.

v. **Source Metering Replacement and Improvement**

The Quad Cities shall implement a source metering replacement and improvement program by December 31, 2005 to ensure that all water sources are accurately monitored.

vi. **Develop a Water Audit Program for Large Water Users**

The Quad Cities shall develop and implement a water audit program for large (commercial, industrial and institutional) water users. At least 50% of the large water users will be audited by December 31, 2007 and the remainder of the audits completed by 2010. The water audit program shall continue on an ongoing repeat schedule for those large customers where the audit suggests that reasonable additional water use reduction is possible.

vii. **Develop a Joint Plan with Irrigation Districts to address Urban Area Irrigation Needs**

The Quad Cities shall pursue development of a Joint Plan with Irrigation Districts whose service areas overlap with the Quad Cities service area. The Plan shall address irrigation water supplies for landscape use (e.g., which entity supplies landscape water and Quad Cities policies on serving those areas) and landscape water demands during water-short periods when Irrigation Districts may prorate their water users. This plan will be completed by December 31, 2009.

viii. **Develop an Integrated Water Shortage and Drought Response Plan**

The Quad Cities shall develop an integrated Water Shortage and Drought Response Plan for periods when water demands exceed allowed diversions. This plan will be completed by December 31, 2007.

ix. **Develop a recommended School Education Program**

The Quad Cities will work with the school districts within the UGA for the Quad Cities to define appropriate classroom materials and assist the school districts with implementation of the program. The plan will be outlined and a recommended program be adopted for initial implementation by the cities within two years from the issuance of the permit. The implementation in the schools will be on the schedule approved by the school districts.

x. **Develop a General Public Education Program.**

The Quad Cities will develop a public education program as committed to in the Regional Water Supply Plan that will include outreach to all customers emphasizing the efficient use of both indoor and outdoor watering, consumptive use records on water bills, the promotion of water efficient devices such as low flow shower heads, and regional publications explaining conservation programs. This program shall be developed by December 31, 2005 and implemented on an on-going basis.

Quad Cities
Water Rights for Settlement
Exhibit B - Pending Applications to be Withdrawn

Water Right Number	Instantaneous Quantity (gpm)	Annual Quantity (Acre-Feet)	Source	Priority
Applications to be Withdrawn				
Pasco				
G3-29957	2,500	4,032	Wellfield	April 16, 1996
S3-29979	7,181	6,400	Columbia River	August 6, 1996
Richland				
G4-30262	250		Well	May 24, 1990
S4-30185	5,660	2,042	Columbia River	November 22, 1989

Quad Cities
Water Rights for Settlement
Exhibit C - Water Rights and Claims to be Voluntarily Relinquished

Water Right Number	Instantaneous Quantity (gpm)	Annual Quantity (Acre-Feet)	Source	Priority
Kennewick				
Water Right Claim No. 301518	44,800	6,000	Columbia River	July 1906
Richland				
Claim 063206	500	80	Well D-15	May-44
Certificate 5532	2,000	3,200	Well	March 21, 1960
Certificate 6134	1,200	1,920	Well	December 18, 1961

APPENDIX D

QWCR PERMIT BIOP COMPLIANCE PROCEDURE

Quad Cities Water Right Permit (S4-30976)
BiOp Compliance Procedure – Current Operating Year

The following is a description of the data sources and analysis conducted to confirm compliance with the in-stream flow restrictions included in the Quad-Cities Permit. This procedure applies to a review of operations and diversions during a year in which mitigation requirements are expected to approach the limits of available mitigation.

This procedure is based on a quarterly evaluation of river conditions and diversion operations.

1. No later than 30 days after the close of each quarter (i.e. April 30, July 31, October 31) obtain Columbia River diversion data for each of the four cities. The data source is each Cities source data used to complete the annual water diversion reports submitted to the Department of Ecology.
   a. Data is available for monthly total diversions. This data is entered into a spreadsheet using Acre-Feet as the unit of measure. An average daily diversion amount is calculated for each City and summarized for the combined Quad-Cities.
2. No later than 30 days after the close of each quarter (same dates as in #1 above) obtain estimated Columbia River diversion data for each of the four cities for the upcoming six months, or until the end of the year, whichever is nearer in time.
3. Obtain Columbia River return flow data for each of the four cities. As of 2010 return flows included in the analysis are wastewater treatment plant flows discharged to the Columbia River, Water Treatment Plant backwash flows discharged directly to the Columbia River or the shallow local groundwater acquifer within one mile of the Columbia River, and artificial recharge operations discharged to the shallow local groundwater acquifer within one mile of the Columbia River. Septic tank return flows and landscape irrigation return flows are acknowledged contributions to return flows, but at present are left unquantified.
   a. Data is available for monthly total return flows. This data is entered into a spreadsheet using Acre-Feet as the unit of measure. An average daily return flow is calculated for each City and summarized for the combined Quad-Cities.
4. Obtain the projected Columbia River return flow for each of the four cities for the upcoming six months, or until the end of the year, whichever is nearer in time.
5. Calculate a daily average net diversion for each month, both past and projected for the upcoming six months, as (daily average Columbia River diversion (#1 for past, #2 for future) – daily average return flow (#3 for past, #4 for future)).

6. Obtain Columbia River in-stream water supply forecast from the National Weather Service Northwest River Forecast Center (http://www.nwrfc.noaa.gov/).
   a. The early March final forecast for April – September runoff past the Dalles is used to select flow targets referenced in the Quad-Cities Permit for the first quarter's analysis.
   b. Updated forecasts will be used for subsequent quarters to correct the evaluation for changes in forecasted runoff.
7. Construct the daily in-stream flow requirements from the Quad-Cities permit, Condition E, based on the forecasted Columbia River flows from #3 above. Note that the in-stream flow requirements include flow measurements from both Bonneville and McNary dams.
8. Construct actual daily in-stream flow data as specified in the Quad-Cities permit, Condition E.
   a. January 1 – April 9 – Bonneville Dam flow. Data available from U.S. Army Corps of Engineers web site - http://www.nwd-wc.usace.army.mil/perl/dataquery.pl?k=bonneville+dam+outflow
   b. April 10 – October 31 – McNary Dam flow. Data available from U. S. Army Corps of Engineers web site - http://www.nwd-wc.usace.army.mil/perl/dataquery.pl?k=McNary+Dam+outflow
   c. November 1 – December 31 – Bonneville Dam flow. Data available from same source as "5.a" above.
9. Determine for each calendar day in the past quarter if actual in-stream flows (#8) equal or exceed required in-stream flows (#7). Summarize the number of days in each calendar month when actual in-stream flow (#8) was less than the required in-stream flow (#7). These are the days requiring mitigation for Quad-Cities diversion.
10. Calculate a required mitigation volume for each past month as (average daily net diversion (#5) x number of days requiring mitigation (#9)).
11. Compare each past month's required mitigation volume against available mitigation volume.
    a. If available mitigation volume is equal to or greater than required mitigation volume the Quad-Cities diversions were in compliance with Permit requirements
    b. If available mitigation volume is less than required mitigation volume the Quad-Cities diversions were not in compliance with the Permit requirements.
12. Using the 2001 drought year tally of in-stream flow BiOp compliance identify the number of days for each future month requiring mitigation. Calculate the projected required mitigation volume for each future month as (average projected net diversion (#5) x number of days requiring mitigation (2001 BiOp data)).
13. Compare each future month's required mitigation volume against available mitigation volume.

a. If available mitigation volume is equal to or greater than required mitigation volume the Quad-Cities diversions are projected to be in compliance with Permit requirements and operations may proceed as planned.
b. If available mitigation volume is less than required mitigation volume the Quad-Cities diversions are projected to not comply with the Permit requirements. The Cities should develop an adjusted operational plan for the future months and/or consult with Ecology staff to obtain temporary relief from the permit requirements.

APPENDIX E

MEMORANDUM OF AGREEMENT BETWEEN THE CITIES AND ECOLOGY

DEPT OF ECOLOGY
Received
DEC 1 6 2011
CENTRAL REGION OFFICE

Quad Cities and the Office of Columbia River

Memorandum of Agreement (MOA): Securing New Water Supplies for the City of Kennewick, City of Pasco, City of Richland, and City of West Richland

Summary

1. Purpose
    a. Coordinate Water Supply Development Projects
    b. Resolve remaining uncertainty in the 2003 Settlement Agreement
2. Buckley Season of Use Transfer
    a. Upon written request of the Quad Cities, Ecology will modify the rights to restore the historic season of use
3. Agreement on Trust Water Holdings for Mitigation of First 10 cfs under S4-30976
    a. The Parties agree that Ecology's obligation is to mitigate total 8 cfs and 5,781.6 acre-feet.
    b. The Parties agree the appropriate amount of mitigation for the first increment of growth is 6 cfs and 4,336.2 acre-feet (60% consumptive use).
    c. The remaining 2 cfs and 1,445.4 acre-feet are available to the Quad Cities as mitigation for the future increments of growth.
    d. Responsibility for costs are divided between Ecology (6 cfs portion) and Quad Cities (2 cfs portion).
4. Fulfillment of Ecology's obligation to provide 8 cfs and 5,781.6 acre-feet.
    a. The difference between Ecology's Buckley and Byerly trust water holdings and the 8 cfs and 5,781.6 acre-feet described above, is 1 cfs and 4,014.37 acre-feet.
    b. Ecology agrees to make 13.25 cfs and 4,014.37 acre-feet available from Lake Roosevelt Project to fulfill its mitigation obligations.
    c. The Parties agree that the Lake Roosevelt water provides equivalent benefit to the McNary Pool per the 2003 Settlement Agreement
5. Filing of New Applications
    a. City-specific applications may be filed that address specific projects.
    b. Coordinated application shall be filed for regional growth needs. OCR may issue new rights as mitigation for S4-30976, or in substitution of S4-30976 if preferred by Quad Cities.
6. OCR and Quads will coordinate on future water supply projects to meet growth.
7. Pasco and West Richland pre-settlement "holes" are resolved.

Quad Cities and the Office of Columbia River

Memorandum of Agreement (MOA): Securing New Water Supplies for the City of Kennewick, City of Pasco, City of Richland, and City of West Richland

Parties: The undersigned Parties, the City of Kennewick, City of Pasco, City of Richland, and City of West Richland (Quad Cities) and the Washington State Department of Ecology (Ecology), acting through the Office of Columbia River (OCR), jointly support this Memorandum of Agreement (2011 Quads MOA).

Purpose: The undersigned Parties are committed to the following objectives:

1. Coordinate on water supply development projects that will assist the Quad Cities in meeting the mitigation requirements of Water Right Permit S4-30976P, or provide alternate, equivalent means of serving the projected growth for the Quad Cities.
2. Reach a common understanding of issues of uncertainty contained in the 2003 Stipulation, Settlement Agreement and Order of Dismissal of PCHB Appeal No. 02-216 (2003 Settlement Agreement), relating to Water Right Permit S4-30976P.

Recitals:

- Whereas OCR has a statutory mandate to pursue developing water supplies to meet pending municipal needs and develop sources of supply for interruptible water users on the Columbia River;

- Whereas Water Right Permit S4-30976P is subject to interruption associated with minimum instream flow requirements on the Columbia River.
- Whereas both Ecology and the Quad Cities are parties to the 2003 Settlement Agreement[1];
- Whereas Ecology and the City of Kennewick are partnering on an Aquifer Storage and Recovery (ASR) project, subject to a 2008 Memorandum of Understanding (2008 Kennewick MOU).
- Whereas Ecology and the City of Pasco are partnering on a water supply project, subject to a 2011 Memorandum of Understanding (2011 Pasco MOU).
- Whereas there is a need to coordinate future water supply development projects consistent with the terms of Water Right Permit S4-30976P.

Now, therefore, the Parties acknowledge and agree to the following:

1. **Buckley and Byerly Water Right Trust Transfers:** In partial fulfillment of obligations of the 2003 Settlement Agreement, Ecology acquired and placed water rights into the State Trust Program (RCW 90.42), termed the "Buckley" and "Byerly" water rights. Collectively, these water rights total 7 cfs and 1,767.23 acre-feet. A summary of the Buckley and Byerly water rights held in trust under the 2003 Settlement Agreement is provided in Appendix A.

   The 2003 Settlement Agreement (Page 3) states in part that "*the intent . . . is*

[1] The Center for Environmental Law and Policy (CELP) is also a party to the 2003 Settlement Agreement. CELP is not a party to this MOA and is unaffected by its terms and conditions.

that trust water rights used for mitigation shall be from McNary Pool and of equivalent quantity and period as shown in Table 5 of the ROE" (referring to Table 5 of the Report of Examination, or ROE, for Permit S4-30976P). The referenced table identified the historic Buckley season of use as year-round, with water right specific quantities for each season (i.e., summer, fall and winter/spring). However, Ecology's 2002 ROE for the Buckley water rights altered the season of use inconsistent with Table 5 in response to comments from the Washington Department of Fish and Wildlife.

Under RCW 90.42.040, Ecology may modify a trust water certificate providing it does not impair existing water rights. Upon written request of the Quad Cities, Ecology will process a modification to the subject rights to return the season of use consistent with the historic exercise thereof, and with the terms and conditions of Table 5 of the ROE for Permit S4-30976P. While Ecology cannot prejudge this decision, a return to the historic season of use is not expected to impair existing water rights. In the event that Ecology's impairment analysis introduces constraints to the Quad-Cities' requested trust water certificate modifications other than a return to the historic season of use, Ecology shall 1) consult with the Quad-Cities to set the modified certificate to the Quad Cities' maximum benefit; and 2) consult with the Fish Flow Advisory Group to determine whether the available Lake Roosevelt mitigation can be used to offset such constraints.

2. **<u>Trust Water Mitigation for the First 10 cfs of Diversions Under S4-30976P:</u>** The 2003 Settlement Agreement contains several statements that are unclear as to Ecology's obligation to hold trust water rights as mitigation for diversions under the first 10 cfs of Permit S4-30976P.

First, the 2003 Settlement Agreement (Page 4) states: "*To determine the amount of perpetual mitigation for the first increment of water use, Ecology has used an 80 percent consumptive use estimate". Permit S4-30976P identifies the first increment of water use as 10 cfs and 7,227 acre-feet. 80 percent of the first increment is 8 cfs and 5,781.6 acre-feet.*.

Second, the 2003 Settlement Agreement (Page 3) references Table 5 of the ROE for Permit S4-30976P as "*the two groups of water rights Ecology intends to use as mitigation for the first increment of Quad Cities' water use*". Table 5 identified diversions for a suite of water rights (Buckley and Simplot) ranging from 11 cfs to 20.8 cfs and totaling 6,476.7 acre-feet.

Third, the 2003 Settlement Agreement (Page 4) stated that concurrent with each 6-year Quad Cities planning update, Ecology "*will assure that the appropriate amount of water-for-water mitigation is in place*". In 2008, the Quad Cities completed its 2008 Regional Water Forecast and Conservation Plan Update, which identified an annual consumptive use percentage of 48%, significantly less than the 80% assumption. The "appropriate amount of

water-for-water mitigation" based on 48% consumptive use to offset the first increment under Permit S4-30976P would be 4.8 cfs and 3,469 acre-feet.

The Parties agree that Ecology's obligations to mitigate for the first increment of water use total 8 cfs and 5,781.6 acre-feet. The Parties further agree that, while consumptive use must be calculated during each 6-year planning effort, and while consumptive use may vary from year-to-year, that the 80% consumptive use assumption for the first 10 cfs is likely to be significantly higher than the Quad Cities' actual consumptive use, even during drought years.

The Parties desire to maximize the trust water holdings for the benefit of the Quad Cities municipal uses. The trust water holdings will be maximized if 1) sufficient trust water holdings are maintained to offset consumptive uses in the first increment across a range of potential water years; and 2) if trust water holdings surplus to that objective, but within the 8 cfs and 5,781.6 acre-feet held for such purpose, are made available to the Quad Cities as mitigation to offset future increments of growth. To that end, the Parties agree "that the appropriate amount of water-for-water mitigation" for the first increment of growth is 6 cfs and 4,336.2 acre-feet (60% consumptive use). The remaining 2 cfs and 1,445.4 acre-feet are available to the Quad Cities as mitigation for the future increments of growth.

The Parties agree that Ecology is responsible for developing the 8 cfs and 5,781.6 acre-feet of water for the first increment. The Parties agree that Ecology is responsible for costs associated with the 6 cfs and 4,336.2 acre-feet of water for the first increment. The Parties agree that Quad Cities is responsible for costs associated with the 2 cfs and 1,445.2 acre-feet of water beyond the first increment. However, in the event that consumptive use in the future increases above 60%, Ecology agrees to assume responsibility for costs associated with that quantity. The Parties further agree that in the event that a future planning document estimates consumptive use above 60%, the Parties will meet and negotiate how such data will affect future increments of growth for which mitigation has already been secured. The Parties further agree that in the event that a future planning document estimates consumptive use at a percentage less than the percentage used to acquire mitigation that the Parties will negotiate a new and expanded permitted diversion amount commensurate with the lower consumptive use percentage.

3. **Simplot, Byerly and Lake Roosevelt Trust Water Rights:** When the ROE for Permit S4-30976P issued, Table 5 contained a summary of six water rights Ecology was negotiating with Mr. Buckley to acquire and three water rights that Ecology was negotiating to acquire from the Simplot Corporation. The Buckley water rights were secured, totaling 1,536.58 acre-feet. However, negotiations between Simplot and Ecology broke down and those rights were

not acquired.

Since that time, Ecology has acquired two water rights termed the "Byerly" water rights, totaling 230.65 acre-feet, bringing Ecology's trust water holdings to 7 cfs and 1,767.23 acre-feet. The difference between Ecology's Buckley and Byerly trust water holdings and the 8 cfs and 5,781.6 acre-feet described in Section 2 above, is 1 cfs and 4,014.37 acre-feet.

OCR is beginning a permitting effort for water made available through its Lake Roosevelt Incremental Storage Release Projects. Ecology holds 25,000 acre-feet of water in trust for municipal, domestic, and industrial purposes. Mitigation water is available from this project from April to August. Ecology agrees to make 13.25 cfs and 4,014.37 acre-feet available to fulfill its mitigation obligations under the Quad Cities permit. These quantities are shown in Appendix B. While permits issued based on the mitigation provided by the Lake Roosevelt project are permanent, the mitigation supply is not; Ecology must replace its 25,000 acre-feet of trust water holdings in the future with another supply source. In that event, Ecology will notify Quad Cities of opportunities to participate in the permitting and environmental review for such decisions. The Parties agree to amend Section 3 and Appendix B of this MOA at that time to reflect the change in mitigation source, and potentially the timing of availability; however, the quantities agreed to herein

are expected to remain unchanged.

4. **McNary Pool Defined:** The 2003 Settlement Agreement (Page 3) states that the Buckley water rights and Simplot water rights (if acquired) place of use were to be modified to "the McNary Pool of the Columbia River". Further, if the Simplot rights were not acquired, then "other water rights from the McNary Pool" were to be acquired and put into trust. The Buckley and Byerly rights acquired to-date (and Simplot water not acquired) were originally diverted from the Walla Walla River, in a location such that the trust water benefit to McNary Pool accrued on the order of days later. The Parties agree that the Lake Roosevelt water described above provides equivalent benefit to the McNary Pool as contemplated in the 2003 Settlement Agreement. Lake Roosevelt authorizations used for Quad Cities mitigation will reflect delivery of water to the McNary Pool of the Columbia River from approximately River Mile 292 to River Mile 346.

5. **New Water Right Applications:** Section 9 (Page 5) of the 2003 Settlement Agreement required the Quad Cities to "*withdraw all pending applications for new water rights except for certain groundwater applications that are for supplemental rights for alternate places of withdrawal*". However, since execution of the 2003 Settlement Agreement, the legislature passed RCW 90.90 and formed the Office of Columbia River, which created water supply development and permitting options not originally contemplated by the

Parties.

Under this 2011 Quads MOA, the Parties agree on the following framework for the submittal of new water right applications:

a. **Project-Specific Applications:** Any individual city may file:

   i. A project-specific water right application associated with a joint City-OCR water supply development partnership. An example of a project of this nature is the City of Kennewick – OCR Aquifer Storage and Recovery project, for which a reservoir application has been filed and a preliminary permit issued. In the event that new water supply is made available from such a project, such quantity in acre-feet shall be allocated in the same manner as for Non-Project-Specific Applications below.

   ii. A new water right application for additional instantaneous capacity only (no additive annual allocation) without affecting annual allocations amongst the Quad Cities.

b. **Non-Project-Specific Applications:** Unless partnering with OCR on specific projects or filing for source redundancy applications in Section 5a above, the Quad Cities shall file new water right applications jointly and consistent with the planning demands outlined in the Regional Water Forecast and Conservation Plan updates, and the 2000 Final Supplemental Environmental Impact Statement. As part of the

negotiation of this MOA, the Quad Cities will file the first of such applications. The Quad Cities shall reserve the right to allocate water awarded under such applications amongst themselves consistent with the planning objectives outlined in the Regional Water Forecast and Conservation Plan updates. If Project-Specific Applications for individual cities are also granted, then the Quad Cities shall coordinate how such individual water right permits affect regional water availability. Non-Project-Specific Applications are subject to the following guidelines:

i. **Mitigation Water:** A new water right may be granted to provide mitigation water for consumptive use impacts associated with Permit S4-30976P. Such water right may be in the form of a new water right permit, a trust water certificate, a reservoir permit, or other appropriate authorization for the project.

ii. **In-Lieu Water:** Ecology may develop water supplies with mitigation requirements that are deemed "superior" to those in Permit S4-30976P. In such cases, the Quad Cities may receive a permit in exchange for the voluntary cancellation of an equal amount of Permit S4-30976P.

iii. **Priority Date:** Consistent with RCW 90.03.340, the priority date of such applications filed by the Quad Cities or individual cities that are a party to this 2011 Quads MOA is the date of the filing of the application. OCR shall follow WAC 173-152 in the

processing of water right applications filed. However, if OCR holds a trust water right, it reserves the right to assign portions thereof to Quad Cities as mitigation water so long as the objectives of RCW 90.90.020 are met.

6. **Future Water Supply Development Partnership:** The Parties agree to partner opportunistically on water supply development projects that meet the objectives of this 2011 Quads MOA. It is anticipated by the Parties that water supply development costs will be project-specific; if Quad Cities elects to receive water under the OCR Program beyond the 6 cfs and 4,336.2 acre-feet of water for the first increment described in Section 2, OCR may recover direct costs for such water supply from the Quad Cities consistent with RCW 90.90. The goal of the Parties is to ensure uninterrupted growth consistent with Permit S4-30976P, and to have a reasonable, non-speculative quantity of water in reserve to bridge the gap between water supply development alternatives.

7. **City of Pasco and City of West Richland Water Right Deficits Resolved:** In the past, Ecology, the City of Pasco, and the City of West Richland have disagreed about commitments to resolve water right deficits (aka "holes") that pre-dated the issuance of Permit S4-30976P and the 2003 Settlement Agreement. By virtue of a water supply project funded by OCR and the associated 2011 Pasco MOU, the City of Pasco agrees all "hole" issues have

been resolved to its satisfaction. The City of West Richland agrees all "hole" issues have been resolved to its satisfaction based on the following:

a. Ecology's processing of numerous change decisions in 2008 providing for greater source flexibility amongst city sources and water rights.
b. Ecology's issuance of new water right permit G4-35203P to the City in 2010 for 1,650 gpm (additive to existing rights) and 2,661 acre-feet (non-additive to existing rights).
c. Ecology and the City's agreement in this MOA regarding pending City applications G4-32304 and G4-32395 as follows:
    i. Ecology and the City agrees the intent of modifying application G4-32304 and G4-32395 to a supplemental designation was to provide an alternate, but non-additive source of water for the Quads permit (S4-30976P).
    ii. If a quantity of water is approved by Ecology for application G4-32304 and G4-32395, then an equal quantity of Permit S4-30976P would be cancelled and a superseding permit issued.
    iii. Ecology agrees it will begin processing application G4-32304 and G4-32395, or will otherwise modify existing Permit G4-35203P[2], to meet the goal of issuing 2,800 gpm and 4,531 acre-feet of water additive to the existing groundwater rights, but with a commensurate reduction of 2,800 gpm and 4,531 acre-feet from Permit S4-30976.

[2] If Permit G4-35203P is modified to accomplish this goal, then the face sheet of the permit will reflect that the 2,661 acre-feet authorized is now additive, so long as 2,661 acre-feet of water from Quads Permit S4-30976P is similarly reduced.

iv. Consistent with RCW 90.03.290, Ecology can only approve applications where water is available, will not impair other rights or the public interest, and is for a beneficial use.

v. West Richland understands that the groundwater being requested is in an area with uncertain recharge and with a history of complaints regarding declining water levels that have necessitated deepening of pump depths. If Ecology processes less than 2,800 gpm and 4,531 acre-feet in new groundwater applications or permit amendments, Ecology and West Richland agree to enter into negotiations for OCR-funding of a feasibility study for a potential aquifer storage and recovery project.

8. **Regulatory Actions Not Constrained**: To the extent this MOU contemplates Ecology taking regulatory action on any application, permit, certificate, or other document, the parties understand that Ecology must make decisions consistent with legal requirements, notwithstanding this MOU. The parties further understand that such decisions are subject to possible appeal by other parties, and that if an appeal alters or reverses a decision by Ecology, Ecology shall be relieved of any obligation to the contrary under this MOU.

9. **MOU Not a Binding Contract**: This MOU is intended only to improve intergovernmental coordination and is not intended to and does not create a legally binding contract or any right or benefit, substantive or procedural, enforceable at law or in equity by any party against another party, its

directors, officers, employees or other persons. This MOU does not constitute an explicit or implicit agreement by the parties to subject the other party to the jurisdiction of any federal or state court over and above any rights or procedures presently available to the parties. This MOU shall not be construed to create any right to judicial review involving the compliance or noncompliance of the parties with the MOU.

10. **No Commitment Except as Authorized**: Nothing in this MOU shall be construed as committing any party to actions for which it lacks authority. All actions and schedules called for by this MOU are subject to and contingent upon the availability and allocation of future appropriations, existing and future limitations on a party's statutory authorities, and state and federal regulatory approvals as needed.

11. **Principle of Construction**: This Agreement has been prepared jointly by the parties following negotiations between them. The parties were represented by legal counsel of their choosing. It shall be construed according to its terms and not for or against any of the parties.

MOU Acceptance By:

Representing the Washington State Department of Ecology:

_____ **Date** 12/19/11

Derek Sandison, Director
Office of Columbia River

Representing City of Kennewick:

Peter M. Beaudry _____ **Date** 12/12/2011

Peter M. Beaudry
Director of Public Works
City of Kennewick

Representing City of Pasco:

_____ **Date** 12/13/2011

Ahmad Qayoumi
Public Works Director
City of Pasco

Representing City of Richland:

_____ **Date** 12/9/2011

Peter Rogalsky
Public Works Director
City of Richland

Representing City of West Richland:

_____ **Date** 12/9/2011

Roscoe C. Slade III
Public Works Director
City of West Richland

Appendix A: Buckley and Byerly Water Rights Summary

Name	Water Right	Consumptive Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Buckley	4672-A	cfs	0.00	0.00	0.00	1.47	1.47	1.47	1.10	0.00	1.10	0.00	0.00	0.00	
		ac-ft	0.00	0.00	0.00	87.32	90.23	87.32	21.78	0.00	65.34	0.00	0.00	0.00	351.98
Buckley	8416-A	cfs	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39	0.39	0.00	0.00	
		ac-ft	0.00	0.00	0.00	0.00	23.94	23.17	0.00	0.00	23.17	21.62	0.00	0.00	91.89
Buckley	1275-A(A)	cfs	0.00	0.00	0.00	1.39	1.39	1.39	0.00	0.00	1.02	2.13	0.00	0.00	
		ac-ft	0.00	0.00	0.00	49.54	85.32	41.28	0.00	0.00	32.31	126.52	0.00	0.00	334.98
Buckley	3099-A	cfs	0.00	0.00	0.00	0.85	0.85	0.85	0.00	0.00	0.85	0.85	0.85	0.00	
		ac-ft	0.00	0.00	0.00	50.49	52.17	50.49	0.00	0.00	50.49	52.17	13.46	0.00	269.28
Buckley	6417-A	cfs	0.00	0.00	0.00	0.00	0.76	0.76	0.00	0.00	0.76	0.76	0.00	0.00	
		ac-ft	0.00	0.00	0.00	0.00	46.65	45.14	0.00	0.00	24.08	46.65	0.00	0.00	162.52
Buckley	9537-A	cfs	0.00	0.00	0.00	0.00	1.77	1.77	0.00	0.00	1.77	1.77	0.00	0.00	
		ac-ft	0.00	0.00	0.00	0.00	108.64	52.57	0.00	0.00	56.07	108.64	0.00	0.00	325.93
Byerly	5283	cfs	0.356	0.356	0.356	0.303	0.303	0.303	0.231	0.231	0.231	0.356	0.356	0.356	
		ac-ft	21.85	19.74	21.85	17.99	18.59	17.99	14.33	14.19	13.73	21.61	21.15	21.85	224.87
Byerly	3605B	cfs	0.010	0.010	0.010	0.007	0.007	0.007	0.005	0.005	0.005	0.010	0.010	0.010	
		ac-ft	0.62	0.56	0.62	0.41	0.43	0.41	0.30	0.30	0.29	0.61	0.60	0.62	5.78
	Peak Rate (cfs)														**7.00**
	Monthly Total (ac-ft)		22.47	20.30	22.47	205.75	425.96	318.37	36.42	14.49	265.48	377.82	35.21	22.47	**1767.23**

Appendix B: Buckley, Byerly and Lake Roosevelt Water Rights Summary

Name	Consumptive Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Buckley and Byerly	cfs	0.37	0.37	0.37	4.02	6.94	6.94	1.34	0.24	6.13	6.27	1.22	0.37	6.94
	ac-ft	22.47	20.30	22.47	205.75	425.96	318.37	36.42	14.49	265.48	377.82	35.21	22.47	1767.23
Lake Roosevelt	cfs	0.00	0.00	0.00	13.25	13.25	13.25	13.25	13.25	0.00	0.00	0.00	0.00	13.25
	ac-ft	0.00	0.00	0.00	787.13	813.37	787.13	813.37	813.37	0.00	0.00	0.00	0.00	4014.37
Total	cfs	0.37	0.37	0.37	17.27	20.19	20.19	14.59	13.49	6.13	6.27	1.22	0.37	**20.19**
	ac-ft	22.47	20.30	22.47	992.88	1239.33	1105.50	849.79	827.86	265.48	377.82	35.21	22.47	**5781.60**

APPENDIX F

MEMORANDUM OF AGREEMENT BETWEEN THE CITIES AND ECOLOGY – AMENDED APPENDIX A

Amended Appendix A: Buckley and Byerley Water Rights

Name	Water Right	Consumptive Use	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Total
Buckley	4672-A	Maximum (cfs)				1.73	1.73	1.73	1.30	1.30	1.30				
April 1 – Oct 1* Oct 1 – April 1** (original Season of use)		Continuous (cfs)				0.98	0.65	1.17	1.30	1.30	0.85				
		Acre-feet	0.0	0.0	0.0	32.88	40.24	69.54	79.93	79.93	50.48	0.0	0.0	0.0	**353.0**
Buckley	8416-A	Maximum (cfs)					0.46	0.46	0.46	0.46	0.46	0.46			
No season given*		Continuous (cfs)					0.17	0.30	0.44	0.34	0.22	0.03			
		Acre-feet	0.0	0.0	0.0	0.0	10.60	18.30	27.5	21.37	13.28	1.95	0.0	0.0	**93.0**
Buckley	1275A(A)	Maximum (cfs)				1.73	1.73	1.73	1.30	1.30	1.30				
April 1 – Oct 1*		Continuous (cfs)				0.89	0.64	1.14	1.30	1.29	0.82				
		Acre-feet	0.0	0.0	0.0	29.91	39.34	68.00	79.93	79.40	49.02	0.0	0.0	0.0	**345.6**
Buckley	3099-A	Maximum (cfs)				1.00	1.00	1.00	1.00	1.00	1.00	1.00			
When available*		Continuous (cfs)				0.57	0.50	0.90	1.00	1.00	0.63	0.09			
		Acre-feet	0.0	0.0	0.0	19.28	30.89	53.39	61.50	61.50	38.75	5.69	0.0	0.0	**271.0**
Buckley	6417-A	Maximum (cfs)					0.89	0.89	0.85	0.85	0.85	0.85			
Year around*		Continuous (cfs)					0.28	0.50	0.73	0.57	0.37	0.52			
		Acre-feet	0.0	0.0	0.0	0.0	17.31	29.91	44.97	34.93	21.72	3.16	0.0	0.0	**152**
Buckley	9537-A	Maximum (cfs)				2.60	2.60	2.60	0.0	0.0	0.0				
April 1 – July 1		Continuous (cfs)				1.81	1.81	1.81	0.0	0.0	0.0				

Amended Appendix A: Buckley and Byerley Water Rights

Oct 1 – Apr 1***		Acre-feet	0.0	0.0	0.0	107.47	111.05	107.47	0.0	0.0	0.0	0.0	0.0	0.0	**326.0**
Name	**Water Right**	**Consumptive Use**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Byerley	5283	Continuous rate (cfs)	0.356	0.356	0.356	0.303	0.303	0.303	0.231	0.231	0.231	0.356	0.356	0.356	
		Acre-feet	21.85	19.74	21.85	17.99	18.59	17.99	14.33	14.19	13.73	21.61	21.15	21.85	**224.9**
Byerley	3605B	Continuous rate (cfs)	0.010	0.010	0.010	0.007	0.007	0.007	0.005	0.005	0.005	0.010	0.010	0.010	
		Acre-feet	0.62	0.56	0.62	0.41	0.43	0.42	0.30	0.30	0.29	0.61	0.60	0.62	**5.8**
Total Peak Rates (cfs)			**0.37**	**0.37**	**0.37**	**7.37**	**8.72**	**8.72**	**5.15**	**5.15**	**5.15**	**2.68**	**0.37**	**0.37**	
Duration at peak rate (days)**			(31)	(28)	(31)	(14.20)	(15.52)	(21.11)	(30.20)	(28.55)	(18.33)	(6.21)	(30)	(30)	
Total Continuous Pump Rate (cfs)			**0.37**	**0.37**	**0.37**	**4.56**	**4.36**	**6.13**	**5.01**	**4.74**	**3.13**	**0.54**	**0.37**	**0.37**	
Monthly Total (acre-feet)			**22.47**	**20.3**	**22.47**	**207.94**	**268.45**	**365.02**	**308.46**	**291.62**	**187.27**	**33.02**	**21.75**	**21.75**	**1771.3**

*The season-of-use given for each of the Buckley water rights above is the season-of-use on the original water right certificates (Also mentioned in Table 5 of the Quad Cities ROE). However, consumptive use of water on the Buckley property took place during the traditional April to October irrigation season (infra-red photo evidence). Often water is not needed until May. Therefore, the historic pattern of use for the Buckley water rights is represented in the table above not the original water right certificates' seasons-of-use.

**This period of use only applied when water wasn't available to fulfill the right between April 1st and October 1st.

***This water right didn't provide water during the months of July, August and September. The trust water right also excluded these months up to September 15th.

Appendix O

Water Rights Self Assessments

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 1

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – EXISTING STATUS

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		EXISTING CONSUMPTION		CURRENT WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. GWC 93-D	City of Kennewick	11/4/1944	PPLC Well Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	400 gpm	70 afy	400 gpm	70 afy	0	0
2. GWC 94-D	City of Kennewick	3/19/1945	PPLC Well Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	1,000 gpm	450 afy	1,000 gpm	450 afy	0	0
3. GWC 1805-A	City of Kennewick	2/23/1950	Ranney Collector Nos. 1, 2, 3 (S01, S02, & S03)	No	4,950 gpm	4,800 afy	0 gpm	0 afy	4,950 gpm	4,800 afy
4. GWC 3897-A	City of Kennewick	2/27/1957	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	13,500 gpm	5,600 afy	4,642 gpm	6,910 afy	8,858 gpm	(1,310 afy)
5. S4-25479C	City of Kennewick	4/10/1977	Water Treatment Plant (S06)	Yes	25,000 gpm	15,680 afy 5,280 afy [A] 10,400 afy [NA]	10,417 gpm	4,930 afy [A] 0 afy [NA]	14,583 gpm	350 afy [A]

6. S4-30976P	Cities of Richland, Kennewick, Pasco, and West Richland	9/23/1991	Water Treatment Plant (S06), Ranney Collector Nos. 4 and 5 (S04 & S05), and Columbia Park Wells	No	1,122 gpm (Kennewick Phase 1 portion)	1,806.75 afy (Kennewick Phase 1 portion)	0 gpm	0 afy	1,122 gpm	1,806.75 afy
Claims 1. None										
TOTAL	**********	*********	*********	**********	45,972 gpm	18,006.75 afy	16,459 gpm	12,360 afy	29,513 gpm	5,646.75 afy

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		EXISTING CONSUMPTION THROUGH INTERTIE		CURRENT INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1. None							
TOTAL	**********	0	0	0	0	0	0

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1. S4-33044(B)A - New	Cities of Kennewick, Pasco, Richland, and West Richland	11/28/2011	-	158.1 cfs	81,983 afy
2. R4-35237A – New	City of Kennewick	05/05/2009	-	-	714 af
3. G4-35338A - New	City of Kennewick	06/01/2010	-	2,500	Not Specified

Footnotes:
Total use from the different sources for 2015 was: Water Treatment Plant = 10,417 gpm and 4,930 afy. Ranney Well No. 4 = 1,042 gpm and 1,274 afy. Ranney Well No. 5 = 5,000 gpm and 6,156 afy.

Maximum instantaneous flow rate under existing consumption is based on the installed capacity and not actual demand. For a comparison with demand see Table 4-5.

GWC 93-D identifies a well in Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. GWC 94-D identifies a well in Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. These wells are no longer used for municipal supply and all water use is coming from the other sources identified.

S4-25479C was issued with a provision that identified 10,400 afy as being non-additive [NA] to the annual volumes under GWC 1805-A and GWC 3897-A, which is 10,400 afy. The balance, 5,280 afy is additive [A].

S4-30976P is held in equal shares by the Cities of Richland, Kennewick, Pasco, and West Richland. This water right is often referred to as the Quad Cities permit. The entire permit issued for 178 cubic feet per second (79,892 gpm) and 96,619 afy for municipal supply, of which 44.5 cfs and 24,154.75 afy is the City's portion. When the permit issued, the cities were only authorized to use the first 10 cfs and 7,227 afy because of mitigation requirements in the permit. The source name and number, Qi, and Qa listed in the table above is the City of Kennewick's share (one-quarter) of the first phase of the permit.

R4-35327A is a reservoir application filed by the City for its Southridge site aquifer storage and recovery (ASR) project. In 2015, under a temporary permit, approximately 243 acre-feet (af) of water was recharged into the aquifer, which had been produced using other City sources under existing water rights, while 192 af was recovered. 51 acre-feet was not recovered during the 2015 testing. The volume of water recovered in this year was 79 percent of the water recharged into the aquifer. The difference between the existing consumption of 12,360 afy and the volume of 12,308 afy shown in Table 4-5 is associated with the water not recovered from the ASR testing.

G4-35338A is a groundwater application filed by the City for the same well as is being tested for ASR use.

The City of Kennewick also holds G4-29926C, which is for irrigation from a well of 1.6 acres at the City's Frost Municipal Building at a rate of 100 gpm and 7.2 afy. This water right has not been included in the table above because it is not interconnected to the larger city-wide system.

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Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 2

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 6 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (6-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. GWC 93-D	City of Kennewick	11/4/1944	PPLC Well Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	400 gpm	70 afy	400 gpm	70 afy	0	0
2. GWC 94-D	City of Kennewick	3/19/1945	PPLC Well Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	1,000 gpm	450 afy	1,000 gpm	450 afy	0	0
3. GWC 1805-A	City of Kennewick	2/23/1950	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	4,950 gpm	4,800 afy	2,321 gpm	3,507 afy	2,629 gpm	1,293 afy
4. GWC 3897-A	City of Kennewick	2/27/1957	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	13,500 gpm	5,600 afy	2,321 gpm	4,091 afy	11,179 gpm	1,509 afy

5. S4-25479C	City of Kennewick	4/10/1977	Water Treatment Plant (S06)	Yes	25,000 gpm	15,680 afy 5,280 afy [A] 10,400 afy [NA]	9,017 gpm	5,386 afy 5,280 afy [A] 106 afy [NA]	15,983 gpm	0 afy [A] (106 afy [NA])
6. S4-30976P	Cities of Richland, Kennewick, Pasco, and West Richland	9/23/1991	Water Treatment Plant (S06), Ranney Collector Nos. 4 and 5 (S04 & S05), and Columbia Park (S07)	No	1,122 gpm (Kennewick Phase 1 portion)	1,806.75 afy (Kennewick Phase 1 portion)	0 gpm	0 afy	1,122 gpm	1,806.75 afy
Claims 1. None										
TOTAL	**********	********	********	**********	45,972 gpm	18,006.75 afy	16,459 gpm	13,503 afy	29,513 gpm	4,502.75 afy

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1. None							
TOTAL	**********	0	0	0	0	0	0

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1. S4-33044(B)A - New	Cities of Kennewick, Pasco, Richland, and West Richland	11/28/2011	-	158.1 cfs	81,983 afy
2. R4-35237A – New	City of Kennewick	05/05/2009	-	-	714 af
3. G4-35338A - New	City of Kennewick	06/01/2010	-	2,500	Not Specified

Footnotes:

Total estimated use from the different sources for 2021 is: Water Treatment Plant = 10,417 gpm and 5,906 afy. Ranney Well No. 4 = 1,042 gpm and 1,392 afy. Ranney Well No. 5 = 5,000 gpm and 6,206 afy.

Maximum instantaneous flow rate under existing consumption is based on the installed capacity and not actual demand. For a comparison with demand see Table 4-6.

GWC 93-D identifies a well in Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. GWC 94-D identifies a well in Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. These wells are no longer used for municipal supply and all water use is coming from the other sources identified.

S4-25479C was issued with a provision that identified 10,400 afy as being non-additive [NA] to the annual volumes under GWC 1805-A and GWC 3897-A, which is 10,400 afy. The balance, 5,280 afy is additive [A].

S4-30976P is held in equal shares by the Cities of Richland, Kennewick, Pasco, and West Richland. This water right is often referred to as the Quad Cities permit. The entire permit issued for 178 cubic feet per second (79,892 gpm) and 96,619 afy for municipal supply, of which 44.5 cfs and 24,154.75 afy is the City's portion. When the permit issued, the cities were only authorized to use the first 10 cfs and 7,227 afy because of mitigation requirements in the permit. The source name and number, Qi, and Qa listed in the table above is the City of Kennewick's share (one-quarter) of the first phase of the permit.

R4-35327A is a reservoir application filed by the City for its Southridge site aquifer storage and recovery (ASR) project. Assumed to still be an application at this point with testing occurring under a temporary permit. Similar to 2015, it is assumed that an additional 51 acre-feet, above the demand calculations in Table 4-6, will be pumped from either the Water Treatment Plant or the Ranney Wells, but will not be recaptured through the ASR project.

G4-35338A is a groundwater application filed by the City for the same well as is being tested for ASR use.

The City of Kennewick also holds G4-29926C, which is for irrigation from a well of 1.6 acres at the City's Frost Municipal Building at a rate of 100 gpm and 7.2 afy. This water right has not been included in the table above because it is not interconnected to the larger city-wide system.

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Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 3

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 10 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (10-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. GWC 93-D	City of Kennewick	11/4/1944	PPLC Well Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	400 gpm	70 afy	400 gpm	70 afy	0	0
2. GWC 94-D	City of Kennewick	3/19/1945	PPLC Well Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	1,000 gpm	450 afy	1,000 gpm	450 afy	0	0
3. GWC 1805-A	City of Kennewick	2/23/1950	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	4,950 gpm	4,800 afy	2,321 gpm	3,730 afy	2,629 gpm	1,070 afy
4. GWC 3897-A	City of Kennewick	2/27/1957	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	13,500 gpm	5,600 afy	2,321 gpm	4,352 afy	11,179 gpm	1,248 afy

5. S4-25479C	City of Kennewick	4/10/1977	Water Treatment Plant (S06)	Yes	25,000 gpm	15,680 afy 5,280 afy [A] 10,400 afy [NA]	10,417 gpm	5,708 afy 5,280 afy [A] 428 afy [NA]	14,583 gpm	0 afy [A] (428 afy [NA])
6. S4-30976P	Cities of Richland, Kennewick, Pasco, and West Richland	9/23/1991	Water Treatment Plant (S06), Ranney Collector Nos. 4 and 5 (S04 & S05), and Columbia Park (S07)	No	1,122 gpm (Kennewick Phase 1 portion)	1,806.75 afy (Kennewick Phase 1 portion)	0 gpm	0 afy	1,122 gpm	1,806.75 afy
Claims 1. None										
TOTAL	**********	*********	*********	**********	45,972 gpm	18,006.75 afy	16,459 gpm	14,310 afy	29,513 gpm	3,696.75 afy

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1. None							
TOTAL	**********	0	0	0	0	0	0

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1. S4-33044(B)A - New	Cities of Kennewick, Pasco, Richland, and West Richland	11/28/2011	-	158.1 cfs	81,983 afy
2. R4-35237A – New	City of Kennewick	05/05/2009	-	-	714 af
3. G4-35338A - New	City of Kennewick	06/01/2010	-	2,500	Not Specified

Footnotes:

Total estimated use from the different sources for 2025 is: Water Treatment Plant = 10,417 gpm and 6,228 afy. Ranney Well No. 4 = 1,042 gpm and 1,475 afy. Ranney Well No. 5 = 5,000 gpm and 6,607 afy.

Maximum instantaneous flow rate under existing consumption is based on the installed capacity and not actual demand. For a comparison with demand see Table 4-6.

GWC 93-D identifies a well in Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. GWC 94-D identifies a well in Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. These wells are no longer used for municipal supply and all water use is coming from the other sources identified.

S4-25479C was issued with a provision that identified 10,400 afy as being non-additive [NA] to the annual volumes under GWC 1805-A and GWC 3897-A, which is 10,400 afy. The balance, 5,280 afy is additive [A].

S4-30976P is held in equal shares by the Cities of Richland, Kennewick, Pasco, and West Richland. This water right is often referred to as the Quad Cities permit. The entire permit issued for 178 cubic feet per second (79,892 gpm) and 96,619 afy for municipal supply, of which 44.5 cfs and 24,154.75 afy is the City's portion. When the permit issued, the cities were only authorized to use the first 10 cfs and 7,227 afy because of mitigation requirements in the permit. The source name and number, Qi, and Qa listed in the table above is the City of Kennewick's share (one-quarter) of the first phase of the permit.

R4-35327A is a reservoir application filed by the City for its Southridge site aquifer storage and recovery (ASR) project. Assumed it will be approved at this time. Similar to 2015, it is assumed that an additional 51 acre-feet, above the demand calculations in Table 4-6, will be pumped from either the Water Treatment Plant or the Ranney Wells, but will not be recaptured through the ASR project.

G4-35338A is a groundwater application filed by the City for the same well as is being tested for ASR use.

The City of Kennewick also holds G4-29926C, which is for irrigation from a well of 1.6 acres at the City's Frost Municipal Building at a rate of 100 gpm and 7.2 afy. This water right has not been included in the table above because it is not interconnected to the larger city-wide system.

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Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 4

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 20 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (20-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. GWC 93-D	City of Kennewick	11/4/1944	PPLC Well Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	400 gpm	70 afy	400 gpm	70 afy	0	0
2. GWC 94-D	City of Kennewick	3/19/1945	PPLC Well Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E, Water Treatment Plant (S06), and Ranney Collector No. 5 (S05)	No	1,000 gpm	450 afy	1,000 gpm	450 afy	0	0
3. GWC 1805-A	City of Kennewick	2/23/1950	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	4,950 gpm	4,800 afy	2,321 gpm	3,730 afy	2,629 gpm	1,070 afy
4. GWC 3897-A	City of Kennewick	2/27/1957	Ranney Collector Nos. 4 and 5 (S04 & S05)	No	13,500 gpm	5,600 afy	2,321 gpm	4,352 afy	11,179 gpm	1,248 afy

Appendix P

ASR Well Memorandum of Understanding

KENNEWICK UNDERGROUND ARTIFICIAL (AQUIFER) STORAGE AND RECOVERY (ASR) PROJECT DEVELOPMENT MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING ("MOU"), entered into this 2nd day of January, 2008 by and between the Washington State Department of Ecology, 15 West Yakima Ave., Suite 200, Yakima, WA 98902-3452 (hereinafter called the "Ecology") and the City of Kennewick, 210 West 6th Avenue, Kennewick, Washington, (hereinafter called the "City"). The purpose of this MOU is to document the City's and Ecology's intent to partner on a proposed storage project. This MOU does not commit Ecology or the City to take any actions or fund any part of the proposed storage project. Actual State funding commitments will be made in a State Funding Contract.

1) Intent. Both the City and Ecology intend to work collaboratively to evaluate the feasibility to construct an underground Artificial (Aquifer) Storage and Recovery (ASR) facility that will meet both the City and Ecology's goals. These goals include: understanding whether the City's proposed site is a viable location for ASR, learning about how ASR can potentially be used in the Columbia River Program to benefit instream and out-of-stream resources, and determining how ASR can be used as mitigation of the Quad-City water right (S4-30976P) during periods when Bi-Op flows are not being met. The efficacy of the ASR facility will be determined jointly by the City and Ecology following the pilot phase and will include a review of metrics such as: ASR volume, cost-benefit, operations, efficiency of recovery, and water quality.

2) Benefits. Both the City and Ecology recognize benefits of further evaluating ASR as a viable strategy for making additional water available through storage, particularly during critical flow periods of the Columbia River. A successful ASR program benefits the City by providing source diversification and a means to supplement existing peak supply capacity. A successful ASR program benefits the State of Washington (and Ecology's mandate under the Columbia River Water Supply Account) by expanding municipal supplies, demonstrating the feasibility of a viable water storage technology, and increasing instream flows (both the storage quantity and the return flow from that stored quantity) during the critical periods of July and August.

3) Pilot Study Phase. Both the City and Ecology will jointly develop a schedule for completing the ASR pilot study, parameters of the study and report, and milestones. Financial funding for the pilot phase shall be provided by Ecology with the City responsible for securing the test site and in-kind contribution. Two key milestones of the pilot phase are:

   a) Completion of Phase 1 Pilot Study (8 inch test well, withdrawal only (approximately $200,000), which will include an evaluation of aquifer parameters, including water quality conditions. If, at the end of Phase 1, the City and Ecology jointly agree that the proposed site is not suitable for ASR, Phase 2 will not be completed. The City and Ecology will consider other storage possibilities, including other ASR opportunities at that time.

   b) Completion of Phase 2 Pilot Study (16 inch pilot well, withdrawal and injection, approximately $800,000), which will attempt actual injection and recovery of

treated City surface water. If, at the end of Phase 2, the City and Ecology jointly agree that the proposed site is not suitable or economical for ASR, the construction phase will not be completed. If Phase 2 of the Pilot Study is successful, the City will commit to the construction of the ASR Construction Phase.

4) ASR Construction Phase. Upon the successful outcome of the Pilot Study Phase, the City will proceed with the construction phase of the ASR. The City will work with Ecology to develop a schedule for the construction of the ASR. Funding for the ASR Construction Phase may be from one or more sources, however, water supplies secured by way of the construction phase of the ASR shall be proportioned and managed in accordance with the following:

   a) By the City in proportion to City funding of the ASR pilot and construction phase. The City funding shall be financial and in-kind contributions, including funding from other sources and shall include other means and methods of support of the ASR pilot and construction phase agreed to by the City and Ecology. Water supplies secured by the City funding shall be managed solely by the City.

   b) By Ecology in proportion to the funding from the Columbia River basin water supply development account for the ASR pilot and construction phase. Water supplies secured from this account shall be allocated in accordance with RCW 90.90.020 (1)(a) and managed solely by Ecology.

5) Permitting. The City and Ecology will coordinate permitting for this ASR project, as well as partnering on efforts to meet the City's long-term permitting goals. Specific permitting goals include:

   a) The City will file an application for a storage permit under RCW 90.03.370. Ecology will expedite processing of this permit.

   b) If the ASR facility is constructed, the City will file a trust water application and transfer a portion of its existing perfected surface water rights to Ecology's trust water program under Chapter 90.42 RCW. The water right transferred will be identified by the City, but shall have a priority date prior to June 24, 1980 (the effective date of the Columbia River instream flow rule) and shall not be the Quad Cities permit, S4-30976P. The amount transferred will be equal to the amount of water to be managed by Ecology under Section 4(b) above.

      i) Ecology shall manage 1/3rd of this water for instream flow benefit.

      ii) Ecology shall manage 2/3rds of this water for out-of-stream benefit and intends to use this quantity to satisfy a portion of the State's obligation to mitigate for the consumptive use associated with the first 10 cfs of the Quad Cities Permit No. S4-30976.

   c) The City may file an application for a new water right for groundwater supply equal to the quantity placed in trust. This quantity would be additive to Kennewick's existing water rights and would, in the long-term, balance the City's pre-ASR and post-ASR water right portfolio. Ecology will work with the City according to Columbia River Program rules and policies to develop supply to mitigate any permit issued in response to the application. Ecology will process this application as part of its regular schedule of processing applications, unless

the application is eligible for expedited processing pursuant to Chapter 173-152 WAC.

d) The City may file an application for a new water right for groundwater supply that is non-additive to existing water rights and instead provides source redundancy to its surface water treatment plant. Ecology will work with the City and the State Department of Health to determine whether this application can be expedited under Chapter 173-152 WAC.

e) The City may use Certificate S4-25479C, Certificate 3897-A, or Permit S4-30976P for the source of supply for the ASR. Water use under Permit S4-30976P by the City will not be from the first increment of water authorized by Condition E of Permit S4-30976P. Ecology shall work with the City and Department of Health to provide a program whereby water used by the City from the ASR facility pursuant to Permit No. S4-30976P meets all the requirements of that permit for use when the Bi-Op flows are not met.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

CITY OF KENNEWICK, WASHINGTON	WASHINGTON STATE DEPARTEMENT OF ECOLOGY
Robert R Hammond	Jay J. M
Robert R. Hammond, City Manager	Jay Manning, Director
January 2, 2008	1/14/08
Date	Date

5. S4-25479C	City of Kennewick	4/10/1977	Water Treatment Plant (S06)	Yes	25,000 gpm	15,680 afy 5,280 afy [A] 10,400 afy [NA]	19,711 gpm	7,598 afy 5,280 afy [A] 2,318 afy [NA]	5,289 gpm	0 afy [A] (2,318 afy [NA])
6. S4-30976P	Cities of Richland, Kennewick, Pasco, and West Richland	9/23/1991	Water Treatment Plant (S06), Ranney Collector Nos. 4 and 5 (S04 & S05), and Columbia Park (S07)	No	1,122 gpm (Kennewick Phase 1 portion)	1,806.75 afy (Kennewick Phase 1 portion)	1,122 gpm	184 afy	0 gpm	1,622.75 afy
Claims 1. None										
TOTAL	**********	********	********	**********	45,972 gpm	18,006.75 afy	26,875 gpm	16,384 afy	19,097 gpm	1,622.75 afy

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1. None							
TOTAL	**********	0	0	0	0	0	0

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1. S4-33044(B)A - New	Cities of Kennewick, Pasco, Richland, and West Richland	11/28/2011	-	158.1 cfs	81,983 afy
2. R4-35237A – New	City of Kennewick	05/05/2009	-	-	714 af
3. G4-35338A - New	City of Kennewick	06/01/2010	-	2,500	Not Specified

Footnotes:

Total estimated use from the different sources for 2035 is: Water Treatment Plant = 20,833 gpm and 8,302 afy. Ranney Well No. 4 = 1,042 gpm and 1,475 afy. Ranney Well No. 5 = 5,000 gpm and 6,607 afy.

Maximum instantaneous flow rate under existing consumption is based on the installed capacity and not actual demand. For a comparison with demand see Table 4-6. Water Treatment Plant has been expanded to have a capacity of 30 MGD (20,833 gpm).

GWC 93-D identifies a well in Lot 2 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. GWC 94-D identifies a well in Lot 6 Block 5 Layton's Addition Sec. 6, T8N, R30E W.M. These wells are no longer used for municipal supply and all water use is coming from the other sources identified.

S4-25479C was issued with a provision that identified 10,400 afy as being non-additive [NA] to the annual volumes under GWC 1805-A and GWC 3897-A, which is 10,400 afy. The balance, 5,280 afy is additive [A].

Apparent excess water under GWC 1805-A and GWC 3897-A is being fully utilized under the non-additive portion of S4-25479C.

S4-30976P is held in equal shares by the Cities of Richland, Kennewick, Pasco, and West Richland. This water right is often referred to as the Quad Cities permit. The entire permit issued for 178 cubic feet per second (79,892 gpm) and 96,619 afy for municipal supply, of which 44.5 cfs and 24,154.75 afy is the City's portion. When the permit issued, the cities were only authorized to use the first 10 cfs and 7,227 afy because of mitigation requirements in the permit. The source name and number, Qi, and Qa listed in the table above is the City of Kennewick's share (one-quarter) of the first phase of the permit.

R4-35327A is a reservoir application filed by the City for its Southridge site aquifer storage and recovery (ASR) project. Assumed it will be approved at this time. Similar to 2015, it is assumed that an additional 51 acre-feet, above the demand calculations in Table 4-6, will be pumped from either the Water Treatment Plant or the Ranney Wells, but will not be recaptured through the ASR project.

G4-35338A is a groundwater application filed by the City for the same well as is being tested for ASR use.

The City of Kennewick also holds G4-29926C, which is for irrigation from a well of 1.6 acres at the City's Frost Municipal Building at a rate of 100 gpm and 7.2 afy. This water right has not been included in the table above because it is not interconnected to the larger city-wide system.

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.

DOH Form 331-373 (Updated 08/10)

To return form, please see reverse side.

Please return completed form to the Office of Drinking Water regional office checked below.

☐ Northwest Drinking Water
Department of Health
20425 72nd Ave S, Suite 310
Kent, WA 98032-2358
Phone: (253) 395-6750
Fax: (253) 395-6760

☐ Southwest Drinking Water
Department of Health
PO Box 47823
Olympia, WA 98504-7823
Phone (360) 236-3030
Fax: (360) 664-8058

☒ Eastern Drinking Water
Department of Health
16201 E Indiana Ave, Suite 1500
Spokane Valley, WA 99216
Phone: (509) 329-2100
Fax: (509) 329-2104

APPENDIX Q

WATER FACILITIES INVENTORY REPORT

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 04/19/2016
Printed: 4/29/2016
WFI Printed For: On-Demand
Submission Reason: Pop/Connect Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
38100 Q	KENNEWICK, CITY OF	BENTON	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS	8. OWNER NUMBER: 001162
JOSHUA J. PANTZKE [WATER SERVICES SUPER] PO BOX 6108 KENNEWICK, WA 99336	KENNEWICK, CITY OF GARY DEARDORFF UTILITIES MANAGER PO BOX 6108 KENNEWICK, WA 99336	
STREET ADDRESS IF DIFFERENT FROM ABOVE	**STREET ADDRESS IF DIFFERENT FROM ABOVE**	
ATTN ADDRESS CITY STATE ZIP	ATTN ADDRESS CITY STATE ZIP	

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone:	(509) 585-4534	Owner Daytime Phone:	(509) 585-4301
Primary Contact Mobile/Cell Phone:	(509) 572-0316	Owner Mobile/Cell Phone:	(509) 531-0477
Primary Contact Evening Phone:	(xxx)-xxx-xxxx	Owner Evening Phone:	(xxx)-xxx-xxxx
Fax: (509) 585-4451	E-mail: xxxxxxxxxxxxxxxxxxxx	Fax: (509) 585-4451	E-mail: xxxxxxxxxxxxxxxxxxxx

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [x] Agricultural
- [x] Commercial / Business
- [x] Day Care
- [x] Food Service/Food Permit
- [x] 1,000 or more person event for 2 or more days per year
- [x] Hospital/Clinic
- [x] Industrial
- [x] Licensed Residential Facility
- [x] Lodging
- [x] Recreational / RV Park
- [x] Residential
- [x] School
- [ ] Temporary Farm Worker
- [x] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [ ] Association
- [x] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

32,000,000

- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES -

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
38100 Q	KENNEWICK, CITY OF	BENTON	A	Comm

15	16 SOURCE NAME	17 INTERTIE	18 SOURCE CATEGORY										19 USE			20	21 TREATMENT						22 DEPTH	23	24 SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	InAct 04/18/2016 Ranney Collector 1										X				X		X							1100	NW SW	31	09N	30E
S02	InAct 04/14/2016 Ranney Collector 2										X				X		X							300	NE SW	31	09N	30E
S03	InAct 04/14/2016 Ranney Collector 3										X				X		X							600	NE SW	31	09N	30E
S04	Ranney Collector 4										X		X			Y		X			X	X		2000	SE NE	35	09N	29E
S05	Ranney Collector 5 - (GWI)										X		X			Y		X			X	X		8500	NE SE	35	09N	29E
S06	Columbia River									X			X			Y		X	X			X		10400	SW SE	31	09N	30E
S07	Columbia Park Kiwanis Well		X												X	N	X						50	25	SW SW	29	09N	29E
S08	ASR-1		X										X			Y	X						957	0	NE SE	17	8N	29E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
38100 Q	KENNEWICK, CITY OF	BENTON	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		21229	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	20008		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	1221		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	2507	2507	
28. TOTAL SERVICE CONNECTIONS		23736	

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 78290

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
* Requirement is exception from WAC 246-290	80	80	80	80	80	80	80	80	80	80	80	80

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

WS ID	WS Name
38100	KENNEWICK, CITY OF

Total WFI Printed: 1

APPENDIX R

CROSS-CONNECTION CONTROL PROGRAM

CROSS CONNECTION CONTROL

CITY OF KENNEWICK WASHINGTON

REGULATIONS

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City of Kennewick Specifications for the Installation of Backflow Assemblies

SECTION I

MAINTAINING WATER QUALITY

The Key to Safe, Clean Drinking Water

Maintain the Water Quality

State and Federal regulations impose provisions on water supply systems, which are intended to insure that the quality of water is not compromised as a result of its delivery through the distribution system. In order to assure safe water is supplied at the consumer's tap, the City of Kennewick maintains an active Cross Connection Control Program that has been authorized by Kennewick Municipal Code (KMC) 15.41. The provisions of this KMC apply to all premises, which receive potable water provided by the City of Kennewick. The owner or occupant of any premise covered by this KMC is required to comply with the provisions of this chapter.

The City of Kennewick has had a proactive Cross Connection Control program since 1978 when an unprotected cross connection between the City water and irrigation water was suspected to have caused several people to be hospitalized.

The intent of the Cross Connection Control Program is to protect the City's water system from coming in contact with any contaminate that may enter into the water distribution system. The most common form of system contamination is from cross connections.

Over the years, water treatment processes have become more complex in an effort to provide the highest quality water possible to the water utilities customers. The protection of the water sources, rivers, wells, and lakes, combined with new water treatment procedures, enable the water purveyor to achieve this goal.

A cross connection, as defined by the Cross Connection Control Committee of the Pacific Northwest Section or the American Water Works Association (AWWA), is "Any actual or potential physical connection between a potable water line and any pipe, vessel, or machine containing a non-potable fluid or has the possibility of containing a non-potable fluid, solid or gas, such that it is possible for the non-potable fluid, solid or gas to enter the potable water system by backflow."

Backflow incidents have been documented by the University of Southern California Foundation for Cross Connection Control & Hydraulic Research as early as 1903.

The Federal Safe Drinking Water Act and the Washington State Department of Health Drinking Water Regulations requires the purveyor of water to develop and

implement a cross connection control program using the manual published by the PNW Section - AWWA. The scope and complexity of the program is directly related to the size and complexity of the system.

The City of Kennewick monitors and controls over 1,800 backflow preventers that protect the potable water system. One of the tasks of the Cross Connect Program is to routinely inspect irrigation systems and commercial buildings to identify potential and actual cross connections. Another task of the program is to advise the owners on how to properly eliminate or control the cross connection using the most cost effective methods. The water customer is required to ensure that these devices are operated, maintained, and tested in accordance with the City's Cross Connection Control Regulations.

The City's Cross Connection Specialist will conduct an initial evaluation of potential cross connections to determine the degree of hazard posed by the premise. The Cross Connection Specialist will also determine the best location for the backflow prevention assembly to be installed. Once installed the City's Cross Connection Specialist will complete the initial inspection and testing of the backflow prevention assembly. Following the initial inspection and testing, the customer will be required to provide written evidence that the backflow prevention assembly has been tested by a certified Backflow Assembly Tester (BAT) prior to the test deadline date. The City of Kennewick will mail out annual test notices sixty (60) days prior to the test deadline.

CHAPTER 15.41

CROSS-CONNECTIONS

SECTION:

15.41.010: Purpose
15.41.020: Application
15.41.030: Regulatory Authority
15.41.040: Enforcement
15.41.050: Definitions
15.41.060: Cross-Connections Prohibited
15.41.070: Installation of Backflow Prevention Assemblies
15.41.080: Types of Backflow Prevention Assemblies and Devices Required
15.41.090: Location
15.41.100: Installation
15.41.110: Acceptable Types
15.41.115: Identification of Piping Systems
15.41.120: Inspection and Testing Requirements
15.41.130: Termination of Services
15.41.140: Penalties

15.41.010: Purpose: This Chapter of the City of Kennewick Municipal Code is intended to protect public health through the elimination and prevention of contamination caused by cross-connections to the City of Kennewick public water system. This Chapter complies with the requirements of the Washington Administrative Code (WAC) 246-290-490. (Ord. 3996 Sec. 1, 2001: Ord. 2700 Sec. 1, 1982: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.020: Application: This chapter applies throughout the City of Kennewick and outside the City of Kennewick to every premises and the owners and occupants thereof served by the water system of the City of Kennewick. It applies to all systems installed prior to or after its enactment. Every owner and occupant of any premises covered by this chapter is responsible for compliance with its terms and shall be strictly liable for all damage incurred as a result of failure to comply with the express terms and provisions contained herein. (Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.030: Regulatory Authority: WAC 246-290-490 applies to cross-connection control beginning at the water supply source, including all the public water treatment, storage and distribution facilities, and ends at the point of delivery to the consumer's water system, which begins at the downstream end of the service connection or water meter. Under chapter 19.27 RCW, the responsibility for cross-connection control within the consumer's water system falls under the jurisdiction of the local administrative authority. (Ord. 3996 Sec. 2, 2001: Ord. 2681 Sec. 1, (part), 1982: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.040: Enforcement: The Director of Public Works will administer the provisions of this chapter. The Director will designate cross-connection specialists and propound all needful rules and regulations to carry these provisions into effect. Any deviation, modification or changes from approved standards must be approved by the Director of Public Works or his/her designated representative. (Ord. 3996 Sec. 3, 2001: Ord. 2681 Sec. 1, (part), 1982: Ord. 2490 Sec.9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.050: Definitions:

(1) Abbreviations and Acronyms:
(a) AG - air gap;
(b) AVB - atmospheric vacuum breaker;
(c) AWWA - American Water Works Association;
(d) BAT - backflow assembly tester;
(e) CCS - cross-connection control specialist;
(f) DCDA - double check detector assembly;
(g) DCVA - double check valve assembly;

(h) PVBA - pressure vacuum breaker assembly;
(i) RPBA - reduced pressure backflow assembly;
(j) RPDA - reduced pressure detector assembly;
(k) SVBA - spill resistant vacuum breaker assembly;
(l) UBC - Uniform Building Code;
(m) UPC - Uniform Plumbing Code;
(n) WAC - Washington Administrative Code.

(2) Terms

(a) *"Approved Air Gap"* means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or nonpressurized receiving vessel. The separation must be at least: Twice the diameter of the supply piping measured vertically from the overflow rim of the receiving vessel, and in no case be less than one inch, when unaffected by vertical surfaces (sidewalls); and: Three times the diameter of the supply piping, if the horizontal distance between the supply pipe and a vertical surface (sidewall) is less than or equal to three times the diameter of the supply pipe, or if the horizontal distance between the supply pipe and intersecting vertical surfaces (sidewalls) is less than or equal to four times the diameter of the supply pipe and in no case less than one and one-half inches.

(b) *"Approved Atmospheric Vacuum Breaker"* means an AVB of make, model, and size that is approved by the department. AVBs that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or that are listed or approved by other nationally recognized testing agencies (such as IAPMO, ANSI, or UL) acceptable to the local administrative authority are considered approved by the department.

(c) *"Approved Backflow Preventer"* means an approved air gap, an approved backflow prevention assembly, or an approved AVB. The terms "approved backflow preventer," "approved air gap," or "approved backflow prevention assembly" refer only to those approved backflow preventers relied upon by the City of Kennewick for the protection of the public water system.

(d) *"Approved Backflow Prevention Assembly"* means an RPBA, RPDA, DCVA, DCDA, PVBA, or SVBA of make, model, and size that is approved by the department. Assemblies that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or other entity acceptable to the department are considered approved by the department.

(e) *"Auxiliary Supply"* means any water source or system other than the public water system, that may be available in the building or on the premises that is either not approved for human consumption by the health agency having jurisdiction or is not otherwise acceptable to the City of Kennewick.

(f) *"Backflow"* means the undesirable reversal of flow of water or other substances through a cross-connection into the public water system or consumer's potable water system.

(g) *"Backflow Assembly Tester"* means a person holding a valid BAT certificate issued in accordance with Chapter 246-292 WAC.

(h) *"Backpressure"* means a pressure (caused by a pump, elevated tank or piping, boiler, or other means) on the consumer's side of the service connection that is greater than the pressure provided by the public water system and which may cause backflow.

(i) *"Backsiphonage"* means backflow due to a reduction in system pressure in the City of Kennewick's distribution system and/or consumer's water system.

(j) *"Consumer"* means the owner or operator of a water system connected to a public water system through a service connection.

(k) *"Consumer's Water System"* means any potable and/or industrial water system that begins at the point of delivery from the public water system and is located on the consumer's premises. The consumer's water system includes all auxiliary sources of supply, storage, treatment, and distribution facilities, piping, plumbing, and fixtures under the control of the consumer.

(l) *"Contaminant"* means a substance present in drinking water that may adversely affect the health of the consumer or the aesthetic qualities of the water.

(m) *"Cross-Connection"* means any actual or potential physical connection between a public water system or the consumer's water system and any source of nonpotable liquid, solid, or gas that could contaminate the potable water supply by backflow.

(n) *"Cross-Connection Control Program"* means the administrative and technical procedures the City of Kennewick implements to protect the public water system from contamination via cross-connections.

(o) *"Cross-Connection Control Specialist"* means a person holding a valid CCS certificate issued in accordance with chapter 246-292 WAC.

(p) *"Double Check Valve Assembly" (DCVA)* means an approved assembly consisting of two independently operating check valves, loaded to the closed position by springs or weights, and installed as a unit with, and between, two resilient seated shutoff valves and having suitable connections for testing.

(q) *"High Health Cross-Connection Hazard"* means a cross-connection which could impair the quality of potable water and create an actual public health hazard through poisoning or spread of disease by sewage, industrial liquids, or waste.

(r) *"In-Premises Protection"* means a method of protecting the health of consumers served by the consumer's potable water system, located within the property lines of the consumer's premises by the installation of an approved air gap or backflow prevention assembly at the point of hazard, which is generally a plumbing fixture.

(s) *"Local Administrative Authority"* means the local official, board, department, or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code as adopted under chapter 19.27 RCW.

(t) *"Low Health Cross-Connection Hazard"* means a cross-connection that could cause an impairment of the quality of potable water to a degree that does not create a hazard to the public health, but does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use.

(u) *"Potable"* means water suitable for drinking by the public.

(v) *"Premises Isolation"* means a method of protecting a public water system by installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the City of Kennewick to isolate the consumer's water system from the City of Kennewick's distribution system.

(w) *"Public Water System"* is defined and referenced under WAC 246-290-020.

(x) *"Reclaimed Water"* means effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment, it is suitable for beneficial use or a controlled use that would not otherwise occur, and it is no longer considered wastewater.

(y) *"Reduced Pressure Backflow Assembly" (RPBA)* means an approved assembly consisting of two independently operating check valves, spring loaded to the closed position, separated by a spring loaded differential pressure relief valve loaded to the open position, and installed as a unit with and between two resilient seated shutoff valves and having suitable connections for testing. The assembly must operate to maintain the pressure in the zone between the two check valves, less than the pressure on the public water system side of the device. At cessation of normal flow, the pressure between the check valve must be less than the supply pressure. In case of leakage of either check valve the differential relief valve must operate to maintain the reduced pressure by discharging to the atmosphere . When the inlet pressure drops below two pounds per square inch (13.8 kPa), the relief valve must open to the atmosphere thereby providing an atmospheric zone between the two check valves.

(z) *"Uniform Plumbing Code"* means the code adopted under RCW 19.27.031(4) and amended under chapter 51-46 WAC. This code establishes state-wide minimum plumbing standards applicable within the property lines of the consumer's premises. (Ord. 3996 Sec. 4, 2001: Ord. 3435 Sec. 1, 1993: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.060: Cross-Connections Prohibited:

(1) Except as provided in Sections 15.41.070 et seq., all cross-connections, whether or not they are controlled by automatic devices such as check valves or by hand-operated mechanisms such as gate valves or stop clocks, are prohibited.

(2) Failure on the part of persons, firms, or corporations to discontinue the use of all cross-connections and to physically separate cross-connections is sufficient cause for the immediate discontinuance of public water services to the premises. (Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.070: Installation of Backflow Prevention Assemblies: Backflow prevention assemblies shall be installed at the service connection or within any premises wherein the judgment of the City of Kennewick certified cross-connection specialist determines that the nature and extent of activity on the premises, or the materials used in connection with the activities, or materials stored on the premises would present an immediate and dangerous hazard to health should a cross-connection occur. Such a determination does not require that a cross-connection exist at the time the backflow prevention assembly is required to be installed. This includes:

(1) Premises having an auxiliary water supply.

(2) Premises having internal cross-connections that are not correctable, or intricate plumbing arrangements which make it impractical to ascertain whether or not cross-connections exist.

(3) Premises where entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficient short notice to assure that cross-connections do not exist.

(4) Premises having a repeated history of cross-connections being established or re-established.

(5) Premises on which any substance is handled under pressure so as to permit entry into the public water system, or where a cross-connection could reasonably be expected to occur. This includes the handling of process waters, cooling waters, and carbonated beverage systems.

(6) Premises where materials of a toxic or hazardous nature are handled such that if back siphonage should occur, a serious health hazard may result.

(7) Premises having a fire sprinkler system.

(8) Premises having a solar system.

(9) The following types of facilities, but not limited to:

(a) Agricultural (farms and dairies);

(b) Beverage bottling plants;

(c) Car washes;

(d) Chemical plants;

(e) Commercial laundries and dry cleaners;

(f) Premises where both reclaimed water and potable water are provided;

(g) Film processing facilities;

(h) Food processing plants;

(i) Hospitals, medical centers, nursing homes, veterinary, medical and dental clinics, and blood plasma centers;

(j) Premises with separate irrigation systems using the purveyor's water supply and with chemical addition;+

(k) Laboratories;

(l) Metal plating industries;

(m) Mobile cleaning vehicles;

(n) Mortuaries;

(o) Petroleum processing or storage plants;

(p) Piers and docks;

(q) Radioactive material processing plants or nuclear reactors;*

(r) Survey access denied or restricted;

(s) Wastewater lift stations and pumping stations;

(t) Wastewater treatment plants;*

(u) Premises with an unapproved auxiliary water supply interconnected with the potable water supply;

(v) Others specified by the certified cross-connection specialist.

\+ *For example, parks, playgrounds, golf courses, cemeteries, estates, etc.*

* RPBAs for connections serving these premises are acceptable only when used in combination with an in-plant approved air gap; otherwise, the purveyor shall require an approved air gap at the service connection. (Ord. 3996 Sec. 5, 2001: Ord. 3435 Sec. 1, 1993: Ord. 2681 Sec. 1, (part), 1982: Ord. 2490 Sec. 9 (part) 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.080: Types of Backflow Prevention Assemblies and Devices Required: The type of prevention assembly or device required by Section 15.41.070 depends on the degree of hazard which exists. In locations where the Cross-Connection Specialist determines that there is a high health cross-connection hazard the appropriate approved backflow preventer shall be one of the following: AG, RPBA, or RPDA. In locations where the Cross-Connection Specialist determines that there is a low health cross-connection hazard, the appropriate approved backflow preventer shall be one of the following: AG, RPBA, RPDA, DCVA, or DCDA. In addition the following requirements shall apply:

(1) All backflow prevention assemblies shall be models included on the current list of backflow prevention assemblies approved for use in Washington State.

(2) Backflow prevention assemblies that can pass testing, but are not currently approved by the department, may be used if the assemblies:

(a) Were included on the list of approved backflow prevention assemblies at the time of installation;

(b) Have been properly maintained;

(c) Are commensurate with the purveyor's assessed degree of hazard; and

(d) Have been inspected and tested at least annually and have successfully passed the annual tests.

(3) An unlisted backflow prevention assembly will be replaced by an approved assembly commensurate with the degree of hazard, when the unlisted assembly:

(a) Does not meet the conditions specified in (2)(a) through (2)(d) of this subsection;

(b) Is moved; or

(c) Cannot be repaired using spare parts from the original manufacturer.

(4) All AVBs shall meet the definition of approved atmospheric vacuum breakers as described in the definitions of this chapter.

(5) An air-gap separation or reduced pressure backflow assembly shall be installed where the water supply may be contaminated by sewage, industrial waste of a toxic nature or other contaminant which would cause a health or system hazard.

(6) In the case of a substance which may be objectionable but not hazardous to health, a double-check valve assembly, air-gap separation or a reduced pressure backflow assembly shall be installed.

(7) Lawn sprinkler systems, which are supplied by city water only, shall be required to have either a double check valve assembly, one pressure vacuum breaker assembly, or atmospheric vacuum breakers may be installed on each line. The units shall be approved by the Department of Health, as manufactured. Installation shall be as follows:

(a) Pressure Vacuum Breaker Assembly. The pressure vacuum breaker assembly must be installed at least twelve inches above the highest fixture or point of water usage and in such a manner that drainage will preclude back pressure. The pressure vacuum breaker assembly shall be installed vertically with test cocks and control valves accessibly located for connection of test equipment. This assembly is not to be installed more than 60 inches high.

(b) Atmospheric Vacuum Breaker. The atmospheric vacuum breaker (AVB) shall be installed on the discharge side of the last valve on each sprinkler zone. The AVB shall be installed at least six inches above the highest head so at no time will the vacuum breaker be subjected to back pressure or drainage. The AVB shall not be installed where it will be under continuous operating pressure for more than 12 hours in any 24-hour period. The AVB unit shall be installed vertically. (Ord. 3996 Sec. 6, 2001: Ord. 3435 Sec. 3, 1993: Ord. 2700 Sec. 2, 1982: Ord. 2681 Sec. 1 (part), 1982: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.090: Location: Backflow prevention assemblies required by this chapter must be installed at the meter, at the property line of the premises when meters are not used, or at a location designated by the City of Kennewick certified cross-connection specialist so as to be readily accessible for maintenance and testing, and where no part of the assembly will be submerged or hidden from proper inspection. (Ord. 3435 Sec. 4, 1993: Ord. 2681 Sec. 1, (part), 1982: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.100: Installation: The installation of backflow prevention assemblies required by this chapter shall be subject to inspection by the City of Kennewick Cross Connection Specialist. All backflow prevention devices shall be installed in the orientation for which they are approved. Bypass piping installed around any approved backflow preventer shall be equipped with an approved backflow preventer that affords at least the same level of protection as the approved backflow preventer bypassed. It will be the responsibility of the customer or contractor to notify the City of Kennewick Cross-Connection Specialist 48 hours in advance of any new

installation or relocation of a backflow prevention assembly or device. (Ord. 3996 Sec. 7, 2001: Ord. 3435 Sec. 5, 1993: Ord. 2735 Sec. 1, 1983: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.110: Acceptable Types: Any protective assembly or device required by this chapter shall be a model approved by the Director of Public Works or his/her designated representative. A double check valve assembly or a reduced pressure backflow assembly, or a pressure vacuum breaker assembly will be approved if it has successfully passed performance tests of the University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research, and has been approved by Washington State Department of Health and otherwise meets standards acceptable to the Director of Public Works. (Ord. 3996 Sec. 8, 2001: Ord. 3435 Sec. 6, 1993: Ord. 2735 Sec. 1, 1983: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.115: Identification of Piping Systems: Where potable water, non-potable water, chemical feed systems, gas lines, etc. co-exist in an industrial, commercial or residential facility, labeling in accordance with American National Standards A13.1 shall be required to ensure proper identification of each line. (Ord. 3435 Sec. 7, 1993)

15.41.120: Inspection and Testing Requirements:

(1) New service connections shall undergo an initial evaluation by a City of Kennewick Cross-Connection Specialist, who will determine the degree of hazard posed by the premise and the appropriate backflow prevention assembly for the premise. The Cross-connection specialist shall designate a location for the backflow prevention assembly.

(2) The City of Kennewick cross-connect specialist will, at no charge to the customer, inspect and test the backflow prevention assembly or device upon installation. Thereafter, it will be the customer's responsibility to have the backflow prevention assembly or device tested and, if necessary, repaired on an annual basis by a Washington State Certified Tester.

(3) The City will notify the customer in writing 60 days prior to the test dead line. The customer will then provide evidence in writing that the backflow assembly or device meets all requirements prior to the test dead line. It may be required to test the backflow prevention assembly or device more often when successive inspections indicate failure.

(4) Any person testing or repairing backflow prevention assemblies or devices must be currently certified as a Backflow Assembly Tester by the State of Washington Department of Health. (Ord. 3996 Sec. 9, 2001: Ord. 3435 Sec. 8, 1994: Ord. 2700 Sec. 3, 1982: Ord. 2681 Sec. 1 (part), 1982: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.130: Termination of Services: The failure of the customer to cooperate in the installation, maintenance, testing or inspection of backflow prevention assemblies or devices required by this chapter is grounds for termination of water services to the premises or requiring air gap separation. (Ord. 3435 Sec. 9, 1993: Ord. 2490 Sec. 9 (part), 1980: Ord. 2318 Sec. 1 (part), 1979)

15.41.140: Penalties: It is unlawful for any person, firm, or corporation to violate any provision of this chapter or fail to comply with any provision thereof. A violation of this chapter is a misdemeanor unless otherwise provided. A violation of any provision hereof is a continuing violation. (Ord. 3435 Sec. 10, 1993)

WAC 246-290-490 Cross-connection control.

(1) Applicability, purpose, and responsibility.

(a) All community water systems shall comply with the cross-connection control requirements specified in this section.

(b) All noncommunity water systems shall apply the principles and provisions of this section, including subsection (4)(b) of this section, as applicable to protect the public water system from contamination via cross-connections. Noncommunity systems that comply with subsection (4)(b) of this section and the provisions of WAC 51-46-0603 of the UPC (which addresses the installation of backflow preventers at points of water use within the potable water system) shall be considered in compliance with the requirements of this section.

(c) The purpose of the purveyor's cross-connection control program shall be to protect the public water system, as defined in WAC 246-290-010, from contamination via cross-connections.

(d) The purveyor's responsibility for cross-connection control shall begin at the water supply source, include all the public water treatment, storage, and distribution facilities, and end at the point of delivery to the consumer's water system, which begins at the downstream end of the service connection or water meter located on the public right-of-way or utility-held easement.

(e) Under the provisions of this section, purveyors are not responsible for eliminating or controlling cross-connections within the consumer's water system. Under chapter 19.27 RCW, the responsibility for cross-connection control within the consumer's water system, i.e., within the property lines of the consumer's premises, falls under the jurisdiction of the local administrative authority.

(2) General program requirements.

(a) The purveyor shall develop and implement a cross-connection control program that meets the requirements of this section, but may establish a more stringent program through local ordinances, resolutions, codes, bylaws, or operating rules.

(b) Purveyors shall ensure that good engineering and public health protection practices are used in the development and implementation of cross-connection control programs. Department publications and the most recently published editions of references, such as, but not limited to, those listed below, may be used as guidance for cross-connection program development and implementation:

(i) *Manual of Cross-Connection Control* published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California (USC Manual); or

(ii) *Cross-Connection Control Manual, Accepted Procedure and Practice* published by the Pacific Northwest Section of the American Water Works Association (PNWS-AWWA Manual).

(c) The purveyor may implement the cross-connection control program, or any portion thereof, directly or by means of a contract with another agency or party acceptable to the department.

(d) The purveyor shall coordinate with the local administrative authority in all matters concerning cross-connection control. The purveyor shall document and describe such coordination, including delineation of responsibilities, in the written cross-connection control program required in (e) of this subsection.

(e) The purveyor shall include a written description of the cross-connection control program in the water system plan required under WAC 246-290-100 or the small water system management program required under WAC 246-290-105. The cross-connection control program shall include the minimum program elements described in subsection (3) of this section.

(f) The purveyor shall ensure that cross-connections between the distribution system and a consumer's water system are eliminated or controlled by the installation of an approved backflow

preventer commensurate with the degree of hazard. This can be accomplished by implementation of a cross-connection program that relies on:

(i) Premises isolation as defined in WAC 246-290-010; or

(ii) Premises isolation and in-premises protection as defined in WAC 246-290-010.

(g) Purveyors with cross-connection control programs that rely both on premises isolation and in-premises protection:

(i) Shall comply with the premises isolation requirements specified in subsection (4)(b) of this section; and

(ii) May reduce premises isolation requirements and rely on in-premises protection for premises other than the type not addressed in subsection (4)(b) of this section, if the conditions in (h) of this subsection are met.

(h) Purveyors may rely on in-premises protection only when the following conditions are met:

(i) The in-premises backflow preventers provide a level of protection commensurate with the purveyor's assessed degree of hazard;

(ii) Backflow preventers which provide the in-premises backflow protection meet the definition of approved backflow preventers as described in WAC 246-290-010;

(iii) The approved backflow preventers are installed, inspected, tested (if applicable), maintained, and repaired in accordance with subsections (6) and (7) of this section;

(iv) Records of such backflow preventers are maintained in accordance with subsections (3)(j) and (8) of this section; and

(v) The purveyor has reasonable access to the consumer's premises to conduct an initial hazard evaluation and periodic reevaluations to determine whether the in-premises protection is adequate to protect the purveyor's distribution system.

(i) The purveyor shall take appropriate corrective action within its authority if:

(i) A cross-connection exists that is not controlled commensurate to the degree of hazard assessed by the purveyor; or

(ii) A consumer fails to comply with the purveyor's requirements regarding the installation, inspection, testing, maintenance or repair of approved backflow preventers required by this chapter.

(j) The purveyor's corrective action may include, but is not limited to:

(i) Denying or discontinuing water service to a consumer's premises until the cross-connection hazard is eliminated or controlled to the satisfaction of the purveyor;

(ii) Requiring the consumer to install an approved backflow preventer for premises isolation commensurate with the degree of hazard; or

(iii) The purveyor installing an approved backflow preventer for premises isolation commensurate with the degree of hazard.

(k) Purveyors denying or discontinuing water service to a consumer's premises for one or more of the reasons listed in (i) of this subsection shall notify the local administrative authority prior to taking such action except in the event of an emergency.

(l) The purveyor shall prohibit the intentional return of used water to the purveyor's distribution system. Such water would include, but is not limited to, water used for heating, cooling, or other purposes within the consumer's water system.

(3) Minimum elements of a cross-connection control program.

(a) To be acceptable to the department, the purveyor's cross-connection control program shall include the minimum elements identified in this subsection.

(b) Element 1: The purveyor shall adopt a local ordinance, resolution, code, bylaw, or other written legal instrument that:

(i) Establishes the purveyor's legal authority to implement a cross-connection control program;

(ii) Describes the operating policies and technical provisions of the purveyor's cross-connection control program; and

(iii) Describes the corrective actions used to ensure that consumers comply with the purveyor's cross-connection control requirements.

(c) Element 2: The purveyor shall develop and implement procedures and schedules for evaluating new and existing service connections to assess the degree of hazard posed by the consumer's premises to the purveyor's distribution system and notifying the consumer within a reasonable time frame of the hazard evaluation results. At a minimum, the program shall meet the following:

(i) For new connections made on or after the effective date of these regulations, procedures shall ensure that an initial evaluation is conducted before service is provided;

(ii) For existing connections made prior to the effective date of these regulations, procedures shall ensure that an initial evaluation is conducted in accordance with a schedule acceptable to the department; and

(iii) For all service connections, once an initial evaluation has been conducted, procedures shall ensure that periodic reevaluations are conducted in accordance with a schedule acceptable to the department and whenever there is a change in the use of the premises.

(d) Element 3: The purveyor shall develop and implement procedures and schedules for ensuring that:

(i) Cross-connections are eliminated whenever possible;

(ii) When cross-connections cannot be eliminated, they are controlled by installation of approved backflow preventers commensurate with the degree of hazard; and

(iii) Approved backflow preventers are installed in accordance with the requirements of subsection (6) of this section.

(e) Element 4: The purveyor shall ensure that personnel, including at least one person certified as a CCS, are provided to develop and implement the cross-connection control program.

(f) Element 5: The purveyor shall develop and implement procedures to ensure that approved backflow preventers are inspected and/or tested (as applicable) in accordance with subsection (7) of this section.

(g) Element 6: The purveyor shall develop and implement a backflow prevention assembly testing quality control assurance program, including, but not limited to, documentation of tester certification and test kit calibration, test report contents, and time frames for submitting completed test reports.

(h) Element 7: The purveyor shall develop and implement (when appropriate) procedures for responding to backflow incidents.

(i) Element 8: The purveyor shall include information on cross-connection control in the purveyor's existing program for educating consumers about water system operation. Such a program may include periodic bill inserts, public service announcements, pamphlet distribution, notification of new consumers and consumer confidence reports.

(j) Element 9: The purveyor shall develop and maintain cross-connection control records including, but not limited to, the following:

(i) A master list of service connections and/or consumer's premises where the purveyor relies upon approved backflow preventers to protect the public water system from contamination, the assessed hazard level of each, and the required backflow preventer(s);

(ii) Inventory information on:

(A) Approved air gaps installed in lieu of approved assemblies including exact air gap location, assessed degree of hazard, installation date, history of inspections, inspection results, and person

conducting inspections;

(B) Approved backflow assemblies including exact assembly location, assembly description (type, manufacturer, model, size, and serial number), assessed degree of hazard, installation date, history of inspections, tests and repairs, test results, and person performing tests; and

(C) Approved AVBs used for irrigation system applications including location, description (manufacturer, model, and size), installation date, history of inspection(s), and person performing inspection(s).

(iii) Cross-connection program summary reports and backflow incident reports required under subsection (8) of this section.

(k) Element 10: Purveyors who distribute and/or have facilities that receive reclaimed water within their water service area shall meet any additional cross-connection control requirements imposed by the department under a permit issued in accordance with chapter 90.46 RCW.

(4) Approved backflow preventer selection.

(a) The purveyor shall ensure that a CCS:

(i) Assesses the degree of hazard posed by the consumer's water system upon the purveyor's distribution system; and

(ii) Determines the appropriate method of backflow protection for premises isolation in accordance with Table 8.

TABLE 8
APPROPRIATE METHODS OF BACKFLOW PROTECTION FOR PREMISES ISOLATION

Degree of Hazard	Application Condition	Appropriate Approved Backflow Preventer
High health cross-connection hazard	Backsiphonage or backpressure backflow	AG, RPBA, or RPDA
Low health cross-connection hazard	Backsiphonage or backpressure backflow	AG, RPBA, RPDA, DCVA, or DCDA

(b) Premises isolation requirements.

(i) For service connections with remises posing a high health cross-connection hazard including, but not limited to, those premises listed in Table 9, the purveyor shall ensure that an approved air gap or RPBA is installed for premises isolation.

(ii) If the purveyor's CCS determines that no hazard exists for a connection serving premises of the type listed in Table 9, the requirements of (b)(i) of this subsection do not apply.

(iii) The purveyor shall document, on a case-by-case basis, the reasons for not applying the requirements of (b)(i) of this subsection to a connection serving premises of the type listed in Table 9 and include such documentation in the cross-connection control program summary report required in subsection (8) of this section.

TABLE 9
HIGH HEALTH CROSS-CONNECTION HAZARD PREMISES REQUIRING PREMISES ISOLATION BY AG OR RPBA

Agricultural (farms and dairies)

Beverage bottling plants

Car washes

Chemical plants

Commercial laundries and dry cleaners

Premises where both reclaimed water and potable water are provided

Film processing facilities

Food processing plants

Hospitals, medical centers, nursing homes, veterinary, medical and dental clinics, and blood plasma centers

Premises with separate irrigation systems using the purveyor's water supply and with chemical addition[+]

Laboratories

Metal plating industries

Mortuaries

Petroleum processing or storage plants

Piers and docks

Radioactive material processing plants or nuclear reactors[*]

Survey access denied or restricted

Wastewater lift stations and pumping stations

Wastewater treatment plants[*]

Premises with an unapproved auxiliary water supply interconnected with the potable water supply

+ For example, parks, playgrounds, golf courses, cemeteries, estates, etc.

* RPBAs for connections serving these premises are acceptable only when used in combination with an in-plant approved air gap; otherwise, the purveyor shall require an approved air gap at the service connection.

(c) Backflow protection for single-family residences.

(i) For single-family residential service connections, the purveyor shall comply with the requirements of (b) of this subsection when applicable.

(ii) If the requirements of (b) of this subsection do not apply and the requirements specified in subsection (2)(h) of this section are met, the purveyor may rely on backflow protection provided at the point of hazard in accordance with WAC 51-46-0603 of the UPC for hazards such as, but not limited to:

(A) Irrigation systems;

(B) Swimming pools or spas;

(C) Ponds; and

(D) Boilers.

For example, the purveyor may accept an approved AVB on a residential irrigation system, if the AVB is properly installed in accordance with the UPC.

(d) Backflow protection for fire protection systems.

(i) Backflow protection is not required for residential flow-through or combination fire protection systems constructed of potable water piping and materials.

(ii) For service connections with fire protection systems other than flow-through or combination systems, the purveyor shall ensure that backflow protection consistent with WAC 51-46-0603 of the UPC is installed. The UPC requires minimum protection as follows:

(A) An RPBA or RPDA for fire protection systems with chemical addition or using unapproved auxiliary water supply; and

(B) A DCVA or DCDA for all other fire protection systems.

(iii) For new connections made on or after the effective date of these regulations, the purveyor shall ensure that backflow protection is installed before water service is provided.

(iv) For existing fire protection systems:

(A) With chemical addition or using unapproved auxiliary supplies, the purveyor shall ensure that backflow protection is installed within ninety days of the purveyor notifying the consumer of the high health cross-connection hazard or in accordance with an alternate schedule acceptable to the purveyor.

(B) Without chemical addition, without on-site storage, and using only the

purveyor's water (i.e., no unapproved auxiliary supplies on or available to the premises), the purveyor shall ensure that backflow protection is installed in accordance with a schedule acceptable to the purveyor or at an earlier date if required by the agency administering the Uniform Building Code as adopted under chapter 19.27 RCW.

(C) When establishing backflow protection retrofitting schedules for fire protection systems that have the characteristics listed in (d)(iv)(B) of this subsection, the purveyor may consider factors such as, but not limited to, impacts of assembly installation on sprinkler performance, costs of retrofitting, and difficulty of assembly installation.

(e) Purveyors may require backflow preventers commensurate with the degree of hazard determined by the purveyor to be installed for premises isolation for connections serving premises that have characteristics such as, but not limited to, the following:

(i) Complex plumbing arrangements or plumbing potentially subject to frequent changes that make it impracticable to assess whether cross-connection hazards exist;

(ii) A repeated history of cross-connections being established or reestablished; or

(iii) Cross-connection hazards are unavoidable or not correctable, such as, but not limited to, tall buildings.

(5) Approved backflow preventers.

(a) The purveyor shall ensure that all backflow prevention assemblies relied upon by the purveyor are models included on the current list of backflow prevention assemblies approved for use in Washington state. The current approved assemblies list is available from the department upon request.

(b) The purveyor may rely on testable backflow prevention assemblies that are not currently approved by the department, if the assemblies:

(i) Were included on the department and/or USC list of approved backflow prevention assemblies at the time of installation;

(ii) Have been properly maintained;

(iii) Are commensurate with the purveyor's assessed degree of hazard; and

(iv) Have been inspected and tested at least annually and have successfully passed the annual tests.

(c) The purveyor shall ensure that an unlisted backflow prevention assembly is replaced by an approved assembly commensurate with the degree of hazard, when the unlisted assembly:

(i) Does not meet the conditions specified in (b)(i) through (iv) of this subsection;

(ii) Is moved; or

(iii) Cannot be repaired using spare parts from the original manufacturer.

(d) The purveyor shall ensure that AVBs meet the definition of approved atmospheric vacuum breakers as described in WAC 246-290-010.

(6) Approved backflow preventer installation.

(a) The purveyor shall ensure that approved backflow preventers are installed in the orientation for which they are approved (if applicable).

(b) The purveyor shall ensure that approved backflow preventers are installed in a manner that:

(i) Facilitates their proper operation, maintenance, inspection, and/or in-line testing (as applicable) using standard installation procedures acceptable to the department such as those in the USC Manual or PNWS-AWWA Manual;

(ii) Ensures that the assembly will not become submerged due to weather-related

conditions such as flooding; and

(iii) Ensures compliance with all applicable safety regulations.

(c) The purveyor shall ensure that approved backflow assemblies for premises isolation are installed at a location adjacent to the meter or property line or an alternate location acceptable to the purveyor.

(d) When premises isolation assemblies are installed at an alternate location acceptable to the purveyor, the purveyor shall ensure that there are no connections between the point of delivery from the public water system and the approved backflow assembly, unless the installation of such a connection meets the purveyor's cross-connection control requirements and is specifically approved by the purveyor.

(e) The purveyor shall ensure that approved backflow preventers are installed in accordance with the following time frames:

(i) For new connections made on or after the effective date of these regulations, the following conditions shall be met before service is provided:

(A) The provisions of subsection (3)(d)(ii) of this section; and

(B) Satisfactory completion of a test by a BAT in accordance with subsection (7) of this section.

(ii) For existing connections where the purveyor identifies a high health cross-connection hazard, the provisions of (3)(d)(ii) of this section shall be met:

(A) Within ninety days of the purveyor notifying the consumer of the high health cross-connection hazard; or

(B) In accordance with an alternate schedule acceptable to the purveyor.

(iii) For existing connections where the purveyor identifies a low health cross-connection hazard, the provisions of subsection (3)(d)(ii) of this section shall be met in accordance with a schedule acceptable to the purveyor.

(f) The purveyor shall ensure that bypass piping installed around any approved backflow preventer is equipped with an approved backflow preventer that:

(i) Affords at least the same level of protection as the approved backflow preventer that is being bypassed; and

(ii) Complies with all applicable requirements of this section.

(7) Approved backflow preventer inspection and testing.

(a) The purveyor shall ensure that:

(i) A CCS inspects backflow preventer installations to ensure that protection is provided commensurate with the assessed degree of hazard;

(ii) Either a BAT or CCS inspects:

(A) Air gaps installed in lieu of approved backflow prevention assemblies for compliance with the approved air gap definition; and

(B) Backflow prevention assemblies for correct installation and approval status.

(iii) A BAT tests approved backflow prevention assemblies for proper operation.

(b) The purveyor shall ensure that inspections and/or tests of approved air gaps and approved backflow assemblies are conducted:

(i) At the time of installation;

(ii) Annually after installation, or more frequently, if required by the purveyor for connections serving premises or systems that pose a high health cross-connection hazard or for assemblies that repeatedly fail;

(iii) After a backflow incident; and

(iv) After an assembly is repaired, reinstalled, or relocated or an air gap is replumbed.

(c) The purveyor shall ensure that inspections of AVBs installed on irrigation systems are conducted:

(i) At the time of installation;

(ii) After a backflow incident; and

(iii) After repair, reinstallation, or relocation.

(d) The purveyor shall ensure that approved backflow prevention assemblies are tested using procedures acceptable to the department, such as those specified in the most recently published edition of the USC Manual. When circumstances, such as, but not limited to, configuration or location of the assembly, preclude the use of USC test procedures, the purveyor may allow, on a case-by-case basis, the use of alternate (non-USC) test procedures acceptable to the department.

(e) The purveyor shall ensure that results of backflow prevention assembly inspections and tests are documented and reported in a manner acceptable to the purveyor.

(f) The purveyor shall ensure that an approved backflow prevention assembly or AVB, whenever found to be improperly installed, defective, not commensurate with the degree of hazard, or failing a test (if applicable) is properly reinstalled, repaired, overhauled, or replaced.

(g) The purveyor shall ensure that an approved air gap, whenever found to be altered or improperly installed, is properly replumbed or, if commensurate with the degree of hazard, is replaced by an approved RPBA.

(8) Recordkeeping and reporting.

(a) Purveyors shall keep cross-connection control records for the following time frames:

(i) Records pertaining to the master list of service connections and/or consumer's premises required in subsection (3)(j)(i) of this section shall be kept as long as the premises pose a cross-connection hazard to the purveyor's distribution system;

(ii) Records regarding inventory information required in subsection (3)(j)(ii) of this section shall be kept for five years or for the life of the approved backflow preventer whichever is shorter; and

(iii) Records regarding backflow incidents and annual summary reports required in subsection (3)(j)(iii) of this section shall be kept for five years.

(b) Purveyors may maintain cross-connection control records in original form or transfer data to tabular summaries.

(c) Purveyors may maintain records or data in any media, such as paper, film, or electronic format.

(d) The purveyor shall complete the cross-connection control program summary report annually. Report forms and guidance on completing the report are available from the department.

(e) The purveyor shall make all records and reports required in subsection (3)(j) of this section available to the department or its representative upon request.

(f) The purveyor shall notify the department, local administrative authority, and local health jurisdiction as soon as possible, but no later than the end of the next business day, when a backflow incident is known by the purveyor to have:

(i) Contaminated the public water system; or

(ii) Occurred within the premises of a consumer served by the purveyor.

(g) The purveyor shall:

(i) Document details of backflow incidents on a form acceptable to the department such as the backflow incident report form included in the most recent edition of the PNWS-AWWA Manual; and

(ii) Include all backflow incident report(s) in the annual cross-connection program summary report referenced in (d) of this subsection, unless otherwise requested by the department.

[Statutory Authority: RCW 43.02.050. 99-07-021, § 246-290-490, filed 3/9/99, effective 4/9/99. Statutory Authority: RCW 43.20.050. 91-02-051 (Order 124B), recodified as § 246-290-490, filed 12/27/90, effective 1/31/91. Statutory Authority: P.L. 99-339. 89-21-020 (Order 336), § 248-54-285, filed 10/10/89, effective 11/10/89. Statutory Authority: RCW 34.04.045. 88-05-057 (Order 307), § 248-54-285, filed 2/17/88. Statutory Authority: RCW 43.20.050. 83-19-002 (Order 266), § 248-54-285, filed 9/8/83.]

Rev. March 2, 1990

CITY OF KENNEWICK STANDARDS FOR BACKFLOW PROTECTION ON ALL FIRE SYSTEMS

1. The possible growth of offensive micro-organisms,potential buildup of heavy metals, and the likelihood of corrosive inhibitors is possible in fire systems where water is allowed to stand for long periods of time. Any of these items create taste, odor, and possible hazardous problems when allowed to enter the potable water lines. For this reason, backflow prevention assemblies are required on all fire systems.

2. The Public Works Director may require a detector-check meter to be installed on a system to monitor for unauthorized use or leakage within the fire system. This will require the use of a Double Check Detector Assembly or Reduced Pressure Detector Assembly depending on the degree of hazard as determined by the Cross Connection Inspector.

3. All fire system are required to have backflow protection commensurate with the following degree of hazard:

   A. <u>High Hazard Fire Systems</u> - A Reduced Pressure Backflow Assembly or Reduced Pressure Detector Assembly is required.

      1. All fire systems which have fire fighting foam or the potential for foam to be connected.
      2. Systems where an unapproved water supply is permanently connected to a fire system.
      3. Systems in which chemicals or antifreeze is allowed.

   B. <u>Low Hazard Fire Systems</u> - Double Check Valve Assembly or Double Check Detector Assembly is required.

      1. All fire systems not included under "High Hazard Fire Systems".

   C. <u>Residential Fire Systems</u>

      1. Flow through fire systems using potable water pipe and materials do not need backflow protection.

      2. Double Check Valve Assembly required on all other systems without chemicals added.

      3. Reduced Pressure Backflow Assembly is required on all systems with chemicals added.

4. NOTE: If the backflow assembly or device is an excessive distance from the public main, the director may require an approved soft seated single-check valve be installed at the main to provide protection from possible stagnant water.

5. NOTE: This policy applies to all new fire services being installed and on exiting fire systems as changes or additions are made to these. At such time as an existing building or premise is inspected during the routine cross-connection inspection program and its fire system protection found inadequate as to these standards the cross-connection inspector will make a report and recommendation thereof.

SECTION 2

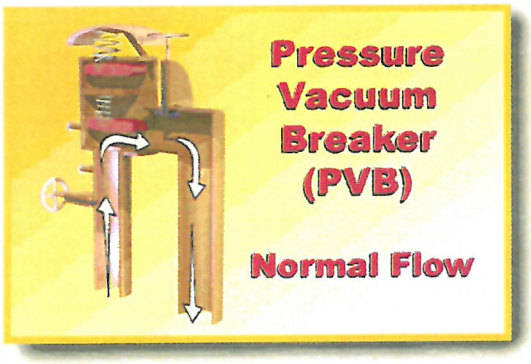
TYPES AND INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES

Four Types of Backflow Prevention Assemblies

Each assembly has different features and purposes. Choose an assembly that meets your needs.

Pressure Vacuum Breaker Assembly (PVBA)

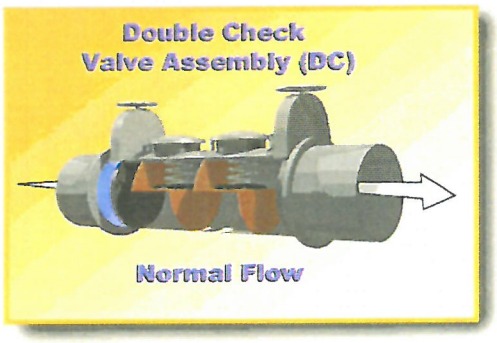
A PVB is a mechanical backflow preventer that consists of an independently acting, spring-loaded check valve and an independently acting, spring-loaded, air inlet valve on the discharge side of the check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks. A PVB may be used to isolate health or non-health hazards but is effective against backsiphonage only.



- Used for irrigation systems supplied by City water only
- Installed 12" above highest piping point
- State requires annual testing by State-certified tester

Double Check Valve Assembly (DCVA)

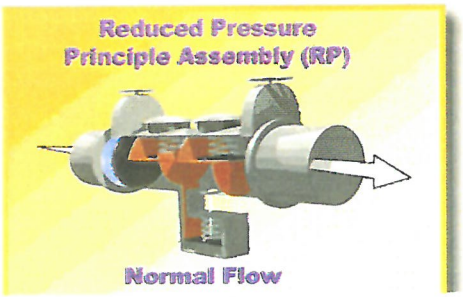
A DCVA is a mechanical backflow preventer that consists of two independently acting, spring-loaded check valves. It includes shutoff valves at each end of the assembly and is equipped with test cocks. A DCVA is effective against backpressure backflow and backsiphonage but should be used to isolate only nonhealth hazards.



- Highly versatile
- Install anywhere (above or below ground)
- Used for irrigation systems supplied by city water (
- Low-hazard sites such as apartment buildings
- State requires annual testing by State-certified tes

Reduced Pressure Backflow Assembly (RPBA)

An RPBA is a mechanical backflow preventer that consists of two independently acting, spring-loaded check valves with a hydraulically operating, mechanically independent, spring-loaded pressure differential relief valve between the check valves and below the first check valve. It includes shutoff valves at each end of the assembly and is equipped with test cocks. An RPBA is effective against backpressure backflow and

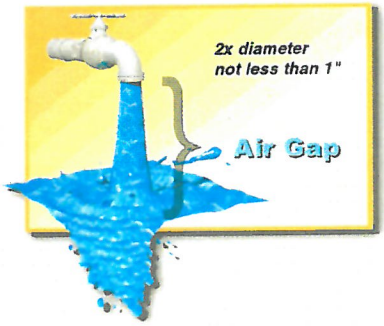


backsiphonage and may be used to isolate health or non-health hazards.

- Usually most expensive and complex
- Installed above ground
- Used at high-hazard sites such as hospitals, chemical plants, mortuaries
- Only device that allows for applying fertilizer or other chemicals into irrigation systems
- State requires annual testing by State-certified tester

Air Gap

An air gap is a vertical, physical separation between the end of a water supply outlet and the flood-level rim of a receiving vessel. This separation must be at least twice the diameter of the water supply outlet and never less than one inch. An air gap is considered the maximum protection available against backpressure backflow or backsiphonage but is not always practical and can easily be bypassed.



- Used for high health hazard situations.
- Not always practical.
- Vulnerable to bypass arrangements
- Use of an air gap often exposes water to dust, debris, air contaminants and pollutants.

Chapter 7
RECOMMENDED INSTALLATION PRACTICE

INTRODUCTION

All backflow prevention assemblies must be installed in a manner that will facilitate their proper operation, and in-line testing and maintenance. They must also be installed in compliance with safety regulations, and all applicable building and plumbing code regulations. An improper assembly installation decreases the reliability of the assembly in preventing backflow because:

- an unsafe or inaccessible location reduces the likelihood of an assembly being tested and maintained
- improper orientation of an assembly may prevent its proper operation
- installation in a hazardous environment may allow contaminants to enter the assembly through test cocks, relief valve ports or air inlets, or corrosion damage
- freezing temperatures or high temperatures may damage the assembly

Each manufacturer provides recommendations for the proper installation of their assemblies. While it is important to consult the manufacturer's instruction prior to the installation of any assembly, the water purveyor or other approval authorities may have installation requirements that differ from the manufacturer's recommendations. In all cases, the more stringent installation requirements of the water purveyor must govern.

GENERAL INSTALLATION REQUIREMENTS

The following installation practices are common to all backflow prevention assemblies:

1. An assembly installed more than five (5) feet above floor or ground level must have a permanent platform under it for the tester or maintenance person to stand on. The platform must comply with all applicable safety standards and codes in effect.

2. When installed in an enclosure, adequate space consideration must be given for proper testing and maintenance.

3. Any assembly or device with an air inlet or relief valve port must be installed outside any enclosure or hooded area containing fumes that are corrosive, toxic, or poisonous.

   Any assembly or device with an air vent or relief valve port must not be installed in a pit or trench below ground level, or in other areas where they may be flooded. Flooding of the pit or area could result in a direct cross connection through the air vent or relief valve port. Semi-

buried pits may be acceptable (consult the water purveyor) if the air vent or relief valve is installed above the ground or maximum flood level with an approved air gap between the relief valve and a daylight drain (see Figure 7-3). The daylight drain from above grade or semi-buried vault must:

- Be able to be bore sighted to a discharge point installed above the ground or maximum flood level, whichever is higher.
- Be able to handle the volume of water that potentially could be discharged from the relief valve port (see chart, Chapter 6, Figure 6-8).

4. In all cases, whenever access to a vault is required, follow and comply with state or provincial and local safety requirements regarding confined space entry. The vault shall be large enough for free access for workers to enter for testing and/or repairing the assembly. This includes adequate clearance all around the assembly for maintenance. Include an adequate hatch in the cover, or complete cover removal, through which personnel may access the vault. Provisions must be made for crane access for removing and installing larger assemblies. Large vaults must also be provided with ladders.

   Several manufacturer's "Y" pattern assemblies require removal of the number two check valve from the bottom. Space below the assembly must be allowed for this, or the assembly may be installed on its side.

5. Be careful to insure that the assembly is not installed where the temperature and pressure is maintained above the assembly's rated capacities.

6. Water hammer downstream of the assembly can cause excessive pressure. To avoid possible damage to the system and assembly from this situation, use water hammer arresters or surge protectors.

7. It must be realized by the purveyor that a check valve placed on a water service can prevent the release of pressure from thermal expansion. Serious damage could occur to a plumbing system if the pressure and high temperature caused by thermal expansion is not relieved. In particular, excessive water temperature and/or excessive water pressure in hot water heaters (tanks), if not relieved, could cause the hot water tank to explode. The customer's hot water tank, and connected plumbing system, would normally be protected by a temperature- pressure relief valve located at or near the top of the hot water heater. In addition, under plumbing codes, a thermal expansion tank may be required.

8. Size the assembly hydraulically to avoid excessive pressure loss. The head loss is not necessarily proportional to flow. Some assemblies have a high head loss at low flows and low head loss at high flows.

9. In areas where debris content in the water supply is high, good plumbing practice recommends a strainer with blowout tapping ahead of the assembly.

10. Assemblies 2 1/2 inches and larger shall have support blocks to prevent damage to the assembly or piping. Consult the specific manufacturer for the recommended location of supports.

11. Thoroughly flush the lines before installing the assembly to eliminate debris from the lines. Years of experience have shown that most "failure to test satisfactory" results in new installations are caused by debris fouling one of the check valves or the relief valve.

12. Where an assembly or device with an air vent or relief valve port is located inside a building, it must be installed in a location where both the occasional spitting from the relief valve port or air vent, and the possible constant discharge during a fouled check situation (e.g., RPBA), will not be objectionable.

13. In selecting the location of all assemblies, consideration should be given to the spillage of water during testing.

14. For installations where 24 hour uninterrupted service is a necessity, a parallel assembly should be provided to permit assembly testing and maintenance. The by-pass or parallel assembly must be of the same type as the main line assembly (i.e., it must provide the same degree of protection).

15. The possibility of theft and vandalism should be considered when choosing a location for a backflow prevention assembly.

16. Backflow prevention assemblies should be protected from accidental physical damage. Assemblies placed in work areas, areas of public access or vehicular traffic should be protected by fenced enclosures, stanchions, or other similar means.

17. Landscaping should be considered for above ground assemblies when they are in public view (e.g., assemblies installed at the water meter used for premise isolation).

INSTALLATIONS REQUIRING CONTINUOUS SERVICE

If a customer requires continuous, uninterrupted service, provisions shall be made for the parallel installation of two or more backflow prevention assemblies of the same type. The two or more assemblies shall have a combined capacity to maintain the flow rate of the single service pipe as established by the AWWA* specification for that size of pipe. Two separate services, with a single assembly on each, may also be installed. Service to hospitals is one example where this type of installation is required.

* See AWWA Manual M22, *Sizing Water Service Lines and Meters.*

INSTALLATION REQUIREMENTS SPECIFIC TO ASSEMBLIES

REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA)
REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA)

The following installation practices are common to all reduced pressure principle assemblies and reduced pressure detector assemblies:

1. An RPBA shall only be installed in the orientation for which they are approved (e.g., horizontal configuration). Any other orientation may deter the RPBA from preventing backflow. For example, assemblies approved for vertical installation may have the check valve and isolating valve features installed in the vertically, but the relief valve feature installed horizontal.

2. Because of the inherent design of a reduced pressure backflow assembly, fluctuating supply pressure condition may cause nuisance dripping and potential fouling of the assembly. In a static condition (i.e. an RPBA on the make-up water line to a boiler), the zone of reduced pressure between the check valves must be maintained at a 2.0 psi or greater differential below the incoming supply pressure. Depending on the degree of fluctuating supply pressure, the assembly may discharge water from time to time. This nuisance discharge can potentially foul the first check valve. While not effective in all cases, the installation of a soft seated spring loaded check valve immediately ahead of the RPBA will often hold the pressure constant to the assembly in times of fluctuating supply pressure.

3. Must be installed a minimum of 12 inches above grade as shown in Figure 7-1.

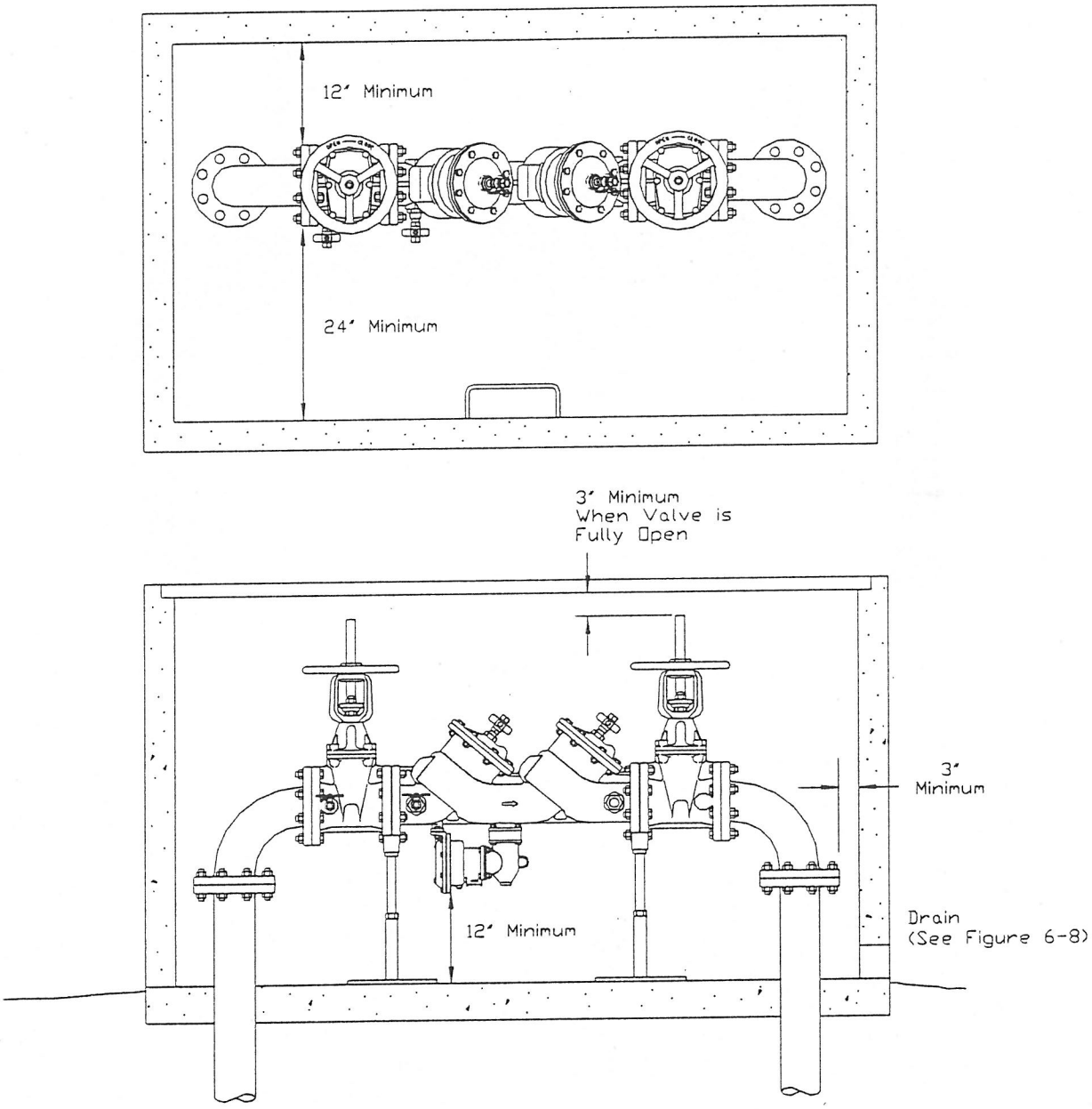


Figure 7-1
Minimum Clearances For RPBA Installation

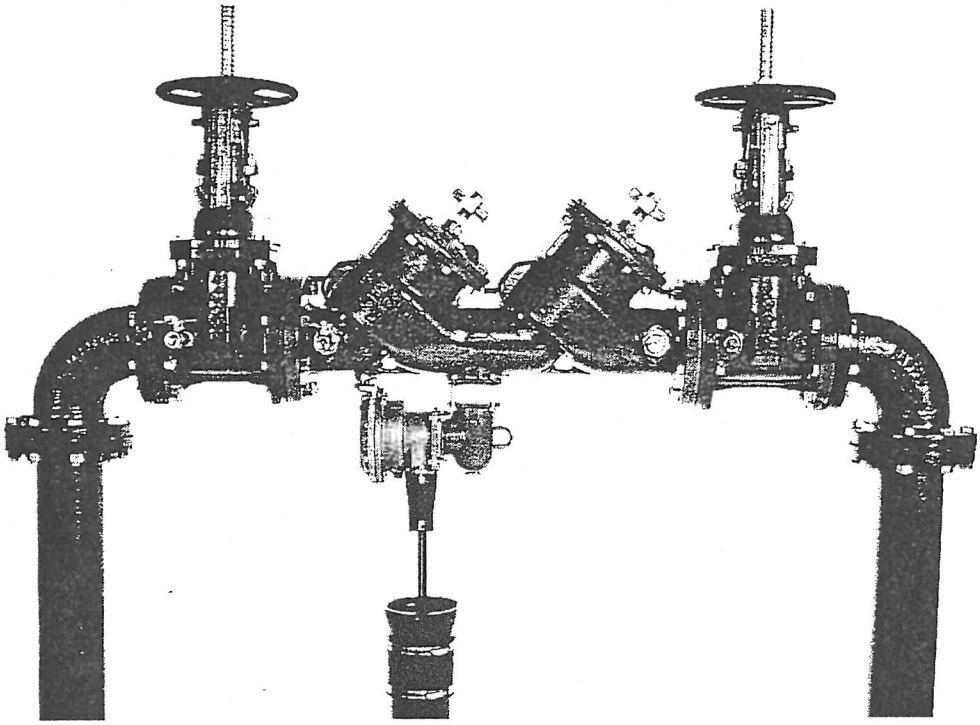


Figure 7-2
RPBA Installation

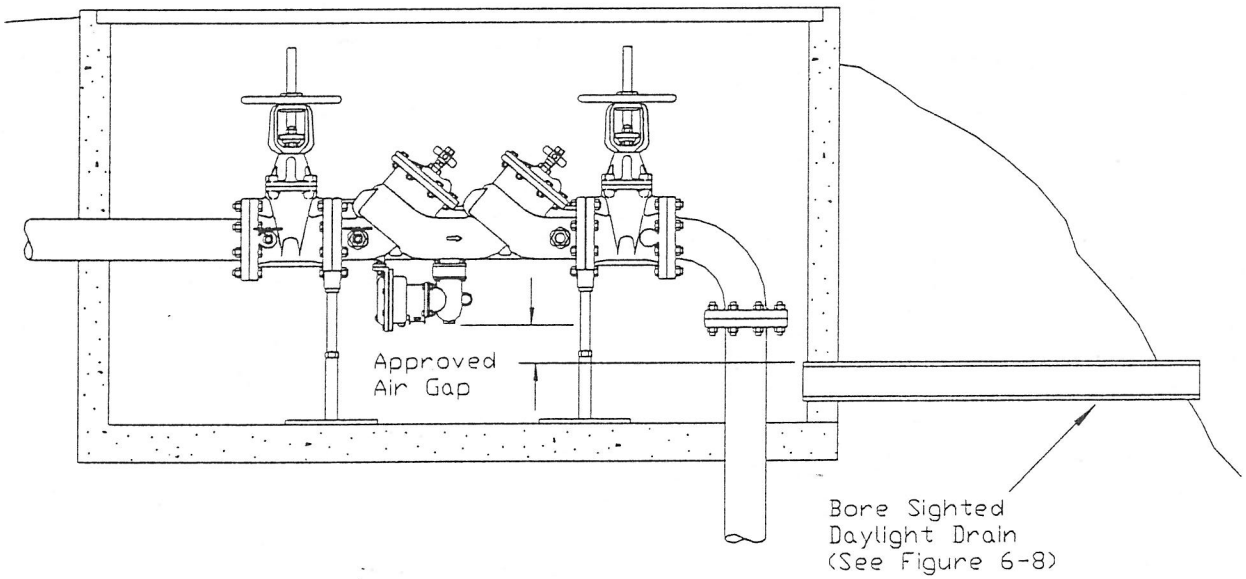


Figure 7-3
RPBA Installation In Semi-Buried Pit

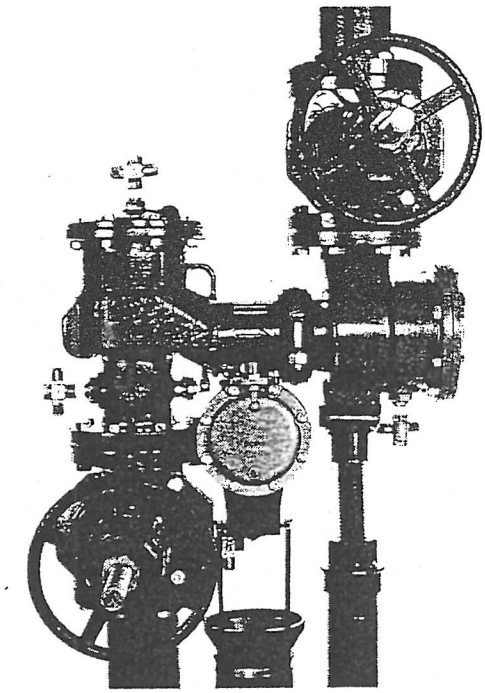


Figure 7-4
RPBA 'Vertical' Installation
Photo courtesy of FEBCO

DOUBLE CHECK VALVE ASSEMBLY (DCVA)
DOUBLE CHECK DETECTOR ASSEMBLY (DCDA)

The following installation practices are common to all double check valve assemblies and double check detector assemblies:

1. Unless the DCVA has been evaluated and approved by the authority having jurisdiction, it shall only be installed in a horizontal configuration. Any other orientation may deter the DCVA from preventing backflow.

2. A DCVA may be installed in a pit below ground. If so, adequate room for testing and maintenance must be provided. Plugs should be installed in the test cocks to reduce the risk of groundwater being siphoned through a leaking test cock.

   The following are the recommended minimum size for a meter box for below ground DCVA installation:

   ¾" to 1" Assemblies: 10"×13"

   1¼" to 2" Assemblies: 14"×20"

   The DCVA must be installed with test cocks facing up or to one side.

   Sufficient drainage must be provided to prevent assembly from being submerged.

   "Y" pattern DCVA, when installed in a box below ground level, must NOT have the test cocks facing downward.

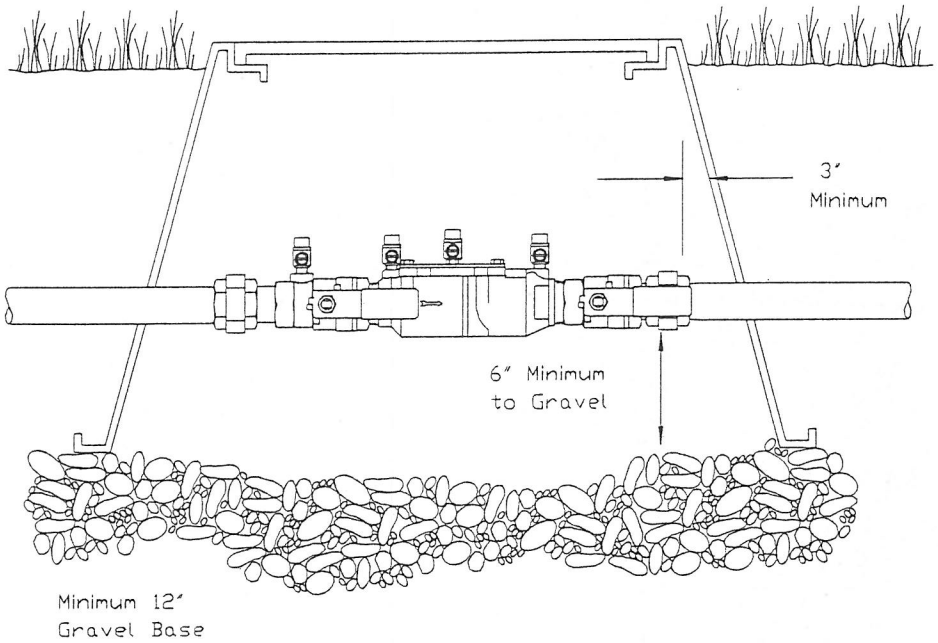


Figure 7-5
Small DCVA Installation - Below Ground Box

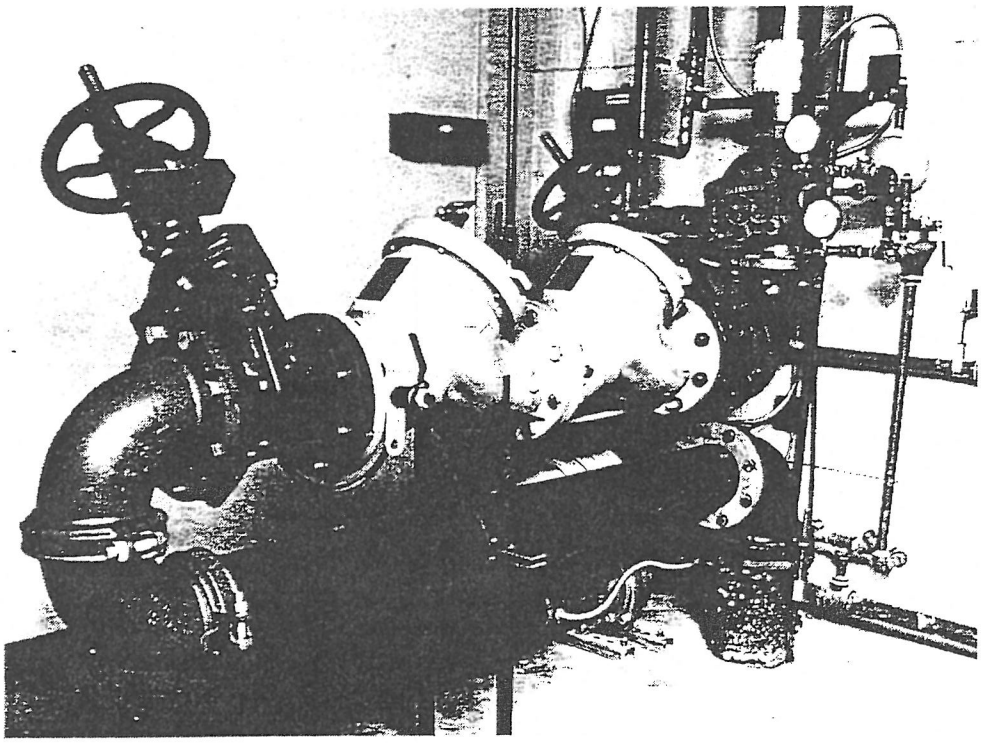


Figure 7-6
DCVA Fire Line Installation

PRESSURE VACUUM BREAKER ASSEMBLY (PVBA)
SPILL-RESISTANT VACUUM BREAKER ASSEMBLY (SVBA)

The following installation practices are common to all pressure vacuum breaker assemblies and all spill-resistant vacuum breaker assemblies:

1. A PVBA shall only be installed in a vertical configuration a minimum of 12 inches above the highest downstream piping.

2. An SVBA shall only be installed in a vertical configuration a minimum of 12 inches above the highest downstream piping. The SVBA shall be treated the same as a PVBA because of the potential for the SVBA to be replaced by a PVBA.

   When the SVBA is located inside a building, the concern is not as great about its installation in a location where the occasional spitting from the air inlet port could be a problem when the assembly is first pressurized. The SVBA is spill resistant, not spill proof. Spillage of water during testing and regular use should continue to be a concern.

   The above noted installation requirements should be applied to PVBAs and SVBAs accepted by the water purveyor for or in lieu of premise isolation. Some plumbing codes may allow the installation of a SVBA with less than 12-inches above the highest downstream piping.

ATMOSPHERIC VACUUM BREAKER DEVICE (AVB)

The following installation practices are common to all atmospheric vacuum breaker devices.

1. An AVB shall be installed only in a vertical configuration, at least 6 inches above all downstream piping (highest point of use).

2. No control valve shall be installed on the downstream side of an AVB. The AVB shall be pressurized for more than 12 hours in any 24 hour period.

FREEZE PROTECTION

Backflow prevention assemblies are installed on all types of water services, so it is not always appropriate to shut down a system to drain the assembly to prevent freezing. All backflow prevention assemblies that are installed above ground level, or in shallow boxes or vaults, must have provisions for freeze protection in areas where freezing may occur. Table 7-1 provides test results that show how freeze protection affects the freezing time of pipes.

Experience has shown that freeze damaged assemblies are often damaged beyond repair, so they must be replaced. Therefore, it is a major consideration to provide freeze protection when initially installing an assembly. Freeze protection may be provided in two ways: provide a permanent heated location, or shut off and drain the service for winter.

Services That Require Year Round Operation

In most cases, some type of permanent shelter should be provided for the assembly, or if possible, the assembly should be installed in a building with an adequate source of heat. There are several types of commercially available enclosures that will usually protect the assembly from freezing.

Several considerations must be taken into account if a backflow prevention assembly is installed at the property line, as in the case of premise isolation:

- Electricity may be required for lighting and heaters. Adequate space must be provided and local electrical codes must be satisfied.
- Drainage is required from above ground shelters for reduced pressure backflow assemblies. Refer to Chapter 6, Figure 6-8 as a guide for proper drain size.
- If the shelter is not removable, room for testing and maintenance must be provided.

Table 7-1
Freeze Times Of Protected And Unprotected Pipe
(in a no-flow condition)

Pipe Size	Wind Speed	Insulation	Ambient Temperature	Minutes To Freeze
3/4"	7.5 mph	0	10°F	2.9
3/4"	7.5 mph	R=8.3	10°F	42.6
2"	7.5 mph	0	10°F	8.9
2"	7.5 mph	R=8.3	10°F	86.4
4"	7.5 mph	0	10°F	19.3
4"	7.5 mph	R=8.3	10°F	142.8

Services Which May Be Shut Off for Winter

Water services which may be shut off for winter, such as irrigation services, pose different kinds of problems for freeze protection. In this case, a properly drained assembly can be left without additional freeze protection. Proper draining of a backflow prevention assembly begins in the installation stage. Some points to be considered are:

- A shutoff valve (resilient seated) should be installed on the upstream side of the assembly below ground level, or inside the building if possible.

- A drain valve should be installed between the shutoff valve and the assembly. If the shutoff valve is installed inside the building, the drain valve can effectively drain all the piping. If the shutoff valve is installed in the ground, a drain valve or stop and waste valve below ground level can become a submerged inlet, which is a cross connection. In this case, the valve must be installed at least 6 inches above ground level.

Provisions must also be made for draining downstream of the backflow prevention assembly. With RPBAs and DCVAs, connections for compressed air can be used along with a low point drain. PVBAs, SVBAs and AVBs, however, can only be drained using a low point drain since they must not be subject to backpressure.

If the water purveyor allows the use of unions so the assembly can be removed from line during the winter months, annual testing of the assembly must be scheduled in the spring to insure that the assembly is reinstalled and working properly.

Draining Procedure

1. Turn off the main shutoff valve, installed on the inlet side of the assembly.

2. Open all inlet and outlet drain valves, inlet and outlet shutoff valves, and all test cocks. Important: Leave all ball valves in a half-open position to allow for full drainage of the valve and to protect the valve from freeze damage.

3. If piping on the downstream side of the assembly will be blown out with compressed air, be sure to open the low point drain on the system and close the outlet shutoff valve on the assembly. Do not use compressed air to blow out the piping on the inlet side of the assembly.

4. Connect the compressed air line to the compressed air fitting, and introduce air of sufficient volume to clear the downstream piping. Be sure to open the assembly outlet shutoff valve when completed. Ball valves should be opened to a half open position.

5. To fully drain the backflow prevention assembly, it may be necessary to loosen the covers on the check and relief valves so entrapped water can drain from the valve cavities. Be sure to re-tighten the covers before placing the assembly back into service.

6. Upon completion, be sure that the main shutoff valve is in the closed position to prevent accidental refilling of the system.

NOTE: Below ground drain valves open to the atmosphere constitute a cross connection (e.g., they may allow groundwater to enter the water pipe).

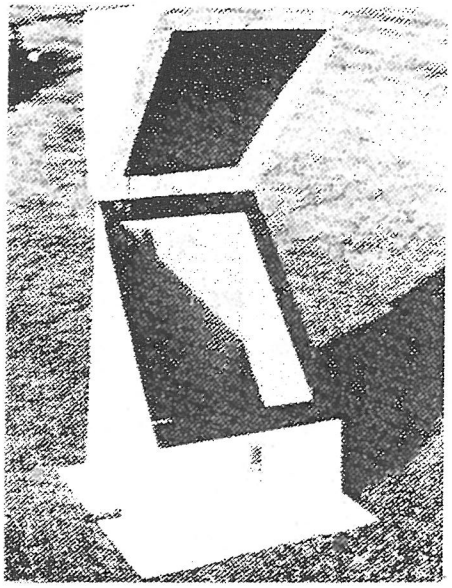


Figure 7-7
Small Insulated Enclosure

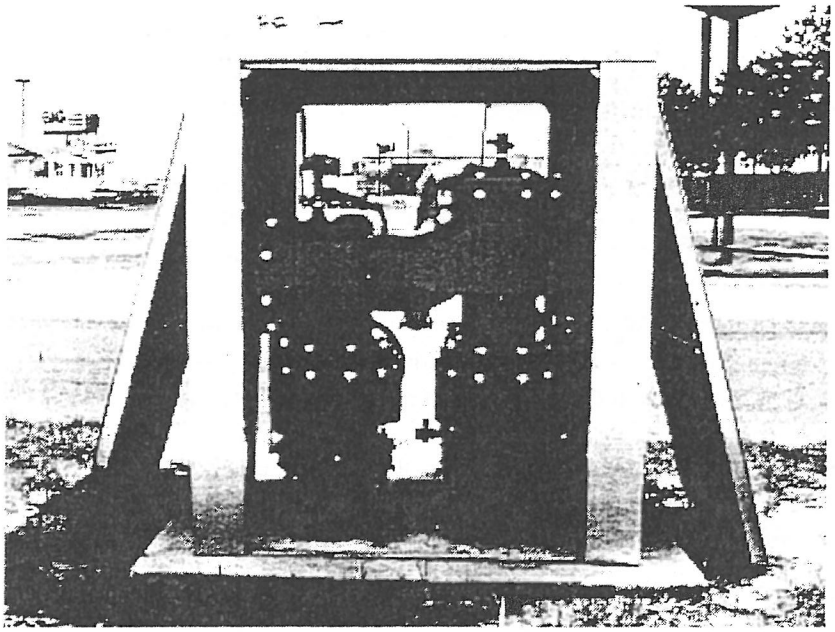


Figure 7-8
Large Insulated Enclosure

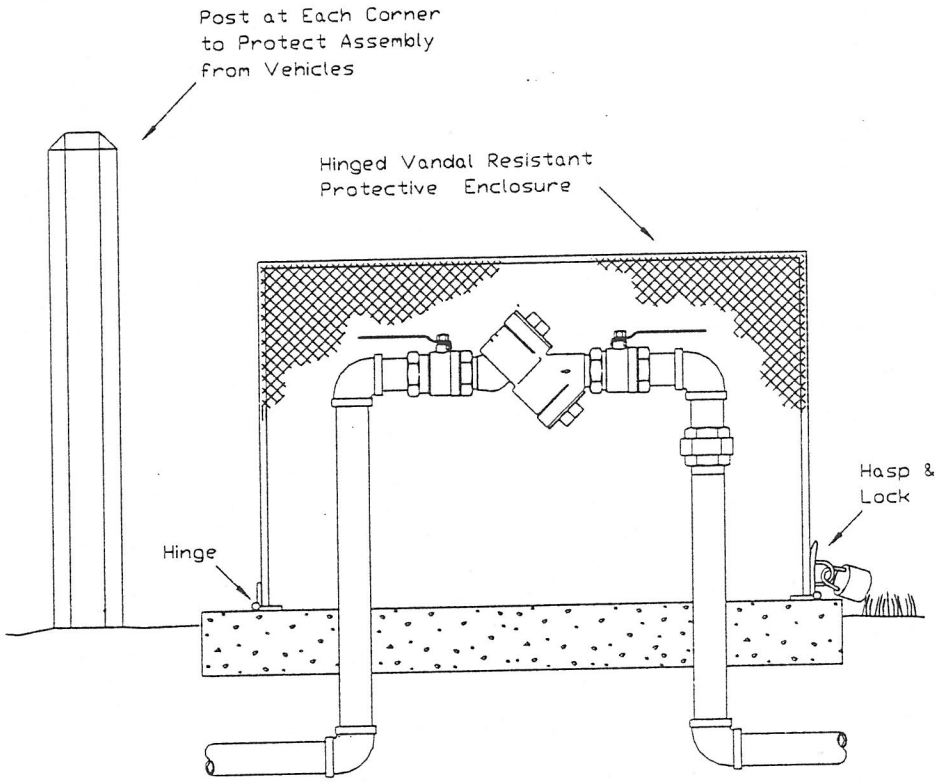


Figure 7-9
Protective Enclosure

SECTION 3

STATE OF WASHINGTON DEPARTMENT OF HEALTH, LIST OF APPROVED BACKFLOW ASSEMBLIES

NOTICE

- **This list replaces all previous DOH listings.**

- This DOH list is based on the Approved Backflow Prevention Assemblies List published by the University of Southern California (USC) Foundation for Cross-Connection Control and Hydraulic Research. Approvals are valid only if the original approval date or renewal date shown is within 3 years of the current date.

- From time to time, USC issues special Notices regarding assemblies. These notices may be found on the Internet at the following World Wide Web address: http//www/edu/dept/fccchr/notice.html

- All Double Check Valve Assemblies, Reduced Pressure Principle Assemblies, Double Check Detector Assemblies, and Reduced Pressure Principle Detector Assemblies are approved for **HORIZONTAL ORIENTATION ONLY**, unless specifically noted otherwise.

- As required in WAC 246-290-490(6), backflow assemblies are to be installed in a manner that;
  1. Facilitates their proper operation, maintenance, inspection and testing.
  2. Will not be subject to flooding.

- All assemblies are to be installed on **COLD** potable water applications, below 110 °F, unless otherwise specified by the manufacturer.

- A backflow prevention assembly in service, but not currently listed, may remain in service provided the assembly:
  1. Was listed on the DOH and/or USC list of approved backflow prevention assemblies at the time of installation;
  2. Has been properly maintained;
  3. Is of a type appropriate for the degree of hazard; and
  4. Has been tested at least annually and has successfully passed the annual tests.

  When an unlisted assembly does not meet the above conditions, is moved, or can not be repaired using spare parts from the original manufacturer, the unlisted assembly shall be replaced by an assembly currently listed by DOH.

- Use of spare parts other than those of the original manufacturer invalidates the assembly's approval.

ψ Only Spare Parts Available

Shutoff Valves

The backflow prevention assemblies shown on this list have been evaluated by USC with a specific set of shutoff valves as an integral part of the assembly. The specific shutoff valves are coded by a parenthetic code shown below the assemblies' model designations. This coding of shutoff valves is defined below. Other shutoff valves having similar performance characteristics which permit the assembly to meet the Specifications are also shown immediately after the original shutoff valves. **The use of any shutoff valve on a specific assembly, other than those listed for that specific assembly, invalidates the approval.** Assemblies listed as "only spare parts available", designated by the Greek letter (Ψ), may not include the shutoff valve designation.

Identification of shutoff valves:

(aa) American Figure 1 - QT
(bb) American Figure 17 - NRS RW
(cc) American Figure 37 - OSY RW
(dd) Apollo Series 7B - QT
(ee) AVK Series 25 - NRS
(ff) AVK Series 23 - OSY
(Nibco F607RW OSY)
(gg) Clow R/W F6102 - NRS
(hh) Clow R/W F6136 - OSY
(ii) Fortune Figure 620 - QT
Formerly Figure 601
private labeled as:
Ames
Buckner
Febco
Flomatic
Hersey
Wilkins
(jj) Kennedy Ken Seal I - NRS
(kk) Kennedy Ken Seal I - OSY
(ll) Kennedy Ken Seal II - NRS
(mm) Kennedy Ken Seal II - OSY
(nn) Lee Brass - QT
(oo) Watts 405-RW
(pp) Watts 408-OSY
(qq) Mueller R/W HP NRS
(rr) Mueller R/W HP OSY
(ss) Toro/Orion Integral Ball Valve - QT
(tt) American Flow Control
(Waterous) Series 500 - NRS
(uu) American Flow Control
(Waterous) Series 500 - OSY
(vv) Watts Figure FBV (& FBV-E) - QT
(ww) Watts G4000FDA - QT
(xx) Watts Series 6080 (& 6080-E) - QT
(yy) Matco-Norca 10RW (NRS)
(zz) Matco-Norca 105U (OSY)
(aaa) American Flow Control Series 2500-NRS
(bbb) American Flow Control Series 2500-OSY
(ccc) M&H Model 4067-02 (NRS)
(ddd) M&H Model 4068-02 (OSY)
(eee) Stockham Model G-610 (OSY)
(fff) Febco Series 620 - QT
(ggg) Fortune Figure 620U - QT
(hhh) Watts Figure S-FBV (& S-FBV-E) - QT
(iii) Mueller Model A2360 - NRS
(int) Shutoff valve is integral part of assembly
(jjj) Febco Series 621 - QT
(kkk) Febco Series 620U - QT
(lll) Mueller Model R2360 - OSY
(mmm) Conbraco Series IBVE-125 - QT
(nnn) Kennedy Ken Seal II Post Indicator/
Tapping Valve
(ooo) Febco Series 622-QT
(ppp) Clow Series 515–NRS
(qqq) Clow Series 515–OSY
(rrr) Apollo Series 7B–308–01 & 7B-308-31

ψ Only Spare Parts Available

APPENDIX V

STANDARD MAINTENANCE FORM

CITY OF KENNEWICK
WATER PLANT MAINTENANCE RECORD

Date Written:

ONE-TIME MAINTENANCE TASK:

ACTIONS TAKEN:

PERSONNEL, MATERIALS & EQUIPMENT REQUIRED:

COMMENTS:

COMPLETED BY: DATE OF COMPLETION:

(*Signatures* – Full Names)

Office of Drinking Water

Cross-Connection Control Program Summary Report For 2014

Describe the characteristics of the PWS's CCC Program at the end of 2014. Complete this form only if PWS had written CCC program plan, policies or procedures at end of 2014.

Part 1: Public Water System (PWS) Identification

PWS ID: 38100	PWS Name: KENNEWICK, CITY OF	County: BENTON

Part 2: Cross-Connection Control (CCC) Program Characteristics

A. Type of Program Currently Implemented

Type of Program	Check One
Premises isolation only.	☐
Combination program: reliance on both premises isolation and in-premises protection.	☑
In transition from a combination program to a premises isolation only program.	☐

B. Coordination with Authority Having Jurisdiction (AHJ) on Cross-Connection Issues

Indicate the status of coordination with AHJs in your service area. The AHJ is the entity that enforces the Uniform Plumbing Code.
Check one box in each of last 3 columns for each AHJ in your service area.

AHJ No.	Name of AHJ (e.g., the City or County Building Department)	PWS Currently:		AHJ Declined to Coordinate
		Coordinates with AHJ	Has Written Agreement with AHJ	
1	City of Kennewick Water Department	Y ☑ N ☐	Y ☑ N ☐	Y ☐ N ☑
2		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐
3		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐
4		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐
5		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐

[1] If more than 5 AHJs, attach separate sheet giving the above information.

C. Corrective or Enforcement Actions Available to the Purveyor

Type of Corrective Action	Indicate Whether Available	Most Often Used (Check One)
Denial or discontinuance of water service.	Y ☑ N ☐	☑
Purveyor installs backflow preventer and bills customer.	Y ☐ N ☑	☐
Assessment of fines (in addition to elimination or control of cross-connection).	Y ☐ N ☑	☐
Other corrective actions (describe):	Y ☐ N ☐	☐

D. CCC Program Responsibilities

Do not include enforcement action related procedures or circumstances.

CCC Program Activity	Responsible Party (Check one per row)	
	Customer	Purveyor
Hazard Evaluation by DOH-certified CCS	☐	☑
Backflow preventer (BP) ownership	☑	☐
BP installation	☑	☐
BP ***initial*** inspection (for proper installation - all BPs)	☐	☑
BP ***initial*** test (for testable assemblies)	☐	☑
BP ***annual*** inspection (Air Gaps and AVBs)	☑	☐
BP ***annual*** test (for testable assemblies)	☑	☐
BP maintenance and repair	☑	☐

E. Backflow Protection for Fire Protection Systems

Please remember to enter number of days allowed if you require retrofitting.

PWS coordinates with ***AHJ*** on CCC issues for fire protection systems(FPS).	Y ☑ N ☐ N/A ☐
PWS coordinates with ***local Fire Marshal*** on CCC issues for FPS.	Y ☑ N ☐ N/A ☐
PWS ensures backflow prevention is installed before serving ***new*** connections with FPS.	Y ☑ N ☐
PWS requires retrofits to ***high***-hazard FPS.	Y ☑ No. of days allowed: 90 N ☐ N/A ☐
PWS requires retrofits to ***low***-hazard FPS.	Y ☑ No. of days allowed: 90 N ☐ N/A ☐

F. Backflow Protection for Irrigation Systems

Minimum level of backflow prevention required on irrigation systems ***without*** chemical addition.	Not Addressed ☐ AVB ☑ PV/SVBA ☐ DCVA ☐ RPBA ☐
PWS currently inspects AVBs upon ***initial*** installation.	Y ☑ N ☐ N/A ☐
PWS currently inspects AVBs upon repair, reinstallation or relocation.	Y ☑ N ☐ N/A ☐

G. Used Water

PWS prohibits, by ordinance, rules, policy or agreement, the intentional return of used water (e.g. for heating or cooling) into the distribution system.	Y ☑ N ☐
If not prohibited at present, date plan to prohibit use.	N/A ☑
Current number of service connections returning used water to distribution system.	0

H. Backflow Protection for Auxiliary Water Supplies[1] NOT Interconnected with PWS

Indicate the minimum backflow preventer and type of protection required for service connections having unapproved auxiliary water supplies when they are NOT interconnected to the PWS. Check one box per row.

Existing service connections.	None ☐ DCVA ☐ RPBA ☑ AG ☐
Type of protection required.	None ☐ In-premises protection ☐ Premises isolation ☑
New service connections.	None ☐ DCVA ☐ RPBA ☑ AG ☐
Type of protection required.	None ☐ In-premises protection ☐ Premises isolation ☑

[1] An auxiliary water supply is any water supply on or available to customer's premises in addition to the purveyor's potable water supply.

I. Backflow Protection for Tanker Trucks and Temporary Water Connections

Minimum level of backflow protection (installed on or associated with the truck) required for tanker trucks taking water from PWS.	AG ☐ DCVA ☑ RPBA ☐ Not Specified ☐ Tanker trucks not allowed ☐
PWS requires tanker trucks to obtain water at designated filling sites each equipped with permanently installed backflow preventer(s).	Y ☐ (Min. protection: DCVA ☐ RPBA ☐) N ☑ N/A ☐ No sites provided ☐
PWS currently accepts tanker trucks approved by other PWSs without further inspection or testing.	Y ☐ N ☑ N/A ☐
Minimum level of backflow protection required for temporary water connections (e.g. for construction sites).	AG ☐ DCVA ☑ RPBA ☐ Not specified ☐ Temp. connections not allowed ☐
PWS requires testing each time the temporary connection backflow preventer is relocated.	Y ☑ N ☐ N/A ☐ (Temp. connections not allowed)
PWS provides approved backflow preventer for temporary connections.	Y ☐ N ☑ N/A ☐ (Temp. connections not allowed)

J. Backflow Protection for Non-Residential Connections

For each category shown, indicate whether PWS has non-residential connections of that type and the **minimum** level of ***premises isolation*** backflow protection required (whether or not PWS currently has that type of customer).

Type of Connection	PWS has Customers of this Type	Minimum Premises Isolation Backflow Protection Required
Commercial	Y ☑ N ☐	Not Required ☐ DCVA ☑ RPBA ☐
Industrial	Y ☑ N ☐	Not Required ☐ DCVA ☐ RPBA ☑
Institutional	Y ☑ N ☐	Not Required ☐ DCVA ☐ RPBA ☑
Other (specify): Marina	Y ☑ N ☐	Not Required ☐ DCVA ☐ RPBA ☑

K. Backflow Protection for Wholesale Customers

Indicate whether the PWS requires backflow protection at interties with wholesale customers (other PWSs).

Type of Intertie	PWS has (plans to have) Customers of this Type	Backflow Protection Required
Existing	Y ☑ N ☐	Not specified / Not required ☐ Always required ☑ Required only if purchaser's CCC program is inadequate ☐ Minimum required (if applicable): DCVA ☑ RPBA ☐
New	Y ☐ N ☐	Not specified / Not required ☐ Always Required ☑ Required only if purchaser's CCC program is inadequate ☐ Minimum required (if applicable): DCVA ☑ RPBA ☐

L. Exceptions to Mandatory Premises Isolation

PWS's written CCC Program Plan *allows* system to grant Exceptions to mandatory premises isolation per WAC 246-290-490(4)(b(iii).	Y ☑ N ☐ Doesn't Address ☐
PWS currently grants new Exceptions.	Y ☑ N ☐
PWS granted Exceptions in previous reporting years.	Y ☐ N ☑

Part 3: CCC Program Record-Keeping and Inventory

Indicate the type or name of computer software used by the PWS to track CCC records.

Cross-Track (BMI) ☐ BPMS ☑ XC2 (Engsoft) ☐ Tokay ☐ Other commercial CCC software (specify) ☐
Custom developed for or by PWS[1] ☐ Other non-CCC software (e.g. Excel) ☐ None Used ☐

[1] Do not include commercial CCC software customized for PWS. If PWS uses customized commercial software, check the box for the appropriate commercial software name.

Part 4: Comments and Clarifications

Enter comments or clarifications to any of the information provided in this report.

Part No.	Date Added	Comment
General	6/2/15	I took over the program March 1st of this year.

Part 5: CCC Program Summary Completion Information

I certify that the information provided in this CCC Program Summary is complete and accurate to the best of my knowledge.		
CCC Program Mgr. Name[1]: Ed Melville		Title: CCS/BAT
Signature:		Date: 06/23/2015
Phone: (509) 585-4307	E-mail*: ed.melville@ci.kennewick.wa.us	
I certify that the information provided in this report accurately represents the status and description of this water system's CCC Program.		
PWS Mgr/Owner Name[2]: Josh Pantzke		Title: Water Services Supervisor
Signature:	Op. Cert. No.: 013414	Date: 06/23/2015

*Required Field. For security reasons, an e-mail address must be provided. DOH will e-mail you to confirm any changes made to your data

[1] The CCC Program Manager is generally the CCS responsible for developing and implementing the PWS's CCC program.

[2] The person that the CCC Program Manager reports to or other manager having direct responsibility and/or oversight of the CCC program. This person doesn't need to be in charge of the entire water system.

APPENDIX W

CROSS-CONNECTION CONTROL PROGRAM SUMMARY REPORT

Office of Drinking Water

Cross-Connection Control Program Summary Report For 2014

Describe the characteristics of the PWS's CCC Program at the end of 2014. Complete this form only if PWS had written CCC program plan, policies or procedures at end of 2014.

Part 1: Public Water System (PWS) Identification

PWS ID: 38100	PWS Name: KENNEWICK, CITY OF	County: BENTON

Part 2: Cross-Connection Control (CCC) Program Characteristics

A. Type of Program Currently Implemented

Type of Program	Check One
Premises isolation only.	☐
Combination program: reliance on both premises isolation and in-premises protection.	☑
In transition from a combination program to a premises isolation only program.	☐

B. Coordination with Authority Having Jurisdiction (AHJ) on Cross-Connection Issues

Indicate the status of coordination with AHJs in your service area. The AHJ is the entity that enforces the Uniform Plumbing Code.
Check one box in each of last 3 columns for each AHJ in your service area.

AHJ No.	Name of AHJ (e.g., the City or County Building Department)	PWS Currently:		AHJ Declined to Coordinate
		Coordinates with AHJ	Has Written Agreement with AHJ	
1	City of Kennewick Water Department	Y ☑ N ☐	Y ☑ N ☐	Y ☐ N ☑
2		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐
3		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐
4		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐
5		Y ☐ N ☐	Y ☐ N ☐	Y ☐ N ☐

[1] If more than 5 AHJs, attach separate sheet giving the above information.

C. Corrective or Enforcement Actions Available to the Purveyor

Type of Corrective Action	Indicate Whether Available	Most Often Used (Check One)
Denial or discontinuance of water service.	Y ☑ N ☐	☑
Purveyor installs backflow preventer and bills customer.	Y ☐ N ☑	☐
Assessment of fines (in addition to elimination or control of cross-connection).	Y ☐ N ☑	☐
Other corrective actions (describe):	Y ☐ N ☐	☐

D. CCC Program Responsibilities

Do not include enforcement action related procedures or circumstances.

CCC Program Activity	Responsible Party (Check one per row)	
	Customer	Purveyor
Hazard Evaluation by DOH-certified CCS	☐	☑
Backflow preventer (BP) ownership	☑	☐
BP installation	☑	☐
BP ***initial*** inspection (for proper installation - all BPs)	☐	☑
BP ***initial*** test (for testable assemblies)	☐	☑
BP ***annual*** inspection (Air Gaps and AVBs)	☑	☐
BP ***annual*** test (for testable assemblies)	☑	☐
BP maintenance and repair	☑	☐

E. Backflow Protection for Fire Protection Systems

Please remember to enter number of days allowed if you require retrofitting.

PWS coordinates with ***AHJ*** on CCC issues for fire protection systems(FPS).	Y ☑ N ☐ N/A ☐
PWS coordinates with ***local Fire Marshal*** on CCC issues for FPS.	Y ☑ N ☐ N/A ☐
PWS ensures backflow prevention is installed before serving ***new*** connections with FPS.	Y ☑ N ☐
PWS requires retrofits to ***high***-hazard FPS.	Y ☑ No. of days allowed: 90 N ☐ N/A ☐
PWS requires retrofits to ***low***-hazard FPS.	Y ☑ No. of days allowed: 90 N ☐ N/A ☐

F. Backflow Protection for Irrigation Systems

Minimum level of backflow prevention required on irrigation systems ***without*** chemical addition.	Not Addressed ☐ AVB ☑ PV/SVBA ☐ DCVA ☐ RPBA ☐
PWS currently inspects AVBs upon ***initial*** installation.	Y ☑ N ☐ N/A ☐
PWS currently inspects AVBs upon repair, reinstallation or relocation.	Y ☑ N ☐ N/A ☐

G. Used Water

PWS prohibits, by ordinance, rules, policy or agreement, the intentional return of used water (e.g. for heating or cooling) into the distribution system.	Y ☑ N ☐
If not prohibited at present, date plan to prohibit use.	N/A ☑
Current number of service connections returning used water to distribution system.	0

H. Backflow Protection for Auxiliary Water Supplies[1] NOT Interconnected with PWS

Indicate the minimum backflow preventer and type of protection required for service connections having unapproved auxiliary water supplies when they are NOT interconnected to the PWS. Check one box per row.

Existing service connections.	None ☐ DCVA ☐ RPBA ☑ AG ☐
Type of protection required.	None ☐ In-premises protection ☐ Premises isolation ☑
New service connections.	None ☐ DCVA ☐ RPBA ☑ AG ☐
Type of protection required.	None ☐ In-premises protection ☐ Premises isolation ☑

[1] An auxiliary water supply is any water supply on or available to customer's premises in addition to the purveyor's potable water supply.

I. Backflow Protection for Tanker Trucks and Temporary Water Connections

Minimum level of backflow protection (installed on or associated with the truck) required for tanker trucks taking water from PWS.	AG ☐ DCVA ☑ RPBA ☐ Not Specified ☐ Tanker trucks not allowed ☐
PWS requires tanker trucks to obtain water at designated filling sites each equipped with permanently installed backflow preventer(s).	Y ☐ (Min. protection: DCVA ☐ RPBA ☐) N ☑ N/A ☐ No sites provided ☐
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PWS requires testing each time the temporary connection backflow preventer is relocated.	Y ☑ N ☐ N/A ☐ (Temp. connections not allowed)
PWS provides approved backflow preventer for temporary connections.	Y ☐ N ☑ N/A ☐ (Temp. connections not allowed)

J. Backflow Protection for Non-Residential Connections

For each category shown, indicate whether PWS has non-residential connections of that type and the **minimum** level of ***premises isolation*** backflow protection required (whether or not PWS currently has that type of customer).

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Industrial	Y ☑ N ☐	Not Required ☐ DCVA ☐ RPBA ☑
Institutional	Y ☑ N ☐	Not Required ☐ DCVA ☐ RPBA ☑
Other (specify): Marina	Y ☑ N ☐	Not Required ☐ DCVA ☐ RPBA ☑

K. Backflow Protection for Wholesale Customers

Indicate whether the PWS requires backflow protection at interties with wholesale customers (other PWSs).

Type of Intertie	PWS has (plans to have) Customers of this Type	Backflow Protection Required
Existing	Y ☑ N ☐	Not specified / Not required ☐ Always required ☑ Required only if purchaser's CCC program is inadequate ☐ Minimum required (if applicable): DCVA ☑ RPBA ☐
New	Y ☐ N ☐	Not specified / Not required ☐ Always Required ☑ Required only if purchaser's CCC program is inadequate ☐ Minimum required (if applicable): DCVA ☑ RPBA ☐

L. Exceptions to Mandatory Premises Isolation

PWS's written CCC Program Plan *allows* system to grant Exceptions to mandatory premises isolation per WAC 246-290-490(4)(b(iii).	Y ☑ N ☐ Doesn't Address ☐
PWS currently grants new Exceptions.	Y ☑ N ☐
PWS granted Exceptions in previous reporting years.	Y ☐ N ☑

Part 3: CCC Program Record-Keeping and Inventory

Indicate the type or name of computer software used by the PWS to track CCC records.

Cross-Track (BMI) ☐ BPMS ☑ XC2 (Engsoft) ☐ Tokay ☐ Other commercial CCC software (specify) ☐
Custom developed for or by PWS[1] ☐ Other non-CCC software (e.g. Excel) ☐ None Used ☐

[1] Do not include commercial CCC software customized for PWS. If PWS uses customized commercial software, check the box for the appropriate commercial software name.

Part 4: Comments and Clarifications

Enter comments or clarifications to any of the information provided in this report.

Part No.	Date Added	Comment
General	6/2/15	I took over the program March 1st of this year.

Part 5: CCC Program Summary Completion Information

I certify that the information provided in this CCC Program Summary is complete and accurate to the best of my knowledge.		
CCC Program Mgr. Name[1]: Ed Melville		Title: CCS/BAT
Signature:		Date: 06/23/2015
Phone: (509) 585-4307	E-mail*: ed.melville@ci.kennewick.wa.us	
I certify that the information provided in this report accurately represents the status and description of this water system's CCC Program.		
PWS Mgr/Owner Name[2]: Josh Pantzke		Title: Water Services Supervisor
Signature:	Op. Cert. No.: 013414	Date: 06/23/2015

*Required Field. For security reasons, an e-mail address must be provided. DOH will e-mail you to confirm any changes made to your data

[1] The CCC Program Manager is generally the CCS responsible for developing and implementing the PWS's CCC program.

[2] The person that the CCC Program Manager reports to or other manager having direct responsibility and/or oversight of the CCC program. This person doesn't need to be in charge of the entire water system.

APPENDIX X

FINANCIAL POLICIES

DETAIL POLICIES

FINANCIAL/BUDGETARY POLICIES

- ***Keep the City in a fiscally sound position in both the short and long terms.***

  - Ongoing operations of the City shall be funded from ongoing revenues.

  - Budgets for all funds shall be flexible in nature, with expenditures expanding and contracting based on actual revenues authorized by periodic budget adjustments.

  - Two-year budget projections for all operating and capital funds shall be prepared.

  - Revenues and expenditures should be budgeted as accurately as possible based upon historic trends and current conditions.

  - The City will maintain existing service levels and continue to evaluate how to most effectively deliver those services. The City should accept new requirements for service delivery only when adequate funding is made available.

  - Service levels will be reviewed by Council periodically and modified as necessary.

- ***Maintain sufficient financial liquidity to meet normal operating and contingency obligations.***

  - Maintain Fund Balances equal to 5% of operating expenditures to meet cash flow requirements in the general governmental operating funds (General Fund and Street Fund).

  - Land sale proceeds, other unanticipated revenues and budget under-expenditures shall be reviewed at least annually with Council to determine the priority use for these funds, including pre-payment of debt service, increase in General and Street Fund reserves, unanticipated projects, budget vulnerabilities and other priority new programs. This funding source would first be used to replenish the Cash Reserve Fund and General Fund Operating Reserve if either was to fall below the target.

  - Maintain a Cash Reserve Fund for revenue stabilization and contingencies equal to $2,500,000 in 2010. Beginning in 2011, the City will increase the Cash Reserve Fund annually by CPI (not less than 2%). The funding source for increasing the Cash Reserve Fund annually shall be undesignated Fund Balances, capital project funding that is not allocated for Council priority programs, or other operating revenues, in this order.

  - The purpose of the Cash Reserve Fund is to provide a fiscal means for the City to respond to potential adversities such as public emergencies, natural disasters or similarly major, unanticipated projects or circumstances, that were not foreseen when the biennial budget was prepared.

DETAIL POLICIES

- The Cash Reserve Fund should be replenished as soon as possible and always within three years from the time the reserve is used or falls below the target. Sources to replenish these reserves shall be from undesignated Fund Balances, deferring non-life safety capital, and operating revenues, in this order.

- Beginning in 2009, the City will implement an additional 6.5% utility tax on water and sewer utility services to be solely dedicated to fund the unfunded mandate of LEOFF I medical costs (bringing the total utility tax to 15.5%). As the LEOFF I medical liability is reduced and eventually eliminated, the utility tax rate will be reduced accordingly.

♦ ***Protect the City from catastrophic losses.***

- Maintain an insurance reserve for property, casualty, unemployment, sewer backup, medical and dental claims in an amount equal to consultant or actuarial requirements.

- Purchase medical, property and liability insurance to cover major losses as deemed appropriate by the City's risk management program.

♦ ***Have service users pay their fair share of program costs.***

- City utilities shall be 100% user supported.

- Development fees and charges will be reviewed every two years during the biennial budget process and compared with the cost of providing each service to determine if an appropriate level of cost recovery is attained. In all cases, the level of cost recovery shall be calculated based on the full cost of providing service, which includes all direct and indirect costs associated with the service being provided, including city-wide indirect costs. The appropriate level of cost recovery shall be determined based on the following criteria:

    - Whether the service benefits the community in general or only the individual or group receiving the service;
    - Whether the service is provided only by the public sector, or also by the private sector;
    - Whether the amount of the fee or charge would pose a hardship on specific service users;
    - Whether the amount of the fee or charge would place the city at an economic disadvantage;
    - Whether or not the amount of the fee or charge would cause an unrealistic demand on service;
    - Whether the amount of the fee or charge is reasonable and in line with the level of service being provided and requested.

DETAIL POLICIES

- Annually, a CPI factor (no more than 4% and no less than 0%) will be applied to all development fees and charges. However, development fees and charges shall not be increased in any year until such time that the cumulative increase based on the CPI factors since the last fee or charge increase is at least $5. In all cases, development fees and charges shall be rounded down to the nearest $5 increment.

- By the conclusion of the 2015/16 biennium, user fees shall contribute an average of 75% towards direct youth recreation services and operations. Adult programs will contribute an average of 100% toward direct recreation services and operations.

- Annually a CPI factor (no more than 4% and no less than 2%) will be applied to facility rental, administrative and usage fees and a local market comparison will be conducted where fees may be adjusted accordingly.

- A minimum of 20% Administrative Fee will apply to the direct labor costs for all recreation and senior center programs in order to help recover some of the indirect costs associated with the recreation programs.

- The cost to maintain a developed acre in Columbia Park will be calculated and annually a CPI factor (no more than 4% and no less than 2%) will be added to determine the appropriate rental fee in Columbia Park.

- All City fees, charges and rates shall be reviewed periodically to determine whether they meet targeted cost coverage. Adjustments shall be made in conjunction with the budget process.

♦ ***Operate utilities in a responsive and fiscally sound manner.***

- Utility rate studies shall be conducted at least every five years to update assumptions and ensure the long term solvency and viability of City utilities.

- Utility rates should be reviewed annually and adjusted if necessary to reflect inflation, construction goals, maintain bond covenants and avoid major periodic increases.

- Rates for the water/sewer utility shall include an annual capital contribution equal to the recovery of annual depreciation.

- Fund balances in enterprise funds shall be maintained at levels established through rate studies or at levels necessary to meet operating capital and contingency requirements.

- Excess fund balances shall be used to offset rate increases where possible, with any remaining balances being used for approved capital purposes.

DETAIL POLICIES

- Automatic Consumer Price Index (CPI) increases, up to a maximum of 4% per year, will be applied on an annual basis to Water & Sewer.

♦ ***Maintain existing infrastructure and capital assets.***

- When capital funding decisions are made, priorities shall be given to maintaining existing capital assets over the acquisition or construction of new facilities.

- Fully fund equipment replacement for all Enterprise Funds over the vehicle's estimated useful life.

- Provide for a comprehensive equipment and apparatus replacement schedule for fire department by utilizing the medical service fund equipment reserves & ongoing biennial contribution amounts for both General Fund ($300k plus inflation beginning in 2009) & Medical Services Fund ($350k). The policy includes utilizing external financing for the purchase of the ladder truck when market conditions dictate that it is most economical to do so, with the remainder of the vehicle and apparatus replacements being cash transactions. Beginning in 2011, the biennial contribution previously made from the General Fund shall be made from the Capital Improvement Fund ($315k).

- Beginning in 2011, provide for a comprehensive equipment and vehicle replacement schedule for the police department by utilizing an ongoing biennial contribution amount for the Capital Improvement Fund ($551k plus inflation beginning in 2011). The policy includes utilizing external financing through the State Local Option Capital Asset Lending (LOCAL) lease program or other external financing programs when market conditions dictate that it is most economical to do so.

- Proceeds of the optional one-half of one percent sales tax and proceeds from the quarter of one percent real estate excise tax (as allowed by State Statute) shall be used to fund City Council's priority Capital Improvement Program ("CIP") except for funds used to:

    - Replace Federal Revenue Sharing Funds in the amount of $500,000;
    - Replace the lost 35% of motor vehicle tax that occurred in 1986 upon implementation of the one-half percent optional sales tax in an amount calculated based on past historical motor vehicle excise tax inflated by 10% per year beginning in 2002 when motor vehicle excise tax was eliminated and no additional historical information was available;
    - Provide repayment of debt service on the 2003 CIP projects in the amount of approximately $670,000 per year beginning on January 1, 2009, until the bonds are paid-in-full;

DETAIL POLICIES

- Provide repayment of debt service on the police facility in the amount of approximately $725,000 per year beginning on January 1, 2007, until the bonds are paid-in-full;
- Support the City's economic development efforts in an amount equal to the optional sales tax received from economic development efforts up to a maximum of $500,000 per year beginning on January 1, 2009;
- Support the Public Facilities District for a portion of the debt service related to the construction of the Three Rivers Convention Center beginning in 2001 as per Ordinance No. 5001 in the amount of $725,000 per year;
- Provide for up to $150,000 annually (plus inflation annually) to fund priority facility related improvements beginning January 1, 2011;
- Provide for up to $250,000 annually (plus inflation annually) to fund priority technology related improvements beginning January 1, 2011;
- Provide contributions to the Police and Fire vehicle and apparatus replacement programs, respectively, beginning in 2011 (see items above).

- Each year, City Council shall evaluate making a $1 million transfer from the General Fund to the Capital Fund in order to implement Council priority programs.

- The admissions tax shall be receipted into the General Fund and used as determined based on budgetary priorities, except for the amount collected from the Toyota Center for admissions, which is receipted into the General Fund to help offset the General Fund operating subsidy to the Toyota Center. In the event that no operating subsidy is needed, this amount will be dedicated to repayment of debt service at the facility.

- The basic 2% hotel/motel tax in the Lodging Tax Fund will continue to support the City's portion of Tri-Cities Visitor and Convention Bureau, event promotion funding and a portion of the debt service on the Toyota Center. An additional 2% hotel/motel tax was enacted in 1998 and is dedicated to debt service related to the purchase of the Toyota Center and Ice Arena. Beginning in 2009, an additional $50,000 in ongoing lodging tax revenues will be used to pay down the debt service on the Toyota Center. Beginning in 2013, $150,000 in ongoing lodging tax revenues will support the Toyota Center operating subsidy.

- The City shall review the annual operating results for the Toyota Center & Arena and compare the results to the budgeted operating subsidy for the year as approved by the Kennewick Public Facilities District (KPFD). Subject to any legal restrictions attached to the revenue source(s) utilized by the City to fund its operating subsidy to the Toyota Center & Arena, any positive variance between the actual net operating loss and the operating subsidy level budgeted for the year shall be retained by the facilities and designated for the following purposes:

  - To provide funding for unanticipated capital projects, improvements,

maintenance or major repairs required at the facilities. These projects shall be subject to the review and approval of the Joint Coliseum Advisory Committee (JCAC), or the Committee's designee, prior to the commencement of the projects.

- To supplement the operating subsidy provided to the Toyota Center & Arena in any year that the annual operating loss for the facilities exceeds the operating subsidy budgeted for the year. Any use of designated funds for this purpose shall also be subject to the review and approval of the JCAC.

♦ ***Establish accountability in budget monitoring.***

- The City Council shall set total appropriations at the fund level.
- Department heads are responsible for managing their budgets within the total appropriated budget.
- Any budget adjustment between funds shall be approved by the Council in budget amendments and by adopted ordinances.
- Budget adjustments within a fund shall be approved by the City Manager and reported to the City Council. Adjustments affecting program implementation or modification of total appropriation require Council approval.
- Department expenditures shall be made from appropriate Budgeting, Accounting and Reporting System (BARS) accounts, not an account where an excess of funds may exist.

♦ ***Provide financial reports in a timely and understandable manner.***

- Quarterly financial reports discussing major trends, the status of Kennewick's financial operations, and other related information shall be distributed to all managers, the Mayor, the City Council and made available to the interested public.
- A Comprehensive Annual Financial Report, prepared in accordance with generally accepted accounting principles, shall be distributed to interested parties and to GFOA for certification.
- The City's budget document shall be prepared in a manner to best implement the budgetary policies of the Council.

DETAIL POLICIES

DEBT POLICIES

- Revenue bonds and LIDs shall be used to finance improvements when applicable.
- Financing for the majority of capital assets, other than infrastructure, shall normally be made over the life of the asset, or 20 years, whichever comes first.
- Councilmanic bonds and lease financing can be used to fund infrastructure where positive cost/benefit ratios exist or where there is no other source of funds.
- Voter approved general obligation bonds and special levies shall be used to finance major projects with high visibility such as fire stations, library, swimming pools, trails, waterfront projects, community parks, etc.

CASH MANAGEMENT POLICIES

- The City's cash management philosophy is to invest public funds in a manner that provides for the highest investment return with the maximum security while meeting daily cash flow demands. The City's investment policy defines authorized investment instruments in accordance with State law. The City's portfolio consists of certificates of deposit, U.S. agency issues and the State Treasurer's Investment Pool.
- The primary objective of the City's investment activities is safety of principal. To attain this objective, no more than half of the portfolio is invested in a single security type or with a single financial institution.
- To the extent possible, the City attempts to match its investments with anticipated cash flow requirements. Unless matched to a specific cash flow, the City does not directly invest in securities maturing more than five years from the date of purchase.
- Reserve or CIP Funds may be invested in securities exceeding five years if the maturity of such investments are made to coincide as nearly as practicable with the expected use of the funds.

ECONOMIC DEVELOPMENT POLICIES

- ***Develop and implement an economic development strategy that supports and expands the City's existing retail, wholesale, service, light industrial, distribution and the tourism sectors of the local economy.***
  - Support and find opportunities for the Bridge to Bridge Plan implementation.

DETAIL POLICIES

- Provide resources for businesses and entrepreneurs that will encourage their growth.
- Identify opportunities that create a "sense of place" and develop unique assets to improve quality of life.
- Develop a sustainability program.
- Seek public-private partnership to help fulfill goals.

♦ ***Create jobs that pay livable wages and broaden the tax base.***

- Support the tourism sector of the local economy and look for opportunities to increase tourism offerings.
- Develop a strategy that works toward the continued expansion of industrial development.
- Support a strategy that supports recruitment, expansion and retention of primary jobs of a non-industrial nature.
- Support education and workforce development that prepares workers for jobs in target industries.
- Encourage affordable infill single-family construction through flexibility in development techniques.
- Recognize manufactured housing as an important component of the single-family market.
- Authorize opportunities for group home housing within a variety of residential settings.
- Identify strategies for promoting affordable housing.
- Permit condominium, zero lot line and other non-traditional and innovative residential development opportunities throughout the urban area.
- Encourage an assortment of multi-family residential developments to increase the residential rental supply.

DETAIL POLICIES

- ***Promote neighborhoods which contain appropriate support facilities, and promote quality of life through aesthetic considerations.***

  - Continue to promote development of park and/or recreational facilities jointly with the school district.

  - Encourage the extension and use of irrigation services throughout all residential areas to support and maintain a healthy landscape environment.

  - Provide code enforcement services to support aesthetic and public or private property improvements.

- ***Promote a variety of residential densities throughout the urban area.***

  - Low-density residential areas are characterized by developments of up to four units per acre.

  - Medium-density residential areas are characterized by developments of 5-13 units per acre.

  - High-density residential areas are characterized by developments of 14-27 units per acre.

- ***Encourage the preservation of the existing housing stock through a broad strategy of public and private investments.***

  - Maintain an inventory of residential properties which possess one or more qualities of local historic significance.

  - Bolster private efforts to preserve local historic properties.

  - Pursue the abatement of dilapidated residential structures.

URBAN DESIGN POLICIES

- ***Enhance the aesthetics of the urban area.***

  - Develop logical circulation patterns for vehicles and pedestrians.

  - Landscape public right-of-ways with special emphasis given to those areas which have heavy pedestrian and motor traffic.

DETAIL POLICIES

- Enhance public pedestrian areas with benches, lighting, and similar amenities.
- Develop and implement a program of making traffic control boxes less noticeable.
- Encourage all existing commercial and industrial uses along state highways and major and minor arterials to develop and implement landscaping and building façade programs consistent with city ordinances and policies.
- Beautify cluttered and unkempt public areas.
- Encourage better accessibility to water recreational areas.
- Encourage the Historic Downtown Kennewick Partnership to improve the appearance of their buildings and premises.
- Encourage better designed public buildings with a variety of landscaping.
- Encourage and provide a means for local artists to display their works in public buildings.
- Provide the opportunity for local artists to locate permanent artwork in public places.
- Develop a program whereby persons talented in the performing arts have the opportunity to perform in public places with minimal or no cost to the audience.

REGIONAL RELATIONSHIP POLICIES

- ***Promote and develop a proactive relationship with area and state agencies, public entities and other government bodies.***

  - Establish inter-local agreements between the City and Benton County that will provide joint standards for development within the urban growth area.
  - The City will limit its extension of utilities to development that conforms to inter-local agreements developed in accordance with this policy.
  - The City and outside utility providers will develop land use and utility plans that are consistent and are developed to accommodate future build-out scenarios within the urban growth area.

DETAIL POLICIES

- The City and Benton-Franklin Fair Board will encourage a relationship that promotes multiple use, resource growth, and facility enhancement of the fairgrounds complex at E. 10th Avenue and Oak Street.

- The public entities within the "Civic Core" area at or near 6th Avenue and Dayton Street will be encouraged to make long-term capital commitments for maintaining the maximum number of civic uses at this location.

- The irrigation districts will be encouraged to retrofit open canals to underground and pressurized systems.

- The irrigation districts will be encouraged to allow right-of-ways for irrigation systems to be used as paths or trails.

- Kennewick School District #17 will be encouraged to assume a proactive role in coordinating its long-range plans with the comprehensive planning process of the City.

- Policies within the City's Comprehensive Plan that affect other jurisdictions will be consistent and coordinated with such jurisdictions.

- Benton County Planning policies #11, #12, and #13 will be utilized to develop regional processes for citing essential public facilities and providing waste-related services and processes.

- The Chamber of Commerce, Port District, and the Tri-Cities Industrial Development Council (TRIDEC) will be encouraged to promote the long term interests of the community in the comprehensive planning processes.

ANNEXATION POLICIES

♦ ***Develop an annexation policy emphasizing public education, service levels and timing of infrastructure improvements.***

- Establish pre-annexation zoning for all lands in Kennewick's urban growth area. Lands in the urban growth area that have pre-annexation zoning designations will have such designations updated as necessary as part of the Comprehensive Plan review process.

- Systematic review of the expected service demand of each annexation proposal will be accomplished. Demands for additional service or capital improvements

resulting from annexation proposals should be accommodated within six years of the effective date of the annexation.

- Develop fiscal analysis showing estimates of expected revenues/costs for each proposed annexation.

- Annexations that decrease existing city-wide service levels for general governmental operations will be discouraged.

- Annexations of county “islands” (areas surrounded on at least 80% of its boundaries by corporate limits) are considered “first priority” annexations and all necessary steps will be taken to ensure their incorporation.