APPENDIX B
WATER FACILITIES INVENTORY

WATER FACILITIES INVENTORY (WFI) FORM

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

ONE FORM PER SYSTEM

Quarter: 1
Updated: 12/18/2009
Printed: 6/9/2011
WFI Printed For: On-Demand
Submission Reason: Pop/Connect

RETURN TO: Southwest Regional Office, PO Box 47823, Olympia, WA, 98504

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
93400 0	WASHOUGAL, CITY OF	CLARK	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS	8. Owner Number 006432
JOHN T. ROTH [MANAGER] 1701 C ST WASHOUGAL, WA 98671	WASHOUGAL, CITY OF 1701 C ST WASHOUGAL, WA 98671	TITLE:PUBLIC WORKS DIRECTO
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: (360) 835-2662	Owner Daytime Phone: (360) 835-2662
Primary Contact Mobile/Cell Phone: (360) 772-2919	Owner Mobile/Cell Phone: (360) 772-2977
Primary Contact Evening Phone: (xxx) xxx-xxxx	Owner Evening Phone: (xxx) xxx-xxxx
Fax:(360) 835-5866 | E-mail: jroth@ci.washougal.wa.us	Owner Fax Phone: | E-mail: tevers@ci.washougal.wa.us

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 SMA NAME: _____ SMA Number:
- [ ] Managed Only
- [ ] Owned Only

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

[ ] Agricultural	[ ] Hospital/Clinic	[x] Residential
[x] Commercial / Business	[x] Industrial	[x] School
[x] Day Care	[x] Licensed Residential Facility	[ ] Temporary Farm Worker
[x] Food Service/Food Permit	[x] Lodging	[x] Other (church, fire station, etc.):
[ ] 1,000 or more person event for 2 or more days per year	[x] Recreational / RV Park	

13. WATER SYSTEM OWNERSHIP (mark only one)				14. STORAGE CAPACITY (gallons)
[ ] Association	[ ] County	[ ] Investor	[ ] Special District	
[x] City / Town	[ ] Federal	[ ] Private	[ ] State	4,076,000

- 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
93400 0	WASHOUGAL, CITY OF	CLARK	A	Comm

15	16	17	18										19			20	21					22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY										USE				TREATMENT					DEPTH		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	SPRING	SPRING FIELD	SPRING IN	SEA WATER	SURFACE WATER	RANNEY / INF.	OTHER	PERMANEANT	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
S04	WELL #1 ABR668		X										X			Y		X				X	128	900	NW SE	08	01N	04E
S05	WELL #5 ABR670		X										X			Y		X				X	101	650	NW SE	12	01N	03E
S06	WELL #6 AFP633		X										X			Y		X				X	101	630	NW SE	12	01N	03E
S07	WELL #7 AFP632		X										X			Y		X				X	103	800	NW SE	12	01N	03E
S09	InAct 05/01/1988 WELL #9 CAPPED		X												X	N							184	495	SE NW	16	01N	04E
S10	InAct 01/11/2007 WELL #10 NO TAG		X												X	N							120	450	NW SE	08	01N	04E
S11	WELL #11 ABR669		X										X			Y		X				X	103	1000	NW SE	12	01N	03E
S12	108002/CAMAS MUN WAT SEW	10800 2													X	N								0			00N	00E
S13	Pre-Active 11/09/2009 Well #12 No		X										X			Y		X				X	72	1500	NW SE	12	01N	03E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
93400 0	WASHOUGAL, CITY OF	CLARK	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?)	0	5396	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	4425		
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	152		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	971		
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)	138	138	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	213	213	
28. TOTAL SERVICE CONNECTIONS		5747	

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 13490

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?	19200	19200	19200	19200	19200	19200	19200	19200	19200	19200	19200	19200
B. How many days per month is water accessible to the public?	30	30	30	30	30	30	30	30	30	30	30	30

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?	3400	3400	3400	3400	3400	3400	900	900	3400	3400	3400	3400
B. How many days per month are they present?	20	20	20	20	20	20	20	20	20	20	20	20

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	20	20	20	20	20	20	15	15	20	20	20	20

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
93400	WASHOUGAL, CITY OF

Total WFI Printed: 1

APPENDIX C
EXISTING SERVICE AREA
INTER-LOCAL AGREEMENT

Resolution No. 1040

A RESOLUTION adopting the revised 2011 Clark County Coordinated Water System Plan; authorizing an Interlocal Agreement for Adjusting or Confirming Future Water Service Area Boundaries; and authorizing a Fire Hydrant Interlocal Agreement pertaining to extraterritorial fire hydrant services.

WHEREAS, the Cities of Washougal, Camas, Battle Ground, La Center, Ridgefield and Vancouver, the Town of Yacolt, Public Utility District No. 1 of Clark County, and Clark County (hereinafter together referred to as "governing bodies") manage aspects of land use, public health, and their respective water systems pursuant to an existing Clark County Coordinated Water System Plan and have established water service boundaries;

AND WHEREAS, the governing bodies have varying roles in developing, reviewing, approving and/or complying with capital facilities and land use planning under the Growth Management Act, as adopted and amended by the State of Washington;

AND WHEREAS, the Public Water System Coordination Act under RCW 70.116 and WAC 246-293-250 require the development of a Coordinated Water System Plan, including the establishment of future water service boundaries;

AND WHEREAS, the governing bodies have determined that it is necessary to revise the existing Coordinated Water System Plan and water service boundaries;

AND WHEREAS, in conjunction with the revisions to the Coordinated Water System Plan and water service boundaries, but under separate agreement, the governing bodies also desire to establish their respective responsibilities regarding extraterritorial fire hydrant services.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF WASHOUGAL as follows:

Section I

That the revised 2011 Clark County Coordinated Water System Plan is hereby adopted.

Section II

That the Interlocal Agreement for Adjusting or Confirming Future Water Service Area Boundaries, attached hereto as Exhibit "A," is hereby approved.

Section III

That the Fire Hydrant Interlocal Agreement, attached hereto as Exhibit "B," is hereby approved.

PASSED by the Council of the City of Washougal at regular meeting on the 7th day of November, 2011.

City of Washougal, Washington

Mayor

ATTEST:

Finance Director / City Clerk

APPROVED AS TO FORM:

City Attorney

Addendum A

FIRE HYDRANT INTERGOVERNMENTAL AGREEMENT

BETWEEN

THE CITIES OF BATTLE GROUND, CAMAS, LA CENTER, RIDGEFIELD, VANCOUVER, WASHOUGAL; THE TOWN OF YACOLT; CLARK COUNTY; AND CLARK PUBLIC UTILITIES

THIS AGREEMENT, entered into by and between the CITIES OF BATTLE GROUND, CAMAS, LA CENTER, RIDGEFIELD, VANCOUVER, WASHOUGAL; THE TOWN OF YACOLT; CLARK COUNTY; and CLARK PUBLIC UTILITIES (collectively the "Parties"), WITNESS THAT:

WHEREAS, the Parties conduct capital facilities and land use planning under the Growth Management Act as adopted by the State of Washington and subsequently amended; and

WHEREAS, Ch. 70.116 RCW Public Water System Coordination Act, and WAC 246-293-250 require the development of a Coordinated Water System Plan, including the establishment of future water service area boundaries; and

WHEREAS, the Parties intend to revise the existing Coordinated Water System Plan; and

WHEREAS, in conjunction with the revision of the Coordinated Water System Plan, but under the provisions of this separate agreement, the Parties intend to establish their respective responsibilities and obligations regarding the supply and servicing of fire hydrants and related infrastructure (collectively "Fire Hydrants") within the other Parties' jurisdictional boundaries, for general fire protection purposes; and

WHEREAS, Fire Hydrants are currently provided and maintained, or will be provided and maintained in the future, by individual Parties ("Serving Municipality") within the boundaries of another Municipality ("Benefited Municipality"); and

WHEREAS, it is recognized that the Benefited Municipality has an obligation to reimburse the Serving Municipality for providing and/or maintaining those Fire Hydrants.

NOW THEREFORE, in accordance with the Interlocal Cooperation Act (Ch. 39.34 RCW) and in consideration of covenants, conditions, performances, and promises hereinafter contained, the undersigned Parties hereto agree to the following:

I. Purpose

The purpose of this Agreement is to establish the Parties respective responsibilities and obligations regarding the supply and servicing of fire hydrants and related infrastructure within the other Parties' jurisdictional boundaries.

II. Effective Date

This Agreement shall become effective upon the occurrence of both the approval of this Agreement by the individual Parties' governing bodies and the execution of this document by their authorized representatives.

III. Duration

This Agreement shall remain effective with regard to the individual Parties until terminated. Such termination shall be effective one (1) year after the Party provides written notice (to all the other Parties) of such intent to terminate their participation in this Agreement.

IV. Property

Nothing in this Agreement shall create or transfer any real or personal property interest amongst the Parties.

V. Administration

No new or separate legal or administrative entity is created to administer the provisions of this Agreement. This Agreement shall be individually administered by the respective Parties.

VI. Scope

If a Benefited Municipality wants the Serving Municipality to supply and/or service Fire Hydrants, within the Benefited Municipality's territorial boundaries, without making direct payment to the Serving Municipality for such services, Fire Hydrants shall be

provided to the Benefited Municipality by the Serving Municipality under the following conditions:

1) If the Serving Municipality currently provides general water services within the boundaries of the Benefited Municipality, and the Benefited Municipality does not provide potable water services, the Benefited Municipality shall not develop its own potable water system to compete with the Serving Municipality.

2) If the Serving Municipality currently provides general water services within the boundaries of the Benefited Municipality, and the Benefited Municipality also provides general water services within its territorial boundaries, the Benefited Municipality shall not offer competing potable water service to the Serving Municipality's existing water customers in that service area. This provision, however, does not prohibit the transfer of water customers by mutual agreement between the Parties.

3) The Benefited Municipality authorizes the Serving Municipality to occupy its right-of-way, for water utility purposes, within the Benefited Municipality's territorial boundaries. Such authorization is provided without cost or fee.

4) The Benefited Municipality shall not assess any fee(s) for permits, plan reviews, or review of other general maintenance activities of the Serving Municipality.

5) The Benefited Municipality shall not charge the Serving Municipality for its assistance (staff time) for the review and coordination of Capital Facility Plans, construction documents, Growth Management Plans, and water resource documents.

6) By providing these services, the Serving Municipality shall not be obligated to provide or maintain additional Fire Hydrants beyond the existing facilities currently maintained by the Serving Municipality or beyond agreed service areas. Service areas, if any, will be designated in a written document signed by both the Benefited Municipality and the Serving Municipality. Nothing in this Agreement obligates the Serving Municipality to provide general fire protection services within the Benefited Municipality's boundaries.

7) The Serving Municipality shall not assess a fee or other charge to the Benefited Municipality for providing Fire Hydrants, after the Effective Date of this Agreement, within the Benefited Municipality. The Parties recognize the mutual benefit and value of the exchange of services noted above and accept this exchange as fair and equitable compensation for these services.

VII. INTERPRETATION

This Agreement has been and shall be construed as having been made and delivered in the State of Washington and it is mutually agreed and understood by both Parties that this Agreement shall be governed by the laws of the State of Washington. Venue shall be Clark County, Washington.

VIII. AMENDMENTS/MODIFICATION

The provisions of this Agreement may be amended only upon the mutual consent of the Parties. No additions to, or alterations of, the terms of this Agreement shall be valid unless made in writing and formally approved and executed by the duly authorized agents of the Parties.

IX. SEVERABILITY

If any section or part of this Agreement is held by a court to be invalid, such action shall not affect the validity of any other part of this Agreement.

X. ENTIRE AGREEMENT

This Agreement contains all of the agreements of the Parties with respect to the subject matter covered or mentioned therein, and no prior Agreement shall be effective to the contrary.

XI. DOCUMENT FILING

The Parties agree that there shall be one (1) original of this Agreement procured and distributed for signature by the necessary officials of the Parties. Upon execution, this Agreement shall be retained by Clark Public Utilities and one copy shall be retained by each of the other Parties. Clark Public Utilities shall cause a copy of this Agreement to be recorded with the Clark County Auditor. Upon execution of the original and filing of a copy with the Clark County Auditor, each copy shall constitute an agreement binding upon all Parties.

IN WITNESS THEREOF, the undersigned Parties have caused this Agreement to be executed in their respective names by their duly authorized officers on the dates as set forth below.

_____ Date _____

John M. Williams, City Manager
City of Battle Ground

_____ Date _____

Mayor Scott Higgins
City of Camas

_____ Date _____

Commissioner Tom Mielke, Chair
Clark County Board of Commissioners

_____ Date _____

Wayne Nelson, General Manager
Clark Public Utilities

_____ Date _____

Mayor James T. Irish
City of La Center

_____ Date _____

Justin Clary, City Manager
City of Ridgefield

_____ Date _____

Eric Holmes, City Manager
City of Vancouver

_____ Date Oct. 17, 2011

Mayor Sean Guard
City of Washougal

_____ Date _____

Mayor James Weldon
Town of Yacolt

Addendum B

INTERLOCAL AGREEMENT FOR ADJUSTING OR CONFIRMING FUTURE WATER SERVICE AREA BOUNDARIES

BETWEEN

THE CITIES OF BATTLE GROUND, CAMAS, RIDGEFIELD, VANCOUVER AND WASHOUGAL, AND CLARK PUBLIC UTILITIES

THIS AGREEMENT, entered into by and between the CITIES OF BATTLE GROUND, CAMAS, RIDGEFIELD, VANCOUVER, WASHOUGAL and CLARK PUBLIC UTILITIES, (hereinafter referred to as the Water Purveyors), WITNESS THAT:

WHEREAS, Clark County and the city Water Purveyors conduct capital facilities and land use planning under the Growth Management Act as adopted by the State of Washington and subsequently amended; and

WHEREAS, RCW 70.116 *Public Water System Coordination Act*, and WAC 246-293-250 require the development of a Coordinated Water System Plan, including the establishment of Future Water Service Area boundaries; and

WHEREAS, the designation of Future Water Service Area boundaries will help facilitate efficient planning and delivering of water services within Clark County, avoid unnecessary duplication of water services and foster water operation predictability for the Water Purveyors, Clark County and the residents served by public water systems; and

WHEREAS, the designation of Future Water Service Area boundaries will help assure that available water supply sources for the Water Purveyors will be utilized in an efficient manner.

NOW THEREFORE, in consideration of covenants, conditions, performances and promises hereinafter contained, the undersigned Water Purveyors hereto agree to the following:

I. PURPOSE

The purpose of this agreement is to adjust or confirm Future Water Service Area boundaries of the Water Purveyors that are parties to this agreement.

II. EFFECTIVE DATE

This Agreement shall become effective upon the occurrence of the approval of this Agreement by the individual Water Purveyors' governing bodies, execution of this document by their authorized representatives, and the approval of this Agreement by the Clark County Board of Commissioners.

III. DURATION

This Agreement shall remain effective with regard to the individual Water Purveyors until terminated. Such termination shall occur with the next update of the Coordinated Water System Plan.

IV. PROPERTY

Nothing in this Agreement shall create or transfer any interest in real or personal property among the Water Purveyors. In the event any adjustment of a Future Water Service Area boundary requires transfer of water facility assets from one Water Purveyor to another Water Purveyor, a separate written agreement shall address the transfer of such assets.

V. ADMINISTRATION

No new or separate legal or administrative entity is created to administer the provisions of this Agreement. This Agreement shall be individually administered by the respective Water Purveyors, which shall each be individually responsible for financing its own actions pursuant to this Agreement.

VI. SCOPE

1. *Services Area Boundaries.* The maps identifying the Future Water Service Area boundaries dated July 2011 and attached to this Agreement as Exhibit A accurately identify the water systems' Future Water Service Areas, and there are no service conflicts with adjacent Water Purveyors.

2. *Boundary Streets.* Where streets or portions of streets serve as a Future Water Service Area boundary, both Water Purveyors may extend service within the street. The Water Purveyor that is located to the north and/or east of the portion of the street serving as a boundary shall also be entitled to extend service across the water service area boundary to properties abutting the street. Any other service extensions into adjacent Future Water Service Areas shall require written agreement of the involved Water Purveyors.

3. *Boundary Adjustments.* If at some time in the future it is in the best interests of the undersigned Water Purveyors to make Future Water Service Area boundary adjustments, such modifications shall have the written concurrence of the involved Water Purveyors and Clark County, and shall be filed with Clark County GIS and Community Planning, and the Washington State Department of Health.

VII. INTERPRETATION

This Agreement has been and shall be construed as having been made and delivered in the State of Washington and it is mutually agreed and understood by the Water Purveyors that this Agreement shall be governed by the laws of the State of Washington. Venue for any lawsuit arising from or related to this Agreement shall be the Superior Court of Clark County, Washington.

VIII. AMENDMENTS/MODIFICATION

The provisions of this Agreement may be amended only upon the mutual consent of the Water Purveyors. No amendments to the terms of this Agreement shall be valid unless made in writing and formally approved and executed by the duly authorized agents of the Water Purveyors and Clark County, and recorded with the Clark County Auditor.

IX. SEVERABILITY

If any section or part of this Agreement is held by a court to be invalid, such action shall not affect the validity of any other part of this Agreement.

X. ENTIRE AGREEMENT

This Agreement contains all of the agreements of the Water Purveyors with respect to the subject matter covered or mentioned therein, and no prior Agreement shall be effective to the contrary.

XI. DOCUMENT FILING

The Water Purveyors agree that there shall be one (1) original of this Agreement procured and distributed for signature by the necessary officials of the Water Purveyors. Upon execution, this Agreement shall be retained by Clark Public Community Planning and one copy shall be retained by each of the other Water Purveyors. Clark County Community Planning shall cause a copy of this Agreement to be recorded with the Clark County Auditor. Upon execution of the original and filing of a copy with the Clark

County Auditor, each copy shall constitute an agreement binding upon all Water Purveyors.

This agreement shall become effective once it is approved by the Clark County Board of Commissioners, as specified in WAC 246-293-250 Future *Water Service Area Agreements.*

This Interlocal Agreement for Adjusting or Confirming Future Water Service Area Boundaries is hereby approved:

_____ Date _____
John M. Williams, City Manager
City of Battle Ground

_____ Date _____
Mayor Scott Higgins
City of Camas

_____ Date _____
Wayne Nelson, General Manager
Clark Public Utilities

_____ Date _____
Justin Clary, City Manager
City of Ridgefield

_____ Date _____
Eric Holmes, City Manager
City of Vancouver

_____ Date Oct. 17, 2011
Mayor Sean Guard
City of Washougal

APPROVED BY THE CLARK COUNTY BOARD OF COMMISSIONERS

_____ Attest: _____
Commissioner Tom Mielke, Chair
Clark County Board of Commissioners

Rebecca Tilton
Clerk to the Board

Resolution No. _____

Date: _____

Approved as to form:

_____

Christine Cook
Deputy Prosecuting Attorney

INTER-LOCAL COOPERATION AGREEMENT

THIS AGREEMENT made this day by and between the CITY OF CAMAS, a municipal corporation organized under the laws of the State of Washington, hereinafter referred to as "Camas", and the CITY OF WASHOUGAL, a municipal corporation organized under the laws of the State of Washington, hereinafter referred to as "Washougal",

In accordance with the Inter-Local Cooperation Act (RCW Chapter 39.34), Camas and Washougal, in consideration of the payments, covenants and agreements hereinafter mentioned, to be made and performed by the parties, do covenant and agree as follows:

Section 1. **PURPOSE:** The purpose of this agreement is to allow Camas and Washougal to sell water to the other due to the occurrence of an emergency situation where either city is unable to meet their service demands within internal water sources. The designation of an emergency shall be made by the respective Public Works Directors of each city and shall include, but not be limited to, drought conditions or a break in a water main. The delivery of water upon the designation of an emergency shall be through Inter-Ties between the respective water systems of Camas and Washougal at locations approved by the Public Works Directors of each city.

Section 2. **DURATION:** This agreement shall be for an indefinite duration.

Section 3. **ADMINISTRATION:** No new or separate legal or administrative entity is created to administer the provisions of this agreement. This agreement shall be administered jointly by Camas and Washougal by and through the Public Works Directors of both cities, who shall jointly administer this undertaking in accordance with the terms and conditions of this agreement.

Section 4. **FINANCING:** In the event either Camas or Washougal receives water

pursuant the provisions of this agreement then the receiving city shall remit payment in full for the water received at a rate equivalent to the receiving city's residential, inside city, water volume rate at the time of provision of the water. Invoicing shall be on a monthly basis.

Section 5. **WATER QUALITY:** The water supplied by either Camas or Washougal, in accordance with the terms of this agreement, shall be deemed "finished and treated" drinking water at the point of delivery. The city providing water shall have no responsibility to maintain drinking water quality standards once the water has been provided to the receiving city's distribution system. The receiving city shall be solely responsible to maintain drinking water quality standards upon receipt.

Section 6. **INDEMNIFICATION:** Camas and Washougal shall indemnify and hold harmless the other, its officers, agents, and employees, or any of them, from any and all claims, actions, suits, liability, loss, costs, expenses and damage of any nature whatsoever, by reason of or arising out of any action or omission of the respective employees, officers and agents, in the execution and administration of this agreement.

Section 7. **INSURANCE:** Each city shall obtain and keep in full force and effect liability insurance protecting itself and its employees, officers and agents, and the party, its employees, officers and agents, for claims of any persons for injuries to life, person or property by reason of anything done or permitted to be done or suffered or admitted to be done by the parties in the administration of the project. If either party withdraws from the Washington Cities Insurance Authority, that party shall deliver a certificate of insurance showing compliance with this section.

Section 8. **TERMINATION:** Each party shall have the right to terminate this entire agreement, with or without cause, upon 180 days written notice to the other party. Such notice shall be sufficient if it is in writing and deposited in the United States mail, certified mail, return receipt requested, with postage fully prepaid and addressed to the parties at their last known addresses as follows:

City of Camas P.O. Box 1055 Camas, WA 98607	City of Washougal 1701 "C" Street Washougal, WA 98671

Section 9. **FILING:** This agreement shall be filed with the city clerks of Camas and Washougal and with the Clark County Auditor and the Washington Secretary of State.

Section 10. **EFFECTIVE DATE:** This agreement shall be effective upon signing by the respective parties hereto.

DATED this 7 day of August, 2006.

CITY OF CAMAS

By: _____
Mayor

Attest: _____
Clerk

Approved as to form:
_____
City Attorney

CITY OF WASHOUGAL

By: _____
Mayor

Attest: _____
Clerk

Approved as to form:
_____
City Attorney

APPENDIX D
WATER SERVICE AND RATE POLICIES

WASHOUGAL
MUNICIPAL
CODE

A Codification of the General Ordinances

of the City of Washougal, Washington

Codified, Indexed, and Published by

CODE PUBLISHING COMPANY

Seattle, Washington

2003

Title 3

REVENUE AND FINANCE

Chapters:

3.04 Sales or Use Tax
3.05 Additional Sales and Use Tax
3.06 Excise Tax on Real Estate Sales
3.07 Real Estate Transfer Tax
3.08 Local Improvements
3.12 Local Improvement Guaranty Fund
3.16 Claims Fund
3.18 Payment of Claims
3.20 Advance Travel Expense Fund
3.22 Federal Shared Revenue Fund
3.24 Warrant Signing
3.28 Investments
3.32 Liquor Revenue Disbursal
3.36 Employment Security Fund
3.44 City Building Maintenance Fund
3.48 Washington Futures Fund
3.50 Financial Equipment Fund
3.52 Gambling Tax
3.56 Leasehold Excise Tax
3.60 Recreation Program Fund
3.64 Anti-Recession Fiscal Assistance Fund
3.68 NSF Checks
3.70 Fire Services Restitution Fee
3.71 Controlled Burn Fee
3.72 Accumulative Equipment
3.74 Purchase Procedures
3.75 Credit Card Purchases
3.76 Excise Tax on Hotels, Motels and Similar Establishments
3.78 Brokered Natural Gas Use Tax
3.80 Public Works Contracts
3.88 City Fees and Charges
3.89 Authorization to Waive Penalty
3.90 Planning and Development Application Fees
3.91 Water Rates, Charges
3.92 Sewer Rates, Charges
3.93 Engineering Plan Review and Construction Inspection Fees
3.94 Public Right-of-Way Access Permit Request Fee
3.95 Miscellaneous Public Works Department Application Fees
3.96 Change Fund
3.97 Building Fees
3.98 Fire Department Fees

Chapter 3.08

LOCAL IMPROVEMENTS

Sections:

3.08.010 Conformance with state law required.
3.08.020 Initiation methods.
3.08.030 Initiation by petition.
3.08.040 Initiation by resolution.
3.08.050 Council action.
3.08.060 Advertisement for bids.
3.08.070 Contract with successful bidder.
3.08.080 Assessment roll – Filing required.
3.08.090 Assessment roll – Lien.
3.08.100 Assessment roll – Collection.
3.08.110 Assessment roll – Due date – Interest rate.
3.08.120 Bond – General provisions.
3.08.130 Bond – Form.
3.08.140 Bond – Coupon form.
3.08.150 Bond – Signing – Attestation – Registration required.
3.08.160 Warrants on local improvement fund.
3.08.170 Delinquent installments – Interest rate.
3.08.180 Foreclosure of LID assessments.

3.08.010 Conformance with state law required.

Hereafter all proceedings for local improvements, including the creation of the local improvement district, letting of contracts for work in local improvement districts, the levying and collection of special assessments, the issuance of bonds and/or warrants for local improvements, and such other proceedings as shall be incident to local improvement and the assessment of the cost thereof to the property benefitted, shall be in accordance with the provisions of state laws and this chapter, and all ordinances or parts of ordinances bearing on such subject which are in any way in conflict herewith are repealed. (Ord. 127 § 1, 1947)

3.08.020 Initiation methods.

All local improvements, the cost of which is to be assessed against the property benefited, shall be initiated either by petition or resolution, as provided by law, and all proceedings shall be as herein provided. (Ord. 127 § 2, 1947)

3.08.030 Initiation by petition.

The petition provided for by state laws shall be filed with the city clerk and shall be reported by him to the city council, who may order the petition referred to the city engineer or such other officer whose duty it shall be to examine and report such petition as provided by law. Within 60 days after receipt of the petition, the city engineer, or such other to whom the petition may have been referred, shall return it to the city clerk, together with other data as required by law. (Ord. 127 § 3, 1947)

3.08.040 Initiation by resolution.

If the improvement be initiated upon resolution of the council, the city engineer, or such other board or officer, shall return and file with the clerk, on or before the date set for hearing upon the resolution, on detailed plans and specifications in addition to the data required by law. (Ord. 127 § 4, 1947)

3.08.050 Council action.

Upon return of the petition or resolution provided by law the council shall proceed to act on the same, and may order the improvement by ordinance which shall describe and define the boundaries of the proposed improvement district, the method of payment therefor, whether by bonds or immediate payment, the kind and nature of the improvement, and such other provisions as shall be necessary. (Ord. 127 § 5, 1947)

3.08.060 Advertisement for bids.

Upon the passage of such ordinance and after the same shall have become effective it shall be the duty of the city clerk to advertise for bids in the manner now provided for by city ordinance. (Ord. 127 § 6, 1947)

3.08.070 Contract with successful bidder.

Upon the date set therefor, or at such time afterward as may be convenient, the city council shall open any bids received and award the contract and thereafter the proper officers shall enter into a contract with the successful bidder in accordance with the plans and specifications for the improvement and for the sum mentioned in the bid. (Ord. 127 § 7, 1947)

3.08.080 Assessment roll – Filing required.

As soon as practicable after the completion of the contract the city engineer shall prepare and file with the city clerk an assessment roll showing the amount of the cost of the improvement including all incidental expenses thereof, which shall be borne by each tract or parcel of land within the improvement district according to benefits conferred and the name or names of the owner or owners thereof. Upon the filing of the assessment roll

the city council shall by motion fix a date for the hearing thereon and the city clerk shall thereupon give notice of such hearing as provided by law. (Ord. 127 § 8, 1947)

3.08.090 Assessment roll – Lien.

After hearing upon such assessment as provided by law the council shall confirm the assessment by ordinance and the assessment shall thereupon become a lien upon each tract or parcel mentioned in the assessment roll to the amount mentioned therein. (Ord. 127 § 9, 1947)

3.08.100 Assessment roll – Collection.

Whenever any assessment roll is confirmed by the city council it shall be the duty of the city clerk to certify same to the city treasurer and collected by him in the manner provided by law. (Ord. 127 § 10, 1947)

3.08.110 Assessment roll – Due date – Interest rate.

All assessments for local improvements under the immediate payment plan shall be due within 30 days after the confirmation of the assessment by the city council as herein provided, and in case of nonpayment they shall bear interest at the rate of eight percent per year and in addition thereto shall bear a penalty of 15 percent. (Ord. 127 § 11, 1947)

3.08.120 Bond – General provisions.

In case the ordinance providing for the improvement shall provide that payment for such improvement shall be made in bonds of the local improvement district, such bonds shall be issued after 30 days after the confirmation of the assessment roll and the first installment thereon shall be due one year after a date 30 days after the confirmation of the assessment roll and the whole amount of such assessment shall draw interest at the rate to be determined and fixed by the city council at the date of the creation of the local improvement district but, in any event, not in excess of eight percent per year from such date 30 days after the confirmation of the assessment roll. After delinquency of any installment the same shall, in addition to the interest, bear penalty to be computed at the rate of 10 percent per year. (Ord. 131 § 1, 1947; Ord. 127 § 12, 1947)

3.08.130 Bond – Form.

The form of local improvement bond to be issued by the city against local improvement fund districts for improvements in the districts made shall be substantially as follows:

UNITED STATES OF AMERICA

NUMBER DOLLARS

TOWN OF WASHOUGAL
LOCAL IMPROVEMENT BOND
DISTRICT NO. ___

N.B. – Neither the holder nor the owner of any bond or warrant issued under the provisions of this act shall have any claim therefor against the city or town by which the same is issued, except for payment from the special assessments made for the improvement for which said bond or warrant was issued, and except as against the local improvement guaranty fund of such city or town, and the city or town shall not be liable to any holder or owner of such bond or warrant for any loss to the guaranty fund occurring in the lawful operation thereof by the city or town. The remedy of the holder or owner of a bond, or warrant in case of nonpayment, shall be confined to the enforcement of the assessment and to the guaranty fund. A copy of the foregoing part of this section shall be plainly written, printed, or engraved on each bond issued and guaranteed hereunder, and the writing, printing or engraving shall be deemed sufficient compliance with the requirements of Section 9405 of Remington's Compiled Statutes.

N.B. – The Local Improvement Guaranty Fund above referred to is the Local Improvement Guaranty Fund established by Chapter 209 Washington Session Laws of 1927.

THE TOWN OF WASHOUGAL, A Municipal Corporation of the State of Washington, Hereby promises to pay to _____ _____ or bearer

_____ DOLLARS

Lawful money of the United States, with interest thereon at the rate of ___ percent per annum, payable annually out of the fund established by Ordinance No. ___ of

said town, known as local improvement fund District No. ___ of the Town of Washougal and not otherwise. Both principal and interest payable at the office of the town treasurer of said town.

A coupon is hereto attached for each installment of interest to accrue hereon, and said interest shall be paid only on presentation and surrender of such coupons to the Town Treasurer, but in case this bond is called for payment before maturity, each and every coupon representing interest not accrued at the time this bond is payable under such call shall be void.

This bond is payable on or before the ___ day of _____ 20___, and is subject to call by the Town Treasurer of said Town, whenever there shall be sufficient money in said local improvement fund to pay the same and all unpaid bonds of the series of which this bond is one which are prior to this bond in numerical order over and above sufficient for the payment of interest on all unpaid bonds of said series. The Town Council of said town, as the agent of said local improvement district No. ___ established by ordinance No. ___ has caused this bond to be issued in the name of said town as the bond of said district, the bond or the proceeds thereof to be applied in part payment of so much of the cost and expenses of the improvement of ___ under said ordinance No.___, as levied and assessed against the property included in said local improvement district No. ___ and benefited by said improvements, and the said local improvement fund district No. ___ of the Town of Washougal, has been established by ordinance for said purpose, and the holder or holders of this bond shall look only to said fund and the Local Improvement Guaranty Fund created by Chapter 209 of the Washington Session of 1927 for the payment of either the principal or interest on this bond.

The call for payment of this bond, or any bond of the series of which this is one, shall be made by the Town Treasurer by publishing the same in the town official newspaper of said town, and when such call is made for the payment of this bond, it will be paid on the day the next interest coupon thereon shall become due, after said call, and upon said day interest upon this bond shall cease.

This bond is one in a series of ___ bonds, aggregating in all the principal sum of _____ Dollars issued for said Local Improvement District No. ___, all of which bonds are subject to the same terms and conditions as herein expressed.

IN WITNESS WHEREOF, The Town of Washougal Has Caused These Presents to be signed by its Mayor and Attested by its Clerk, and sealed with its corporate seal this day of In the year of our Lord, 20__.

ATTEST: _____
THE TOWN OF WASHOUGAL,

_____ By _____
Town Clerk Mayor

(Ord. 127 § 13, 1947)

3.08.140 Bond – Coupon form.

The bond shall be printed or lithographed upon bond paper, and each bond shall have attached thereto interest coupons numbering from one to inclusive, which coupons shall be in substantially the following form:

Coupon Number Bond No. _____ Date Due _____ DOLLARS

On the above date the town of Washougal, State of Washington, will pay to the Bearer at the office of the Treasurer, the sum of _____ Dollars ($) being one year's interest of the above numbered bond of LOCAL IMPROVEMENT DISTRICT NO. _____ of the Town of Washougal.

_____ _____
Town Clerk of the Town of Washougal Mayor of the Town of Washougal

(Ord. 127 § 14, 1947)

3.08.150 Bond – Signing – Attestation – Registration required.

The bond shall be executed under the city seal, and be signed by the mayor and attested by the clerk. Each of the interest coupons shall be signed

and attested in the same form. After such attestation before issuing the same, the bond shall be registered with the city treasurer by number, amount and date of maturity. (Ord. 127 § 15, 1947)

3.08.160 Warrants on local improvement fund.

In the case of improvements being made in the city, payment for which is to be made by special assessment on property specially benefitted by the improvement, payment shall be made to the contractor at such dates as the estimates are passed by the city council in warrants on the local improvement fund, to be payable only out of the local improvement fund especially created for that purpose. Such warrants shall draw interest at the rate to be determined and fixed by the city council at the time of the creation of the local improvement district but, in any event, not in excess of eight percent per year and shall be redeemable as hereinafter provided. Warrants issued under the provisions of WMC 3.08.010 shall be redeemable in cash or in bonds of the local improvement district. In case of any improvement on the immediate payment plan, such warrants shall be redeemable in cash as soon as there are sufficient funds in the local improvement fund to meet the same. In case of an improvement under the bonding plan, the warrants shall be redeemable by bonds, which shall be in amounts sufficient to cover the face of warrants and accrued interest, and shall be issued as soon as the bonds can be issued under the proceeding provided by law and ordinance. (Ord. 131 § 2, 1947; Ord. 127 § 16, 1947)

3.08.170 Delinquent installments – Interest rate.

Whenever any annual or other installment upon any local improvement assessment shall become delinquent, each of such delinquent installments remaining unpaid at the date of delinquency shall have added thereto interest at the same rate as is provided by ordinance for the bonds or warrants issued in payment or part payment of such local improvement. (Ord. 127 § 18, 1947)

3.08.180 Foreclosure of LID assessments.

When any local improvement district is payable in installments, upon failure to pay any installment due, the entire assessment becomes immediately due and payable, and the collection thereof will be enforced by foreclosure. The payment of all delinquent installments together with interest, penalties, costs and attorneys' fees at any time before entry of the judgment in foreclosure extends the time of payment of the remainder of the assessments as if there had been no delinquency or foreclosure. Foreclosure proceedings may be commenced at any time prior to September 1st of any given year when the assessments become available for foreclosure. (Ord. 1449 § 1, 2003)

Chapter 3.91

WATER RATES, CHARGES

Sections:

3.91.010 Schedule.
3.91.015 Water bill due date.
3.91.020 Unlisted services.
3.91.030 Unoccupied premises.
3.91.040 Turn-off – Turn-on.
3.91.050 New connections.
3.91.060 Connection to main – Costs.
3.91.061 Collection of excise taxes on water connection fees.
3.91.065 Latecomer charges for sewer or water main or lateral line extension.
3.91.070 Subject to change without notice.
3.91.080 Special contracts.
3.91.090 Unusual customer requirements.
3.91.100 City liability.
3.91.120 Chargeable to premises supplied – Lien.
3.91.125 Billing date.
3.91.130 Payment delinquency – Service cut off.
3.91.134 *Repealed.*
3.91.135 Responsibility of property owner.
3.91.138 Sale of property.
3.91.140 Meter removal, inspection.
3.91.150 Water and garbage bill – Prepaid.
3.91.170 Application of remittances.
3.91.190 System development charge.
3.91.200 Connection charges refunds.
3.91.210 Charges for replacement of a structure.
3.91.220 Water service modifications.

3.91.010 Schedule.

(1) The bimonthly water service charge for customers located within the service area of Washougal, according to classification established in this section, is as designated in subsection (10) of this section.

(2) As the water, sewer and solid waste department billings are handled through the same office and billed on a common bill, all services will be billed on a bimonthly basis as herein provided for water collection. The right to bill accounts on a monthly basis is reserved and may be implemented without further council action. If monthly billing is requested by the customer, the finance director shall be authorized to add an administrative fee to cover the costs of additional processing and any additional meter readings requested.

(3) Water and sewer service provided to buildings under construction will be billed to the property owner commencing with the period when a water meter is installed.

(4) In the event that water bills are not paid by the last day of the month following billing, the customers failing to pay shall be assessed a late charge of $10.00 or 10 percent of the past due amount, whichever is greater. If the last day of the month falls on a weekend or holiday, the next business day following shall be treated as the last day of the month.

(5) If more than one classification of service is maintained in the same or adjoining quarters in one structure, and use the same service pipe, then the base rate shall be the total of all classifications of service. Any excess usage over the composite minimum shall be charged based on the largest meter classification.

(6) For clarification purposes, each separate housekeeping establishment is considered as one unit and individual business establishment occupying individual quarters and under one structure is considered one unit.

(7) In calculating the domestic water consumption, deductions shall be made in units of 100 cubic feet and in making such deductions the two right-hand digits of the meter reading shall not be considered.

(8) Should any meter fail to register correctly, or if a leak should be detected, the city may adjust the billing accordingly.

The city, however, will adjust only once for a leak and it is the property owner's responsibility to fix the leak, as the city will adjust only one billing.

(9) The city will keep an accurate account on its books of the reading of meters, and such account, so kept, shall be offered at all times, places and courts as prima facie evidence of the use of water service by the customer and shall be the basis on which all bills are calculated.

(10) Bimonthly Metered Rates.

Single-Family Inside City

Service Meter Size	Usage Allowed Standard (c.f.)	Eff. 01/01/2011 City Water Rates	Eff. 01/01/2012 City Water Rates	Eff. 01/01/2013 City Water Rates	Eff. 01/01/2014 City Water Rates	Eff. 01/01/2015 City Water Rates
3/4 – 5/8	10.00	$47.08	$53.44	$60.38	$68.23	$77.10
1	13.00	$53.78	$61.04	$68.97	$77.94	$88.07
1-1/2	28.00	$89.48	$101.56	$114.77	$129.69	$146.55
2	47.00	$131.23	$148.94	$168.31	$190.19	$214.91
3	105.00	$275.10	$312.24	$352.83	$398.70	$450.53
4	170.00	$415.25	$471.31	$532.58	$601.82	$680.05
6	300.00	$696.35	$790.35	$893.10	$1,009.20	$1,140.40
8	500.00	$1,161.77	$1,318.61	$1,490.03	$1,683.74	$1,902.62
Multifamily						
First Unit	10	$47.08	$53.44	$60.38	$68.23	$77.10
Add. Unit (each)	10	$31.28	$35.50	$40.12	$45.33	$51.23

Single-Family Outside City

Service Meter Size	Usage Allowed Standard (c.f.)	Eff. 01/01/2011 City Water Rates	Eff. 01/01/2012 City Water Rates	Eff. 01/01/2013 City Water Rates	Eff. 01/01/2014 City Water Rates	Eff. 01/01/2015 City Water Rates
3/4 – 5/8	10.00	$74.71	$84.79	$95.81	$108.27	$122.34
1	13.00	$85.62	$97.18	$109.82	$124.09	$140.23
1-1/2	28.00	$141.00	$160.04	$180.84	$204.35	$230.92
2	47.00	$213.60	$242.43	$273.95	$309.56	$349.80
3	105.00	$434.95	$493.67	$557.85	$630.37	$712.32
4	170.00	$658.15	$747.00	$844.11	$953.85	$1,077.85
6	300.00	$1,103.71	$1,252.71	$1,415.56	$1,599.58	$1,807.53
8	500.00	$1,841.34	$2,089.93	$2,361.62	$2,668.63	$3,015.55
Multifamily						
First Unit	10	$74.72	$84.80	$95.83	$108.29	$122.36
Add. Unit (each)	10	$49.60	$56.30	$63.61	$71.88	$81.23

Existing High Use Rates

Allowed Usage

Inside City

From (cubic ft.)	To (cubic ft.)	Eff. 01/01/2011 City Water Rates 13.50%	Eff. 01/01/2012 City Water Rates 13.50%	Eff. 01/01/2013 City Water Rates 13.00%	Eff. 01/01/2014 City Water Rates 13.00%	Eff. 01/01/2015 City Water Rates 13.00%
0	50,000	$4.59	$5.20	$5.88	$6.65	$7.51
50,001	350,000	$4.48	$5.09	$5.75	$6.50	$7.34
350,001	750,000	$3.35	$3.80	$4.29	$4.85	$5.48
750,001	1,250,000	$2.27	$2.58	$2.91	$3.29	$3.72
1,250,001	1,750,000	$1.87	$2.13	$2.40	$2.71	$3.07
1,750,001	over	$1.61	$1.83	$2.07	$2.34	$2.64

Outside City

From (cubic ft.)	To (cubic ft.)					
0	50,000	$7.71	$8.75	$9.88	$11.17	$12.62
50,001	350,000	$7.46	$8.46	$9.56	$10.81	$12.21
350,001	750,000	$5.44	$6.17	$6.97	$7.88	$8.90
750,001	1,250,000	$3.37	$3.83	$4.32	$4.89	$5.52
1,250,001	1,750,000	$2.69	$3.05	$3.45	$3.90	$4.41
1,750,001	over	$2.44	$2.77	$3.13	$3.54	$4.00

(11) Hydrant Rental. If water is withdrawn from a fire hydrant, a water meter and inspection of the method of withdrawal is required. The following fees apply:

Meter deposit	$300.00
Installation fee	35.00
Monthly rental fee	
Inside city	4.50
Outside city	6.75

The fee for the water used will be charged per subsection (10) of this section, Existing High Use Rates.

Meter deposit fee will be refunded upon return of the meter in satisfactory condition. (Ord. 1682 § 1, 2010; Ord. 1675 § 1 (Exh. A), 2010; Ord. 1647 § 1 (Exh. A), 2009; Ord. 1596 § 1 (Exh. A), 2007; Ord. 1578 § 1 (Exh. A), 2007; Ord. 1537 § 1, 2005; Ord. 1533 § 1, 2005; Ord. 1501 § 1, 2005; Ord. 1440 § 1, 2002; Ord. 1425 § 2 (Exh. A), 2001; Ord. 1412 § 1 (Exh. A), 2001; Ord. 1392 § 1 (Exh. A), 2000; Ord. 1346 § 1, 1999; Ord. 1344 § 2, 1999; Ord. 1328 § 1 (Exh. A), 1998; Ord. 1297 § 1 (Exh. A), 1998; Ord. 1274 § 1 (Exh. A), 1998; Ord. 1218 § 1, 1996; Ord. 1186 § 1, 1995; Ord. 1145 § 1, 1994; Ord. 1123 § 1 (Exh. A), 1993; Ord. 1104 § 1 (Exh. A), 1993; Ord. 1087 § 1 (Exh. A), 1992; Ord. 1059 § 1, 1991; Ord. 1018 § 1, 1990; Ord. 969 (Exh. A), 1989; Ord. 874 § 1, 1987; Ord. 853 § 1, 1985; Ord. 808 § 1, 1983; Ord. 752 § 1, 1980; Ord. 746 § 1, 1980; Ord. 739 § 1, 1980; Ord. 716 § 1, 1979; Ord. 673 § 1, 1978; Ord. 649 § 1, 1977; Ord. 533 § 1, 1974; Ord. 413 § 1, 1980; Ord. 240 Art. 5 § 1, 1958. Formerly 13.20.010)

3.91.015 Water bill due date.

All charges for water shall be due upon receipt and payable at the office of the city clerk following mailing of the water bills by the city. All payments and collections for domestic water service should be paid into the water revenue funds. (Ord. 1533 § 1, 2005; Ord. 1412 § 1 (Exh. A), 2001; Ord. 1406 § 1, 2001. Formerly 13.20.015)

3.91.020 Unlisted services.

All other services for which a rate or charge is not specifically listed in WMC 3.91.010 shall be charged to the customer on the basis of time and material furnished plus administrative costs. (Ord. 1533 § 1, 2005; Ord. 1140 § 1, 1994; Ord. 240 Art. 5 § 2, 1958. Formerly 13.20.020)

3.91.030 Unoccupied premises.

There shall be no credit for vacant or unoccupied premises as to domestic water service; provided, that in the following instances the regular charges may be amended as follows:

At the customer's option, upon written notice to the director and turning off of domestic water service, charges for domestic water and sewer service shall cease until such time as the director has turned domestic water on again following notice by consumer to do so. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999; Ord. 1140 § 1, 1994; Ord. 240 Art. 5 § 3, 1958. Formerly 13.20.030)

3.91.040 Turn-off – Turn-on.

A turn-off, turn-on charge of $20.00 shall be made for turning off the water during normal business hours and later turning the water on. If the service is turned off for the purpose of installing or repairing a shut-off valve on the premises the charge will be waived. An emergency turn-off, turn-on charge shall be made for services performed during other than normal working hours unless special arrangements are made. The charge for emergency service will include two hours of call back time at the overtime rate, plus the time worked and equipment used. This charge is to represent the actual costs to the city for the service provided. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999; Ord. 1104 § 1 (Exh. A), 1993; Ord. 240 Art. 5 § 4, 1958. Formerly 13.20.040)

3.91.050 New connections.

In the case of all future new connections, the following connection and inspection charges shall be paid to the city by the person desiring to make such connections, which charges shall be payable at the time application is made for a permit to perform the work and make the connection:

Meter Installation:	**Inside City**	**Outside City**
Meter set only	$210.00	$315.00
Meter 1″ and smaller (Meter, service and tap)	2,000	3,000
Frontage Charge:	9.00	9.00

(Ord. 1580 § 1 (Exh. A), 2007; Ord. 1533 § 1, 2005; Ord. 1518 § 1, 2005; Ord. 1276 § 1 (Exh. A), 1998; Ord. 1104 § 1 (Exh. A), 1993; Ord. 740 § 1, 1980; Ord. 536 § 1, 1975; Ord. 506 § 1, 1973; Ord. 392 § 1, 1969; Ord. 240 Art. 5 § 5, 1958. Formerly 13.20.050)

3.91.060 Connection to main – Costs.

Property abutting on but not previously assessed or not having previously contributed its proportionate share of construction costs for standard water mains may be connected to such abutting mains upon payment of a special connection charge as set forth in WMC 3.91.050 or equal to the proportionate share of the installation costs for each building, or lot served, plus interest at six percent per annum from the time of installation until so served, whichever is greater. In the case of single-family residential lot(s) where water mains have been previously installed, the frontage charges shall be calculated on the longest lot line generally parallel to an existing water main. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999; Ord. 1104 § 1 (Exh. A), 1993; Ord. 816 § 1, 1983; Ord. 485 § 1, 1972; Ord. 240 Art. 5 § 6, 1958. Formerly 13.20.060)

3.91.061 Collection of excise taxes on water connection fees.

Excise taxes shall be charged on the amount of connection fees and collected from the customer at the current amount established by the State of Washington Department of Revenue. (Ord. 1533 § 1, 2005; Ord. 1114, 1993. Formerly 13.20.061)

3.91.065 Latecomer charges for sewer or water main or lateral line extension.

When a sewer or water main or lateral line is extended in accordance with the city's water and sewer plans and such cost is absorbed entirely by the property owner who has requested the hookup to city utilities, then future assessment for hookup to that line shall be paid to the original property owner until such time as the verified cost of extending the line has been repaid, or a period of 10 years has lapsed, whichever shall first occur. After

that, all latecomer charges will accrue to the city. It is specifically understood that only area assessment and front footage charges shall be used in paying latecomer charges to such property owner.

If a property owner(s) is required to construct off-site utilities that benefit adjacent owners, a special latecomer's agreement can be granted by the city council. The request for consideration of a special latecomer's fee is to be filed with the public works department. The request should include a proposed area of assessment. Following the public works department review, the request will be forwarded to the city council for consideration.

Further, the charges to the original property owner who installed the line, i.e., the area assessment and front footage charge, shall also be subtracted from the cost of the original line when computing the amount of latecomer charges due. (Ord. 1533 § 1, 2005; Ord. 1288 § 1 (Exh. A), 1998; Res. 280, 1980. Formerly 13.20.065)

3.91.070 Subject to change without notice.

Except for special contracts, which specify the length of time to which the contract rates shall be extended, all rates, rules and regulations are subject to change or modification by the city without notice. (Ord. 1533 § 1, 2005; Ord. 240 Art. 5 § 7, 1958. Formerly 13.20.070)

3.91.080 Special contracts.

The city reserves the right to make special contracts, the provisions and conditions of which may be different from or have exceptions to the regular published rates. Such special contracts shall be in writing and signed by proper city officials and the customer to be served. (Ord. 1533 § 1, 2005; Ord. 240 Art. 5 § 8, 1958. Formerly 13.20.080)

3.91.090 Unusual customer requirements.

When a customer's requirements for water are unusual or large or necessitate considerable special or reserve equipment or special consideration, the city may require a contract for the extended period and may also require the person or customer to furnish security satisfactory to the city to protect the city against loss and guarantee of the performance of the provisions of the contract. (Ord. 1533 § 1, 2005; Ord. 240 Art. 5 § 9, 1958. Formerly 13.20.090)

3.91.100 City liability.

The city shall pay to the water department from the current expense fund the following amounts:

(1) For all water used in public buildings, parks and cemeteries, an amount figured at regular rates for each service installed. (Ord. 1533 § 1, 2005; Ord. 892, 1987; Ord. 240 Art. 5 § 10, 1958. Formerly 13.20.100)

3.91.120 Chargeable to premises supplied – Lien.

All charges for furnishing water within or without the corporate limits of the city shall be chargeable to the premises where water is supplied, and all charges for water connections and service provided in this chapter, or as it may be hereafter amended, together with penalties and interest thereon shall be a lien upon the property with which such connections are made or to which domestic water service is rendered, superior to all other liens and encumbrances whatsoever, except for general taxes and local special assessments. Enforcement of such lien or liens shall be in the manner provided by law. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999; Ord. 240 Art. 5 § 12, 1958. Formerly 13.20.120)

3.91.125 Billing date.

Billings for water, sewer and refuse will usually be mailed on the last business day of each month. A payment is considered made when it is receipted by a cashier during business hours at the payment office in City Hall. Should the last day of a month

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fall on a weekend or holiday, the delinquency and/or cutoff date will be the next business day after that weekend or holiday. The city will provide a drop box for payments after hours. Payments made by drop box may not be considered paid until the following business day. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999. Formerly 13.20.125)

3.91.130 Payment delinquency – Service cut off.

As an additional and concurrent method of enforcing the lien of the city for domestic water charges, the superintendent is authorized to terminate service between the fifteenth and twentieth of the month after the date of the first delinquency. All charges together with the additional sum of $20.00 if turned on during business hours and $50.00 if turned on after business hours must be paid prior to turn-on. If termination of service does not occur on the above dates, we reserve the right to still do so at a later time if payment is still outstanding. Payment arrangements may be made at the discretion of the finance director or his designee; provided, that any arranged payments missed will result in immediate shut-off. Returned payments will be treated as a missed payment.

Partial payments shall be posted as follows: miscellaneous, recycling, garbage tax, garbage, sewer and water. (Ord. 1533 § 1, 2005; Ord. 1412 § 1 (Exh. A), 2001; Ord. 1344 § 2, 1999; Ord. 1140 § 1, 1994; Ord. 1133 § 1 (Exh. A), 1994; Ord. 853 § 2, 1985; Ord. 646 § 1, 1977; Ord. 583 § 1, 1976; Ord. 240 Art. 5 § 13, 1958. Formerly 13.20.130)

3.91.134 Rental properties.

Repealed by Ord. 1633. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999. Formerly 13.20.134)

3.91.135 Responsibility of property owner.

All accounts of water, sewer and stormwater shall be kept in the name of the legal owner of record of the property and not in the name of the tenant; the owner of the property or the authorized agent shall be responsible for all utility charges. Utility bills will be sent to the address where services are provided unless owner or owner's legally authorized agent specifies in writing a different address for billing purposes. All accounts that are not in the name (for all uses in this section) of the legal owner or authorized agent at the time of passage of the ordinance codified in this section shall have until June 30, 2010, to comply with the provisions of this section. (Ord. 1633 § 1 (Exh. A), 2009)

3.91.138 Sale of property.

When the sale of the real property occurs, it is the responsibility of the purchaser to contact the City Hall billing office and to make arrangements for water, sewer and refuse service. It is not the responsibility of the city to enforce payment of any billing which was against the property at the time of the sale against the seller. The billing and any liens against the property will remain against the property. The city will take no action to enforce payment of billings due at the sale date against the seller. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999. Formerly 13.20.138)

3.91.140 Meter removal, inspection.

Should at any time a customer receiving water service through one of the water department's meters request in writing to the water department that the meter be removed and checked for accuracy, such service will be performed for a charge of $10.00. Should the meter on checking be found to be delivering the amount equal to or greater than that recorded by the meter, the consumer so requesting the service shall become liable for the charge. (Ord. 1533 § 1, 2005; Ord. 240 Art. 5 § 14, 1958. Formerly 13.20.140)

3.91.150 Water and garbage bill – Prepaid.

As water, sewer and garbage are billed on a common bill and paid through the same office, the city shall not accept nor receive prepaid water charges except when the customer will also and does prepay his sewer and garbage bill for the same length of time as he prepays the water bill. Prepaid water, sewer and garbage collections will not be refunded to the customer. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999; Ord. 240 Art. 5 § 15, 1958. Formerly 13.20.150)

3.91.170 Application of remittances.

All remittances received in payment of accounts shall be applied to payment of the month or months furthest in arrears for the property chargeable and for which property the payment is received. Remittances shall first be applied in the following order: solid waste, recycling, tax, miscellaneous charges, sewer and water. (Ord. 1533 § 1, 2005; Ord. 1344 § 2, 1999; Ord. 240 Art. 5 § 17, 1958. Formerly 13.20.170)

3.91.190 System development charge.

(1) System Development Charge.

	Inside City	Outside City
Development charges:		
Zone 1 Low level	$2,930	$4,395
Zone 2 Intermediate 15 percent above Zone 1	3,370	5,055
Multiple Dwellings:		
2 units	4,395	6,595
3 units	6,595	9,895
4 units	8,790	13,185
More than 4 units	2,038	3,060
Service stations	6,350	9,525
Public buildings, offices, churches	6,350	9,525
Small businesses and offices (less than 1,500 square feet)	4,760	7,140
Restaurants and taverns, laundromats	9,525	14,285
Industrial	12,700	19,050

Charges shown represent minimum connection fees. Connection fees for each of these service types will be reviewed by the director of public works to calculate supplemental fees, if any. Supplemental fees are used when sewage generation within the service type is found to be beyond expected standards. All supplemental fees require city council approval.

(2) In the event that a single structure is used for more than one purpose according to the above classifications, the owners shall pay the connection charge designated for the highest use according to the schedule, except that in mixed occupancies where living units are located in the same structure, an additional connection charge shall be made as designated under the residence, multiple dwelling and motel classification connection charge schedule. (Ord. 1572 § 1, 2006; Ord. 1533 § 1, 2005; Ord. 1276 § 1 (Exh. A), 1998; Ord. 1226 § 1 (Exh. A), 1997; Ord. 1157 § 1, 1995; Ord. 1104 § 1 (Exh. A), 1993; Ord. 621 § 1, 1977. Formerly 13.20.190)

3.91.200 Connection charges refunds.

In the event the city receives connection charges due to mistake, error or misunderstanding, the same may be refunded only by council action. (Ord. 1533 § 1, 2005; Ord. 686 § 1, 1978. Formerly 13.20.200)

3.91.210 Charges for replacement of a structure.

When another structure or new residence unit or multifamily or commercial structure is placed on the property and water charges have already been paid for on a single unit, then the charges for the replacement unit shall be controlled by WMC 3.92.120. (Ord. 1533 § 1, 2005; Ord. 761 § 1, 1980. Formerly 13.20.210)

3.91.220 Water service modifications.

Any water service modifications requested by a property owner shall be billed by the city on a time and material basis with a minimum charge of $250.00. (Ord. 1656 § 1 (Exh. A), 2010)

Title 13

WATER

Chapters:

13.04 **Definitions**
13.08 **Department Personnel**
13.12 **Service**
13.14 **Water Conservation**
13.16 *Repealed*
13.20 *Recodified*
13.24 **Mains**
13.28 **Meters**
13.32 **General Regulations**
13.36 **City Responsibility**
13.40 **Cross Connection Control**

Chapter 13.04

DEFINITIONS

Sections:

13.04.010 Director.
13.04.020 Person.
13.04.030 Domestic water or domestic water system.

13.04.010 Director.

"Director" means the director of public works or his authorized deputy, agent or representative. (Ord. 1140 § 1, 1994; Ord. 492 § 2, 1973; Ord. 240 Art. 1, § 1, 1958)

13.04.020 Person.

"Person" means any individual, firm, company, association, society, corporation or group. (Ord. 240 Art. 1, § 2, 1958)

13.04.030 Domestic water or domestic water system.

"Domestic water" or "domestic water system" means that water, and the water system in which it is carried, which is for human consumption and normal household and business or industrial uses provided from the city's supply. (Ord. 240 Art. 1, § 3, 1958)

Chapter 13.08

DEPARTMENT PERSONNEL

Sections:

13.08.010 Designated.
13.08.020 Appointment – Salary.
13.08.030 Director – Duties.
13.08.040 Director – Defined.

13.08.010 Designated.

The officers and other employees of the water department shall consist of a director and such other personnel as the council may from time to time deem necessary for the efficient administration of the department. (Ord. 1140 § 1, 1994; Ord. 240 Art. 2 § 1, 1958)

13.08.020 Appointment – Salary.

The director and such other personnel as the council may from time to time authorize shall be appointed by the mayor and shall hold such appointment during the pleasure of the mayor. The director and such other personnel as may be authorized shall receive such salary as the council may determine. (Ord. 1140 § 1, 1994; Ord. 240 Art. 2 § 2, 1958)

13.08.030 Director – Duties.

The duties of the director shall be to oversee and manage the operation and maintenance of the domestic water system, the making of repairs of all kinds, the construction of extensions and additions, and all construction work of any nature whatsoever in connection with the present domestic water system and any new system that may be established. The director shall at all times be subject to the direction and authority of the mayor. (Ord. 1140 § 1, 1994; Ord. 240 Art. 2 § 3, 1958)

13.08.040 Director – Defined.

"Director" means the director of public works for the city or his authorized deputy, agent or representative. (Ord. 1140 § 1, 1994; Ord. 647 § 1, 1977)

Chapter 13.12

SERVICE

Sections:

13.12.010 Application procedure.
13.12.020 Accepted application considered.
13.12.040 Location change – Cost provisions.
13.12.050 New pipes.
13.12.060 Owner responsibility for leaks – Meters to be city responsibility.
13.12.070 Out-of-town service.

13.12.010 Application procedure.

All application for water service installations and for water service shall be made at the office of the director on forms furnished by the city which applicant shall supplement with such information as deemed necessary by the director. All applications shall be made by the owner of the property to be served or his authorized agent, and all accounts shall be in the name of the owner of such property. No person shall make any connection with either the domestic system or add to an existing connection with any additional unit without first obtaining a permit as herein required. Water meters shall be installed by the city on all domestic water service lines as required herein. (Ord. 1140 § 1, 1994; Ord. 240 Art. 3 § 1, 1958)

13.12.020 Accepted application considered.

In case the premises of the application for water service are connected for service as a result of his application being accepted, the application given in writing shall be considered as a contract in which the applicant agrees to abide by such rates, rules and regulations as are in effect at the time of signing the application or as may be adopted thereafter by the city, and to pay all bills promptly. (Ord. 240 Art. 3 § 2, 1958)

13.12.040 Location change – Cost provisions.

When it is necessary for the convenience of the city or because of the installation of new water mains, or for any other reason, to change an existing domestic water meter, or domestic water service location, such new location shall be made at the cost and expense of the water department, except that the property owner shall reinstall his domestic water service pipes to connect with the water meter as relocated at his own expense. (Ord. 240 Art. 3 § 4, 1958)

13.12.050 New pipes.

All new service pipes shall be placed not less than 18 inches below the surface of the ground. (Ord. 240 Art. 3 § 5, 1958)

13.12.060 Owner responsibility for leaks – Meters to be city responsibility.

Owners of services are responsible for all leaks or damage on account of leaks from privately owned services. Privately owned services shall include all domestic service lines lying in or under the consumer's property. All water meters shall be and remain the property of the city and the responsibility of the city. Such meters may be removed, replaced or changed as to size and type by the water department whenever deemed necessary. (Ord. 240 Art. 3 § 6, 1958)

13.12.070 Out-of-town service.

The city will not provide for city water and/or sanitary sewer service for any person and/or entity developing property and/or residing outside the city limits of the city, unless the person and/or entity shall agree to annex their respective property to the city as soon as such annexation is available. Each person and/or entity shall enter into a contractual agreement binding the person and/or entity to annexation of the unincorporated property when annexation is available. (Ord. 1140 § 1, 1994)

Chapter 13.14

WATER CONSERVATION

Sections:

13.14.010 Purpose.
13.14.020 Authority.
13.14.030 Policies and procedures.
13.14.040 Enforcement.
13.14.050 Variances.
13.14.060 Penalties.

13.14.010 Purpose.

It is in the public interest to promote the conservation of the city's water supply in order to protect the health, welfare and safety of water users. To accomplish this declared purpose, the city reserves the right to exercise its police powers through emergency measures as set forth in this chapter. (Ord. 1551 § 1, 2006)

13.14.020 Authority.

The public works director, when necessary for the protection of the public health, safety and welfare, shall have the authority to declare various stages of water emergencies and to implement the water conservation measures set forth in this chapter. The public works director shall also have authority to determine whether the various stages of water emergencies and water conservation measures apply to the entire city utility service area or to such portions as may be particularly affected. The director shall at all times be subject to the direction and authority of the mayor. (Ord. 1551 § 1, 2006)

13.14.030 Policies and procedures.

The following policies and procedures shall apply during the various stages of water emergencies as set forth in this section:

(1) Stage I – Anticipated Water Shortage – Internal Preparations. The public works director may declare a Stage I water emergency when a water shortage is anticipated but not immediate. The public works department shall conduct public education efforts regarding the benefits and necessity of conservation by the public.

(2) Stage II – Serious Water Shortage – Voluntary Conservation. The public works director may declare a Stage II water emergency when a water shortage exists such that immediate voluntary reductions in consumption are necessary. The public works department shall conduct an intensified public information campaign and shall institute a voluntary odd/even home irrigation program. The city shall reduce usage for designated park irrigation systems that do not affect sports fields.

(3) Stage III – Critical Water Shortage – Limited Outdoor Restrictions. The public works director may declare a Stage III water emergency when a water shortage exists such that water supplies are critically impacted and water demand must be reduced. The mayor is authorized to establish certain specified days or hours for irrigating, sprinkling or watering lawns and gardens, and may prohibit or regulate other nonessential uses of water within the water system during such times as there is an actual or impending water shortage, extreme pressure loss in the distribution system, or for any other reasonable cause. The following nonessential uses of water may be prohibited on all properties connected to the city's water system, whether inside or outside of the city:

(a) Washing sidewalks, walkways, driveways, parking lots, patios, and other exterior paved areas by direct hosing, except as may be necessary to prevent or eliminate materials dangerous to the public health and safety;

(b) Escape of water through breaks or leaks within the customer's plumbing or private distribution system for any period of time beyond which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of 48 hours after the customer discovers a leak or break, or receives notice from the city of such leak or break, whichever occurs first, is a reasonable time in which to correct the same;

(c) Noncommercial washing of privately owned motor vehicles, trailers, and boats, except from a bucket or hose using a shutoff nozzle for quick rinses;

(d) Lawn sprinkling and irrigation which allows water to run off or overspray the lawn area. Every customer is deemed to have knowledge of and control over his or her lawn sprinkling and irrigation at all times;

(e) Sprinkling and irrigation of lawns, ground cover, or other plants, between the hours of 9:00 a.m. and 6:00 p.m. or on any day not authorized by the established rotation schedule;

(f) Such other uses as the mayor deems appropriate.

(4) Stage IV – Emergency Water Shortage – Mandatory Outdoor Restrictions and Indoor Conservation. The public works director may declare a Stage IV water emergency when a water shortage exists such that maximum flow reduction is immediately required, water available to the city is insuf-

ficient to permit any irrigation, watering or sprinkling, and all available water is needed solely for human consumption, sanitation and fire protection. The public works director may prohibit all nonessential uses of water, including, but not limited to, all vehicle washing, all lawn watering, and all of the uses that may be prohibited for a Stage III water emergency. The public works and utilities department shall disseminate information using every available means to encourage customers to reduce indoor water usage to the maximum extent possible.

(5) Stage V – Regional Disaster – Water Rationing. The public works director may declare a Stage V regional disaster water emergency when a water shortage exists such that water rationing must be implemented and emergency water distribution may be necessary for customers without water. The public works director is authorized to restrict water use by rationing the amount of water used by residential users to a certain number of gallons per day per person residing within the dwelling unit, by rationing the amount of water used by nonresidential users based on a percentage of their historical usage as calculated by the city, and by any other type of rationing as the public works director deems necessary and appropriate in the circumstances.

(6) Implementation Requirements. Prior to the implementation and enforcement of any of the above stages, the public works director shall take reasonable efforts to have information disseminated to affected customers regarding the rationing plan, which shall include, at a minimum, publication in the official newspaper of the city at least once, not less than one week in advance of the effective date of the declaration, information of the declaration of the applicable stage, a description of the limitations and restrictions that would apply, and identification of the effective date of the declared stage and limitations and restrictions. Notwithstanding the publication requirements set forth in this chapter, if it is determined by the public works director that exigent circumstances exist that necessitate immediate implementation and enforcement of any particular stages of water emergency, notice to affected customers may be provided by personal service of the notice on such customers, or by posting notices at the customers' residences (if the customers' residences are the affected sites), or by posting notices at the locations where the customers' utility services are received (if the affected sites are not their residences).

(7) Term of Stage and Scope. The public works director is also authorized to determine the geographic area to which the declared stage shall apply, and to determine the duration for which the declared stage and its limitations and restrictions shall be in effect. (Ord. 1551 § 1, 2006)

13.14.040 Enforcement.

The public works director or designee, code enforcement officers, and police officers of the city shall have the authority to enforce the provisions of this chapter. (Ord. 1551 § 1, 2006)

13.14.050 Variances.

The public works director may grant temporary variances for the prospective use of water otherwise prohibited by this chapter. Such temporary variances shall be in writing and shall be based on a determination by the director that, due to unusual circumstances, application of this chapter would cause an extraordinary hardship adversely affecting the health, sanitation, or fire protection of the applicant or the public. The director's determination shall be final unless appealed as follows: a party adversely affected by the director's determination may appeal the determination to the mayor or designee within 24 hours of the director's determination or such later time as the mayor may designate. The mayor's determination shall be final and nonappealable. The 24-hour periods shall exclude Saturdays, Sundays and legal holidays. (Ord. 1551 § 1, 2006)

13.14.060 Penalties.

Violations of this chapter shall be punishable as follows:

(1) The first violation of any provision of this chapter shall be a civil infraction as provided for by RCW 7.80.120(1)(a), as now enacted or hereafter amended. Infractions shall be processed pursuant to the authority and provisions set forth in Chapter 7.80 RCW, as now enacted or hereafter amended, and the Infraction Rules for Courts of Limited Jurisdiction.

(2) For any second or subsequent violation of any provision of this chapter the violator may be charged as a misdemeanor punishable by imprisonment in jail for a maximum term fixed by the court of not more than 90 days, or a fine in an amount fixed by the court of not more than $1,000, or both such imprisonment and fine. (Ord. 1551 § 1, 2006)

Chapter 13.16

CHANGE FUND

(Repealed by Ord. 1575)

Chapter 13.20

RATES, CHARGES

(Recodified under Chapter 3.91 WMC by Ord. 1533)

Chapter 13.24

MAINS

Sections:

13.24.010 Extensions – Petition procedure.
13.24.020 Contract for temporary service.
13.24.030 *Recodified.*
13.24.040 Additional system connection charge for properties connecting to water or sewer extension projects.

13.24.010 Extensions – Petition procedure.

Extensions to water mains will be made only upon proper petitions to the city. The city shall have the right to reject such petitions or enter contract with the petitioners under such conditions as the city may elect to use the work force account, using water revenue to pay the costs of such expansion or have the petitioners pay the total amount of costs to the city prior to installation of the main extension. Unless otherwise approved by the director, all main extensions shall be made to the furthest property line. Ordinarily, water main extensions must be paid for by the customer or customers to be served. (Ord. 1140 § 1, 1994; Ord. 240 Art. 6 § 1, 1958)

13.24.020 Contract for temporary service.

The city may enter into contracts allowing temporary services to mains on other streets, providing that the service shall be terminable when mains are installed in front of the consumer's property and the customer signs a contract agreeing to pay his proportionate share when a water main is installed in front of or abutting his property. (Ord. 240 Art. 6 § 2, 1958)

13.24.030 Water, sewer and storm system construction plans – Review, inspection and fees.

Recodified under Chapter 3.93 WMC by Ord. 1534.

13.24.040 Additional system connection charge for properties connecting to water or sewer extension projects.

(1) Whenever the city constructs a sewer or water main extension which will provide connections for or benefit only a limited number of properties within a defined geographic area, the owners of those properties who thereafter seek connection of the property and improvements to the city's water or sewer system through the extension shall be required to pay, in addition to the general connection charge then in effect, an additional connection charge consisting of an equitable share of the costs which have been incurred by the city to design, engineer, construct and install the water or sewer main extension. The foregoing additional connection charge shall be payable only with respect to those properties that have not previously been included in a local improvement district or utility local improvement district undertaken to finance all or a part of the costs of the water or sewer main extension.

(2) The amount of the water or sewer additional connection charge and the area or properties which will be required to pay the same shall be established by resolution or ordinance of the city council and the amount shall be determined generally by dividing the total costs of the project within the public right-of-way or easement by the estimated maximum number of benefited. In determining the amount of the charges, the city council shall consider the costs which have been incurred to design, engineer, construct and install the water or sewer main extension.

(3) The additional connection charge will include an interest charge equal to the greater of six percent or 75 percent of the prime rate of Bank of America (as then in effect) from the completion of the improvement until the time of connection.

(4) The additional connection charge will be due and payable upon connection to the city's water and/or sewer system. (Ord. 1367 §§ 1 – 4, 1999)

Chapter 13.28

METERS

Sections:

13.28.010 Responsibility for installation and maintenance.
13.28.020 Location.
13.28.030 No charge to city for placement on private property.
13.28.040 Under-registering caused by tampering.
13.28.050 Damage by hot water – Repair cost responsibility.
13.28.060 Joint service.

13.28.010 Responsibility for installation and maintenance.

Water meters on domestic service shall be placed, installed and maintained within the discretion of the water department, and shall remain the property of the city regardless of location. (Ord. 240 Art. 7 § 1, 1958)

13.28.020 Location.

The location of the meter or meters used in measuring the customer's use of water must be in a place satisfactory to the city before service will be supplied. Ordinarily the meter will be installed outside the building and between the property line and curb. Where meters are at present or may be installed within a building, the city will not be held responsible for damage from water seepage through the wall, nor from damages from leaking meters, pipes or fittings. (Ord. 240 Art. 7 § 2, 1958)

13.28.030 No charge to city for placement on private property.

No rent or other charges whatever shall be made by the customer against the city for placing or maintaining meters upon the premises of the customer. (Ord. 1344 § 2, 1999; Ord. 578 § 1, 1976; Ord. 573 § 1, 1976; Ord. 240 Art. 7 § 3, 1958)

13.28.040 Under-registering caused by tampering.

If a meter under-registers the amount of water due to tampering with the meter, and/or piping, or in other ways causing under-registration, the service may be discontinued, and will not be reconnected until the customer has made adjustment for the loss of revenue and given satisfactory assurance that there will be no more tampering to cause under-registration. (Ord. 240 Art. 7 § 4, 1958)

13.28.050 Damage by hot water – Repair cost responsibility.

If a meter is damaged by hot water from the customer's line, the customer will be required to pay for the cost of repairs and for the loss of revenue occasioned by the damage, and further, the customer shall immediately make the necessary corrections to his own water lines to prevent further damage to the city meter. (Ord. 240 Art. 7 § 5, 1958)

13.28.060 Joint service.

When two or more houses, buildings or other premises are occupied by separate customers, and are supplied from a single service connection, the owner or owners shall immediately, upon notice from the director, separate each customer's lines and connect up to individual services and if separate services are not established within a reasonable time thereafter, the service shall be shut off and further service refused. Such joint service may, however, be continued at the option of the director providing one owner is responsible and agrees to pay the total water bill for two or more premises. Computation of the total bill for flat rate services shall be made by adding the total of the separate use classifications of the premises. Computation of the total bill for meter services shall be based on multiplying the quantity in each bracket of the rate schedule by the number of consumers on one meter. The minimum monthly charge shall be the regular minimum monthly charge multiplied by the number of consumers served. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 6, 1958)

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Chapter 13.32

GENERAL REGULATIONS

Sections:

13.32.010 Water heater requirements.
13.32.020 Use restrictions.
13.32.030 Service line prohibited above or below street.
13.32.040 Line shut-off for repair or replacement.
13.32.050 Permission required for hydrant use.
13.32.060 Tampering, destruction of equipment prohibited.
13.32.080 Unauthorized attachment to mains, connections prohibited.
13.32.090 Unauthorized turn-on, turn-off prohibited.
13.32.100 Authority of superintendent to adopt rules and regulations.
13.32.110 City authority to make decision.
13.32.120 Enforcement authority of police and fire departments.
13.32.130 Connections, turn-ons outside city.

13.32.010 Water heater requirements.

The city shall not be responsible for any damage caused by noncompliance with this title, nor shall the city be responsible for any damage caused by a loss of water for any reason. Any person who shall violate any of the provisions of this title shall become liable to the city for any expense, loss or damage occasioned by the city by reason of such violation. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 8, 1958)

13.32.020 Use restrictions.

No person supplied with water from the city mains shall be entitled to use it for any other purpose than stated in the application, or supply it in any way to other persons or premises. (Ord. 240 Art. 7 § 9, 1958)

13.32.030 Service line prohibited above or below street.

An individual may not have a water service line, hose or conduit cross on top of or under the surface of a road or street. (Ord. 240 Art. 7 § 10, 1958)

13.32.040 Line shut-off for repair or replacement.

The director is directed and authorized to immediately shut off all domestic lines whenever such water lines to the domestic water supplies of the city develop leaks or their condition is such as to constitute a danger to the domestic water supplies of the city. Such water lines shall remain shut off until properly repaired or replaced. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 11, 1958)

13.32.050 Permission required for hydrant use.

No person other than an authorized employee of the water department, the fire department or street department shall operate fire hydrants or interfere with fire hydrants in any way without first obtaining authority so to do from the director. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 12, 1958)

13.32.060 Tampering, destruction of equipment prohibited.

No unauthorized person shall maliciously, wilfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance, or equipment which is a part of the domestic water system. Each violation thereof shall be assessed the minimum fine of $100.00 which may not be suspended, plus the costs for time and materials plus 15 percent overhead for repair of the damage of said water line. (Ord. 485 § 2, 1972; Ord. 240 Art. 7 § 13, 1958)

13.32.080 Unauthorized attachment to mains, connections prohibited.

It shall be a violation of this title for any person or persons to attach to or detach from any water main or service pipe, or water connection through which water is supplied by the city, or to interfere in any manner with such pipes or connections without first obtaining the written consent of the director. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 15, 1958)

13.32.090 Unauthorized turn-on, turn-off prohibited.

It shall be a violation of these rules and regulations for any person to use or tamper with, any valve, curb, spout, meter, etc., which is the property of the city, for the purpose of turning water on or off, and the city shall hold any person responsible for the cost of repairing any damage to any city property caused by such usage or tampering. The city shall require every property owner to install his own valve and his own pipeline for the control, shut-off and turn-on of service to his premises. (Ord. 240 Art. 7 § 16, 1958)

13.32.100 Authority of superintendent to adopt rules and regulations.

The director, subject to the approval of the council, shall have power to adopt rules and regulations not inconsistent with the terms of this title for carrying out and enforcing the payment, collection and remittance of the rates herein provided for, and rules and regulations affecting the operation of the water system as such relate to services, connections, and the general requirements of the utility; and a copy of such rules and regulations shall be on file and available for public examination at the water department office. Failure to comply with any such rules and regulations shall be deemed a violation of this title. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 17, 1958)

13.32.110 City authority to make decision.

The city shall have the authority to decide any questions which may arise and which are not fully covered by any of the provisions of this title, and its decision in such cases shall be final. (Ord. 240 Art. 7 § 18, 1958)

13.32.120 Enforcement authority of police and fire departments.

It shall be the duty of the employees of the police and fire departments to give vigilant aid to the water department in the enforcement of its rules and regulations, and the enforcement of this title, and to this end they shall report all violations thereof which come to their knowledge, to the office of the director. (Ord. 1140 § 1, 1994; Ord. 240 Art. 7 § 19, 1958)

13.32.130 Connections, turn-ons outside city.

There shall be no further water connections or turn-ons outside the city unless a plumbing permit inspection is obtained from the city. (Res. 109, 1970)

Chapter 13.36

CITY RESPONSIBILITY

Sections:

13.36.010 Interruption or shortage of supply.
13.36.020 Loss or damage for defect in customer's line.
13.36.030 Damage due to failure to give shut-off notice.
13.36.040 Preference to customer during shortage.

13.36.010 Interruption or shortage of supply.

The city will exercise reasonable diligence and care to furnish and deliver a continuous and sufficient supply of pure water to the customers, and to avoid any shortage or interruption of delivery. The city will not be liable for high or low pressure conditions, chemical or bacteriological conditions, interruption or shortage or insufficiency of supply, or any loss or damage occasioned thereby. The use of water upon the premises of the customer is at the risk of the customer, and the responsibility of the city shall cease at the point of delivery. Unless otherwise specified in agreement, the point of delivery shall be the point where the city service line attaches to the customer's line. (Ord. 240 Art. 8 § 1, 1958)

13.36.020 Loss or damage for defect in customer's line.

The city shall not be liable for any loss or damage of any nature whatsoever caused by any defect in the customer's line, plumbing or equipment, and the city may, without further notice, discontinue service to any customer when a defective condition of plumbing or equipment upon the premises of the customer results, or is likely to result, in interference with proper service or likely to cause contamination of the water. The city does not assume the duty of inspecting the customer's line, plumbing and equipment, and shall not be responsible therefor and will not be liable for failure of customer to receive service on account of defective plumbing or apparatus on the customer's premises, or for excessive consumption. (Ord. 240 Art. 8 § 2, 1958)

13.36.030 Damage due to failure to give shut-off notice.

In cases where a water shut-off is necessary for repair, reconstruction, improvements, damage prevention, or similar causes, the water department will endeavor to give advance notices to its cus-

tomers of such expected shut-off; provided, however, that the water department will not be responsible for any damage which may result from any cessation of service such as above outlined, nor for failure to give notice of shut-off when circumstances are such that it is impossible to give notice as above stated. (Ord. 240 Art. 8 § 3, 1958)

13.36.040 Preference to customer during shortage.

In case of shortage of supply, the city reserves the right to give preference in the matter of furnishing service to customers, as in the judgment of its representatives shall be for the best interests of the city, from the standpoint of public convenience and necessity. (Ord. 240 Art. 8 § 4, 1958)

Chapter 13.40

CROSS CONNECTION CONTROL

Sections:

13.40.010 Compliance with regulations.
13.40.020 Enforcement authority.
13.40.030 Approval of standards and backflow prevention assemblies.
13.40.040 Testing of backflow prevention assemblies and inspection of air gaps.
13.40.050 Access to user's premises.
13.40.060 Failure of customer to cooperate – Grounds for termination of service.

13.40.010 Compliance with regulations.

All users of the city's water supply shall comply with the Uniform Plumbing Code Chapter 10, State of Washington Cross Connection Regulations, WAC 246-290-490, and the current edition of the Cross Connection Control Manual – Accepted Procedure and Practice published by the Pacific Northwest Section of American Waterworks Association. (Ord. 1247 § 1 (Exh. A), 1997; Ord. 1033 § 1, 1991)

13.40.020 Enforcement authority.

The city shall enforce the provisions of these regulations through the director of public works. The director of public works may delegate responsibilities to a certified cross connection control specialist/inspector. The city's standards may supersede the state regulations, but in no case shall they be less stringent. (Ord. 1033 § 2, 1991)

13.40.030 Approval of standards and backflow prevention assemblies.

All approved standards for cross connections shall be approved by the director of public works or his designee. All backflow prevention assemblies required by these regulations shall be a model approved by the Washington State Department of Health. Further, approved backflow prevention assemblies required by these regulations shall be installed under the direction of the director of public works and/or under the supervision of the cross connection specialist/inspector per city standards. (Ord. 1033 § 3, 1991)

13.40.040 Testing of backflow prevention assemblies and inspection of air gaps.

All RPBAs, RPDAs, DCDAs, DCVAs and PVBAs are required to be tested at least annually

and all air gaps installed in lieu of an approved backflow prevention assembly shall be inspected at least annually. Completed test reports shall be returned to the city within 30 days after receipt of the yearly test notification. Tests and inspections may be required on a more frequent basis at the discretion of the director of public works. (Ord. 1247 § 1 (Exh. A), 1997; Ord. 1033 § 4, 1991)

13.40.050 Access to user's premises.

Only authorized employees of the city with proper identification shall have reasonable access at reasonable hours of the day to the user's premises to which water is supplied. The city shall abide by all appropriate legal means to facilitate this access. Water service shall be refused or terminated to any premises for failure to allow necessary inspections upon the city's request as above set forth. (Ord. 1033 § 5, 1991)

13.40.060 Failure of customer to cooperate – Grounds for termination of service.

Failure of the customer to cooperate in the installation, maintenance, repair, inspection or testing of backflow prevention assemblies required by these regulations and incorporated in this chapter shall be grounds for termination of water service to the premises or the requirement for an air gap separation. This determination shall be made at the discretion of the public works director or his designee. (Ord. 1033 § 6, 1991)

APPENDIX E
WASHOUGAL ENGINEERING STANDARDS FOR PUBLIC WORKS CONSTRUCTION – WATER

MSA

ENGINEERING STANDARDS

For

Public Works Construction

Trevor Evers
Director of Public Works
February 2010

Chapter 1 – General Design Requirements
Chapter 2 – Erosion Control, Clearing and Grading
Chapter 3 – Streets
Chapter 4 – Storm Drainage
* **Chapter 5 – Water**
Chapter 6 – Sanitary Sewer

Chapter 5
Water

City of Washougal Engineering Standards for Public Works Construction
February 2010

Table of Contents

Description	Page No.
5.00 Developer Extension Agreements	1
5.01 Utility Tracts	1
5.02 General Design Considerations	1
5.03 Sizing and Pressure Requirements	2
5.04 Shut-off Valves	3
5.05 Air-Release Valves	3
5.06 Hydrants	3
5.07 Water Meters	4
5.08 Fees and Charges	4
5.09 Cross Connection Control	5
5.10 Contract for Reimbursement (Latecomer Agreements)	5
5.11 Water Quality	5
5.12 Plans and Specifications	5
5.13 Connections to Existing Pipelines	5
5.14 Roadway and Railway Crossing	6
5.15 Trench Excavation	6
5.16 Pipe in Filled Areas	6
5.17 Pipe Installation for Water Mains	7
5.18 Bedding and Backfill	8
5.19 Hydrostatic Tests	8
5.20 Sterilization and Flushing of Water Mains	8
5.21 Connection Control and Backflow Assemblies	8
5.22 Requirements for Water System Vault Installations	10
5.23 Fire Services and Domestic Services	11
5.24 Special for Fire Service Only	11
5.25 Water Meter Vaults	12
5.26 Pressure Reducing Valve Vaults	12
5.27 Appurtenances	12

Chapter 5
Water

City of Washougal Engineering Standards for Public Works Construction
February 2010

Table of Contents

Description	Page No.
Tables	
Table 5.1 – Maximum Deflection Permitted 18-Foot Length Pipe	7

CHAPTER 5 - WATER

5.00 Developer Extension Agreements

A. When extension of the existing water system is required for service, the Owner/Developer shall submit an application to the City as described within the Washougal Municipal Code.

B. Upon completion of the design and approval by the City, the Owner/Developer will be notified of requirements to be completed prior to construction. Upon completion of the pre-construction requirements and 48-hours notice, a pre-construction meeting will be held with the City, at which time construction inspection will be scheduled. No water main construction work shall commence prior to the pre-construction meeting. After completion of construction, testing, and submittal of required documents and fees, final acceptance will be given by the City, at which time service will be available by application following payment of fees for water meters.

C. Prior to commencing construction of any component of the public water system, the Developer shall submit to the City an approved performance bond in accordance with the requirements of Section 1.08 of these Standards.

D. Developer Extension projects shall be deeded to the City for maintenance and operation by letter after the system has been found to meet City standards.

5.01 Utility Tracts

All public utilities (storm, water, and sewer) shall be in public utility tracts. The tract shall be a minimum twenty (20) feet wide with a twelve (12) feet wide all weather surface. No obstructions are to be located within the public utility tracts.

5.02 General Design Considerations

A. In all residential and commercial developments water main extensions are required to assure orderly development of the water utility system. Where applicable, water main extensions shall conform to the requirements of the City's latest approved Water System Plan. Where the proposed extension is not addressed in the Water System Plan, the Developer shall pay the cost for any Water System Plan amendments required by the Washington State Department of Health, or Director. All proposed water main extensions must comply with the City's requirements for development, water quality, pressure zones, and fire protection requirements of the City.

B. Design and construction of water mains, including but not limited to, mainlines, valving, fire hydrants, fire sprinkler connections with backflow devices, domestic and irrigation services, pump stations, pressure reducing stations, telemetry and other appurtenances shall be in compliance with the City ordinances, special requirements of the City, these Standards, and the Standard Details.

C. The applicant is responsible for designing the Developer Extension Water system(s). The system(s) must be designed by a licensed engineer and approved by the City.

D. Water mains shall be extended through and to the extremes of the property being developed for gridding or future development, as determined by the City.

E. Dead end water main extensions shall be avoided. Unless specifically approved by the Director, all water main extensions shall be looped to other water mains within the pressure zone of that water main extension. Generally, looping of water main extensions is required for all extensions serving twenty (20) or more equivalent residential units.

F. Water main extensions for service to pressure zones different from the pressure zone from which the extension is made shall be avoided. Unless specifically approved by the Director, booster pump stations or pressure reducing valve stations shall not be permitted.

5.03 Sizing and Pressure Requirements

A. In areas where gridding or fire flow is a requirement, 8-inch diameter pipe is required. Nothing shall preclude the City from requiring the installation of a larger sized main if the City determines a larger size is needed to meet fire protection requirements or for future service. The Developer shall be required to pay the cost of all oversizing. Reimbursement for oversizing will be in accordance with the WMC.

B. Minimum size mains shall be 6-inch on runs less than three hundred (300) feet, when there will not be more than eight (8) 1-inch services, where no more than one (1) fire hydrant is required, and when there is no possibility of future extensions.

C. Dead end mains shall be avoided. If they are permitted, a blow off assembly will be required at the end of the pipeline. In the event that the "dead end" finishes where there is risk of a vacuum being created due to water shut down, then a Combination Air and Vacuum Release Valve shall be installed in accordance with the Standard Drawings.

D. All water system installation shall be designed to provide a pressure range at the residence of thirty (30) psi to ninety (90) psi at all times, including during peak demand, unless specifically approved.

E. An approved screen shall be located in the pressure reducing valve vault at a location upstream of the pressure-reducing valve. Pressure reducing valves may be required at the discretion of the City on individual services. Such valves will be installed after the meter and will be the responsibility of the homeowner to install and maintain.

F. Water service size shall be evaluated by the Developer's engineer. The requirements of this section shall be met and shall be no smaller than 1-inch. Booster pumps shall not be allowed on meter service lines in order to meet this requirement, unless specifically approved by the Director. The meter size shall be no smaller than the service line size unless approved by the Director, except that a ¾-inch meter shall have a 1-inch service line.

G. Where requested by the Director, the Developer's engineer shall provide a "pressure available" chart on the water system plan sheet of the construction plans. This sheet shall indicate the calculated pressures theoretically available to each lot during static and peak demand periods. In such cases it shall be the Developer's engineer's responsibility to determine pressures based upon an analysis of the system. All work associated with the

analysis shall be paid for by the Developer.

5.04 Shut-off Valves

A. Valves shall be located, whenever possible, at intersections (one (1) valve per each line radiating from the intersection). In general, sufficient valves should be provided to permit shutting down any section of the line, not exceeding five-hundred (500) feet, with valve operations in not more than three (3) locations.

B. Valves shall be installed in clusters at pipeline intersections.

C. Valves 8-inches and smaller shall be resilient seat gate valves.

D. Valves 10-inches and greater shall be butterfly valves.

5.05 Air-release Valves

At high points in the water system, combination air and vacuum release valves (CARV) shall be installed as required by the Director. All Air-Vac, Air Evacuation, and Vacuum Prevention Valves of sizes 2-inches and larger shall vent to the outside of the vault. If construction of the valve does not permit the venting of leakage to the outside of the vault, a screened drain to daylight of at least the supply line size must be provided at a level that will prevent cross connection and/or backflow problems. This decision will be made by the Director prior to the plan approval.

5.06 Hydrants

A. The number and locations of fire hydrants, fire flow requirements, and fire sprinkler components will be determined by the City Fire Department. Following are general requirements for fire hydrant locations:

1. **Commercial Buildings:** Fire hydrants shall be located so that no part of a commercial building is more than two-hundred and fifty (250) feet from a fire hydrant measured along a route accessible to fire department vehicles. When a fire department connection (FDC) is installed in conjunction with an automatic sprinkler system, it is required to have a fire hydrant located within seventy (70) feet of the FDC.

2. **Non-Commercial Buildings:** Fire hydrants shall be placed at a minimum at each street intersection. The Fire Marshall may request additional hydrants per Fire Code requirements.

   a. Intermediate hydrants are required when the distances to any part of non-commercial buildings exceeds five-hundred (500) feet measured along a route accessible to fire department vehicles.

B. Fire hydrants shall not be connected to mains less than 8-inches, or 6-inches in diameter where the length of 6-inch main is less than two-hundred (200) feet. As per the UFC, fire hydrants shall be located to allow a 5-foot clear space surrounding the hydrant. For example, street lights, sign posts, protective posts, or retaining walls shall be no closer than five (5) feet from the nearest portion of a hydrant. There shall also be no

obstructions directly in line with any of the ports of the hydrant.

C. Fire hydrants shall have Storz fittings (or approved equal).

D. Fire hydrants subject to possible vehicular damage shall be adequately protected with guard posts in accordance with Uniform Fire Code Section 8001.11.3. For marking, see Section 901.4.3. For obstruction, see Section 1001.7.

5.07 Water Meters

A. Water meters sized 1-inch shall be furnished and set by the City. The owner is required to make application and pay meter fees prior to the installation. The City will install meters and lock off meter setters and turn on as requested by the owner after acceptance by the City. Water meters will be set only after curb stop and box are at proper finished grade.

B. Meters 1 ½ -inch and larger shall be compatible with the City's MVRS and AMR system, installed by the owner as part of the construction project, and will be locked off by the City. The 1 ½ -inch and larger meters will be turned on by the City by request from the owner after acceptance by the City.

C. Meters shall be located outside of the sidewalk and/or drivepath within public right-of-way or as otherwise approved by the Director.

D. In plat and short plats, water meter applications will be processed for meter sets and water turned on after acceptance of the water mainline facility by the City.

E. All irrigation systems require plumbing permits and the installation of state approved backflow preventers.

All irrigation meters will be set and turned on after acceptance of the water system by the City. The City will not accept a water system until all the requirements of the Extension Agreement have been completed and all the fees have been paid.

F. Adjustments, repairs, or replacement of the service line, meter box, or setter shall be the responsibility of the property owner.

G. Water services are to be single runs from the main line to each meter. Manifolds with multiple meters shall be allowed in multi-family units with a single property owner.

5.08 Fees and Charges

All fees and charges related to development shall be in accordance with the latest requirements of the WMC.

5.09 Cross Connection Control

A. All water system connections to serve buildings or properties with domestic water, fire sprinkler systems, or irrigation systems shall comply with the minimum backflow requirements as established by the Department of Health (DOH), WAC 246-290-490, and the City. See the Washougal Cross Connection Control Program for information on City requirements.

B. A permit is required for the installation of all backflow preventers to protect the existing water system and users from possible contamination. These backflow preventers shall be installed in accordance with the requirements of the "Accepted Procedure and Practice in Cross Connection Control" manual, the Uniform Plumbing Code, Chapter 6 Washington State Amendments 603.0.

5.10 Contract for Reimbursement (Latecomer Agreements)

Should the Developer deem that the utility extension is an undue hardship and will significantly benefit other property owners, the Developer may request a latecomer agreement, in accordance with the WMC.

5.11 Water Quality

The quality, taste, and odor of water drawn from new construction water mains shall be the same as the water in the existing facility classed as acceptable for use by the City. Should the water not be acceptable for use because of taste, required steps as approved by the City shall be accomplished to attain water quality acceptable for use. Sampling for such water quality testing shall be performed by the use of a Kupferle (model #88 Eclipse) sampling station installed permanently and specifically for such testing. A sampling station shall be required for every fifty (50) EDU's or as determined by the Director. The location for said sampling stations will be determined by the Director.

5.12 Plans and Specifications

A. All extensions to the water system shall conform to the most recent edition of the Standard Specifications for Road, Bridge, and Municipal Construction. The system shall be capable of future expansion and be constructed of permanent materials.

B. The installation of water extensions shall be in accordance with construction plans and specifications prepared by the Developer's engineer and reviewed and approved by the City. Where conflicts exist the more stringent specification shall apply as approved by the City.

5.13 Connections to Existing Pipelines

A. Cut-ins shall be made in existing pipes. The work shall be conducted at such a time and in such a manner as to minimize the interruption of service. Cut-in time must be approved by the City. Necessary pipe, fittings, and gate valves shall be swabbed with chlorine and assembled at the site ready for installation prior to the shutting-off of water in the existing main. Once the water has been shut off, the work shall be performed vigorously, to minimize the interruption, and shall not be halted until the line is restored to service.

When approved by the Director, connections may be made to existing pipes under pressure with a tapping machine by determining the size and type of pipe and installing tapping sleeve to fit complete with tapping gate valve.

Operation of all water main line valves shall be by the City.

The City shall witness all wet taps and cut-in connections and requires 48-hours notice and approval by the City.

B. The Contractor shall have the responsibility of giving written notice to the City at least four (4) days and to affected customers at least 48-hours prior to disruption of service. Written notice to affected customers shall consist of, at a minimum, door hangers, as well as signs posted at the entrance to the customers streets.

C. Pipes to be abandoned shall be removed or capped watertight with mechanical couplings, as determined by the Director.

5.14 Roadway and Railway Crossing

The owner shall be responsible for obtaining all permits required when constructing within right-of-way outside of the City's jurisdiction. The design shall be acceptable to the City and the government or private agency having control of the right-of-way.

5.15 Trench Excavation

A. Clearing and grubbing where required shall be performed within the easement or public right-of-way and as permitted by the property owner and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the Developer.

B. Trenching for water mains shall be completed in accordance with the Standard Specifications.

C. Trenching and shoring operations shall not proceed more than one-hundred (100) feet in advance of pipe laying without written approval of the City.

D. Where a utility crosses under an existing asbestos cement water main or where a trench alters the bedding of an existing asbestos cement water main, the existing A.C. pipe shall be cut three (3) feet minimum from each side of the trench wall and replaced with a corresponding size ductile iron pipe Class 52. The ductile iron pipe shall be connected to A.C. pipe with transition couplings.

E. Contractor shall furnish a watertight plug of the appropriate size which shall be installed in the end of water main when work is delayed or stopped at the end of the work shift.

5.16 Pipe in Filled Areas

Where pipe is to be installed in filled areas, special treatment may be required at the discretion of the City. This treatment may consist of compacting the backfill in 6-inch layers, careful choice of backfill materials, use of Mechanical Joint Ductile Iron Pipe in short lengths, or such other reasonable method or combinations as may be necessary or as required by the City.

5.17 Pipe Installation for Water Mains

The work necessary to excavate, bed, and backfill water pipelines shall conform to the requirements of the Standard Specifications and the Standard Drawings.

A. Pipe and Fittings

1. Use only Class 52 ductile iron pipe and fittings in accordance with the Standard Specifications.

B. Permissible Deflection of Joints

1. Wherever it is necessary to deflect pipe from a straight line either in a vertical or horizontal plane, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed the values in the following Table 5.1.

Table 5.1
Maximum Deflection Permitted*
18-Foot Length Pipe

	Mechanical Joint** Maximum Deflection		Push-on Joint Maximum Deflection	
Dia. Inches	**Angle Degrees and Minutes**	**Deflection Inches**	**Angle Degrees**	**Deflection Inches**
4	8-18	31	5	18
6	7-07	27	5	18
8	5-21	20	5	18
10	5-21	20	5	18
12	5-21	20	5	18

* The maximum deflection shall be whichever is less; the table or that recommended by the pipe manufacturer.

** Safe deflection for one hundred and fifty pounds (150 lbs.) pressure. For higher pressure, reduce tabulated deflection proportionally ten percent (10%) for each one hundred and fifty pounds (150 lbs.) added pressure.

5.18 Bedding and Backfill

Use imported bedding for all water main pipe installed under pavement, curbs, sidewalks, or usable shoulder. Bed and backfill pipe and appurtenances in accordance with the Standard Specifications.

5.19 Hydrostatic Tests

The Contractor shall make pressure and leakage tests on all newly laid pipe. Test to be made at one hundred and fifty (150) psi or one and one-half times the normal working pressure, whichever is greater, for 1-hour with no loss. Test at higher pressures may be required depending upon installation. The Contractor shall furnish all necessary equipment and material, make all taps in the pipe as required, and conduct the tests. The City shall witness the test; if the test does not pass inspection for any reason, additional trips required to witness the test shall be at the owner's expense.

A. Correction of Excessive Leakage

Should any test of pipe laid disclose leakage greater than that allowed, the Contractor shall locate and repair the defective joints or pipe until the leakage of a subsequent test is within the specified allowance.

B. Isolation of Existing Systems Prior to Testing

Existing water pipelines shall be protected from contamination during the testing process for new construction. Use of special "blind flanges" will be necessary if the line being tested cannot be adequately separated from existing systems. The Developer's engineer shall submit shop drawings and proposed procedures to the City prior to installing any special testing device.

5.20 Sterilization and Flushing of Water Mains

Pipelines intended to carry potable water shall be sterilized before placing in service. Sterilizing procedures shall conform to the standard specifications as hereinafter modified or expanded.

A. Disposal of Sterilizing Water

Sterilizing water shall be disposed of in an approved manner. Sterilizing water shall not be allowed into a waterway without adequate dilution or other satisfactory method of reducing chlorine to a safe level. Dechlorinization procedures are to be submitted in writing and approved by the Director prior to flushing system.

5.21 Cross Connection Control and Backflow Assemblies

A. An approved backflow prevention assembly, as listed in "Backflow Prevention Assemblies for Installation in Washington State" (DOH PUB 331-137), is required on all fireline systems, domestic water service larger than 2-inches, and/or building in excess of thirty (30) feet above the water main. The assembly shall be installed at the location normally established for water meters, usually at the property line. A water service shall not be turned on until all required backflow prevention assemblies are installed, inspected, tested, approved, and registered with the City of Washougal. Costs of all installations, including all costs of inspection and testing fees, shall be the responsibility of the customer. The backflow prevention assembly will remain the property of the customer. The customer will be responsible for all maintenance and

testing of the assembly and vault.

B. When required, backflow prevention assemblies for protection of the public water system shall meet the requirements set forth in the current Washington State Department of Health regulations, Uniform Plumbing Code, and City ordinances. All installation shall meet AWWA Cross Connection Control Manual, May 1990, requirement.

C. There are two (2) types of backflow prevention assemblies, which the City will allow as protection of the public water system; reduced pressure backflow assemblies and double check (or double detector check) assemblies. The Washington State Department of Health provides a list of approved assemblies that meet these criteria.

The type of backflow prevention assembly required is determined by the aforementioned rules and codes, based on the type of premises to which water service is being provided, hydraulic condition, complexity of piping and determined by the State certified Cross Connection Control Specialist. The approved types of assemblies are listed below with some of the types of premises that must be protected by each type of assembly. However, these lists are not complete, they are only intended to provide some basic guidelines.

1. Reduced Pressure Backflow Assembly

   a. An approved Reduced Pressure Backflow Assembly shall be installed on the service connection above ground to the following:

   b. Any parcel or building that has an auxiliary water supply on or available to it. This will include any above or below ground water source. (The most commonly encountered type of auxiliary water supply is a private well);

   c. Buildings which are located within an industrial zone;

   d. Hospitals, medical centers, and clinics;

   e. Mortuaries and nursing homes;

   f. Gas stations;

   g. Car washes;

   h. Sewage pump and lift stations;

   i. Dry cleaners and commercial laundries;

   j. Any water system which has a pump to supplement pressure; and

   k. Irrigation systems, which are designed to use chemical injection.

2. Double Check Assembly or Double Detector Check Assembly

   An approved double check assembly or an approved double detector check assembly shall be required (provided that all internal plumbing is installed and maintained in accordance with the Uniform Plumbing Code), on the service connection to premises where there is:

a. Any fire system or water line to a private fire hydrant;

b. Multi-story buildings which are in excess of thirty (30) feet above the water main at the service connection;

c. Shopping centers or large retail stores; and

d. Restaurants or fast food establishments.

C. Installation and Testing

1. Backflow prevention assemblies shall be installed at the water service connection on the customer side of the meter. Backflow assemblies 3-inch diameter and larger shall be installed in a vault in accordance with these standards. Backflow prevention assemblies 1-inch and smaller shall be installed in a Carson Industries Box, series 1324 or an approved equal. 1 ½-inch and 2-inch assemblies shall be installed in a series 1730 box, or equal.

2. After installation, all backflow prevention assemblies that are installed must be tested upon installation by a State of Washington certified tester. The results of the testing shall be received by the City prior to issuance of "final occupancy."

3. Backflow prevention device assembly vaults shall be constructed in accordance with the standard drawings and requirements of this section. Backflow vaults shall be on private property and located outside of public easements.

5.22 Requirements for Water System Vault Installations

To ensure proper operation and accessibility of all assemblies, the following requirements shall apply to installation of these assemblies, unless otherwise approved by the City. Vaults shall be constructed per the Standard Details.

A. The vault shall be sealed with an asphalt base foundation coating on the outside of the vault. Vault penetrations shall be sealed with non-shrink grout from the outside. Apply waterproof coating over grout. Backfill around vault per manufacturer's specifications.

B. Access to be through an H-20 rated standard Bilco door, or approved alternate.

C. Provide approved ladder if the vault or chamber depth is 5'0" or greater and entry is through the vault or chamber roof. Ladders shall include a Model 1 Bilco LadderUP safety post or approved equal.

D. Adequate drainage for the vault or chamber shall be provided. (Drainage to piped storm systems allowed with check valve).

E. Vault must be equipped with a moisture proof light fixture if adequate lighting is not available.

F. Vault is to have no other use, except for use described by these Standards.

G. Vault shall be installed on undisturbed base or compacted 3/4"-0" gravel base.

H. No piping shall be installed in excess of three (3) feet above the vault floor.

I. Assembly is to be adequately supported from the floor, and suitably restrained from movement. Supports shall consist of steel supports or approved equal; no wood supports shall be used.

J. All electrical wiring shall be inspected by a Washington State Electrical Inspector (Permit is required).

K. The assembly shall be readily accessible with adequate room for maintenance.

All new services are to be pressure tested and disinfected by the contractor and proven to be bacteriologically safe from the existing main to the vault.

5.23 Fire Services and Domestic Services

A. No part of the backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. In a vault or chamber, adequate drainage shall be provided; and test cocks shall be plugged. The plugs shall not be of dissimilar metals.

B. The backflow assembly shall be protected from freezing and other severe weather conditions.

C. All backflow assemblies shall have a minimum 12-inch clearance on the backside, 24-inch clearance on the test-cock side and 12-inches below the assembly.

D. Adequate clearance (6-inches minimum) must be maintained above gate-valve stem at full extension. Headroom of 6'0" is required in vaults without a full opening top. Access to the device and to any vault or chamber shall remain clear at all times.

5.24 Special for Fire Service Only

A. Fire Service backflow prevention assemblies shall be installed at the property line or edge of the public water line easement. The fire service from the public main to the backflow assembly shall be privately owned and meet all City's Standard Drawings.

B. Only approved resilient seat indicating valves are allowed on fireline assemblies.

C. Only approved Double Detector Check Valve Assemblies are to be used for system containment on fire line services in the City. The meter on the bypass detector shall read in cubic feet.

D. Fire Line Flow and Tamper Switches installed, as required by UBC sec. 3803, must be connected to a monitored Fire Detection System approved by the Fire Marshal. The tamper switches are required on the rising stem gate valves in the vault, as well as any other indicating control valves on the fire protection system. Electrical inspection and permit is required.

E. The remote reader (if allowed) shall be rigidly mounted on an exterior building wall (near the domestic meter), enclosed in a metal box with a slot opening which allows reading the remote without opening the box, and at an elevation of five (5) feet above the

ground level.

The remote reader shall have the same number configuration as the metering device itself, and read in cubic feet. All wires to the remote reader shall be enclosed in a heavy plastic or rigid metal conduit. All wiring shall be in conformance with appropriate sections of the National Electric Code.

5.25 Water Meter Vaults

The vault is to be provided and installed by the Contractor, per Standard Drawings.

5.26 Pressure Reducing Valve Vaults

PRV vaults are unique to each situation. The engineer shall detail the vault on the plans and submit for review. The City will review the vault for size and compliance with the general requirements listed under this section.

5.27 Appurtenances

Air and Vacuum Release Valves

A. Air and vacuum release valves shall be APCO - Valve and Primer Corporation, "Heavy-Duty," combination air release valve, or equal.

B. Installation shall be as shown on the Standard Details.

C. Piping and fittings shall be copper or brass. Location of the air release valves as shown on the plans will be approximate. The installation shall be set at the high point of the line. Water line must be constructed so the air release valve may be installed in a convenient location.

APPENDIX F
COST ALLOCATION FOR FACILITIES AND PIPING IMPROVEMENTS

APPENDIX F
COST ALLOCATION FOR FACILITIES AND PIPING IMPROVEMENTS

Appendix F contains cost data for recommended improvements to reservoirs, pressure reducing facilities, pump stations, and system piping. Improvement project cost estimates presented in this appendix are based upon recent experience with construction costs for similar work in Oregon and southwest Washington and assume improvements will be accomplished by private contractors. Estimates include provisions for approximate construction costs plus an aggregate 45 percent allowance for contingencies, engineering, administration and other project-related costs. Since construction costs change periodically, an indexing method to adjust present estimates in the future is useful. The Engineering News-Record (ENR) Construction Cost Index (CCI) is a commonly used index for this purpose. For purposes of future cost estimate updating; the current ENR CCI for Seattle, Washington is 9060 (January 2012).

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-1
Reservoir Project Cost Estimate Summary
Reservoir 6 (0.6 MG)

Reservoir project cost estimates are based on the following assumptions:

No rock excavation included.
No property acquisition costs included.
Construction by private contractors.
An Engineering (ENR) construction cost index of 9060 for Seattle, Washington (1/2012).

Item No.	Description	Estimated Project Cost[1]
1.	Reservoir Structure	$1,030,000
2.	Site Work	$175,000
3.	Drainage System	$20,000
4.	Access/Parking	$35,000
5.	Yard Piping	$150,000
6.	Electrical and Controls	$20,000
7.	Landscaping/Fencing	$20,000
	Total Construction	$1,450,000
	45% Contingency, Administration & Engineering	$653,000
	Total Project Cost	$2,103,000
	SAY	$2,100,000

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-2
Reservoir Project Cost Estimate Summary
Reservoir 2C (0.8 MG)

Reservoir project cost estimates are based on the following assumptions:

No rock excavation included.
No property acquisition costs included.
Construction by private contractors.
Construction on existing Reservoir 2A and 2B site.
Includes cost to demolish existing 0.161 MG Reservoir 2A and relocate Pump Station 4.
An Engineering (ENR) construction cost index of 9060 for Seattle, Washington (1/2012).

Item No.	Description	Estimated Project Cost[1]
1.	Reservoir Structure	$1,400,000
2.	Site Work	$200,000
3.	Drainage System	$20,000
5.	Access/Parking	$25,000
6.	Yard Piping	$75,000
7.	Electrical and Controls	$20,000
8.	Landscaping/Fencing	$10,000
	Total Construction	$1,750,000
	45% Contingency, Administration & Engineering	$790,000
	Total Project Cost	$2,540,000
	SAY	$2,540,000

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-2
Reservoir Project Cost Estimate Summary
Reservoir 3B (0.9 MG)

Reservoir project cost estimates are based on the following assumptions:

No rock excavation included.
No property acquisition costs included.
Construction by private contractors.
Construction on existing Reservoir 3 site.
An Engineering (ENR) construction cost index of 9060 for Seattle, Washington (1/2012).

Item No.	Description	Estimated Project Cost[1]
1.	Reservoir Structure	$1,300,000
2.	Site Work	$100,000
3.	Drainage System	$20,000
5.	Access/Parking	$25,000
6.	Yard Piping	$50,000
7.	Electrical and Controls	$20,000
8.	Landscaping/Fencing	$10,000
	Total Construction	$1,525,000
	45% Contingency, Administration & Engineering	$690,000
	Total Project Cost	$2,115,000
	SAY	$2,115,000

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-3
Reservoir Project Cost Estimate Summary
Reservoir 7 (0.7 MG)

Reservoir project cost estimates are based on the following assumptions:

No rock excavation included.
No property acquisition costs included.
Construction by private contractors.
An Engineering (ENR) construction cost index of 9060 for Seattle, Washington (1/2012).

Item No.	Description	Estimated Project Cost[1]
1.	Reservoir Structure	$1,225,000
2.	Site Work	$160,000
3.	Drainage System	$20,000
4.	Access/Parking	$25,000
5.	Yard Piping	$55,000
6.	Electrical and Controls	$20,000
7.	Landscaping/Fencing	$20,000
	Total Construction	$1,525,000
	45% Contingency, Administration & Engineering	$686,250
	Total Project Cost	$2,211,250
	SAY	$2,210,000

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-4
PRV Station Project Cost Estimate Summary

PRV station project cost estimates are based on the following assumptions:

- No rock excavation
- No property acquisition costs included.
- Construction by private contractors.

Item No.	Description	Estimated Project Cost[1]
1.	Vault	$10,000
2.	Valves	$20,000
3.	Fittings	$5,000
4.	Piping	$5,000
5.	Supports/Restraint	$3,000
6.	Excavation/Backfill/Surface Restoration	$5,000
7.	Testing/Calibration	$2,000
8.	Labor/Equipment	$25,000
	Total Construction Cost	$75,000
	45% Contingency, Administration & Engineering	$33,750
	Total Project Cost	$108,750
	SAY	$110,000

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-5
Booster Pump Station Project Cost Estimate Summary

Pump station project cost estimates are based on the following assumptions:

- No rock excavation included.
- No property acquisition costs included.
- Construction by private contractors.

This pump station project cost estimate reflects typical costs for the range of pump station capacities recommended for Washougal's water system (150 gpm to 400 gpm firm capacity).

Item No.	Description	Estimated Project Cost[1]
1.	Site Work	$50,000
2.	Structure	$150,000
3.	Yard Piping	$40,000
4.	Mechanical	$150,000
5.	Electrical and Controls	$120,000
6.	Landscaping	$10,000
	Total Construction	$520,000
	45% Contingency, Administration & Engineering	$234,000
	Total Project Cost	$754,000
	SAY	$760,000

Additional costs for unique project conditions:

a.	Standby Power (Pump Station No. 5)	$40,000
b.	Demolition of Existing Facilities (Pump Station No. 3)	$50,000

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

Table F-6
Piping Unit Project Cost Summary

Pipe Diameter	Cost per Linear Foot
8-inch	$130
12-inch	$190

Basic Assumptions:

- No rock excavation
- No dewatering
- No property or easement acquisitions
- No specialty construction included
- A 45% contingency, administration and engineering allowance included
- Construction by private contractors
- An Engineering News Record (ENR) construction cost index CCI for Seattle, Washington of 9060 (January 2012).
- Add an additional 60% for construction with rock excavation the entire depth of trench

[1] The cost estimates presented are opinions of cost based on the assumptions stated and developed from information available at the time of the estimate. Final costs for all projects will depend on actual field conditions, on actual material and labor costs, final project scope, project implementation and other variables.

APPENDIX G
WELLHEAD PROTECTION ASSESSMENT REPORT

City of Washougal
Hydrogeologic Summary and
Wellhead Protection Assessment Report

March 20, 2012

Pacific Groundwater Group
Seattle, Washington

JM1006

City of Washougal
Hydrogeologic Summary and
Wellhead Protection Assessment Report

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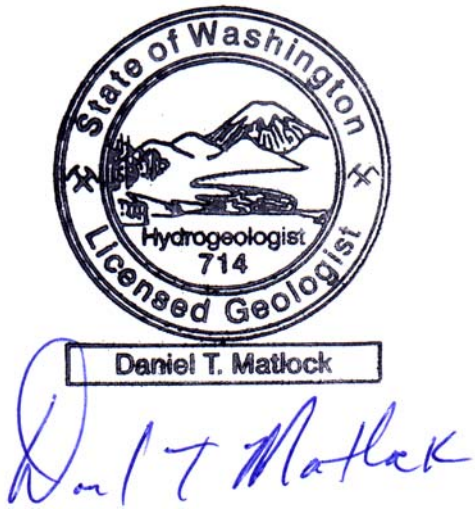
March 20, 2012
JM1006

SIGNATURE

This report, and Pacific Groundwater Group's work contributing to this report, were reviewed by the undersigned and approved for release.



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Principal Hydrogeologist
Washington State Hydrogeologist No. 714

Table of Contents

1 INTRODUCTION 2
2 HYDROGEOLOGIC FRAMEWORK 3
2.1 GEOLOGY AND HYDROGEOLOGY 3
2.2 RECENT AND PLEISTOCENE ALLUVIAL DEPOSITS 3
2.2.1 Deposits Origin, Texture, Distribution 3
2.2.2 Aquifer Definition, Recharge, Production, Capture 4
2.2.3 Aquifer Susceptibility 5
3 WHPA DELINEATIONS 5
3.1 WHPA MODEL 5
3.2 CAPTURE ZONE ANALYSIS 6
4 RISK ASSESSMENT 7
4.1 DATA SOURCES 7
4.1.1 Land Use Database 7
4.2 CURRENT LAND USE AND ZONING 8
4.3 CONFIRMED AND POTENTIAL CONTAMINANT SOURCES 8
4.3.1 Known/Confirmed Sources 8
4.3.2 Other Potential Sources 9
4.4 WELLHEAD SUSCEPTIBILITY/VULNERABILITY ANALYSIS 15
4.4.1 Alluvial Aquifer – Lower Washougal Wellfield 15
CONTINGENCY AND SPILL RESPONSE PLANNING 16
4.5 INTRODUCTION 16
4.6 SOURCES AND DEMAND 17
4.7 POTENTIAL SOURCE LOSS SCENARIOS 17
4.8 SPILL RESPONSE PLANNING 18
5 REFERENCES 18

List of Tables

Table 1	Summary Information for Active Washougal Production Wells
Table 2	Washougal Supply Well Pumping Rates for WHP Capture Zone Modeling
Table 3	Summary of Land Use Types of Concern
Table 4	Summary Data for Parcels of Concern within Wellhead Protection Capture Zones
Table 5	Summary of Environmental Sites within Wellhead Protection Capture Zones

List of Figures

Figure 1	Surficial Geologic Map and Cross Section Alignments
Figure 2	Hydrogeologic Cross Section A – A’
Figure 3	Hydrogeologic Cross Sections B – B’ and C – C’
Figure 4	Wellhead Protection Capture Zones
Figure 5	Zoning and Parcels of Concern
Figure 6	Environmental Sites within Wellhead Protection Capture Zones

List of Appendices

Appendix A	Environmental Sites Information

List of Acronyms

BNSF	Burlington Northern Santa Fe
CARA	Critical Aquifer Recharge Area
EPA	Environmental Protection Agency
FSID	Facility Site Identification
GIS	Geographic Information System
GP	Georgia Pacific
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MODFLOW	Modular Three-Dimensional Finite-Difference Ground-Water Flow Model
MTCA	Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
PAA	Pleistocene Alluvial Aquifer
RA	Remedial Assessment
RCRA	Resource Conservation and Recovery Act
SGA	Sand and Gravel Aquifer
SHA	Site Hazardous Assessment
SSL	Site Screening Level
SWMP	Stormwater Management Plan
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
WAC	Washington Administrative Codes
WDOT	Washington Department of Transportation
WHPA	Wellhead Protection Area
WSP	Water System Plan
XQG	No Waste Generator

1 Introduction

This report summarizes the hydrogeology, municipal wellhead protection area ("WHPA") delineations, and contaminant risks to groundwater supplies for the City of Washougal ("the City"). Information presented in this report supports an update of the City's Water System Plan ("WSP") currently being prepared for the City by Murray, Smith & Associates, Inc.. The purpose of this report is to help the City better manage its groundwater supply wells and to better understand the contaminant risks posed to these sources.

The study area for this investigation focuses on the City's two supply wellfields: the Westside (Lower) Wellfield located near Goot Park and 1st Street and the Hathaway (Upper) Wellfield located near 28th and I streets (**Figure 1**). The City operates six wells for municipal supply including Wells 5, 6, 7, and 11 at the Lower Wellfield and Wells 1 and 10 at the Upper Wellfield (**Table 1**). In 2009, the City installed a new supply well (Well 12) at their Lower Wellfield. The City is currently working with the Department of Ecology in securing a new permit for Well 12 as well as clarifying instantaneous water right capacity of both wellfields. The City also owns one deeper supply well (Well 9) at Hamllik Park which is currently not used due low yield and taste and odor problems.

This report is organized in four sections:

- **Section 1: Introduction.** This section contains background information on the report.

- **Section 2: Hydrogeologic Framework.** This section presents the regional and local hydrogeologic features that are pertinent to the City's groundwater supplies. It describes the deposits that form aquifers and aquitards, and describes the movement of groundwater through these deposits.

- **Section 3: Wellhead Protection Area Delineations.** This section discusses the methods used to delineate the WHPAs and presents the results of the analysis. Time-related capture zones are presented for the City's wellfield supply areas.

- **Section 4: Risk Assessment.** This section presents an inventory of confirmed and potential sources of contamination, particularly those that lie within the wellhead capture zones. An evaluation of risks associated with these sources is also presented.

- **Section 5: Contingency and Spill Response Planning.** This section discusses the City's ability to deal with loss of supply in the event of a contamination release that would impact the supply sources.

This work was performed, and this report prepared, in accordance with generally accepted hydrogeologic practices at this time and in this area for the exclusive use of the City of Washougal for specific application to the study area. No other warranty, expressed or implied, is made.

2 Hydrogeologic Framework

2.1 Geology and Hydrogeology

The geology of the greater Clark County region and the study area is commonly divided into older rocks and younger sediments, which are semi-consolidated or unconsolidated. The older rocks crop out in the foothills and mountains in the north and east portions of Clark County, and occur at depth in the central and western portions of the County. Within the Washougal study area, the older rocks crop out north and east of the Washougal River. The younger sediments crop out in all other areas, and contain all of the principal aquifers noted in the County. The sedimentary units, from youngest to oldest, consist of:

- Recent alluvial deposits
- Pleistocene alluvial deposits
- Troutdale formation

These units are described below and shown on hydrogeologic cross section A-A′, B-B’, and C-C’ (**Figures 2** and **3**). Surface outcrop patterns for these units are shown on **Figure 1**, along with the cross section location. The main focus of attention for the existing Washougal groundwater sources is the Pleistocene alluvial deposits that occur in the Lower Washougal River lowland. All of the City’s active supply wells are completed in these materials whereas Well 9 is completed in the deeper Troutdale formation.

The Troutdale formation does not occur in the immediate vicinity of the City’s Lower Wellfield but underlies the Pleistocene alluvial deposits further to the east and south where it is tapped by Well 9. Although it is not an important source of water in the Washougal area, it does yield large quantities of water in other parts of Clark County. Throughout most of the county, the Troutdale formation contains three coarse-grained units that are separated by finer-grained confining units. The coarse units are:

- Upper Troutdale unit – variably cemented gravel in a matrix of sand and silt
- Lower Troutdale unit – relatively discontinuous occurrence of fine sand
- “SGA” - a deeper sand and gravel unit

2.2 Recent and Pleistocene Alluvial Deposits

2.2.1 Deposits Origin, Texture, Distribution

Recent floodplain alluvium consisting of silt, sand, and gravel occurs along many of the rivers and streams in the study area, including Lacamas Creek and the Columbia, Washougal, and Little Washougal rivers. The recent floodplain alluvium generally occurs in narrow bands (less than 1,000 feet wide) along the smaller rivers and streams, with thicknesses ranging from several feet to ten or twenty feet. It also forms a fairly

extensive veneer over older deposits along the Columbia River where it may be as much as 100 feet thick (Steigerwald vicinity).

During the late Pleistocene time, the ancestral Columbia River deposited a great deltaic fan emanating to the west from the mouth of the Gorge during a series catastrophic flood events known as the "Missoula floods". Near the City wellfields, textures are similar to those of the recent alluvium, which overlies the Pleistocene alluvium along streams and rivers. Due to textural similarities between Recent and Pleistocene alluvium, hydrogeologic distinction is not necessary between the two units.

The combined Recent and Pleistocene alluvial deposits are approximately 100 feet thick in vicinity of the City's wellfield. The deposits are underlain by clay and locally by bedrock near the Lower Wellfield and the Troutdale formation near the Upper Wellfield. The City of Washougal is located near the eastern limit of the area scoured by catastrophic Columbia River flooding during late Pleistocene times. Therefore, the sedimentary basin at Washougal is small compared to portions of Clark County farther to the west. The older bedrock exposed to the north of the wellfields is relatively impermeable and functions as an adjacent no-flow boundary.

2.2.2 Aquifer Definition, Recharge, Production, Capture

The Pleistocene Alluvial Aquifer (PAA), defined as the combination of the Recent and Pleistocene alluvial deposits found along the Columbia and lower Washougal rivers, is the principal aquifer near the City wellfields. The aquifer is recharged by incident precipitation, and induced recharge from the incised Columbia and Washougal rivers.

The productive zone of the aquifer is described on drillers' logs as a loose mixture of gravel, cobbles, boulders and little sand. Depending on the thickness of saturation, this aquifer can be very productive with well yields in excess of 1,000 gpm. Immediately north and east of the Washougal River, where this aquifer pinches out on top of bedrock or Troutdale deposits, well yields are substantially lower. Groundwater in the PAA near the City's wellfields occurs under unconfined conditions.

Groundwater flow directions in the PAA are relatively dynamic because the hydraulic connection to the Washougal and Columbia rivers causes groundwater levels to move up and down with the tides and with seasonal changes in runoff. Pumping at nearby supply wells operated by the City of Camas and Georgia Pacific also influences water levels and flow directions in the PAA. The City of Camas operates nine municipal supply wells and Georgia Pacific operates as many as 17 industrial supply wells. All of these wells are completed in the PAA at depths of approximately 50 to 120 feet. Total production from the Georgia Pacific wellfield may exceed 25 million gallons per day (mgd) at times whereas Camas' peak production is on the order of 9 mgd. This large scale pumping has a significant affect on water levels within Washougal's production wells with large declines occurring during summer when combined municipal and industrial production is at its peak.

2.2.3 Aquifer Susceptibility

The sensitivity of the City's groundwater sources to potential contamination was evaluated by assessing the relative susceptibility and vulnerability of the City's primary production aquifer. Aquifer susceptibility refers to the estimated ease of contaminant transport from the land surface to the aquifer. Some of the primary factors influencing aquifer susceptibility are the thickness and permeability of the sediments overlying the aquifer. Shallow aquifers are typically more susceptible to surficial contaminants than deeper aquifers. Aquifers overlain by highly permeable sediments such as sand and gravel are also at higher risk than aquifers overlain by lower permeability sediments such as silt or clay. In the vicinity of the City's wellfields, coarse grained soils typically extend from ground surface to the water table which lies at depths of 30 to 60 feet. Drillers' logs from wells in the area indicate no laterally extensive low permeability layers exist between land surface and the underlying PAA. The combination of a shallow depth to water and relatively high permeability of the overlying sediments indicate the PAA has relatively high susceptibility to contamination.

Aquifer vulnerability combines the aquifer susceptibility discussed above, with an evaluation of the occurrence of contaminants at land surface, and the likelihood of a contaminant release. In general, aquifer susceptibility is a function of stratigraphy and hydrogeology, and cannot be substantially modified. The potential for contaminant release on the other hand is controllable, and can be reduced in areas where susceptible aquifers are utilized as a major source of potable water. One of the primary purposes of a water system's wellhead protection plan is to evaluate the susceptibility of the system's aquifer(s), and the potential sources of contamination within the system's capture zones. Additional attention to potential contamination sources is recommended within the capture zones in high susceptibility aquifer areas to reduce the likelihood of a contaminant release. This is especially true for potential contaminant sources within the shorter duration capture zones, such as the 1 year capture zone shown in **Figure 4**.

3 WHPA Delineations

3.1 WHPA Model

This section documents the methods used to delineate the wellhead protection areas (WHPAs) and presents the results of the analysis. The "capture zone" for the City's wellfields was estimated using a computer groundwater flow model (MODFLOW) that was developed by the US Geologic Survey (McDonald and Harbaugh, 1988). A capture zone is the area that supplies groundwater recharge to a pumping well or wellfield, in other words, its "zone of contribution." In natural systems, capture zones are not circular but elongated, with most of the capture occurring from areas that lie hydraulically up-gradient of the wellhead. Each capture zone has a stagnation point, the furthermost "point of capture" down-gradient of the wellhead. The capture zone encompasses portions of the aquifer that surround the well. A time-related capture zone is the area that supplies groundwater recharge to a pumping well within a specified time period. Time-related capture zones provide a basis for developing monitoring plans, land-use inventories, and data collection plans.

The groundwater flow model developed for the Lower Washougal and Columbia River lowlands depicts the major aquifers in the study area (PAA and SGA), the occurrence of bedrock, the Columbia and Washougal rivers, recharge from precipitation, and groundwater inflow from areas outside the model domain (PGG, 2004 and 2007). The model simulates three-dimensional flow using a three layer representation of the system. The upper two layers represent flow in the combined Recent and Pleistocene alluvial deposits while the third layer represents the SGA deposits. The model uses cell sizes ranging from 100 feet square to 600 feet square. Model boundary conditions include cells that represent the rivers, pumping wells, specified inflows from outside the model domain, and incident recharge applied to the top of the uppermost aquifer. The model was calibrated to observed summer drawdowns in the Camas/Washougal wellfield vicinities, summer seepage losses from the Washougal River, and groundwater level responses to tidal fluctuations and runoff events in the Columbia River.

The calibrated model was used to perform predictive simulations which included evaluation of capture zones for the Upper and Lower wellfields. The simulations assumed that the City would fully exercise all of their existing annual water rights (Qa) which are capped at 3,786 ac-ft/yr (2,347 gpm). The City is currently processing two new "umbrella" water right permits (G2-30564 and G2-30565) for their Upper and Lower wellfields which will clarify the instantaneous water right quantities (Qi) held under claims and certificates. At this time, we have assumed that the City will be able to secure the instantaneous rights presented in **Table 2** for their various wells. The instantaneous rates were normalized by the Qa/Qi ratio to obtain average operational rates for each source that were then used in the capture zone modeling analysis.

Wellhead protection capture zones were not delineated for Well 9 since the City has not used this water source since 1988 due to water quality and yield limitations.

Pumping rates for the City of Camas supply wells were specified at their annual water right of 11,090 ac-ft/yr (6,870 gpm). In addition, a high-end pumping was assumed for the Georgia Pacific wellfield (37.5 mgd or 26,040 gpm).

3.2 Capture Zone Analysis

Estimated capture zones for 6-month, 1-year, and 5-year times-of-travel for the City of Washougal wellfield supply areas are shown on **Figure 4.** All groundwater in the recharge area is younger than 10 years; therefore there are no 10-year time-of-travel delineations on **Figure 4**. The shape and extent of these capture zones are influenced by pumping at the Georgia Pacific wellfield and aquifer boundaries, including the Washougal and Columbia Rivers and older bedrock exposures to the north.

The capture area for Washougal's Lower Wellfield extends generally west to east and occupies large portions of the lowland area between the Washougal and Columbia rivers. Capture for the Upper Wellfield extends only a short distance to the north where it intercepts the Washougal River. Evaluation of mass-balance calculations for the

groundwater flow model indicate that the majority of water captured by the Washougal welllfields originates as flow within the PAA that otherwise would have discharged to the Columbia and Washougal rivers.

The estimated capture zones were generated using a steady state groundwater flow model, meaning that only the long term average rates of withdrawal were simulated. Variations in pumping, recharge, and boundary conditions such as river stage are not simulated in a steady state model. As a result, **Figure 4 s**hows the average positions of the capture zones, not the temporal variations in the capture areas. Increased pumping during peak use months will result in variations of the predicted capture zones beyond the long term average estimates shown in **Figure 4**. In order to account for the uncertainties associated with temporal variations in capture zone, an additional capture zone labeled Critical Aquifer Recharge Area (CARA) is shown. The CARA includes areas that were not included in the steady state capture zone analysis, but may likely contribute recharge during certain times of the year given variations in pumping, river elevation, and natural recharge.

4 Risk Assessment

4.1 Data Sources

Contaminant sources that lie within the vicinity of City of Washougal wellfield areas were investigated and mapped using data from two sources. The first, a parcel database that contains information on land use and zoning, was provided by Clark County. The second contains data from the Washington State Department of Ecology's Facility / Site database[1], including state cleanup sites, federal superfund sites, hazardous waste generators, solid waste facilities and underground storage tanks. The information from these sources were classified and plotted on GIS coverages to assess whether existing and potential contaminant sources were located within the vicinity of the City's production wells and WHPA (capture zone) delineations.

4.1.1 Land Use Database

Clark County's database contains a description of the land use within each parcel in the study area. A GIS analysis was used to identify land uses that could pose a risk to groundwater within the vicinity of the City's wellfields. Parcels where such land uses were identified were designated "parcels of concern." This approach provides a way to assess potential sources of contamination. The "parcels of concern" include those where potential activities could result in a release of contaminants to groundwater. **Table 3** summarizes the land use categories that are considered to be of concern.

Figure 5 shows the distribution of zoning throughout the study area. It also shows the parcels of concern that occur within the City's capture zone areas. Parcels of concern are

[1] http://www.ecy.wa.gov/fs/

shown as green cross-hatched areas. For the Washougal wellfields, 12 parcels of concern occur in the 6-month wellhead protection capture zone, 1 parcel falls within the one-year capture zone, and 15 parcels fall within the 5-year capture zone. Fourteen additional parcels fall outside of the capture zones, but within the defined CARA. Parcels of concern that fall within the various capture zones should be considered as potential contaminant sources, with the shorter time of travel zones being more critical for risk management.

4.2 Current Land Use and Zoning

Zoning information from the County's GIS was used to evaluate current and future land-use in the study area. The following zoning categories were mapped (**Figure 5**):

- Commercial
- Industrial
- Parks/Open Space
- Residential

The most commonly allowed land use within the City's wellhead protection capture zones is residential followed by commercial, parks/open space, and industrial. Areas zoned as commercial and industrial are most likely to comprise threats to groundwater quality. Most of the allowed commercial and industrial use is concentrated along SR-14, the southern terminus of SR-500, the railroad corridors, SE 3rd Avenue, and E Street (**Figure 5**).

4.3 Confirmed and Potential Contaminant Sources

Table 5 summarizes the 19 confirmed and potential contaminant sites that fall within the City's wellhead protection capture zones. **Figure 6** displays the location of each of these sites, and indicates through the location symbols which types of activities or risk are associated with each site. Each site marker has three pie slices which indicate the type of activities associated with the site as follows:

Underground Storage Tanks (UST/LUST)

Cleanup Site (State Cleanup or Voluntary Cleanup)

Hazardous Material Generator or Handler

Any combination of the three indicators is possible. In addition to the pie slices, a red circle around the outside of the pie indicates that a release to either groundwater or soils has occurred at the site.

4.3.1 Known/Confirmed Sources

Table 5 indicates two confirmed contaminant sources occur in the City's wellhead capture zones. Confirmed contaminated sites are shown on **Figure 6** by one of the following types of sites:

- State Cleanup Sites
- Leaking Underground Storage Tanks (LUST)

4.3.1.1 State Cleanup Sites

Both of the contaminant release sites in the City's wellhead protection capture zones are included on the State Cleanup List. A brief discussion of each of these sites follows, with additional information provided in **Appendix A**.

State Cleanup Sites			
Map ID	**FS ID**	**Facility Name**	**Wellhead Protection Zone (WHPZ)**
18	85837922	Goodyear Tire Camas	6-Months
21	22538744	Hi Way Fuel	CARA

Goodyear Tire (FSID 85837922) is located at 3440 Third Avenue, Camas. Following the removal of three 500-gallon underground storage tanks in 1999, a release to the soil was noted (Gasoline, Diesel and Waste Oil). After the removal of the impacted soil, sampling confirmed that all petroleum hydrocarbon impacted soil had been removed. On September 6, 2001 Ecology issued a no further action determination for the site. This facility is participating in the Voluntary Cleanup Program (VCP)

The Hi Way Fuel site (FSID 22538744) is located at 1250 E Street in Washougal. In August through October of 1996, Hi Way Fuel underwent renovation which included the decommissioning of five underground tanks and associated piping. During the process subsurface contamination was encountered in the area of the former tanks. Clean up efforts removed the most highly contaminated soil, but due to structural issues not all impacted soil was removed. Soil borings were installed to assess the remaining soil contamination. Groundwater was not encountered to the depth of exploration, and has not been assessed.

4.3.2 Other Potential Sources

This section discusses other potential sources of contamination within the wellhead protection capture zones based on Ecology's Facility database and Clark County's parcel, stormwater, and septic system databases. The following potential contamination sources have been identified within or near the capture zones for the Washougal wells:

- Hazardous materials
- On-site septic systems
- Underground storage tanks
- Stormwater
- Unused and improperly constructed wells
- Agriculture, golf courses, and parks
- Transportation corridors

4.3.2.1 Hazardous Materials

The commercial use of chemicals poses a major threat to groundwater quality, since the chemicals can be accidentally spilled or disposed of improperly. The likelihood of such releases from spills can be reduced by proper methods of handling, spill prevention measures, and emergency response strategies. Improper disposal is likely the most common pathway for chemicals to be released into the environment. Therefore, risk reduction strategies should target on-site waste management practices. The following facility activity classifications were included as hazardous materials sites:

Activity Code	Definition
HWG	Facilities that generate any quantity of a dangerous waste. They may be classified as small, medium or large quantity generators (SQG, MQG, or LQG) depending on hazardous waste generated for a given month.
HWOTHER	Facilities that are required to have a RCRA Site ID# but who do not generate and/or manage hazardous waste (XQG generator status). This includes transporters, used oil recyclers, and dangerous waste fuel marketers and burners.
HWTRNSFR	A transfer facility is a site, owned, leased or operated by a transporter of regulated hazardous waste shipments where any of the following occurs: 1) receives wastes from another transporter, 2) transfers wastes from one transport vehicle to another, 3) transfers waste from one container to another, or 4) stores waste within a vehicle or on property for 10 days or less. Examples of transfer facilities include a parking lot, warehouse, truck terminal, barge or steamship loading and unloading facility, or railroad spur loading or unloading facility.
HWTSDF	Facilities that treat store or dispose hazardous waste.
TIER2	Businesses that store 10,000 pounds or more of a hazardous chemical or 500 pounds or less, depending on the chemical, of an extremely hazardous chemical on site at any one time must report annually. Reports are sent to the State Emergency Response Commission [represented by Ecology], Local Emergency Planning Committees, and local fire departments for emergency planning. [product, not waste]
TRI	Facilities in specific industries that manufacture, process or use more than the threshold amount of one or more of 600 listed toxic chemicals. Most threshold amounts are 10,000 or 25,000 pounds per year. Some chemicals have much lower thresholds.

The most significant threats to groundwater are related to the use and storage of solvents. Solvents are persistent, both soluble and insoluble in water, and highly mobile. A large plume of contamination can be created with a small quantity of solvent.

The Washington State Facility Site database indicates that there are eleven sites within the City's wellhead protection capture zones that fall into one of the above hazardous waste classifications. Of these eleven sites, three have active status, the rest are inactive. Inactive status indicates that the sites do not have current permitting, and therefore, are not actively overseen by Ecology.

Active Hazardous Materials Sites			
FS ID	Facility Name	WHPZ	Activity Code
37125488	COLUMBIA WAREHOUSE	6-Month	TIER2
3264254	TARR INC WASHOUGAL	6-Month	TIER2
11338232	COLUMBIA STORAGE INC 2ND ST	CARA	TIER2

The facility site index database does not indicate whether the sites listed are large or small hazardous waste generators.

4.3.2.2 On-Site Septic Systems

4.3.2.2.1 Potential Risks

On-site septic systems pose a risk to groundwater where they are relatively high in density and/or where hazardous wastes are discharged to them. Potential contaminants from septic systems include pathogenic organisms (bacteria and parasites), toxic substances, and nitrogen compounds.

The extent to which pathogens are transported in the subsurface away from a septic drain field depends on the type of pathogen and the chemical and physical conditions in the subsurface. In general, if a septic system is properly sited, constructed, and maintained, the transport of microorganisms will be limited. Household hazardous chemicals such as cleaners, polishes, waxes, and paints can be transported to groundwater via a septic system. Some products contain toxic and persistent chemicals that can cause low-level contamination when coupled with a high density of septic systems. Homeowners can improperly apply or dispose of chemicals because they do not understand the threat these chemicals pose to groundwater quality. In some areas, business and commercial facilities still use on-site septic systems for sewage disposal. Business, commercial, and industrial operations that utilize on-site systems need to take special precautions to avoid contamination of their wastewater.

Ammonia and nitrate are highly soluble in water and can be expected in detectable quantities wherever portions of an aquifer are affected by septic system discharges. Septic systems are a source of nitrates in groundwater throughout Clark County. Nitrate is regulated, since ingestion can result in methemoglobinemia, or “blue baby” syndrome. Other sources of nitrate include fertilizers, feedlots, and natural mineral deposits. Background concentrations of nitrates in groundwater are typically less than 1 milligram of nitrogen per liter (mg-N/L). The maximum contaminant level (MCL) for nitrate is 10 mg-N/L. Nitrate levels in City supply wells are typically less than 2.5 mg/L.

Although significant portions of the urban area are served by sewer systems, some residents still rely on septic systems. Clark County maintains a GIS coverage of on-site septic system locations, locations are based on information provided by the Southwest Washington Health Department. The locations of the septic systems are plotted on **Figure 6**. This figure indicates that the Washougal wellhead protection capture zones have only 2 identified septic systems within the one-year capture zone, 19 systems within the 5 year capture zone, and 4 systems fall outside of these zones but within the CARA

boundary. Overall, 25 septic systems fall within the City of Washougal's Critical Aquifer Recharge Area boundary.

4.3.2.3 Underground Storage Tanks

Contamination in soil and groundwater caused by leaking USTs ("LUSTs") is a major environmental, legal, and regulatory issue. The most common causes of leaks are structural failure, corrosion, improper fittings, improper installation, and natural phenomena. Although USTs usually contain flammable motor fuels or heating oils, they may contain other compounds used by industry, government, or business.

Leakage from USTs and associated piping often occurs without detection. Even relatively small amounts of certain compounds can adversely impact groundwater quality. Once released from an UST, some volatile organic compounds (VOCs) and petroleum products can rapidly migrate to groundwater, a problem that is especially serious in areas with permeable soils such as the sand and gravel comprising the PAA.

Of the many materials stored in USTs, solvents are considered among the most toxic. However, petroleum products may pose a greater total risk because of the prevalence of tanks containing petroleum products. In addition, petroleum products contain many potential contaminants, including three EPA priority pollutants: benzene, toluene, and ethylbenzene. Benzene is a known human carcinogen.

Figure 6 shows the locations of USTs in the WHPA that are summarized in **Table 5** These sites were identified from the Washington Department of Ecology (WDOE) UST site data. Most of them lie along the railroad corridor and within areas zoned industrial and commercial.

A total of ten USTs occur within the City's wellhead protection capture zones. Based on status information from Ecology, three are active and seven are inactive. Inactive USTs do not currently store materials.

4.3.2.4 Storm Water

Storm water (i.e., urban runoff) is produced when rainfall or other precipitation accumulates faster than it can evaporate, be used by plants, or infiltrate to the subsurface. Urban areas produce more runoff than rural areas because they have more impermeable and reduced permeability surfaces, such as rooftops, driveways, streets, and highways. These surfaces not only promote runoff but they also reduce the infiltration that recharges groundwater supplies. Even grass lawns can produce more runoff than forests and pasture.

Storm water typically contains pollutants, such as sediment, nutrients, bacteria, oils and grease, metals, and other toxicants. Many of these contaminants come from air pollution, motor vehicles, application of pesticides and fertilizers, soil erosion, and pet feces. Roofing materials have also been identified as a diffuse source of metals in runoff, particularly zinc (Good, 1993). In general, contaminant concentrations in storm water are

similar for all land uses with slightly higher nitrate concentrations in residential areas and higher zinc concentrations in commercial areas. Concentrated sources of storm water contamination may also occur if undiluted pollutants (e.g., fertilizer, gasoline) are accidentally spilled or intentionally released and enter storm drains.

Storm water contamination has primarily been a concern for surface water pollution because most urban runoff is directed to streams, lakes, and other water bodies with fish and other aquatic life that are highly sensitive to common storm water contaminants. However, where storm water is discharged to infiltration areas, there is also potential for groundwater contamination.

4.3.2.4.1 Potential Risks

Concern over potential groundwater contamination from storm water has been recognized by several governmental agencies in western Washington. Storm water-related impacts to water quality are of particular concern in industrial, commercial, and high-density residential development areas, where runoff volumes can be large. Consequently, storm water runoff from highways and roads can introduce contaminants such as heavy metals, organic priority pollutants, pesticides, and coliform bacteria into the groundwater system. Impervious surfaces in the commercial and industrial areas along SR-14, the southern terminus of SR-500, the railroad, and 3rd Avenue contribute substantial amounts of runoff in the Washougal study area. Storm water runoff from lawns and agricultural areas can introduce nitrate, herbicides, pesticides, and bacterial contaminants.

4.3.2.4.2 Dry Well Occurrence in the Washougal Area

Dry wells were historically used in many areas of Clark County for disposal of storm water. Dry well locations in the Washougal vicinity were obtained from Clark County GIS mapping. Dry well locations are presented on **Figure 6**. Most of the dry wells are in the older part of Washougal which includes the area bounded by 6th Street on the west, 32nd Street on the east, SR-14 on the south, and where Washougal River road crosses the Washougal River on the north. This area includes a portion of the 5-year wellhead protection capture zone for the City of Washougal's Lower wellfield. Dry wells are the most common storm water facility in the older parts of Washougal, whereas surface storm water facilities are the most common in newer developments of Washougal. All new construction of storm water facilities in Washougal include only surface storm water facilities such as biofiltration swales and retention ponds. These types of facilities tend to minimize introduction of contaminants to underlying aquifers.

4.3.2.5 Unused, and Improperly Constructed Wells

Well casings can provide a conduit between the ground surface and underlying aquifers. Improperly constructed or abandoned wells pose several potential problems. In wells with no surface seal, contaminants introduced near the wellhead can move downward outside the casing to underlying aquifers. Many older wells that were constructed before the implementation of Washington Administrative Code (WAC) 173-160 have no surface seal. Unused wells that have not been properly abandoned are left uncapped in many cases, posing a special risk because contaminants can be introduced directly into the

aquifer. Unused wells also pose a risk when they are damaged during site redevelopment. Any of these situations can provide a conduit for contaminant movement.

Public water supplies have served most of the Washougal since the 1930s and few private wells exist in this area. Therefore, unused and improperly constructed wells do not pose a significant risk to the City's supply sources.

The City is not currently using Wells 2, 3 and 4 at their Upper Wellfield. According to John Roth, City Water and Wastewater Manager, Wells 2 and 3 are capped and Well 4 still has a motor in place. Although the City largely controls land use at the wellfield, it may be prudent to consider abandoning these wells per WAC 173-150-381 if there is no intent to use them for future supply.

4.3.2.6 Agriculture, Golf Courses, Parks, and Lawns

Fertilizers, pesticides, and herbicides are applied to residential lawns, commercial landscaping, agricultural lands, and landscaped areas adjacent to roads. If optimally applied, these chemicals pose little threat to groundwater, however, applications are commonly not made correctly and groundwater contamination can result if fertilizers are applied in exceedance of the agronomic uptake rate. Excess nitrate from fertilizer will be recharged to the underlying groundwater system. Frimpter and others (1990) estimated that an average of 9 pounds of nitrate-N leached annually to groundwater from each 5,000-square-foot lawn. Landscaping activities can also be the source of pesticides and herbicides such as EDB, DBCP, and dicamba.

Both of the City's wellfields lie adjacent to city parks (Goot and Hathaway parks). Residential lawns and landscaping occur throughout Washougal's WHPA. These are potential sources of nitrogen, pesticide and herbicide contamination to the groundwater. The risk of groundwater contamination is high in the PAA because the aquifer is unconfined and groundwater is relatively shallow. Historical landscaping activities do not appear to have any impact on wellfield water quality but should be managed wherever possible to minimize future impacts.

4.3.2.7 Transportation Spills

Vehicles transporting hazardous material can be a source of groundwater contamination through accidents and resultant chemical spills. Hazardous materials are transported through Washougal on a daily basis. The major transportation routes include:

- SR-14
- Burlington Northern Santa Fe Railroad
- 3rd Avenue

All of these transportation corridors go through the City's wellhead protection capture zones and are very close to the individual supply wells. A major spill along any of these routes could adversely impact groundwater pumped from all of the City's Lower

Wellfield supply sources. Transportation spills pose little risk to the Upper Wellfield supply sources.

About 32 to 45 Burlington Northern Santa Fe (BNSF) freight trains pass through the Washougal area on a daily basis (pers. comm. Read Fay, BNSF). Approximately 120 train cars per day contain hazardous materials (including petrochemicals). Maximum speed of these trains does not exceed 45 to 50 miles per hour. These low speeds and the durability of the tank cars minimize the possibility of a spill in the unlikely event of a derailment. However, an uncontrolled crossing in the City of Camas, approximately 0.4 miles west of the Lower Washougal Wellfield presents some added risk. BNSF has their own spill response plan and contracts with local firms to handle any hazardous material problems. In the event of a derailment and release, the highly permeable nature of the sediments in the vicinity of the wellfield may make containment and protection of the aquifer difficult. It is worth noting that in a worse case scenario, a release from a single train car could result in the nearly permanent loss of the Lower Wellfield as a source of potable water.

Because all gasoline powered vehicles carry some risk of a contaminant release, even relatively small roads pose some risk to water supply wells. This is especially true when the distance between the roads and the wells becomes small, and when the underlying aquifer has high susceptibility. For this reason, the Washington State Department of Health (DOH) generally discourages placement of roads within the sanitary control radius (SCA) of public water system wells. We understand that the City of Camas is exploring the possibility of providing access to the Anderson Property via a road that would be constructed along the north side, and within the SCA of Washougal's Lower Wellfield. Engineering controls such as storm water collection systems could reduce the risk associated with such a road. Such design considerations would need to be evaluated by DOH before a road could be constructed within the Lower Wellfield SCA.

4.4 Wellhead Susceptibility/Vulnerability Analysis

The sensitivity of the City's groundwater sources to potential contamination was evaluated by assessing the relative susceptibility and vulnerability of the City's Lower and Upper wellfield areas. Susceptibility refers to the estimated ease of contaminant transport from the land surface to the aquifer. Vulnerability accounts for the potential of contaminant releases at the land surface.

4.4.1 Alluvial Aquifer – Lower Washougal Wellfield

As described in Section **2.2.1**, the PAA occurs in the floodplains of the Columbia and Washougal rivers and is predominantly comprised of permeable sand, gravel and cobble deposits. Reported depth to groundwater in the aquifer is as little as 30 feet below land surface in supply wells completed at the City's wellfields. While some fine-grained or cemented zones are noted above the shallow water table in drilling logs, in many cases they are absent in the logs of neighboring wells. Therefore, no laterally extensive low permeability layer exists between the land surface and the water table to protect the PAA from contaminants released at the land surface. The aquifer is therefore considered to exhibit relatively high susceptibility.

Several natural mechanisms exist for attenuation of pollutant loading to the alluvial aquifer. While these mechanisms are probably benefiting groundwater quality under current conditions, they do not substantially reduce the aquifer's susceptibility rating. Percolation of recharge through the unsaturated zone (from the land surface to the water table) supports some reduction of selected contaminants via: (1) adsorption to particulates and oxides; (2) precipitation in aerated zones; and (3) biodegradation. However, the course texture of the sediments and general lack of organic matter suggests that the unsaturated zone offers minor contaminant attenuation relative to more silty, organic soils. Dilution via mixing with uncontaminated recharge in the unsaturated zone and the alluvial aquifer also serves to reduce contaminant concentrations. Because it is certain that *some* contaminant loading occurs at the land surface (e.g., from known contaminated sites, urban runoff and septic systems), the fact that historic groundwater quality monitoring has detected minimal contamination supports the value of these two processes. However, lack of contaminant detection in the City's wells does not mean that contamination is not reaching the water table in adjacent areas. It is important to understand that these natural attenuation processes are not likely to offer sufficient protection against a significant contaminant spill or release at the land surface.

Aquifer vulnerability is typically expressed as a risk factor, calculated by multiplying ratings reflecting the ease of contaminant transport to the water table (susceptibility) by the potential for contaminant releases at the land surface. Thus, the risk of groundwater contamination depends on both the hydrogeologic framework and the activities conducted at the land surface. In the case of Washougal, the PAA should be considered *highly vulnerable* to potential contamination. While active, known/confirmed sources of groundwater contamination are limited, potential sources of contamination include:

- Known and unknown UST's and LUST's
- Hazardous waste generators
- Industrially or commercially zoned areas and related parcels of concern
- Dry wells and septic systems
- Transportation spills
- Other potential sources

Contingency and Spill Response Planning

4.5 Introduction

WAC 246-290-135 (Source Water Protection) requires that Wellhead Protection Plans include a contingency plan to ensure consumers have an adequate supply of potable water in the event that contamination results in the temporary or permanent loss of the principal source of supply (major well(s) or wellfield). A contingency plan is particularly important for the City of Washougal due to the concentration of the primary sources of supply in a relatively small area (Lower Wellfield), and the highly susceptible nature of the aquifer in that area.

4.6 Sources and Demand

Current and estimated year 2030 peak daily demands are 3.7 and 6.0 million gallons per day (mgd) respectively. The current capacity of all the system's active wells is 8.6 mgd, which is sufficient to provide peak capacity in the year 2030. Specific individual well capacities are listed in **Table 1.**

4.7 Potential Source Loss Scenarios

The loss of one of the City's supply wells due to contamination or other problems will result in a reduction in the overall system production capacity. However, the loss of even the systems largest capacity well (Well 12, 1500 gpm) would not result in an inability to meet current or future demands. Only the simultaneous loss of multiple wells (or other related infrastructure) could result in the city experiencing an inability to meet demand.

Risk of losing multiple wells from a single contamination release arises from the fact that most of the City's wells are clustered in close proximity to each other and may be susceptible to the same contamination event. Most of the City's current supply is provided by the Lower Wellfield. As discussed in Section **4.3.2.7**, the Lower Wellfield is at risk from spill / contaminant release along the BNSF railroad corridor.

The current combined capacity of the Lower Wellfield is 6.7 mgd, compared to the Upper Wellfield capacity of 1.9 mgd. In the event that the City's Lower Wellfield became inoperable due to a major contaminant release, the City could have difficulty meeting their entire water demand from the Upper Wellfield alone. In this event, the City would need to rely on its two interties with the City of Camas. The capacity of these interties to meet this sort of catastrophic loss has not been evaluated. Hydraulic modeling of a worst case scenario should be completed to assess the ultimate reliability of the system under summer peaking demands.

A worst case scenario (loss of the Lower Wellfield) event could be handled more effectively if the City possessed more balanced redundancy in terms of spatial distribution of production capacity. Development of an additional wellfield located in a different area from the Lower Wellfield could provide such redundancy.

The Cities of Camas and Washougal are currently working towards development of a regional wellfield supply source near the Steigerwald Wildlife Refuge southeast of Washougal (**Figure 1**). To date, the Cities have installed two test wells and completed other hydrogeologic characterization and modeling that demonstrates the viability of developing at least 15 mgd from this area (PGG, 2007). The Cities have also submitted a joint application (G2-30528) to the Department of Ecology that requests 17,213 gpm and 13,555 ac-ft/yr to meet the City's long term growth targets beyond the 20-year planning horizon. Development of the Steigerwald wellfield will likely be initiated in the next 10 to 15 years.

4.8 Spill Response Planning

The results of the susceptibility assessment should be utilized by local emergency responders to evaluate whether changes in spill / incident response measures are needed to better protect groundwater quality within the WHPA. Spill response plans related to the BNSF railroad corridor in the vicinity of the Lower Wellfield should receive a high level of attention.

5 References

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Table 1. Summary Information for Active Washougal Production Wells

Lower Wellfield	Elevation (ft-msl)	Type of Completion	Open Interval Top (ft-bgs)	Open Interval Bot (ft-bgs)	SWL (ft-bgs)	SWL Date	Well Cap. (gpm)
Well 5	50	Perf	84.5	98	29	6/1/1954	650
Well 6	50	Perf	84	94	43.5	1942	675
Well 7	50	Perf	80	94	33	7/10/1947	850
Well 11	50	Screen	66	97	41.1	1/26/1984	1000
Well 12	50	Screen	72	82	44.6	7/20/2007	1500
Upper Wellfield							
Well 1	90	Unknown	??	< 128	??		925
Well 10	94	Screen	88.5	113.5	64.2	2/3/1984	400

Table 2. Washougal Supply Well Pumping Rates for WHP Capture Zone Modeling

Lower Wellfield	Instantaneous (Qi) Rate (gpm)	Average Annual Rate (gpm)
Well 5	650	254
Well 6	675	264
Well 7	850	332
Well 11	1,000	391
Well 12	1,500	587
Subtotal	4,675	1,829
Upper Wellfield		
Well 1	925	362
Well 10	400	156
Subtotal	1,325	518
Totals	**6,000**	**2,347**

Table 3. Summary of Land Use Types of Concern

Parcel Land-Use Description	Number of Parcels Within WHPZs
Auto Body Shop	1
Bio-Filtration Swales/Ponds	1
Drive Through Car Wash	7
Electric power operating, maintenance, and repair building.	1
Feedlots.	1
Fleet Operation Centers & Storage	5
General repair & service garages	7
Mfg - Lumber & Wood Products	1
Parking Lot: Gravel, for adjoining building	3
SERVICE REPAIR SHOP	7
Service Station w/ Tanks & Pumps or Card Lock Station	1
Tires (includes retread tires), batteries, parts and accessories dealers	3
Veterinarians / Small Animal Hospitals.	1

Table 4. Summary Data for Parcels of Concern within Wellhead Protection Capture Zones

Parcel Serial Number	Owner Name	Owner Address	Site Address	Legal Description	Buisness Description	Zoning Abbreviation	WHPZ
131880000	SCHMID FAMILY LIMITED PARTNERSHIP I	PO BOX 66028, VANCOUVER, WA 98666	1407 32ND ST WASHOUGAL	#16 OF C C STILES DLC 20.65A	Fleet Operation Centers & Storage	R1-10	6-Month
75357051	M & M CARWASH INC	PO BOX 832, BORING, OR 97009	WASHOUGAL	R B JOHNSTON TRACTS LOT 14 BLK 2	Drive Through Car Wash	CV	6-Month
75357050	M & M CARWASH INC	PO BOX 832, BORING, OR 97009	469 E ST WASHOUGAL	R B JOHNSTON TRACTS LOT 13 BLK 2	Drive Through Car Wash	CV	6-Month
91045652	MANBER MIRIAM TRUST 1/3 INT	CSK AUTO CORP STORE #3146, CHICAGO, IL 60606	3440 NE 3RD AVE CAMAS	WEIR PARK LOTS 3 & 4 BLK 5	Tires (includes retread tires), batteries, parts and accessories dealers	RC	6-Month
91045666	FOUNTAIN ROBERT & FOUNTAIN NANCY	114 SE WEIR ST, CAMAS, WA 98607	114 NE WEIR ST CAMAS	WEIR PARK LOT 16 BLK 5	General repair & service garages	RC	6-Month
73134116	D3RW LLC	455 C ST, WASHOUGAL, WA 98671	453 C ST WASHOUGAL	#116 DAVID C PARKER DLC 1.11A	Parking Lot: Gravel, for adjoining building	CH	6-Month
71355005	TOWNSEND GREG & TOWNSEND MONICA	401 6TH ST, WASHOUGAL, WA 98671	401 6TH ST WASHOUGAL	#26-A #453-A #624-A #619-A #640-A AKA LOT 2 SP2-554 1.04A	Veterinarians / Small Animal Hospitals.	CH	6-Month
73134155		40220 SE GIBSON RD, WASHOUGAL, WA 98671	450 C ST WASHOUGAL	#155 D C PARKER DLC .38A	SERVICE REPAIR SHOP	CH	6-Month
75357048	M & M CARWASH INC	PO BOX 832, BORING, OR 97009	469 E ST WASHOUGAL	R B JOHNSTON TTS LOT 12 BLK 2	Drive Through Car Wash	CV	6-Month
91045584	KITTERMAN LLC 45.6%	811 NE 112TH AVE SUITE 104, VANCOUVER, WA 98662	CAMAS	WEIR PARK #1 LOT 8 BLK 1	Parking Lot: Gravel, for adjoining building	RC	6-Month
91045582	KITTERMAN LLC 45.6%	811 NE 112TH AVE SUITE 104, VANCOUVER, WA 98662	CAMAS	WEIR PARK #1 LOT 7 BLK 1	Parking Lot: Gravel, for adjoining building	RC	6-Month
75357049	M & M CARWASH INC	PO BOX 832, BORING, OR 97009	WASHOUGAL	R B JOHNSTON TT LOT 12 BLK 2 (SEE 075357-048-050 LAND AV)	Drive Through Car Wash	CV	6-Month
75359586	RADFORD BRIAN J	3000 H ST, WASHOUGAL, WA 98671	730 E ST WASHOUGAL	MIDLAND ACRE REPLT BLKS 1-5 & TTA #2 LTS 24 Z 26 BLK 1	General repair & service garages	CC	1-Year
71360000	HIGGINSON BLAINE & HIGGINSON BRIAN	984 WASHOUGAL RIVER RD, WASHOUGAL, WA 98671	984 WASHOUGAL RIVER RD WASHOUGAL	#19C OF RICHARD OUGH DLC .50A	SERVICE REPAIR SHOP	R1-10	5-Year
71741000	REHR RYAN N	1005 I STREET, WASHOUGAL, WA 98671	1005 I ST WASHOUGAL	#589 OF RICHARD OUGH DLC .35A	Feedlots.	R1-7.5	5-Year
131901042	CITY OF WASHOUGAL	1701 C ST, WASHOUGAL, WA 98671	WASHOUGAL	AUTUMN SLOPE TT A SUB 2004	Bio-Filtration Swales/Ponds	R1-10	5-Year
75359646	WASHOUGAL SCHOOL DIST #112	2349 B ST, WASHOUGAL, WA 98671	WASHOUGAL	MIDLAND ACRE REPLAT BLKS 1-5 & TT A #2 LOT 2 BLK A	Fleet Operation Centers & Storage	CC	5-Year
75359644	WASHOUGAL SCHOOL DIST #112	2349 B ST, WASHOUGAL, WA 98671	995 E ST WASHOUGAL	MIDLAND ACRES REPLAT BLKS 1-5 & TT A #1 LOT 2 BLK A	Fleet Operation Centers & Storage	CC	5-Year
75358010	WASHOUGAL SCHOOL DIST #112	2349 B ST, WASHOUGAL, WA 98671	971 E ST WASHOUGAL	ELLS SUB-DIV LOT 1	Fleet Operation Centers & Storage	CC	5-Year
71622000	WASHOUGAL SCHOOL DIST #112	2349 B ST, WASHOUGAL, WA 98671	WASHOUGAL	#420 OF RICHARD OUGH DLC	Fleet Operation Centers & Storage	CC	5-Year
71886000	JENSEN RONALD & JENSEN DONNA TRUSTEE	1076 N SHEPHERD RD, WASHOUGAL, WA 98671	1022 E ST WASHOUGAL	#777 RICHARD OUGH DLC	SERVICE REPAIR SHOP	CC	5-Year
71717002	MAHRE DONALD A (C/S)	1403 SE 283RD AVE, CAMAS, WA 98607	1315 E ST WASHOUGAL	#553 OF RICHARD OUGH DLC .14A	SERVICE REPAIR SHOP	CC	5-Year
71559000	MALFAIT RONALD & MALFAIT SHERYL	31914 SE 17TH ST, WASHOUGAL, WA 98671	1022 E ST WASHOUGAL	#315 OF RICHARD OUGH DLC	Drive Through Car Wash	CC	5-Year
71592000	MALFAIT RONALD & MALFAIT SHERYL	31914 SE 17TH ST, WASHOUGAL, WA 98671	WASHOUGAL	#367 OF RICHARD OUGH DLC	Drive Through Car Wash	CC	5-Year
71666000	MALFAIT RONALD & MALFAIT SHERYL	31914 SE 17TH ST, WASHOUGAL, WA 98671	1138 E ST WASHOUGAL	#473 OF RICHARD OUGH DLC	General repair & service garages	CC	5-Year
71706000	MALFAIT RONALD & MALFAIT SHERYL	31914 SE 17TH ST, WASHOUGAL, WA 98671	1204 E ST WASHOUGAL	#530 OF RICHARD OUGH DLC .25A	Tires (includes retread tires), batteries, parts and accessories dealers	CC	5-Year
71678002	VAUGHN PATRICIA	462 LILLIAN LN, ROSEBURG, OR 97470	1351 E ST WASHOUGAL	#487 OF RICHARD OUGH DLC .23A	Motor vehicle dealers, used cars and small trucks.	CC	5-Year
71680000	MALFAIT RONALD S	31914 SE 17TH ST, WASHOUGAL, WA 98671	1250 E ST WASHOUGAL	#489 OF RICHARD OUGH DLC .22A	Service Station w/ Tanks & Pumps or Card Lock Station	CC	5-Year
73134153	HAMBLETON BROS LUMBER CO	PO BOX 285, WASHOUGAL, WA 98671	335 S A ST WASHOUGAL	#153, #154, #178 DAVID C. PARKER DLC 14.91 A	Mfg - Lumber & Wood Products	CH	CARA
96158768	BUCK STEVEN E	PO BOX 324, WASHOUGAL, WA 98671	921 4TH ST WASHOUGAL	RIVERSIDE ESTATES LOT 5 SUB 96	Auto Body Shop	CC	CARA
91045167	SONDEREN ENTERPRISES LLC	6590 SW LOMBARD AVE, BEAVERTON, OR 97008	3136 NE 3RD AVE CAMAS	#176-A DAVID C PARKER DLC 2.13A	Tires (includes retread tires), batteries, parts and accessories dealers	RC	CARA
75130000	WEISSERT JEFFREY B & WEISSERT DOROTHY	33134 SE 34TH ST, WASHOUGAL, WA 98671	540 WASHOUGAL RIVER RD WASHOUGAL	WRIGHTS ADDN WASHOUGAL LOT 4 BLK 1	Mfg - Rubber & Plastic Products	CC	CARA
127950000	CLARK PUBLIC UTILITIES	PO BOX 8900, VANCOUVER, WA 98668	WASHOUGAL	#115 DAVID C PARKER DLC .96A	Electric power operating, maintenance, and repair building.	CH	CARA
71527002	R & T AUTO BODY INC	1434 E ST, WASHOUGAL, WA 98671	1434 E ST WASHOUGAL	#275 OF RICHARD OUGH DLC	General repair & service garages	CC	CARA
71528000	R & T AUTO BODY INC	1434 E ST, WASHOUGAL, WA 98671	1434 E ST WASHOUGAL	#276 OF RICHARD OUGH DLC	General repair & service garages	CC	CARA
71910000	SAMPLE RONALD N & LILJA-SAMPLE NANCY	2100 NE 249TH AVE, CAMAS, WA 98607	WASHOUGAL	#803 RICHARD OUGH DLC	General repair & service garages	CC	CARA
71505000		0 1628 E ST, WASHOUGAL, WA 98671	1628 E ST WASHOUGAL	#242 OF RICHARD OUGH DLC	Motor vehicle dealers, used cars and small trucks.	CC	CARA
71792000	HATTEN RANDALL & HATTEN BRENDA	PO BOX 141, WASHOUGAL, WA 98671	1320 E ST WASHOUGAL	#662 OF RICHARD OUGH DLC .31A	SERVICE REPAIR SHOP	CC	CARA
71683000	COLUMBIA ELECTRIC INC	PO BOX 473, WASHOUGAL, WA 98671	1338 E ST WASHOUGAL	#496 OF RICHARD OUGH DLC .21A	SERVICE REPAIR SHOP	CC	CARA
71832000	VAUGHN PATRICIA	462 LILLIAN LN, ROSEBURG, OR 97470	1405 E ST WASHOUGAL	#714 RICHARD OUGH DLC .23A	General repair & service garages	CC	CARA
71543000	VAUGHN PATRICIA	462 LILLIAN LN, ROSEBURG, OR 97470	1423 E ST WASHOUGAL	#293 OF RICHARD OUGH DLC	SERVICE REPAIR SHOP	CC	CARA
71542000	BKS ENTERPRISES INC	1641 E ST, WASHOUGAL, WA 98671	1641 E ST WASHOUGAL	#292 OF RICHARD OUGH DLC	Drive Through Car Wash	CC	CARA

Table 5. Summary of Environmental Sites within Wellhead Protection Capture Zones

Map ID	FS ID	Facility Name	Zone	Release	Affected Media[1]	Leaking Underground Storage Tank	Cleanup Site	Hazardous Materials	Underground Storage Tank	Halogenated Organics[2]	Petroleum Products[2]
1	18768638	All Seasons Auto Centers Inc Camas	6-Months	N		N	N	**Y**	N		
5	64124152	Brass Lamp Motor Inn	6-Months	N		N	N	**Y**	N		
15	37125488	Columbia Warehouse	6-Months	N		N	N	**Y**	**Y**		
18	**85837922**	**Goodyear Tire Camas**	**6-Months**	**Y**	**SL**	**Y**	**Y**	N	**Y**	**R**	**C**
28	52218486	Schucks Auto Supply Camus	6-Months	N		N	N	**Y**	N		
29	3264254	Tarr Inc Washougal	6-Months	N		N	N	**Y**	N		
34	16327542	Washougal Electric & Sheet Metal Inc	1-Year	N		N	N	N	**Y**		
37	57872946	Washougal Shell	1-Year	N		N	N	N	**Y**		
11	95756539	Clark County Pub Wks Washougal Site	5-Year	N		N	N	N	**Y**		
25	49392144	Overton Mfg Inc	5-Year	N		N	N	**Y**	N		
36	48371594	Washougal School Dist Bus Garage	5-Year	N		N	N	N	**Y**		
3	94778244	Asher Engine Service	CARA	N		N	N	**Y**	N		
14	11338232	Columbia Storage Inc 2nd St	CARA	N		N	N	**Y**	N		
21	**22538744**	**Hi Way Fuel**	**CARA**	**Y**	**GW, SL**	**Y**	**Y**	N	**Y**		**C**
22	86429735	Jimbos Deli Mart 2	CARA	N		N	N	N	**Y**		
23	79581825	Napa Washougal	CARA	N		N	N	**Y**	N		
26	35533354	RD Wakefield Property	CARA	N		N	N	N	**Y**		
27	64113396	S & S Food Mart	CARA	N		N	N	**Y**	**Y**		
33	3811629	US DOE BPA Camas Substation	CARA	N		N	N	**Y**	N		

1) GW - Groundwater
SL - Soil

2) C - Confirmed
R - Remediated

Washougal Supply Well

Camas Supply Well

Georgia Pacific

Other Wels

City Limits

Geologic Units (DGER 100K)

- Qa - alluvium
- Qfs - outburst flood deposits, sand and silt, late Wisconsinan
- Qfg - outburst flood deposits, gravel
- PLM(t) - continental sedimentary deposits or rocks (Troutdale Formation)
- Ova(2) - Andesite flows

Normal Fault

Cross Section Alignment

0 Feet 2,000

2007 Aerial Photo from Clark County

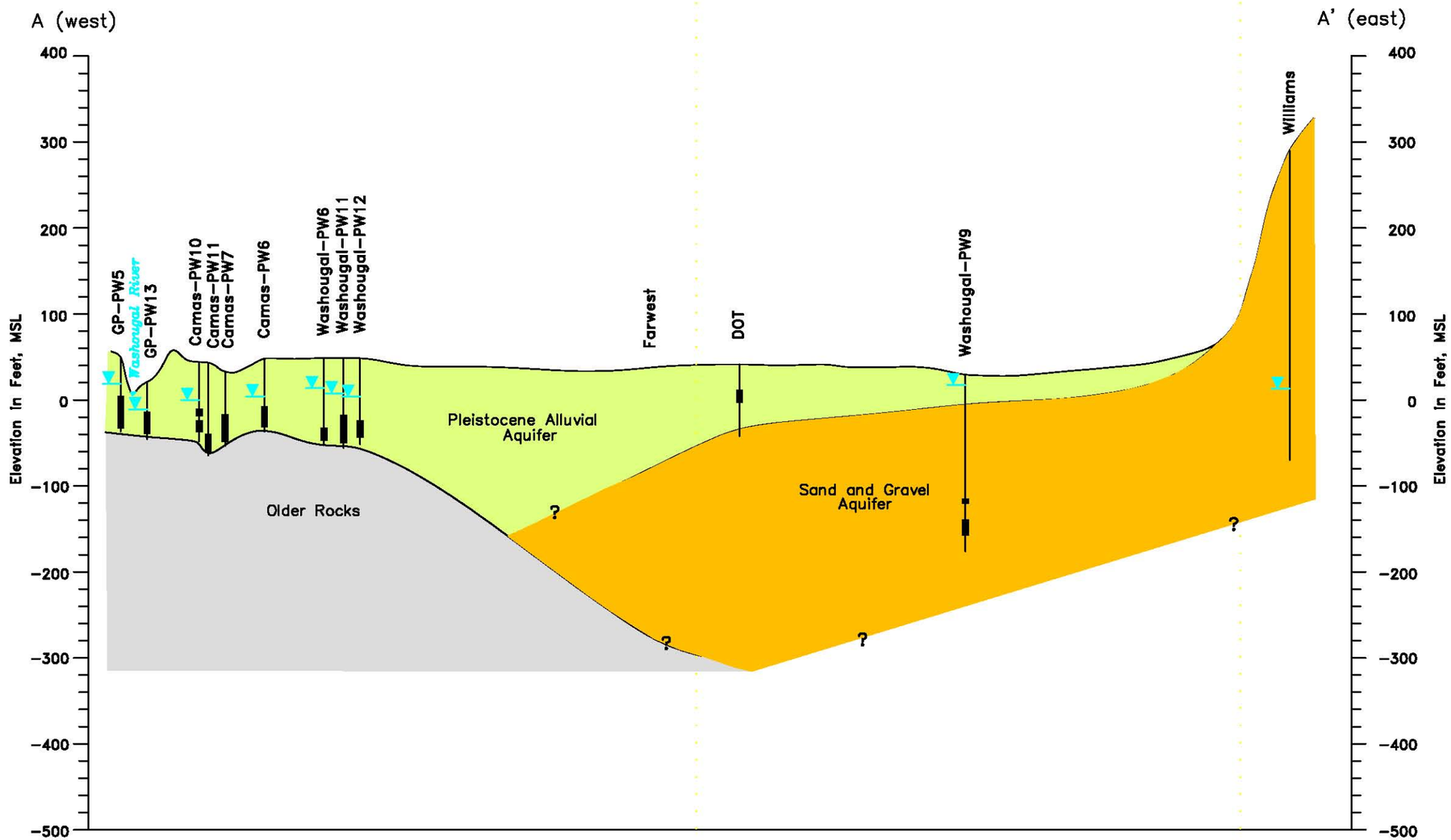
N

Figure 1
Surficial Geology, Cross Section & Wellfields

Washougal Wellhead Protection Plan

PgG

K:\DANJM1006_Washougal\GIS\mxds\Geology.mxd



LEGEND

- Pleistocene Alluvial Aquifer
- Sand and Gravel Aquifer
- Older Rocks
- Well Water Level
- Well Completion Interval

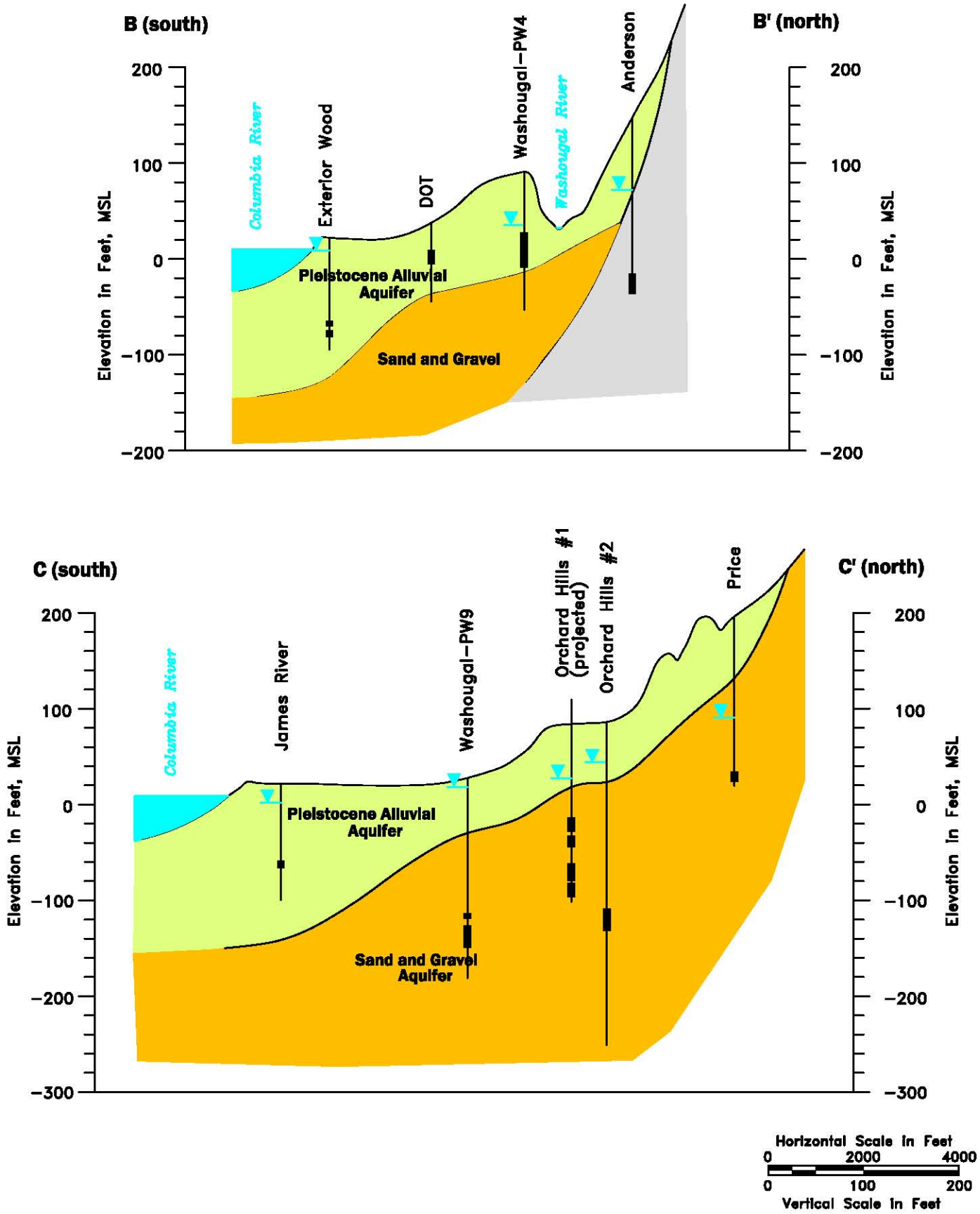
Horizontal Scale in Feet
0 2000 4000
0 100 200
Vertical Scale in Feet

FIGURE 2
Hydrogeologic Cross Section A-A'

Washougal Wellhead Protection Plan

J81008, XSECA_1.SWS, March/2011

PgG



LEGEND

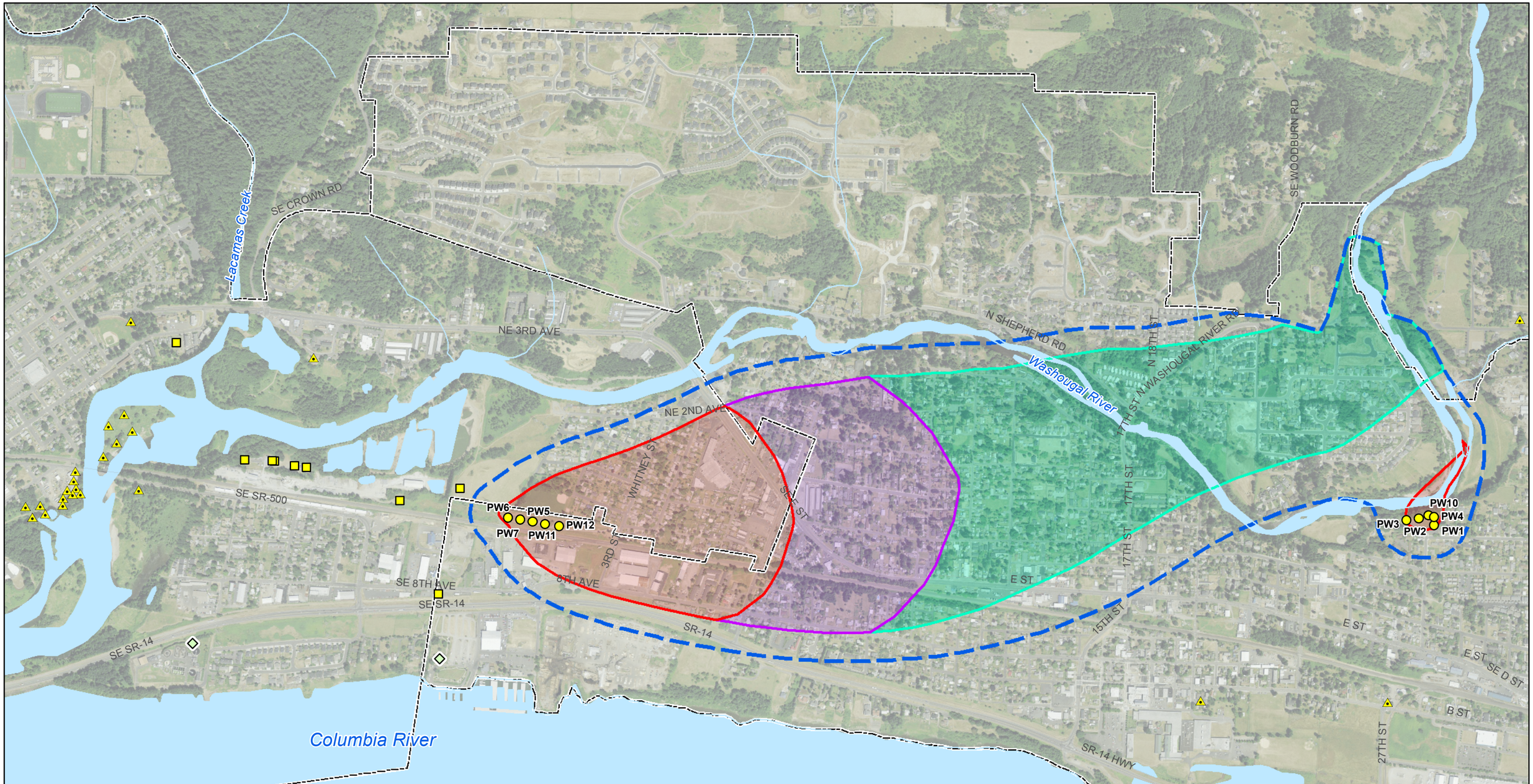
- Pleistocene Alluvial Aquifer
- Sand and Gravel Aquifer
- Older Rocks
- Well Water Level
- Well Completion Interval

FIGURE 3
Hydrogeologic Cross Sections
B-B' and C-C'

Washougal Wellhead Protection Plan

JN1088, XXXXXC_1.DWG, March/2011

PgG



Washougal Supply Well

Camas Supply Well

Camas Proposed Supply Well

Other Wells

Wellhead Protection Capture Zones

6 Month Capture Zone

1 Year Capture Zone

5 Year Capture Zone

Critical Aquifer Recharge Area (CARA)

City Limits

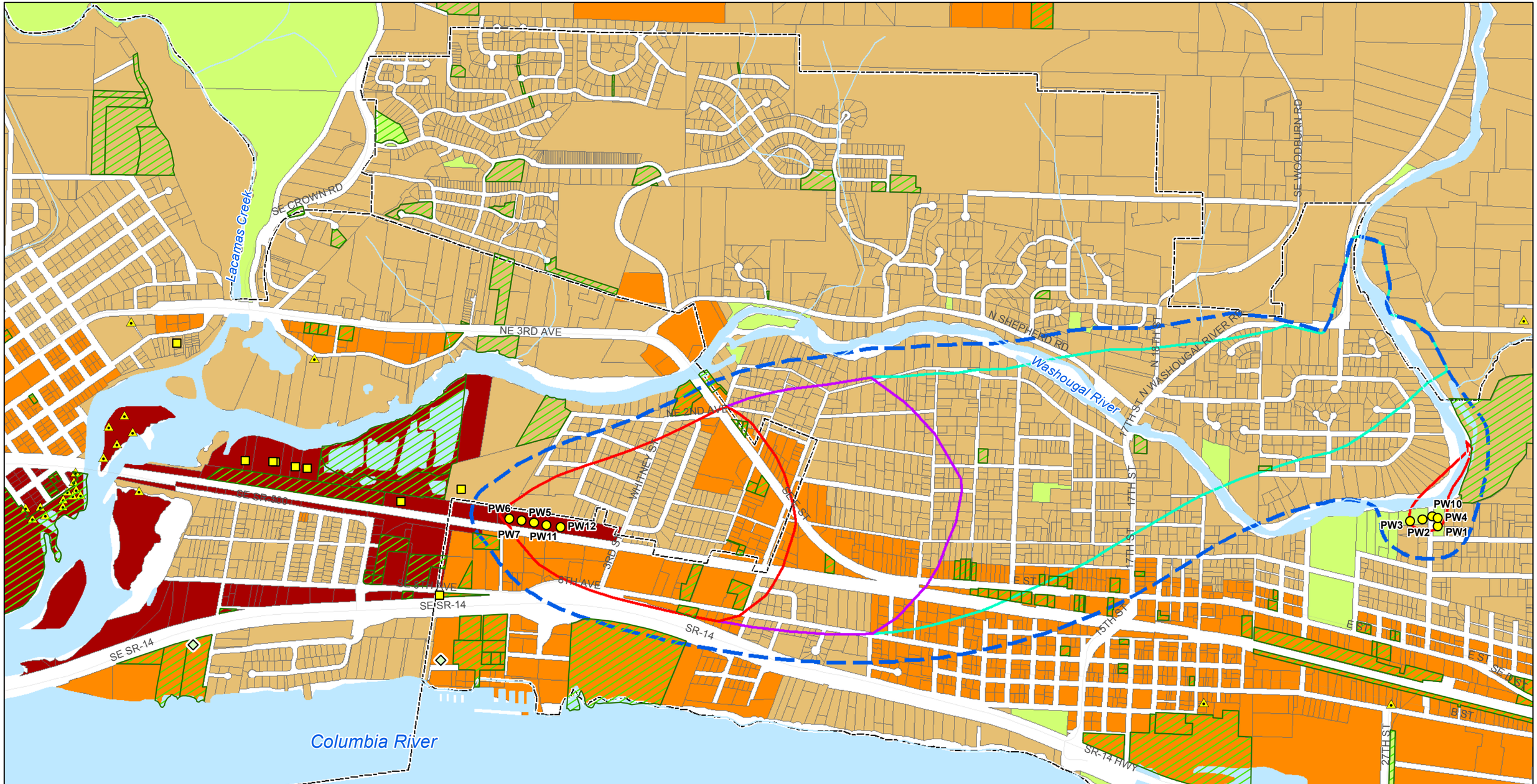
0 Feet 1,000

N

Figure 4
Wellhead Protection Capture Zones

Washougal Wellhead Protection Plan

PgG



Zoning Categories

- Industrial
- Residential
- Commercial
- Park/OS/Public

- Parcels of Concern
- City Limits

- Washougal Supply Well
- Camas Supply Well
- Camas Proposed Supply Well
- Other Wells

- Critical Aquifer Recharge Area (CARA)
- 6 Month Capture Zone
- 1 Year Capture Zone
- 5 Year Capture Zone

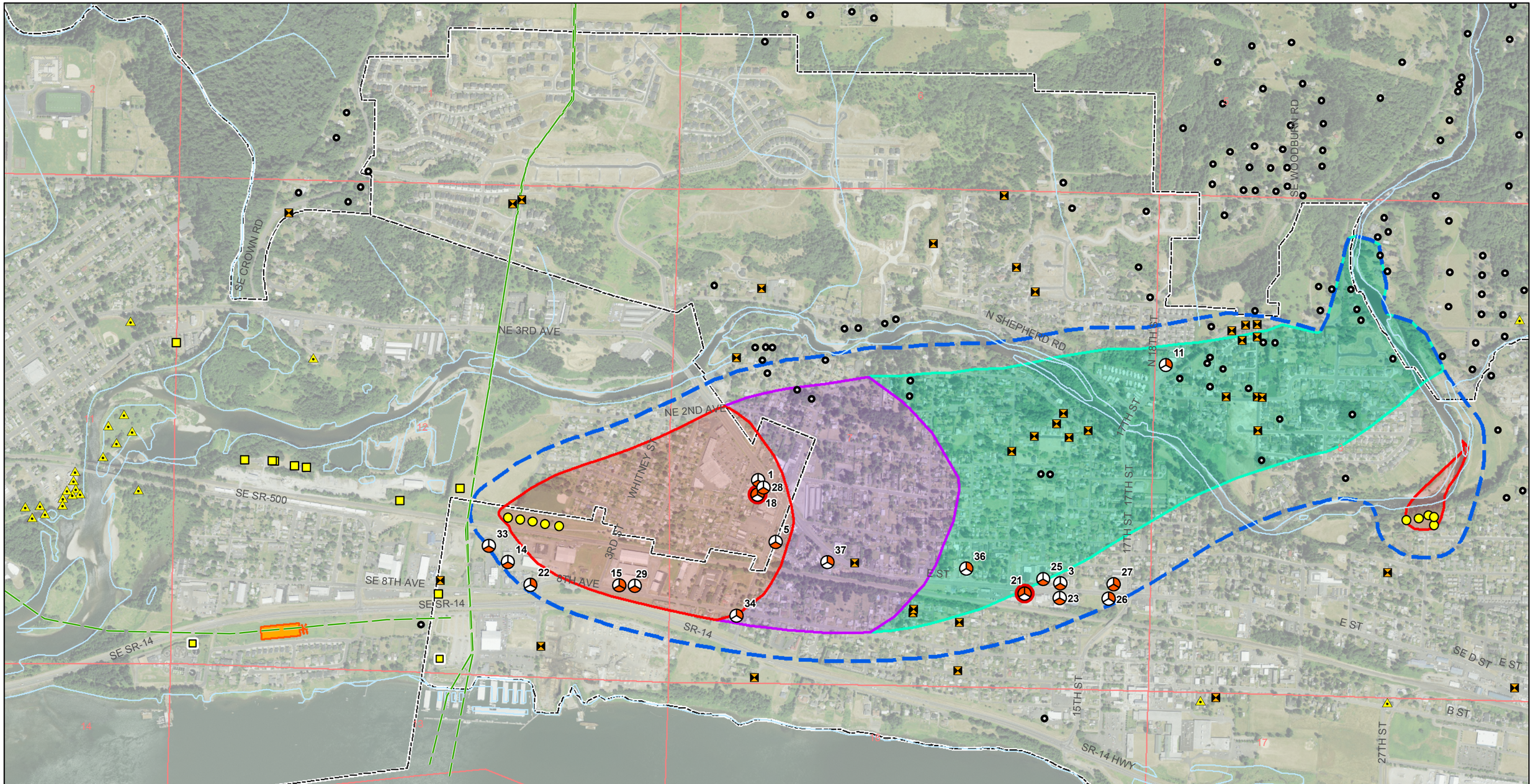
0 Feet 1,000

N

Figure 5
Zoning Categories

Washougal Wellhead Protection Plan

PgG



DOE Sites of Concern

Known Release

Table 5 ID

Cleanup Site

UST/LUST

Hazardous Materials

Refer to Section 4.3 and Table 5 for description.

Septic Systems

Drywells

Gas Transmission Pipelines

WSDOT Infiltration Area

Camas Supply Well

Camas Proposed Supply Well

Washougal Supply Well

Other Wells

City Limits

Critical Aquifer Recharge Area (CARA)

Wellhead Protection Capture Zones

6 Month Capture Zone

1 Year Capture Zone

5 Year Capture Zone

N

0 Feet 1,000

2007 Aerial Photo from Clark County

Figure 6
Hazardous Sites

Washougal Wellhead Protection Plan

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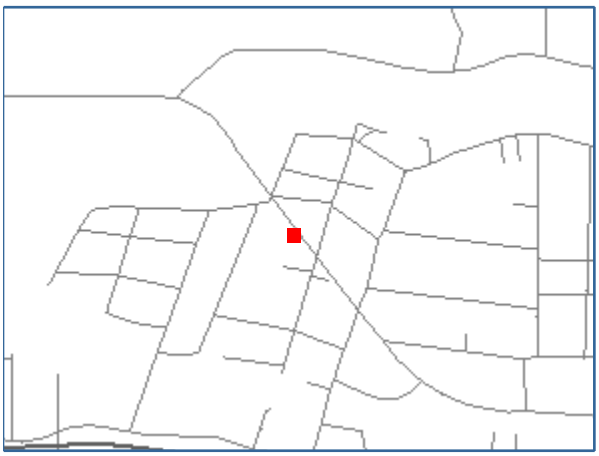
Appendix A

Environmental Sites Information

Facility/Site: 18768638 All Seasons Auto Centers Inc Camas

Also known as:



Larger Map

Larger Map

Address

3440 NE 3RD AVE

CAMAS WA 98607

Decimal Coordinates

Latitude: 45.58557

Longitude: -122.37007

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WAD027281427	10/30/1986	12/31/1996

Report generated on 09-29-2011

Industrial Codes (External Links Below)

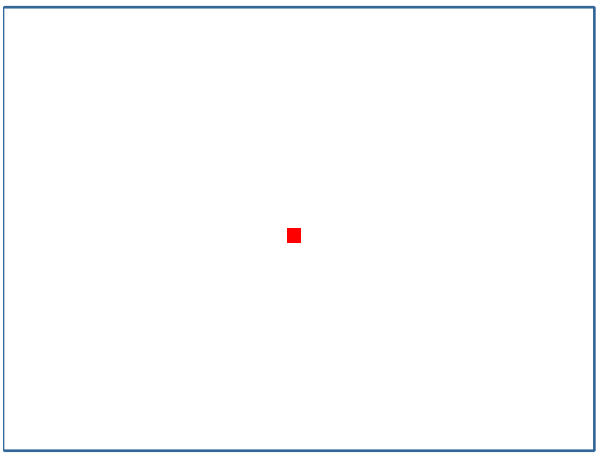
No NAICS information is available for this facility site.

SIC Code	SIC Description
7538	GENERAL AUTOMOTIVE REPAIR SHOPS

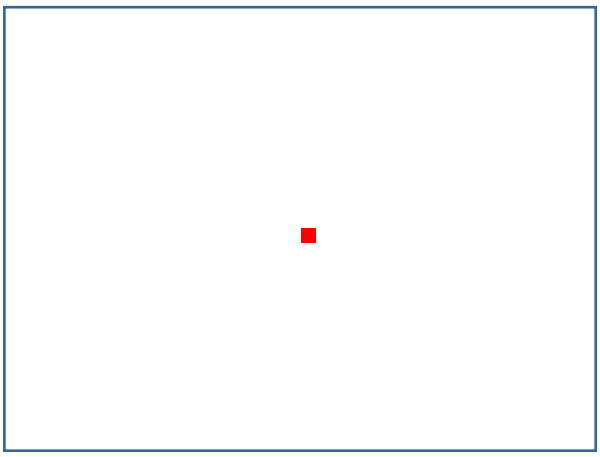
Report generated on 09-29-2011

Facility/Site: 64124152 Brass Lamp Motor Inn

Also known as:



Larger Map



Larger Map

Address

544 6TH ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58158

Longitude: -122.36917

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WAD988498952	12/30/1991	12/31/1991

Report generated on 09-29-2011

Industrial Codes (External Links Below)

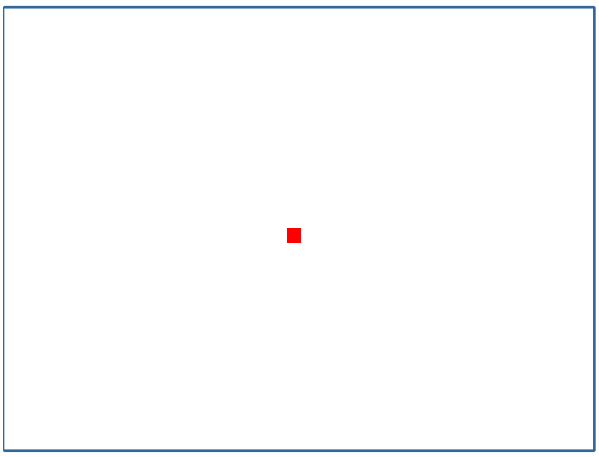
No NAICS information is available for this facility site.

SIC Code	SIC Description
9511	AIR, WATER, & SOLID WASTE MANAGEMENT

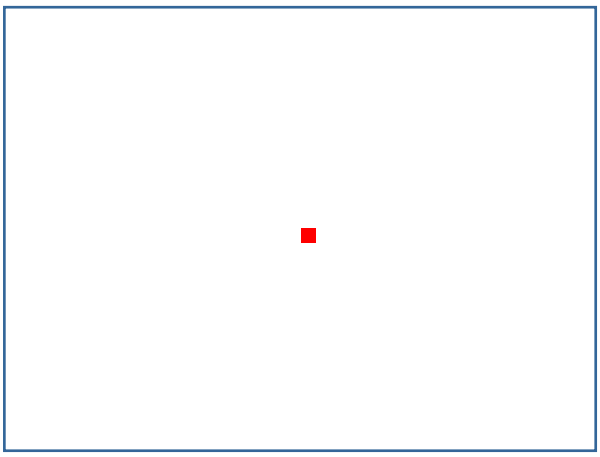
Report generated on 09-29-2011

Facility/Site: 37125488 COLUMBIA WAREHOUSE

Also known as: COLUMBIA STORAGE INC C ST



Larger Map



Larger Map

Address

361 C ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58079

Longitude: -122.37573

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	6085	6/8/1998	3/22/2000

Report generated on 09-29-2011

Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	CRK000036900	1/1/1993

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
4225	GENERAL WAREHOUSING AND STORAGE

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: COLUMBIA WAREHOUSE**

Facility-Site ID: 37125488
UST Site ID: 6085

Location: 361 C ST PO BOX 530
Washougal, 98671

Responsible Unit: SOUTHWEST
Lat / Long: 45.58079 -122.37573

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
TANK #1	Removed	12/31/1964		1	
TANK #2	Closed in Place	12/31/1964		1	
TANK #3	Removed	12/31/1964	111 TO 1,100 Gallons	1	Leaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: TANK #1

Tank ID: 41310

SITE INFORMATION

Site ID: 6085 **Site Tag #: none**
COLUMBIA WAREHOUSE
361 C ST PO BOX 530
WASHOUGAL, WA 98671
Phone #: (206) 835-8351 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 37125488
COLUMBIA WAREHOUSE
361 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 50.8" / -122° 22' 32.6°

TANK INFORMATION

TANK NAME: TANK #1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Coated Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1			

Storage Tank: TANK #2

Tank ID: 41414

SITE INFORMATION

Site ID: 6085 **Site Tag #: none**
COLUMBIA WAREHOUSE
361 C ST PO BOX 530
WASHOUGAL, WA 98671
Phone #: (206) 835-8351 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 37125488
COLUMBIA WAREHOUSE
361 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 50.8" / -122° 22' 32.6°

TANK INFORMATION

TANK NAME: TANK #2 **Status :** Closed in Place **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1			

Clark COUNTY

Storage Tank: TANK #3

Tank ID: 41304

SITE INFORMATION

Site ID: 6085 **Site Tag #: none**
COLUMBIA WAREHOUSE
361 C ST PO BOX 530
WASHOUGAL, WA 98671
Phone #: (206) 835-8351 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 37125488
COLUMBIA WAREHOUSE
361 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 50.8" / -122° 22' 32.6°

TANK INFORMATION

TANK NAME: TANK #3 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE : 111 TO 1,100 Gallons
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

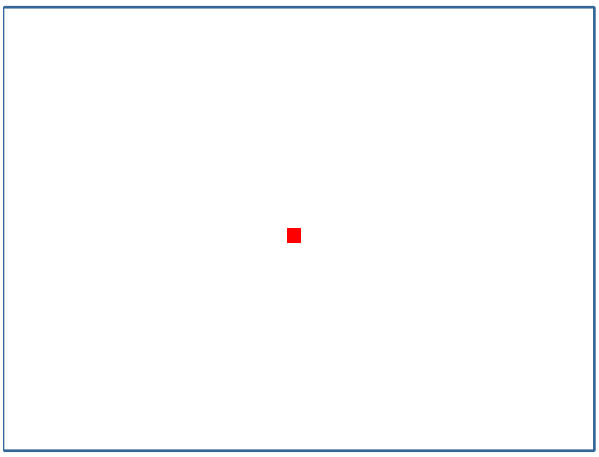
	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Leaded Gasoline		

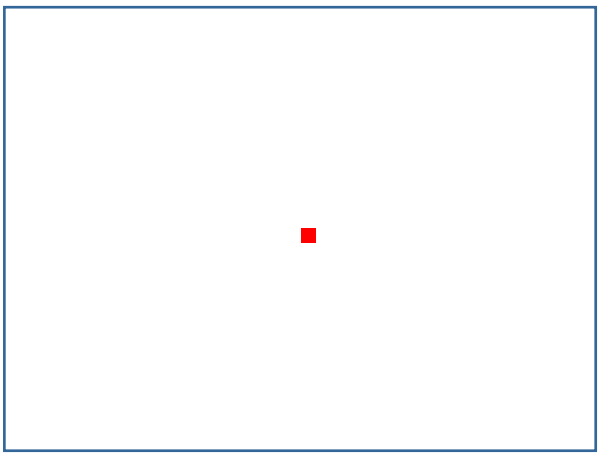
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: 85837922 GOODYEAR TIRE CAMAS

Also known as: GOODYEAR TIRE CAMAS, SCHUCKS AUTO SUPPLY



Larger Map



Larger Map

Address

3440 3RD AVE

CAMAS WA 98607

Decimal Coordinates

Latitude: 45.5838

Longitude: -122.36929

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Voluntary Cleanup Sites	TOXICS	(360) 407-7224		8/3/2001	9/6/2001
LUST Facility	TOXICS	(360) 407-7224	496977	5/27/1999	9/6/2001

Report generated on 09-29-2011

Underground Storage Tank	TOXICS	(360) 407-7224	496977	5/10/1999	1/23/2007

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
5014	TIRES AND TUBES

Report generated on 09-29-2011

CLARK COUNTY

SITE I

GOODYEAR TIRE CAMAS

CleanupSite ID: **6772** FS ID: **85837922**

Alternate Name(s): GOODYEAR TIRE CAMAS, SCHUCKS AUTO SUPPLY

LOCATION:

Address: **3440 3RD AVE**
CAMAS **98607**

Lat/Long: **45.58380** **-122.36929**
Township/Range/Section: **1N** **4E** **53**

Legislative District: **18**
Congressional District: **3**

STATUS:

Ecology Status: **No Further Action**
WARM BIN#:

Responsible Unit: **Southwest**
Site Manager: **Szyszkowski, Marcel**
Statute: **MTCA**

Is Brownfield?
Environmental Covenant?
Is PSI Site?

UST Site ID: **496977**
WRIA ID: **28**

NFA Received? **Yes** NFA Date: **9/4/2001** NFA Reason: **NFA-Voluntary Cleanup Program Review**

SITE ACTIVITIES:

Applies to:	Related ID (Unit-LUST-VCP)	Activity Display Name	Status	Start Date	End Date	Legal Mechanism	Performed By	Project Manager
CleanupSite		Site Discovery/Release Report Received			5/27/1999			Szyszkowski, Marcel
CleanupSite		Site Status Changed to NFA			9/4/2001			
CleanupSiteMilestoneType		Ecology Routine Cleanup	Completed	5/27/1999	9/13/1999	Independent	PLP	Szyszkowski, Marcel
Lust	5274	LUST - Notification		5/27/1999	5/27/1999			Rankine, Craig
Lust	5274	LUST - Report Received		10/6/1999	9/13/1999			
VcpProject	SW0350	VCP Application	Completed	8/3/2001				
VcpProject	SW0350	VCP Termination	Completed		3/7/2002			
VcpProject	SW0350	VCP Opinion on Cleanup Action	Cancelled					Szyszkowski, Marcel

AFFECTED MEDIA & CONTAMINANTS:

Contaminant:	Media: Ground Water	Surface Water	Soil	Sediment	Air	Bedrock
Halogenated Organics			R			

	Petroleum-Other			C			

Key:
B - Below Cleanup Level
C - Confirmed Above Cleanup Level
S - Suspected

R - Remediated
RA - Remediated-Above
RB - Remediated-Below

No Further Action (NFA) Site List

9/29/2011

Facility Site ID	CS ID	Site Address	City, Zip	NFA Basis	Rank	VCP	NFA Date
CLARK COUNTY							
85837922	6772	GOODYEAR TIRE CAMAS 3440 3RD AVE	CAMAS, 98607	NFA-VCP Review		☑	09/04/2001

No Further Action (NFA) Report Legend

This report includes all sites previously on the *Confirmed & Suspected Contaminated Sites list* that have received a 'No Further Action' (NFA) determination. Data in this report are subject to change at any time.

Explanation of Column Headings:

CS ID = Cleanup Site ID number

Rank: Indicates the outcome of the WAshington Ranking Model or 'WARM'. The WARM rank is always a number between 1 and 5, with a 1 indicating the greatest assessed risk to human health and the environment and a 5 indicating the lowest assessed risk. A zero in this column indicates that the site is either on the federal national Priorities List (NPL) or is a sub-site or operable unit of an NPL site. NPL sites are ranked separately under the federal Hazard Ranking System (HRS).

VCP = Voluntary Cleanup Program. A 'check' in this column indicates that the cleanup was conducted under the Voluntary Cleanup Program.

Explanation of 'NFA Type' Choices:

Cleanup Complete = Cleanup completed, not on Hazardous Sites List (HSL)
NFA-SHA = NFA after Site Hazard Assessment (SHA)
NFA-IRAP Review = NFA following earlier IRAP (Independent Remedial Action Program) Review
NFA-II = NFA following Initial Investigation (II)
NFA-SHA, IRAP, or VCP = NFA after Assessment, IRAP Review, or Voluntary Cleanup
NFA-VCP Review = NFA following review under the Voluntary Cleanup Program
Prior Authority = Cleaned up under prior statutory authority (predates Model Toxics Control Act)
NFA-ECO SUP / Conducted Cleanup = NFA after Ecology-Supervised or Conducted cleanup
RC, IC = Restrictive Covenant(s) or Institutional Control(s) required
Historic LUST NFA = Historical data, NFA under Leaking Underground Storage Tank (LUST) program
II = NFA after Initial Investigation (II)

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Camas | **Site Name: GOODYEAR TIRE CAMAS**

Facility-Site ID: 85837922
UST Site ID: 496977

Location: 3440 3RD AVE
Camas, 98607

Responsible Unit: SOUTHWEST
Lat / Long: 45.5838 -122.36929

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	01/01/1900	1,101 to 2,000 Gallons	1	Diesel
2	Removed	01/01/1900	1,101 to 2,000 Gallons	1	Diesel
3	Removed	01/01/1964		1	Unleaded Gasoline
4	Removed	01/01/1900		1	Diesel
5	Removed	01/01/1964		1	Used Oil/Waste Oil

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 2

Tank ID: 496991

SITE INFORMATION

Site ID: 496977 **Site Tag #: none**
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 85837922
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Lat/Long 45° 35' 1.67" / -122° 22' 9.44°

TANK INFORMATION

TANK NAME: 2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1900	December 10, 1999		No Closed Date Recorded

CAPACITY RANGE : 1,101 to 2,000 Gallons
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel		2500

Storage Tank: 3

Tank ID: 559713

SITE INFORMATION

Site ID: 496977 **Site Tag #: none**
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 85837922
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Lat/Long 45° 35' 1.67" / -122° 22' 9.44°

TANK INFORMATION

TANK NAME: 3 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1964	February 21, 2001		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		500

Clark COUNTY

Storage Tank: 5

Tank ID: 559723

SITE INFORMATION

Site ID: 496977 **Site Tag #: none**
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 85837922
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Lat/Long 45° 35' 1.67" / -122° 22' 9.44°

TANK INFORMATION

TANK NAME: 5 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1964	February 21, 2001		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Used Oil/Waste Oil		275

Storage Tank: 1

Tank ID: 496985

SITE INFORMATION

Site ID: 496977 **Site Tag #: none**
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 85837922
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Lat/Long 45° 35' 1.67" / -122° 22' 9.44°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1900	December 10, 1999		No Closed Date Recorded

CAPACITY RANGE : 1,101 to 2,000 Gallons
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel		2500

Clark COUNTY

Storage Tank: 4

Tank ID: 559718

SITE INFORMATION

Site ID: 496977 **Site Tag #: none**
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 85837922
GOODYEAR TIRE CAMAS
3440 3RD AVE
CAMAS, WA 98607
Lat/Long 45° 35' 1.67" / -122° 22' 9.44°

TANK INFORMATION

TANK NAME: 4 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1900	February 21, 2001		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel		500

Report Information: Path TCP_Web_Reporting\TankDetails.rdl

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

September 6, 2001

Mrs. Randi Val Morrison
CSK Auto, Inc.
645 East Missouri Avenue
Phoenix, AZ 85012

Dear Mrs. Morrison:

Re: Goodyear Site, Camas, Washington

Thank you for submitting the results of your independent remedial action(s) for review by the State of Washington Department of Ecology (Ecology). Ecology appreciates your initiative in pursuing this administrative option under the Model Toxics Control Act (MTCA).

Ecology's Toxics Cleanup Program has reviewed the following information regarding the Goodyear Site located at 3440 Third Avenue, Camas, Washington 98607:

1. Underground Storage Tank Closure Report for 3440 Third Avenue, Camas, WA 98607, dated September 13, 1999, by Professional Service Industries, Inc along with the Request for No Further Action Determination.

The above listed report will be kept in the Central Files of the Southwest Regional Office (SWRO) of Ecology for review by appointment only. Appointments can be made by calling the SWRO resource contact Sherri Greenup at (360) 407 6365.

Based upon the above listed information Ecology has determined that, at this time, the release of diesel, heavy oil, and other petroleum hydrocarbons into the soil no longer poses a threat to human health or the environment. Therefore, Ecology is issuing this determination that no further remedial action is necessary at this site under MTCA, Chapter 70.105D RCW. However, please note that because your actions were not conducted under a consent decree with Ecology, this letter is written pursuant to RCW 70.105D.030(1)(i) and does not constitute a settlement by the state under RCW 70.105D.040(4) and is not binding on Ecology.

Ecology's no further action determination is made only with respect to the site identified in this letter. This no further action determination applies only to the area of the property at Goodyear Site located at 3440 Third Avenue, Camas, Washington 98607 and it does not apply to any release or potential release at the property, any other areas on the property, nor any other properties owned or operated by CSK Auto, Inc.

Ecology will update its database to reflect this "No Further Action" determination.

The state, Ecology, and its officers and employees are immune from all liability and no cause of action of any nature may arise from any act or omission in providing this determination.

If you have any questions, please contact me at (360) 407-6363.

Sincerely,

Marcel Szyszkowski, P.E.
Southwest Regional Office
Toxics Cleanup Program

MS:le(02/tcp)

cc: Mark Underhill, PSI
Chuck Cline, Ecology

UNDERGROUND STORAGE TANK CLOSURE REPORT

For

3440 THIRD STREET
CAMAS, WASHINGTON 98607

Prepared for

CSK AUTO
18021 AURORA AVENUE NORTH
SHORELINE, WASHINGTON 98133

Prepared by

Professional Service Industries, Inc.
12812 NE Marx Street
Portland, OR 97230
Telephone (503) 254-8418

PSI PROJECT NO. 572-9G014

September 13, 1999

psi Information To Build On
Engineering • Consulting • Testing

Michael Hauser, R.G.
Project Geologist

Gil Cobb, R.G.
Senior Technical Professional

1.0 EXECUTIVE SUMMARY

Professional Service Industries, Inc. (PSI) provided underground storage tank (UST) closure management services to CSK Auto for one 500-gallon gasoline UST, one 500-gallon diesel UST and one 500-gallon waste oil UST located at 3440 Third Avenue, Camas, Washington.

Michael Hauser, staff geologist for PSI, was present to provide oversight, document UST removal activities, and collect closure samples during the removal of the USTs. The findings and conclusions associated with the decommissioning of the three tanks are given below.

GASOLINE UST

Following removal of the gasoline UST on April 26, 1999, an inspection for signs of obvious contamination in the native soils beneath the former location of the tank and associated piping did not reveal any indications of a release. In addition, analytical results of two soil samples collected at each end of the excavation did not identify hydrocarbon concentrations above the laboratory method detection limits of 20 mg/kg gasoline, 50 mg/kg diesel, and 100 mg/kg heavy oil range hydrocarbons. Required regulatory closure information for this UST can be found in Appendix F.

DIESEL UST

During the decommissioning of the diesel UST on April 26, 1999, a release to the soil was noted. The diesel tank release was reported to DOE and assigned LUST file number 496977. After the removal of 28 tons of diesel impacted soil from the tank pit, soil samples from the sideS and bottom of the tank pit confirmed that all diesel range petroleum hydrocarbons impacted soil had been removed.

According to reporting requirements, this report should be submitted to the Washington DOE Regional Office for review. At that time a determination will be made, based on the data presented in this report, as to any further actions required by CSK Auto.

WASTE OIL UST

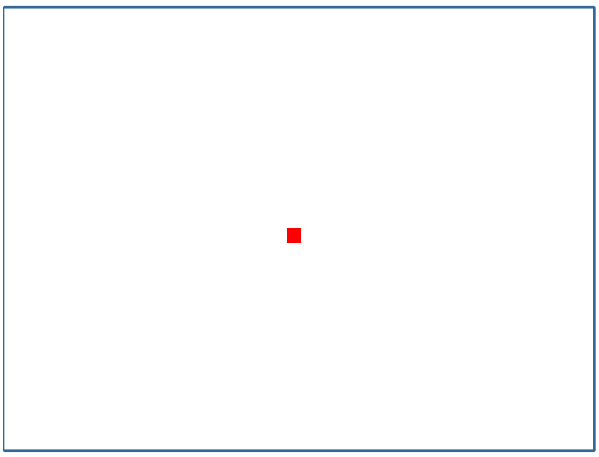
During the decommissioning of the waste oil UST on May 7, 1999, a release to the soil was noted. The waste oil tank release was reported to DOE and assigned LUST file number 496977. Analytical results from sample taken from beneath the tank indicated impact from petroleum hydrocarbons and VOC's. After the removal of 331 tons of impacted soil from the tank pit, soil samples from the sides and bottom of the tank pit confirmed that all petroleum hydrocarbons above MTCA Method A cleanup levels and VOC impacted soil had been removed.

According to reporting requirements this report should be submitted to the Washington DOE Regional Office for review. At that time a determination will be made, based on the data presented in this report, as to any further actions required by CSK Auto. Required regulatory closure information for this UST can be found in Appendix F.

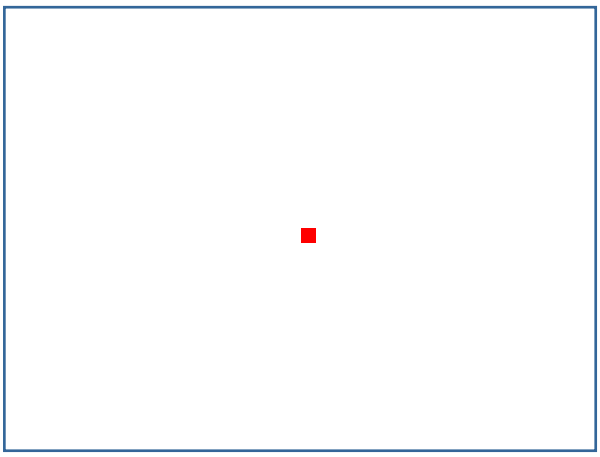
This summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided, and to aid in any decisions made or actions taken based on this information.

Facility/Site: 52218486 Schucks Auto Supply Camus

Also known as: CSK AUTO INC DBA SCHUCKS AUTO SUPPLY



Larger Map



Larger Map

Address

3440 NE 3RD ST

CAMAS WA 98607

Decimal Coordinates

Latitude: 45.58511

Longitude: -122.36953

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WAH000008953	7/8/1999	9/13/1999

Report generated on 09-29-2011

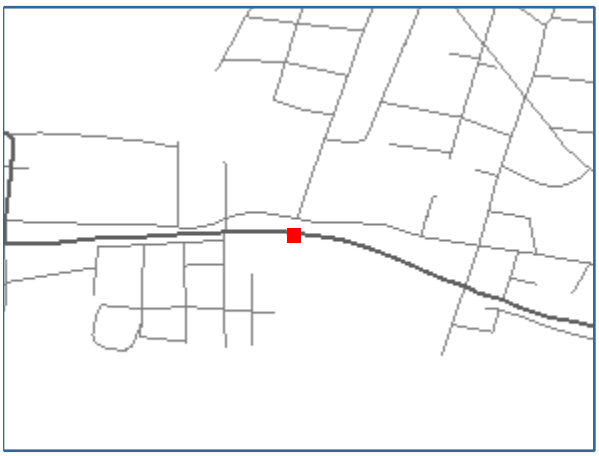
Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Facility/Site: 3264254 TARR INC WASHOUGAL

Also known as:



Larger Map

Larger Map

Address

361B C ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58078

Longitude: -122.37572

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	CRK000054610	9/15/2003	

Report generated on 09-29-2011

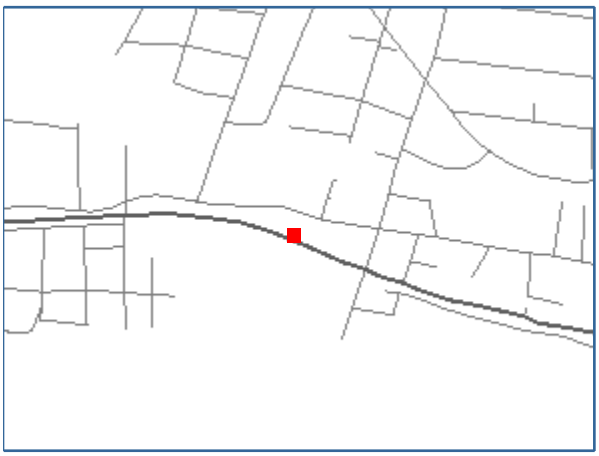
Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Facility/Site: 16327542 WASHOUGAL ELECTRIC & SHEET METAL INC

Also known as:



Larger Map

Larger Map

Address

594 C ST

WASHOUGAL WA 98671-0005

Decimal Coordinates

Latitude: 45.5804

Longitude: -122.37235

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	199	5/13/1996	3/22/2000

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: WASHOUGAL ELECTRIC & SHEET METAL INC**

Facility-Site ID: 16327542
UST Site ID: 199

Location: 594 C ST PO BOX 5
Washougal, 986710005

Responsible Unit: SOUTHWEST
Lat / Long: 45.5804 -122.37235

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	12/31/1964	111 TO 1,100 Gallons	1	Unleaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 1

Tank ID: 42320

SITE INFORMATION

Site ID: 199 **Site Tag #: none**
WASHOUGAL ELECTRIC & SHEET METAL INC
594 C ST PO BOX 5
WASHOUGAL, WA 98671-0005
Phone #: (206) 835-3121 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 16327542
WASHOUGAL ELECTRIC & SHEET METAL INC
594 C ST
WASHOUGAL, WA 98671-0005
Lat/Long 45° 34' 49.4" / -122° 22' 20.4°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE : 111 TO 1,100 Gallons
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

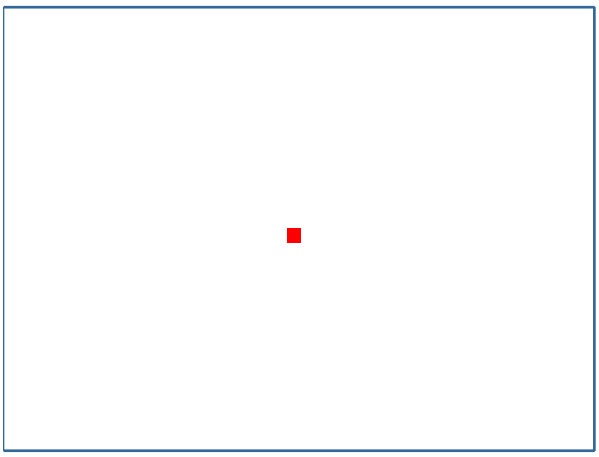
	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		Above Ground Piping
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

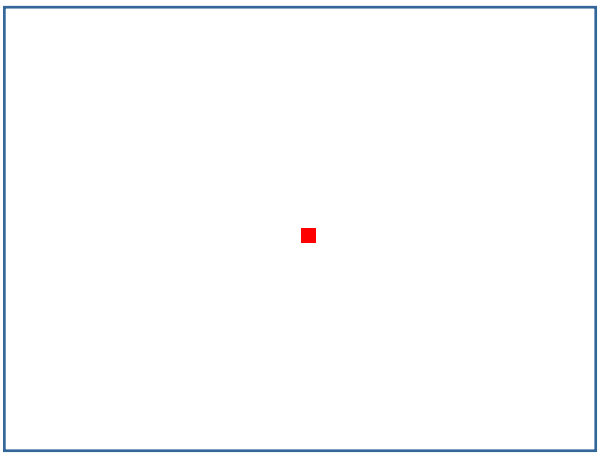
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: 57872946 WASHOUGAL SHELL

Also known as:



Larger Map



Larger Map

Address

730 E ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58138

Longitude: -122.36502

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	5887	6/8/1998	3/22/2000

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: WASHOUGAL SHELL**

Facility-Site ID: 57872946
UST Site ID: 5887

Location: 730 E ST WASHOUGAL
Washougal, 98671

Responsible Unit: SOUTHWEST
Lat / Long: 45.58138 -122.36502

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	12/31/1964		1	Unleaded Gasoline
2	Removed	12/31/1964		1	Leaded Gasoline
3	Removed	12/31/1964		1	Unleaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 2

Tank ID: 41906

SITE INFORMATION

Site ID: 5887 **Site Tag #: none**
WASHOUGAL SHELL
730 E ST WASHOUGAL
WASHOUGAL, WA 98671
Phone #: (206) 835-8443 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 57872946
WASHOUGAL SHELL
730 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.9" / -122° 21' 54.0°

TANK INFORMATION

TANK NAME: 2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Leaded Gasoline		

Storage Tank: 1

Tank ID: 41832

SITE INFORMATION

Site ID: 5887 **Site Tag #: none**
WASHOUGAL SHELL
730 E ST WASHOUGAL
WASHOUGAL, WA 98671
Phone #: (206) 835-8443 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 57872946
WASHOUGAL SHELL
730 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.9" / -122° 21' 54.0°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

Clark COUNTY

Storage Tank: 3

Tank ID: 41847

SITE INFORMATION

Site ID: 5887 **Site Tag #: none**
WASHOUGAL SHELL
730 E ST WASHOUGAL
WASHOUGAL, WA 98671
Phone #: (206) 835-8443 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 57872946
WASHOUGAL SHELL
730 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.9" / -122° 21' 54.0°

TANK INFORMATION

TANK NAME: 3 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

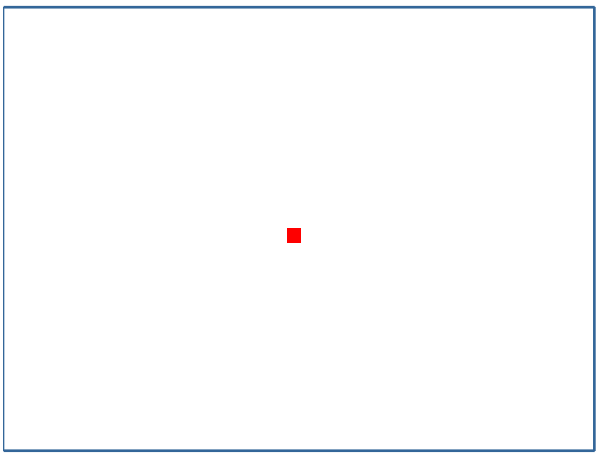
Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

Report Information: Path TCP_Web_Reporting\TankDetails.rdl

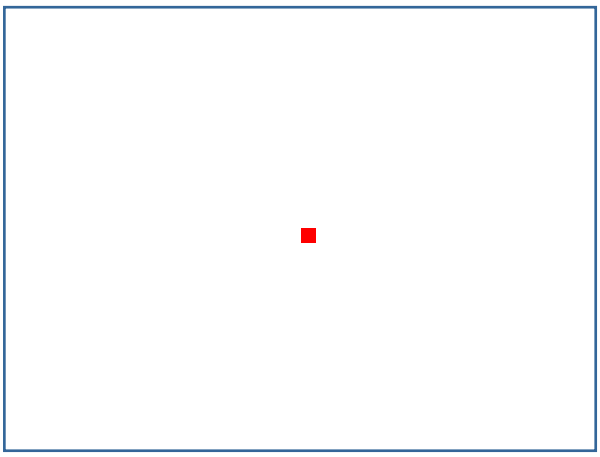
Facility/Site: 95756539

CLARK COUNTY PUB WKS WASHOUGAL SITE

Also known as:



Larger Map



Larger Map

Address

4624 SE WASHOUGAL

WASHOUGAL WA 98671-9262

Decimal Coordinates

Latitude: 45.58782

Longitude: -122.35311

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	6319	6/8/1998	3/22/2000

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: CLARK COUNTY PUBLIC WORKS WASHOUGAL**

Facility-Site ID: 95756539
UST Site ID: 6319

Location: 4624 SE WASHOUGAL
Washougal, 986719262

Responsible Unit: SOUTHWEST
Lat / Long: 45.58782 -122.3531

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
13-2	Removed	12/31/1964	10,000 to 19,999 Gallons	1	Leaded Gasoline
13-4	Removed	12/31/1964	1,101 to 2,000 Gallons	1	Diesel

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 13-4

Tank ID: 21791

SITE INFORMATION

Site ID: 6319 **Site Tag #: none**
CLARK COUNTY PUBLIC WORKS WASHOUGAL
4624 SE WASHOUGAL
WASHOUGAL, WA 98671-9262
Phone #: (206) 835-3404 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 95756539
CLARK COUNTY PUB WKS WASHOUGAL SITE
4624 SE WASHOUGAL
WASHOUGAL, WA 98671-9262
Lat/Long 45° 35' 16.1" / -122° 21' 11.1°

TANK INFORMATION

TANK NAME: 13-4 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE : 1,101 to 2,000 Gallons
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel		1500

Storage Tank: 13-2

Tank ID: 21848

SITE INFORMATION

Site ID: 6319 **Site Tag #: none**
CLARK COUNTY PUBLIC WORKS WASHOUGAL
4624 SE WASHOUGAL
WASHOUGAL, WA 98671-9262
Phone #: (206) 835-3404 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 95756539
CLARK COUNTY PUB WKS WASHOUGAL SITE
4624 SE WASHOUGAL
WASHOUGAL, WA 98671-9262
Lat/Long 45° 35' 16.1" / -122° 21' 11.1°

TANK INFORMATION

TANK NAME: 13-2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

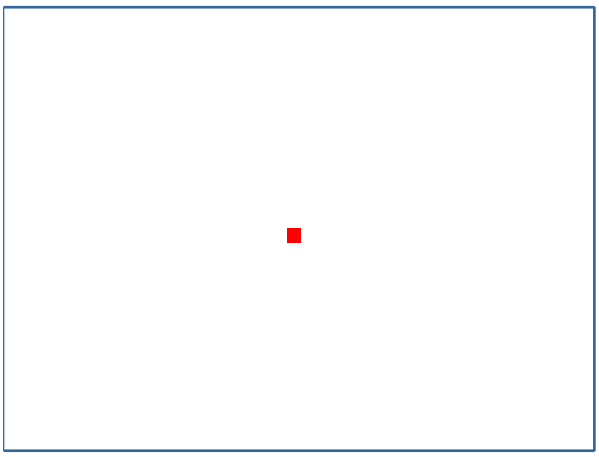
	TANK	PIPING
MATERIAL :	Steel	
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Leaded Gasoline		10000

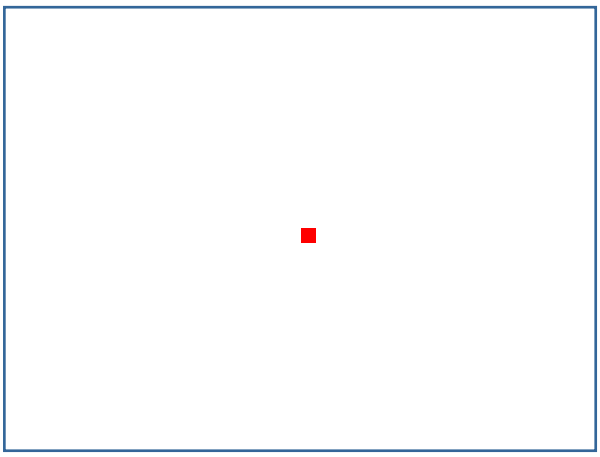
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: 49392144 Overton Mfg Inc

Also known as:



Larger Map



Larger Map

Address

1325 E ST

WASHOUGAL WA 98671-1410

Decimal Coordinates

Latitude: 45.5813

Longitude: -122.35738

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WAD988502308	3/5/1992	11/1/2000

Report generated on 09-29-2011

Industrial Codes (External Links Below)

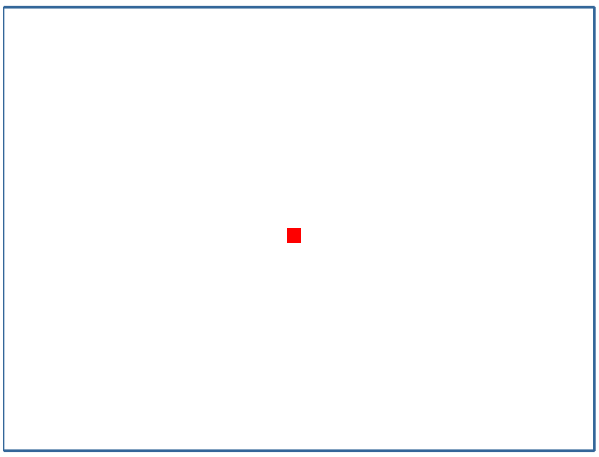
No NAICS information is available for this facility site.

SIC Code	SIC Description
3451	SCREW MACHINE PRODUCTS

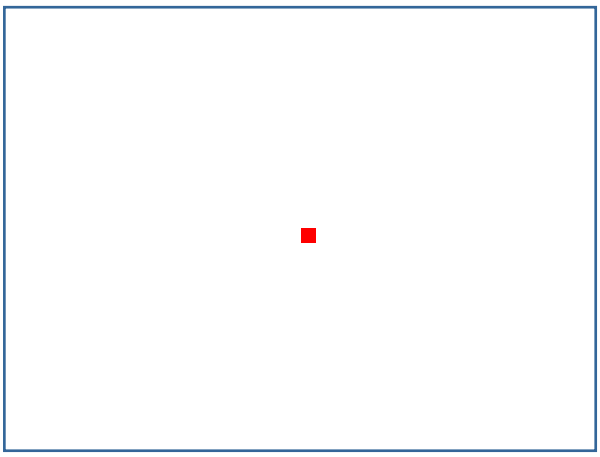
Report generated on 09-29-2011

Facility/Site: 48371594 WASHOUGAL SCHOOL DIST BUS GARAGE

Also known as: WASHOUGAL SCHOOL DIST BUS GARAGE



Larger Map



Larger Map

Address

995 E ST

WASHOUGAL WA 98671-1317

Decimal Coordinates

Latitude: 45.58126

Longitude: -122.36206

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Industrial SW GP	WATQUAL	(360) 407-6400	WAR012253	6/1/2009	
Underground Storage Tank	TOXICS	(360) 407-7224	5819	6/8/1998	3/22/2000

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
4151	SCHOOL BUSES

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: WASHOUGAL SCHOOL DIST BUS GARAGE**

Facility-Site ID: 48371594
UST Site ID: 5819

Location: 995 E ST
Washougal, 986711317

Responsible Unit: SOUTHWEST
Lat / Long: 45.58126 -122.36206

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	12/31/1964		1	Unleaded Gasoline
2	Removed	12/31/1964		1	Unleaded Gasoline
3	Exempt	12/31/1964		1	

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 3

Tank ID: 29024

SITE INFORMATION

Site ID: 5819 **Site Tag #: none**
WASHOUGAL SCHOOL DIST BUS GARAGE
995 E ST
WASHOUGAL, WA 98671-1317
Phone #: (206) 835-5626 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 48371594
WASHOUGAL SCHOOL DIST BUS GARAGE
995 E ST
WASHOUGAL, WA 98671-1317
Lat/Long 45° 34' 52.5" / -122° 21' 43.4°

TANK INFORMATION

TANK NAME: 3 **Status :** Exempt **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		Tank Open

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1			

Storage Tank: 1

Tank ID: 29165

SITE INFORMATION

Site ID: 5819 **Site Tag #: none**
WASHOUGAL SCHOOL DIST BUS GARAGE
995 E ST
WASHOUGAL, WA 98671-1317
Phone #: (206) 835-5626 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 48371594
WASHOUGAL SCHOOL DIST BUS GARAGE
995 E ST
WASHOUGAL, WA 98671-1317
Lat/Long 45° 34' 52.5" / -122° 21' 43.4°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

Clark COUNTY

Storage Tank: 2

Tank ID: 28873

SITE INFORMATION

Site ID: 5819 **Site Tag #: none**
WASHOUGAL SCHOOL DIST BUS GARAGE
995 E ST
WASHOUGAL, WA 98671-1317
Phone #: (206) 835-5626 **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 48371594
WASHOUGAL SCHOOL DIST BUS GARAGE
995 E ST
WASHOUGAL, WA 98671-1317
Lat/Long 45° 34' 52.5" / -122° 21' 43.4°

TANK INFORMATION

TANK NAME: 2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

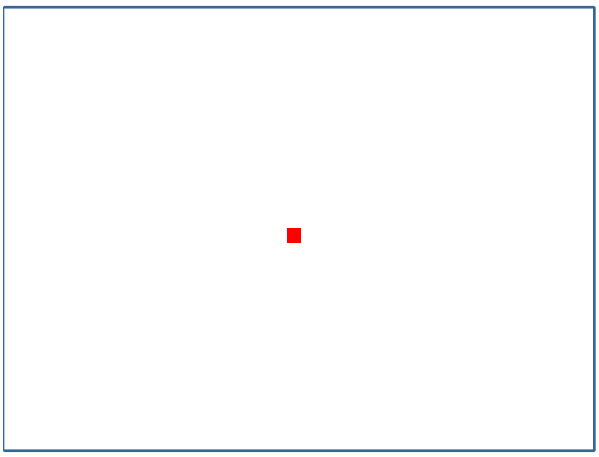
	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

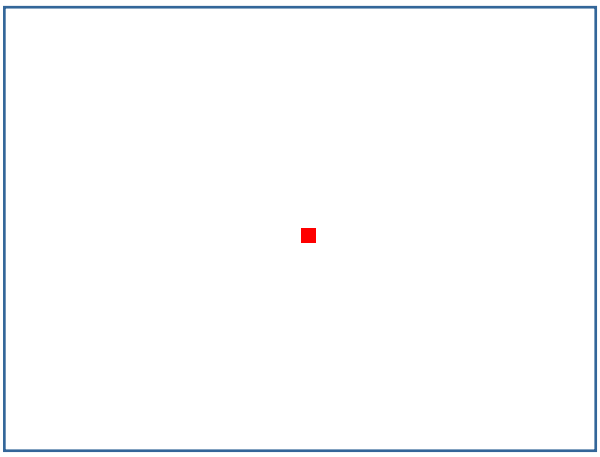
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: 94778244 Asher Engine Service

Also known as:



Larger Map



Larger Map

Address

1405 E ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58126

Longitude: -122.35629

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WA0000470070	7/20/1994	12/31/1998

Report generated on 09-29-2011

Industrial Codes (External Links Below)

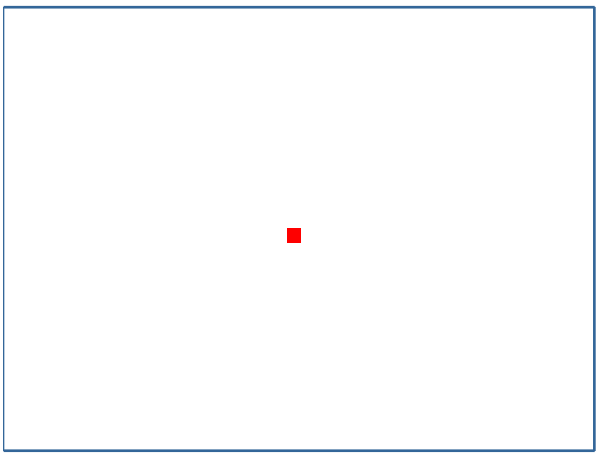
No NAICS information is available for this facility site.

SIC Code	SIC Description
7539	AUTOMOTIVE REPAIR SHOPS, NEC

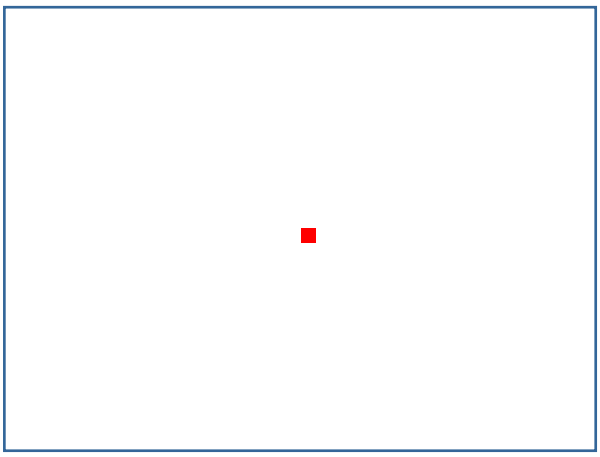
Report generated on 09-29-2011

Facility/Site: 11338232 COLUMBIA STORAGE INC 2ND ST

Also known as:



Larger Map



Larger Map

Address

365 2ND ST

WASHOUGAL WA 98671-2111

Decimal Coordinates

Latitude: 45.58107

Longitude: -122.38046

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	CRK000042400	1/1/1994	

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
4225	GENERAL WAREHOUSING AND STORAGE

Report generated on 09-29-2011

Facility/Site: HI WAY FUEL 22538744

Also known as:

Larger Map

Larger Map

Address

1250 E ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58122

Longitude: -122.35839

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
LUST Facility	TOXICS	(360) 407-7224	102163	8/21/1996	
Underground Storage Tank	TOXICS	(360) 407-7224	102163	6/1/1978	

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Leaking Underground Storage Tanks List

Clark County

City of WASHOUGAL

Cleanup Site:	HI-WAY FUEL	**Cleanup Site ID:**	8323	**Latitude:**	45.581
	1250 E ST	**Facility ID:**	22538744	**Longitude:**	-122.358
	WASHOUGAL 98671				
Unit:	HI-WAY FUEL	**Unit Type:** Upland	**Process Type:** Independent Action		* cuID: 8015
Release:			* Historic Release ID: 377975	UST ID: 102163	LUST ID: 4275

Detail:

Release Status	Date	Cause	Media Affected	Contaminant Type	Status
LUST - Cleanup Started	8/21/1996	Overfill	Groundwater	Petroleum-Other	C
			Soil	Petroleum-Other	C

About the Leaking Underground Storage Tanks Site List:

The Cleanup Status assigned by the Department of Ecology to a Leaking Underground Tank Site is based on an informal review of the information we have received regarding the cleanup. A formal review could determine that the site has not been cleaned up to Model Toxics Control Act standards. Formal reviews including potential No Further Action determinations are available under the fee-based Voluntary Cleanup Program.

LUST = Leaking Underground Storage Tank
UST = Underground Storage Tank

Cleanup Status Definitions:

Awaiting Cleanup -- Discovered or reported release, yet no active cleanup measures taken; or,
Site check (identified the source) begun or completed, yet no active cleanup measures taken; or,
Site characterization begun or completed, yet no active cleanup measures taken.

Cleanup Started -- Responsible party has initiated physical, biological, or chemical management of release (e.g. soil excavated, groundwater pumped, vapors extracted, free product removed, oxygen added, etc.). Site investigations and emergency responses (e.g. venting explosive vapors, providing bottled water) do not qualify as activities under Cleanup Started.

Monitoring -- Groundwater monitoring is the only activity occurring at the site; or, Site has been characterized, only low levels of soil and/or groundwater contamination remain, and natural attenuation is the chosen cleanup method; or,
Confirmational monitoring following active cleanup measures.

No Further Action (NFA) -- Cleanup report has been formally reviewed by Ecology under the fee-based Voluntary Cleanup Program and resulted in a No Further Action status; and, Institutional controls may have been required due to soil contamination that may remain under existing structures or in otherwise inaccessible areas.

No Further Action (NFA) Determination II / SHA -- No further action based on an Initial Investigation (II) or Site Hazard Assessment (SHA).

Notification -- Used to track when Ecology is notified of a new LUST release. WAC 173-340-450 (2)(a) requires UST owners / operators to report confirmed releases to Ecology within 24 hours.

Reported Cleaned Up (Historic Data Only) -- Owner or consultant reports that contamination has been cleaned up; and/or.
Some soil contamination may remain under existing structures or in otherwise inaccessible areas if groundwater is not threatened and there has been no migration of contamination into the structure; and,
Cleanup report has not been formally reviewed by Ecology. A formal review could determine that the site has not been cleaned up to MTCA standards.

Contaminant Type Key:

B - Below Cleanup Level
C - Confirmed Above Cleanup Level
S - Suspected
R - Remediated; RA - Remediated-Above; RB - Remediated-Below

LustList03.rdl

CLARK COUNTY

SITE I

HI-WAY FUEL

CleanupSite ID: **8323** FS ID: **22538744**

Alternate Name(s): HI WAY FUEL, HI-WAY FUEL

LOCATION:

Address: **1250 E ST**
WASHOUGAL **98671**

Lat/Long: **45.58122** **-122.35839**
Township/Range/Section: **1N** **4E** **53**

Legislative District: **18**
Congressional District: **3**

STATUS:

Ecology Status: **Cleanup Started**
WARM BIN#:

Responsible Unit: **Southwest**
Site Manager: **Southwest Region**
Statute: **MTCA**

Is Brownfield?
Environmental Covenant?
Is PSI Site?

UST Site ID: **102163**
WRIA ID: **28**

NFA Received? NFA Date: NFA Reason:

SITE ACTIVITIES:

Applies to:	Related ID (Unit-LUST-VCP)	Activity Display Name	Status	Start Date	End Date	Legal Mechanism	Performed By	Project Manager
Lust	4275	LUST - Notification		8/21/1996	8/21/1996			
Lust	4275	LUST - Site Characterization Report						
Lust	4275	LUST - Report Received		12/30/2004	10/3/1997			
Lust	4275	LUST - Report Received		10/28/2002	9/27/2002			
Lust	4275	LUST - Report Received		10/11/1996	9/30/1996			

AFFECTED MEDIA & CONTAMINANTS:

Media:

Contaminant:	Ground Water	Surface Water	Soil	Sediment	Air	Bedrock
Petroleum-Other	C		C			

Key:
B - Below Cleanup Level
C - Confirmed Above Cleanup Level
S - Suspected
R - Remediated
RA - Remediated-Above
RB - Remediated-Below

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: HI-WAY FUEL**

Facility-Site ID: 22538744
UST Site ID: 102163

Location: 1250 E ST
Washougal, 98671

Responsible Unit: SOUTHWEST
Lat / Long: 45.58122 -122.35839

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Operational	11/15/1996	20,000 to 29,999 Gallons	1	Unleaded Gasoline
2	Operational	11/15/1996	10,000 to 19,999 Gallons	1	Unleaded Gasoline
3	Operational	11/15/1996	10,000 to 19,999 Gallons	1	Diesel
4	Operational	11/15/1996	10,000 to 19,999 Gallons	1	Heating Fuel
HIGH	Removed	06/01/1978	5,000 to 9,999 Gallons	1	Heating Fuel
LOW	Removed	06/01/1978	5,000 to 9,999 Gallons	1	Diesel
REG	Removed	06/01/1978	5,000 to 9,999 Gallons	1	Leaded Gasoline
SUPER	Removed	06/01/1978	2,001 to 4,999 Gallons	1	Unleaded Gasoline
UNLEAD	Removed	06/01/1978	5,000 to 9,999 Gallons	1	Unleaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 1

Tank ID: 412220

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: 1 **Status :** Operational **Upgrade DT: 11/15/1996**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
November 15, 1996	May 7, 1997	January 31, 2012	Tank Open

CAPACITY RANGE : 20,000 to 29,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Ball Float Valve (vent line)

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Fiberglass Reinforced Plastic	Flexible Piping
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Automatic Line Leak Detection
SECONDARY REL DETECT :		Interstitial Monitoring (sump sensor)
TIGHTNESS TEST :	Not Applicable	Not Required
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	20000

Storage Tank: HIGH

Tank ID: 27778

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: HIGH **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
June 1, 1978	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE : 5,000 to 9,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Double Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Manual Inventory Control (daily)	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	Impressed Current	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Heating Fuel		8000

Clark COUNTY

Storage Tank: 4

Tank ID: 412223

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: 4 **Status :** Operational **Upgrade DT: 11/15/1996**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
November 15, 1996	May 7, 1997	January 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Ball Float Valve (vent line)

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Fiberglass Reinforced Plastic	Flexible Piping
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Automatic Line Leak Detection
SECONDARY REL DETECT :		Interstitial Monitoring (sump sensor)
TIGHTNESS TEST :	Not Applicable	Not Required
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Heating Fuel	Heating Fuel for Resale	12000

Storage Tank: SUPER

Tank ID: 44346

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: SUPER **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
June 1, 1978	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE : 2,001 to 4,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Double Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Manual Inventory Control (daily)	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	None	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	3000

Clark COUNTY

Storage Tank: 2

Tank ID: 412221

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: 2 **Status :** Operational **Upgrade DT: 11/15/1996**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
November 15, 1996	May 7, 1997	January 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Automatic Shutoff (fill pipe)

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Fiberglass Reinforced Plastic	Flexible Piping
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Automatic Line Leak Detection
SECONDARY REL DETECT :		Interstitial Monitoring (sump sensor)
TIGHTNESS TEST :	Not Applicable	Not Required
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	12000

Storage Tank: REG

Tank ID: 27425

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: REG **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
June 1, 1978	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE : 5,000 to 9,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Double Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Manual Inventory Control (daily)	Automatic Line Leak Detection
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	None	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Leaded Gasoline	Motor Fuel for Vehicles	8000

Clark COUNTY

Storage Tank: UNLEAD

Tank ID: 21511

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: UNLEAD **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
June 1, 1978	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE : 5,000 to 9,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Double Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Manual Inventory Control (daily)	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	None	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	8000

Storage Tank: 3

Tank ID: 412222

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: 3 **Status :** Operational **Upgrade DT: 11/15/1996**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
November 15, 1996	May 7, 1997	January 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Ball Float Valve (vent line)

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Fiberglass Reinforced Plastic	Flexible Piping
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Automatic Line Leak Detection
SECONDARY REL DETECT :		Interstitial Monitoring (sump sensor)
TIGHTNESS TEST :	Not Applicable	Annual
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel	Motor Fuel for Vehicles	12000

Clark COUNTY

Storage Tank: LOW

Tank ID: 14226

SITE INFORMATION

Site ID: 102163 **Site Tag #: A1092**
HI-WAY FUEL
1250 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-3956 **UBI:** 601-505-770 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 22538744
HI WAY FUEL
1250 E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 52.3" / -122° 21' 30.2°

TANK INFORMATION

TANK NAME: LOW **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
June 1, 1978	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE : 5,000 to 9,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Double Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Manual Inventory Control (daily)	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	None	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel	Motor Fuel for Vehicles	8000

Report Information: Path TCP_Web_Reporting\TankDetails.rdl

K&S Environmental, Inc.

October 3, 1997

Hi-Way Fuel
1250 E Street
Washougal, WA 98671

Attn: Scott Malfait

Re: Status of Treatment Pile from UST Cleanup at the
Hi-Way Fuel Facility Located at 1250 E Street in Washougal, WA

Dear Mr. Malfait:

This letter presents the results of soil samples collected from a treatment pile by a K&S Environmental, Inc. (K&S) engineer on September 19, 1997. The treatment pile consisted of approximately 100 cubic yards that had been actively treated over the past year by Scott Malfait through a process of mechanical mixing and aeration.

Background & Procedures

In August through October of 1996, the Hi-Way Fuel Facility underwent a major renovation which included the replacement of underground storage tanks at the site. During this process contaminated soil was encountered and removed from the site. The majority of the contaminated soil was taken to Wasco County Landfill under permit.

Approximately 100 tons of the least contaminated soil from the north end of the dispenser excavation was transported to a 17 acre piece of property located approximately 12 miles northeast of Washougal, WA where it was treated through a process of aeration. The average TPH concentration of this soil was estimated to be approximately 1000 ppm as gasoline. The soil treatment site is located outside the Clark County ozone non-attainment area and was owned by Scott Malfait, also the owner of Hi-Way Fuel. According to Tim Gould of the Southwest Air Pollution Control Authority (SWPCA), up to 100 tons of soil can be aerated outside the ozone non-attainment area if the concentration of TPH is less than 3000 ppm. The soil taken to Mr. Malfait's property meets these SWPCA requirements. A legal description of the soil treatment location is as follows. That portion of the South 3/4 of the North half of the Northwest quarter of Section 30, Township 2 North, Range 5 East of the Willamette Meridian, lying Northerly of County road No. 223 designated as the Alder Road. Mr. Martin Auseth of the Skamania County Health Department was apprised of the aeration procedures at the site by K&S.

The 100 tons of PCS was placed in a pre-constructed bermed area that was lined with 6 mil plastic. The soil was leveled to an average depth of 2-3 feet as part of the treatment preparation. The soil was mechanically turned and aerated on a periodic basis by Mr. Malfait. When the soil had been 'worked' sufficiently and it appeared as though the odor from the soil had decreased to a

4475 SW Scholls Ferry Road, Ste. 256, Portland, Oregon 97225
• Phone (503) 291-1454 • Fax (503) 291-5425

satisfactory level, soil samples were collected by a K&S engineer and analyzed for TPH-G and BTEX at a certified laboratory.

The soil samples were collected by digging into the soil approximately 8-18 inches using a clean shovel. The soil samples were placed into 9 ounce EPA approved glass containers using disposable Nitrile gloves. The samples were labeled and immediately placed on ice for transport to a certified laboratory accompanied by chain of custody documentation. The soil samples were randomly collected from four quadrants of the treatment area and represent soil approximately 1/3 of the distance from the bottom of the pile. This is considered the location of soil most likely to be representative of the highest remaining concentrations. The sample results are summarized below in Table 1. Certified analytical reports are attached to this report.

Table 1
Soil Samples Collected on 9/19/97

Sample ID	Location	WTPH-G	BTEX
S1	NW Quadrant	8.81 ppm	ND
S2	SW Quadrant	16.5 ppm	ND
S3	NE Quadrant	ND	ND
S4	SE Quadrant	ND	ND
MTCA Method A Cleanup Standard		**100 ppm**	

ND - None detected above reportable levels
ppm - parts per million

Conclusions

The samples collected b K&S in September 1997 indicate that the soil has been effectively treated to levels well below Ecology's most stringent cleanup standard of 100 ppm no further treatment of the soil is necessary. The soil will remain in its current location as permanent fill. K&S recommends that you maintain a copy of this letter with the property's permanent file. Please do not hesitate to call if you have any questions.

Sincerely,

Bill Knutson

Bill Knutson, P.E.
Environmental Engineer

102163

REC'D OCT 28 2002

K&S Environmental, Inc.

4475 SW Scholls Ferry Rd , #256 ▲ Portland, OR 97225
(503) 291-1454 ▲ Fax 291-5425

September 27, 2002

COPY

Jennifer Taylor
Washington State Department of Ecology
2108 Grand Blvd.
Vancouver, WA 98661

Re: Hi Way Fuel, 1250 E. Street, Washougal, WA
Ecology Site ID #102163

Dear Ms. Taylor:

K&S Environmental, Inc. (K&S) is submitting this letter on behalf of Scott Malfait, owner of the above referenced facility, to address Ecology's remaining concerns with the UST cleanup project completed at the site in 1996. General concerns with the cleanup project were presented in your July 10, 2002 letter to Mr. Malfait, and are addressed in the following paragraphs.

Project Summary

In August through October of 1996, the Hi Way Fuel Facility underwent a major renovation that included the decommissioning of five USTs and the associated piping and dispensing equipment. The UST system was replaced with a new system consisting of 3-12,000 gallon and 1-20,000 gallon double wall fiberglass tanks and all associated piping and dispensing equipment. The new system was installed to meet the 1998 Federally mandated upgrade requirements for underground storage tank systems.

During the decommissioning of the former UST system, subsurface soil contamination was encountered in the area of the former tanks and the area of the former dispensing islands. Cleanup was performed in both areas by Silversun Construction Company under the supervision of a K&S engineer. All contaminated soil was successfully removed from the area of the tanks to within acceptable MTCA Method A standards. Approximately 200 tons of gasoline contaminated soil was also excavated from the area of the former dispensing islands. The most highly contaminated soil was hauled off site to a permitted facility for disposal. Approximately 100 tons of the least contaminated soil excavated from the area was hauled to an off site location where it was treated through a process of aeration and natural attenuation.

Due to structural concerns with the adjacent building and a City waterline, Silver Sun was not able to excavate all the contaminated soil that exceeded Method A Cleanup Standards. To obtain additional data to better characterize the vertical and lateral extent of the remaining soil contamination, three soil borings were installed in the area of the remaining soil contamination and south of the remaining contamination. The results of the soil sampling completed by K&S during the UST system decommissioning and subsequent cleanup and investigation appears to indicate that the remaining soil contamination is more than 25 feet from groundwater (groundwater was not

encountered to the total depth explored at the site of 45 feet). The vertical extent of the remaining soil contamination was determined to be at a depth of 16.5 feet below the surface. The lateral extent of the soil contamination was determined to be the limits of the final excavation in the west and east directions, and the center to west end of the south wall. Contamination remains on the south sidewall, adjacent to the building, and in the northeast corner of the excavation, near the City and facility water lines.

Amount of Contaminated Soil Remaining at the Site

Based upon the inferred extent of the lateral extent of the remaining soil contamination along the south sidewall and northeast corner and a conservative estimate of vertical extent of the soil contamination of 16 feet, K&S estimates that less than 100 cubic yards of impacted soil remains at the site that exceeds current MTCA Method A Cleanup Standards. This total is based upon soil sampling results and field observations made during remedial excavation completed at the site in 1996. The inferred lateral extent of the remaining soil contamination is depicted on the attached site map.

Documentation of Treated Soil

Final soil sampling for the soil treatment pile located on Scott Malfait's property located north of Washougal, WA was completed on September 19, 1997. All results of this final soil sampling event indicate all soil has been treated to below Ecology's Method A Cleanup Standards, and the soil remains at the site being used as shallow fill. I have included the K&S October 3, 1997 report entitled 'Status of Treatment Pile from UST Cleanup at the Hi Way Fuel Facility Located at 1250 E Street in Washougal, WA.

Conclusions

In 1996, Hi Way Fuel completed the necessary UST system upgrades to meet the 1998 federally mandated requirements. Rather than upgrade the existing UST system, Scott Malfait opted to spend the additional money and decommission the existing system and install completely new equipment. During the decommissioning of the old UST system, soil contamination was encountered in the subsurface and Mr. Malfait authorized the excavation of approximately 250 cubic yards of contaminated soil. Because not all the contaminated soil could be removed due to structural concerns, a limited volume of impacted soil was left in place with the approval of Patty Martin of Ecology. To insure that the groundwater in the area was not at risk due to the remaining impacted soil, additional soil investigation was completed utilizing an air percussion ODEX drilling rig. It was determined through soil sampling that the groundwater in the area is greater than 45 feet below the surface, and that the vertical extent of any remaining soil contamination is less than 20 feet. Based upon the soil data accumulated during the soil remedial excavation activities and the subsequent subsurface drilling activities, it was concluded that the lateral extent of the remaining soil contamination is limited to a few feet in the northwest corner and along the south sidewall.

It has always been Hi Way Fuel's intent to meet all Ecology rules and regulations regarding UST cleanups and ultimately receive a 'No Further Action' (NFA) determination from the State. Scott Malfait, owner of Hi Way Fuel requests that you review the data presented in this letter and contact him with any additional specific requirements that might be necessary to officially close the project and obtain a NFA letter for the site. Please contact Mr. Scott Malfait of Hi Way Fuel at

360-835-3956 or Bill Knutson of K&S Environmental, Inc. at 503-291-1454 if you have any questions regarding the information presented in this letter. Your assistance in this matter is greatly appreciated.

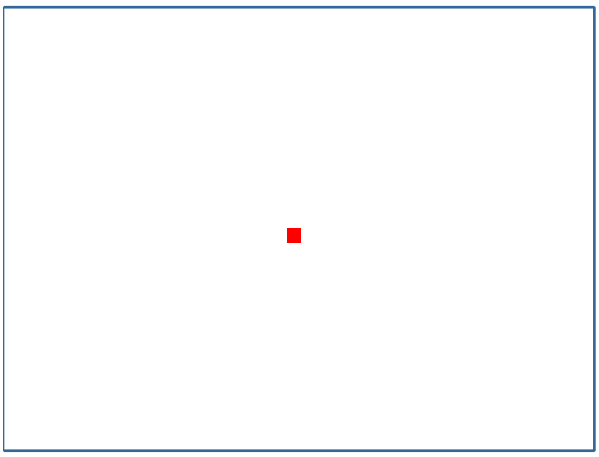
Sincerely,

Bill Knutson, P.E.
Environmental Engineer

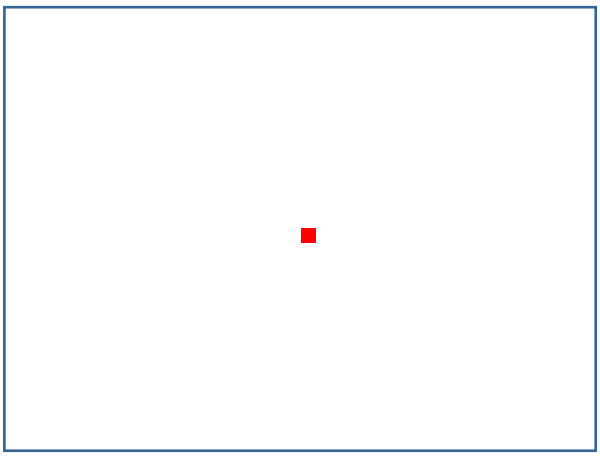
cc Scott Malfait, Hi Way Fuel

Facility/Site: 86429735 JIMBOS DELI MART 2

Also known as:



Larger Map



Larger Map

Address

165 C ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58101

Longitude: -122.37863

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	662	1/20/1981	

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: JIMBOS DELI MART 2**

Facility-Site ID: 86429735
UST Site ID: 662

Location: 165 C STREET
Washougal, 986712144

Responsible Unit: SOUTHWEST
Lat / Long: 45.58101 -122.37863

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	01/20/1981		1	Leaded Gasoline
2	Removed	01/20/1981		1	Unleaded Gasoline
3	Removed	01/20/1981		1	Unleaded Gasoline
4	Removed	01/20/1981		1	
42	Operational	02/14/1997	10,000 to 19,999 Gallons	1	Diesel
42	Operational	02/14/1997	10,000 to 19,999 Gallons	2	Unleaded Gasoline
421506	Operational	02/14/1997	10,000 to 19,999 Gallons	1	Unleaded Gasoline
421511	Operational	02/14/1997	10,000 to 19,999 Gallons	1	Unleaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 2

Tank ID: 34895

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 20, 1981	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		Single Wall Pipe
PRIMARY REL DETECT :	Other	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	Other	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	

Storage Tank: 4

Tank ID: 34853

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 4 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 20, 1981	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Single Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Other	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	Other	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1		Motor Fuel for Vehicles	

Clark COUNTY

Storage Tank: 421511

Tank ID: 429048

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 421511 **Status :** Operational **Upgrade DT: 2/14/1997**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
February 14, 1997	December 10, 1999	January 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Overfill Alarm

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel Clad with Corrosion Resistant Composite	Fiberglass
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Interstitial Monitoring (sump sensor)
SECONDARY REL DETECT :		Automatic Line Leak Detection
TIGHTNESS TEST :	Not Performed	No
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	10000

Clark COUNTY

Storage Tank: 1

Tank ID: 34920

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 20, 1981	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		Single Wall Pipe
PRIMARY REL DETECT :	Other	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	Other	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Leaded Gasoline	Motor Fuel for Vehicles	

Storage Tank: 3

Tank ID: 34943

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 3 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 20, 1981	August 6, 1996	January 31, 1997	No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : None
OVERFILL PREVENTION : None

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :	Single Wall Tank	Single Wall Pipe
PRIMARY REL DETECT :	Other	Other
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :	Other	None

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	

Clark COUNTY

Storage Tank: 421506

Tank ID: 429049

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 421506 **Status :** Operational **Upgrade DT: 2/14/1997**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
February 14, 1997	December 10, 1999	January 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Overfill Alarm

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel Clad with Corrosion Resistant Composite	Fiberglass
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Interstitial Monitoring (sump sensor)
SECONDARY REL DETECT :		Automatic Line Leak Detection
TIGHTNESS TEST :	Not Performed	No
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	15000

Clark COUNTY

Storage Tank: 42

Tank ID: 429050

SITE INFORMATION

Site ID: 662 **Site Tag #: A1046**
JIMBOS DELI MART 2
165 C STREET
WASHOUGAL, WA 98671-2144
Phone #: (360) 835-3383 **UBI:** 600-423-757 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 86429735
JIMBOS DELI MART 2
165 C ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 22' 43.0°

TANK INFORMATION

TANK NAME: 42 **Status :** Operational **Upgrade DT: 2/14/1997**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
February 14, 1997	December 10, 1999	January 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Overfill Alarm

COMPARTMENT DETAILS

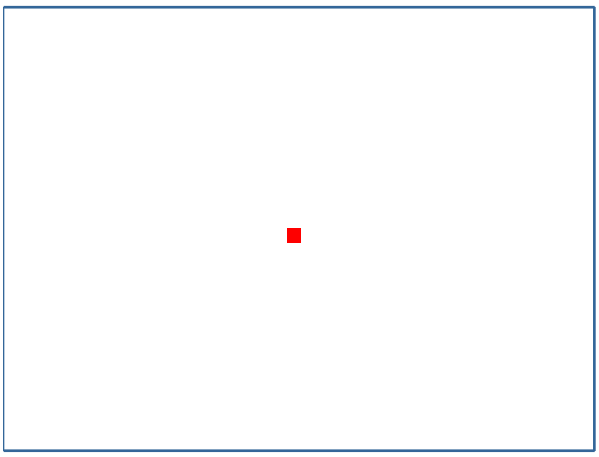
	TANK	PIPING
MATERIAL :	Steel Clad with Corrosion Resistant Composite	Fiberglass
CONSTRUCTION :	Double Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Interstitial Monitoring	Interstitial Monitoring (sump sensor)
SECONDARY REL DETECT :		Automatic Line Leak Detection
TIGHTNESS TEST :	Not Performed	No
CORROSION PROTECTION :	Corrosion Resistant	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel	Motor Fuel for Vehicles	5000
2	Unleaded Gasoline	Motor Fuel for Vehicles	5000

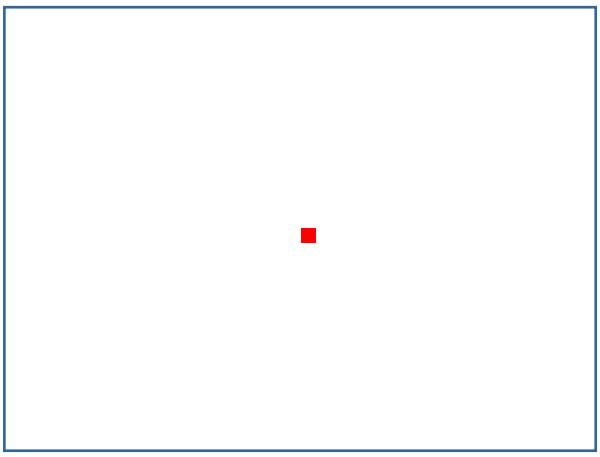
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: Napa Washougal 79581825

Also known as: MA ASSOCIATES INC DBA NAPA



Larger Map



Larger Map

Address

1414 E ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58129

Longitude: -122.35622

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WAD027574318	2/10/1989	2/28/1989

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
9999	NONCLASSIFIABLE ESTABLISHMENTS

Report generated on 09-29-2011

Facility/Site: 35533354 RD WAKEFIELD PROPERTY

Also known as:

Larger Map

Larger Map

Address

17TH & E ST

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58101

Longitude: -122.35462

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	509052	8/13/1999	1/23/2007

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.	No SIC information is available for this facility site.

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: RD WAKEFIELD**

Facility-Site ID: 35533354
UST Site ID: 509052

Location: 17TH AVE & E ST
Washougal, 98671

Responsible Unit: SOUTHWEST
Lat / Long: 45.581 -122.35461

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	01/01/1900		1	Diesel
2	Removed	01/01/1900		1	Unleaded Gasoline
3	Removed	01/01/1900		1	Unleaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 2

Tank ID: 509059

SITE INFORMATION

Site ID: 509052 **Site Tag #: none**
RD WAKEFIELD
17TH AVE & E ST
WASHOUGAL, WA 98671
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 35533354
RD WAKEFIELD PROPERTY
17TH & E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 21' 16.6°

TANK INFORMATION

TANK NAME: 2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1900	December 10, 1999		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		675

Storage Tank: 1

Tank ID: 509054

SITE INFORMATION

Site ID: 509052 **Site Tag #: none**
RD WAKEFIELD
17TH AVE & E ST
WASHOUGAL, WA 98671
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 35533354
RD WAKEFIELD PROPERTY
17TH & E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 21' 16.6°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1900	December 10, 1999		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Diesel		1000

Clark COUNTY

Storage Tank: 3

Tank ID: 573476

SITE INFORMATION

Site ID: 509052 **Site Tag #: none**
RD WAKEFIELD
17TH AVE & E ST
WASHOUGAL, WA 98671
Phone #: () - **UBI:** --

FACILITY SITE INFORMATION

Facility Site ID: 35533354
RD WAKEFIELD PROPERTY
17TH & E ST
WASHOUGAL, WA 98671
Lat/Long 45° 34' 51.6" / -122° 21' 16.6°

TANK INFORMATION

TANK NAME: 3 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
January 1, 1900	June 26, 2001		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

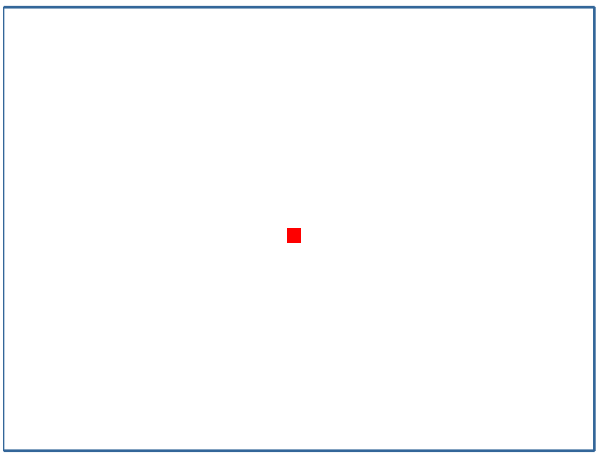
	TANK	PIPING
MATERIAL :		
CONSTRUCTION :		
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		675

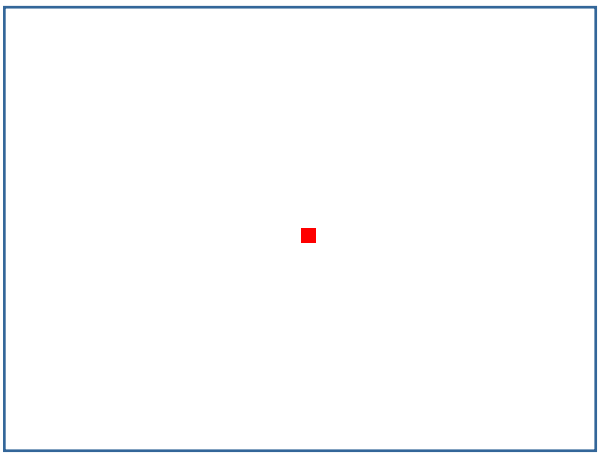
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: S & S FOOD MART 64113396

Also known as: JAMES C MOONEY, WILD WILLIES 1641 E ST



Larger Map



Larger Map

Address

1641 E ST

WASHOUGAL WA 98671-1430

Decimal Coordinates

Latitude: 45.58106

Longitude: -122.35543

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	11194	3/20/2000	

Report generated on 09-29-2011

Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	CRK000042240	1/1/1995	7/4/1776

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
5541	GASOLINE SERVICE STATIONS

Report generated on 09-29-2011

Regulated Underground Storage Tanks Site List

September 29, 2011

CLARK COUNTY, Washougal | **Site Name: S & S FOOD MART**

Facility-Site ID: 64113396
UST Site ID: 11194

Location: 1641 E ST
Washougal, 98671

Responsible Unit: SOUTHWEST
Lat / Long: 45.58106 -122.35543

Tank Name	Tank Status	Install Date	Capacity Range	Compartment #	Substance Stored
1	Removed	12/31/1964		1	Leaded Gasoline
2	Removed	12/31/1964		1	Unleaded Gasoline
3	Removed	12/31/1964		1	Unleaded Gasoline
4	Removed	12/31/1964		1	Unleaded Gasoline
5	Removed	12/31/1964		1	
6	Operational	03/15/1990	10,000 to 19,999 Gallons	1	Unleaded Gasoline
7	Operational	03/15/1990	10,000 to 19,999 Gallons	1	Unleaded Gasoline
8	Operational	03/15/1990	10,000 to 19,999 Gallons	1	Unleaded Gasoline

[Report: TCP_web_reporting/RegulatedUSTs.rdl]

Clark COUNTY

Storage Tank: 3

Tank ID: 25717

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 3 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

Storage Tank: 5

Tank ID: 25823

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 5 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1			

Clark COUNTY

Storage Tank: 4

Tank ID: 25899

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 4 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

Storage Tank: 6

Tank ID: 26049

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 6 **Status :** Operational **Upgrade DT: 4/28/1998**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
March 15, 1990	August 6, 1996	March 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Ball Float Valve (vent line)

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Coated Steel	Fiberglass
CONSTRUCTION :	Single Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Automatic Tank Gauging	Automatic Line Leak Detection
SECONDARY REL DETECT :		
TIGHTNESS TEST :		Annual
CORROSION PROTECTION :	Sacrificial Anode	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	12000

Clark COUNTY

Storage Tank: 2

Tank ID: 26007

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 2 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline		

Storage Tank: 7

Tank ID: 25759

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 7 **Status :** Operational **Upgrade DT: 4/28/1998**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
March 15, 1990	August 6, 1996	March 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Ball Float Valve (vent line)

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Coated Steel	Fiberglass
CONSTRUCTION :	Single Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Automatic Tank Gauging	Automatic Line Leak Detection
SECONDARY REL DETECT :		
TIGHTNESS TEST :		Annual
CORROSION PROTECTION :	Sacrificial Anode	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	12000

Clark COUNTY

Storage Tank: 1

Tank ID: 25786

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 1 **Status :** Removed **Upgrade DT:**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
December 31, 1964	August 6, 1996		No Closed Date Recorded

CAPACITY RANGE :
PUMP SYSTEM :
SPILL PREVENTION :
OVERFILL PREVENTION :

COMPARTMENT DETAILS

	TANK	PIPING
MATERIAL :	Steel	Steel
CONSTRUCTION :	Single Wall Tank	
PRIMARY REL DETECT :		
SECONDARY REL DETECT :		
TIGHTNESS TEST :		
CORROSION PROTECTION :		

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Leaded Gasoline		

Storage Tank: 8

Tank ID: 25962

SITE INFORMATION

Site ID: 11194 **Site Tag #: A1080**
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-
Phone #: (360) 835-8040 **UBI:** 602-598-435 001 0001

FACILITY SITE INFORMATION

Facility Site ID: 64113396
S & S FOOD MART
1641 E ST
WASHOUGAL, WA 98671-1430
Lat/Long 45° 34' 51.8" / -122° 21' 19.5°

TANK INFORMATION

TANK NAME: 8 **Status :** Operational **Upgrade DT: 4/28/1998**

Install Date	Status Date	Permit Expiration Date	Permanently Closed Date
March 15, 1990	August 6, 1996	March 31, 2012	Tank Open

CAPACITY RANGE : 10,000 to 19,999 Gallons
PUMP SYSTEM : Pressurized System
SPILL PREVENTION : Spill Bucket/Spill Box
OVERFILL PREVENTION : Ball Float Valve (vent line)

COMPARTMENT DETAILS

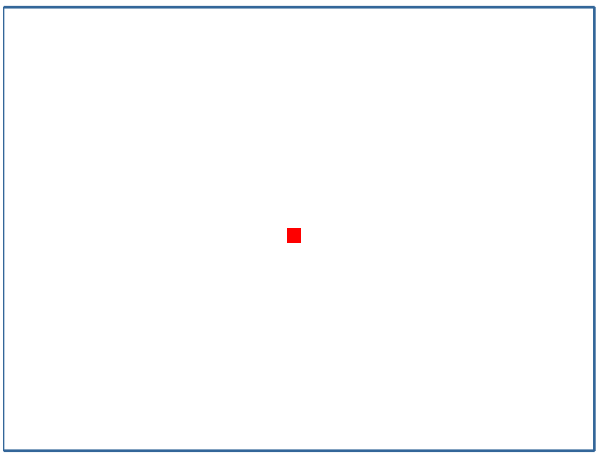
	TANK	PIPING
MATERIAL :	Coated Steel	Fiberglass
CONSTRUCTION :	Single Wall Tank	Double Wall Pipe
PRIMARY REL DETECT :	Automatic Tank Gauging	Automatic Line Leak Detection
SECONDARY REL DETECT :		
TIGHTNESS TEST :		Annual
CORROSION PROTECTION :	Sacrificial Anode	Corrosion Resistant

Compartment #	SUBSTANCE STORED	SUBSTANCE USED	ACTUAL CAPACITY
1	Unleaded Gasoline	Motor Fuel for Vehicles	8000

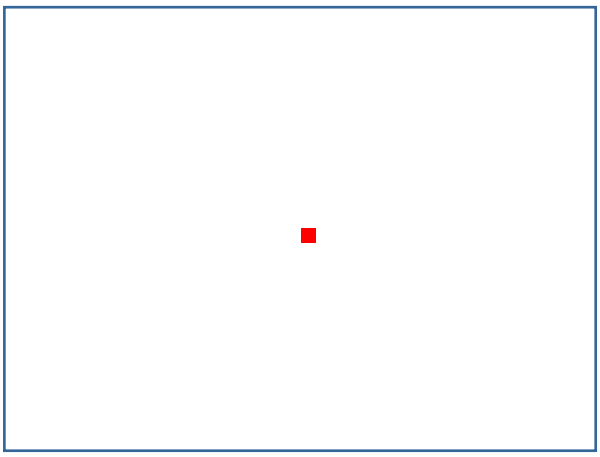
Report Information: Path TCP_Web_Reporting\TankDetails.rdl

Facility/Site: 3811629 US DOE BPA Camas Substation

Also known as:



Larger Map



Larger Map

Address

1ST ST 1 BLK N OF 8TH AVE

WASHOUGAL WA 98671

Decimal Coordinates

Latitude: 45.58176

Longitude: -122.38134

Geographic Information

Ecology Region: SWRO

County: Clark

Legislative District: 18

Congressional District: 3

WRIA: 28

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6705	WA2891400150	1/15/1992	12/31/1993

Report generated on 09-29-2011

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

SIC Code	SIC Description
9199	GENERAL GOVERNMENT, NEC

Report generated on 09-29-2011

"Gateway to the Gorge"

September 12, 2012

Re: City of Washougal Wellhead Protection Plan
Physical Address:

CITY HALL
1701 C Street
Washougal, WA
98671
(360) 835-8501
Fax (360) 835-8808

POLICE DEPARTMENT
1320 A Street
Washougal, WA
98671
(360) 835-8701
Fax (360) 835-7559

FIRE & RESCUE
1400 A Street
Washougal, WA
98671
(360) 835-2211
Fax (360) 699-4859

To Whom It May Concern:

The City of Washougal has developed a Wellhead Protection Plan to help maintain drinking water quality for our city residents. The Plan is based on Washington Department of Health WAC 246-290-135(3) regulations. As part of the Plan, maps were prepared that show the areas around each city drinking water well where a chemical spill on the ground may cause contamination of the well/aquifer. These areas are Wellhead Protection Areas (WHPA). The Plan also requires an inventory of potential sources of groundwater contamination within these wellhead protection areas.

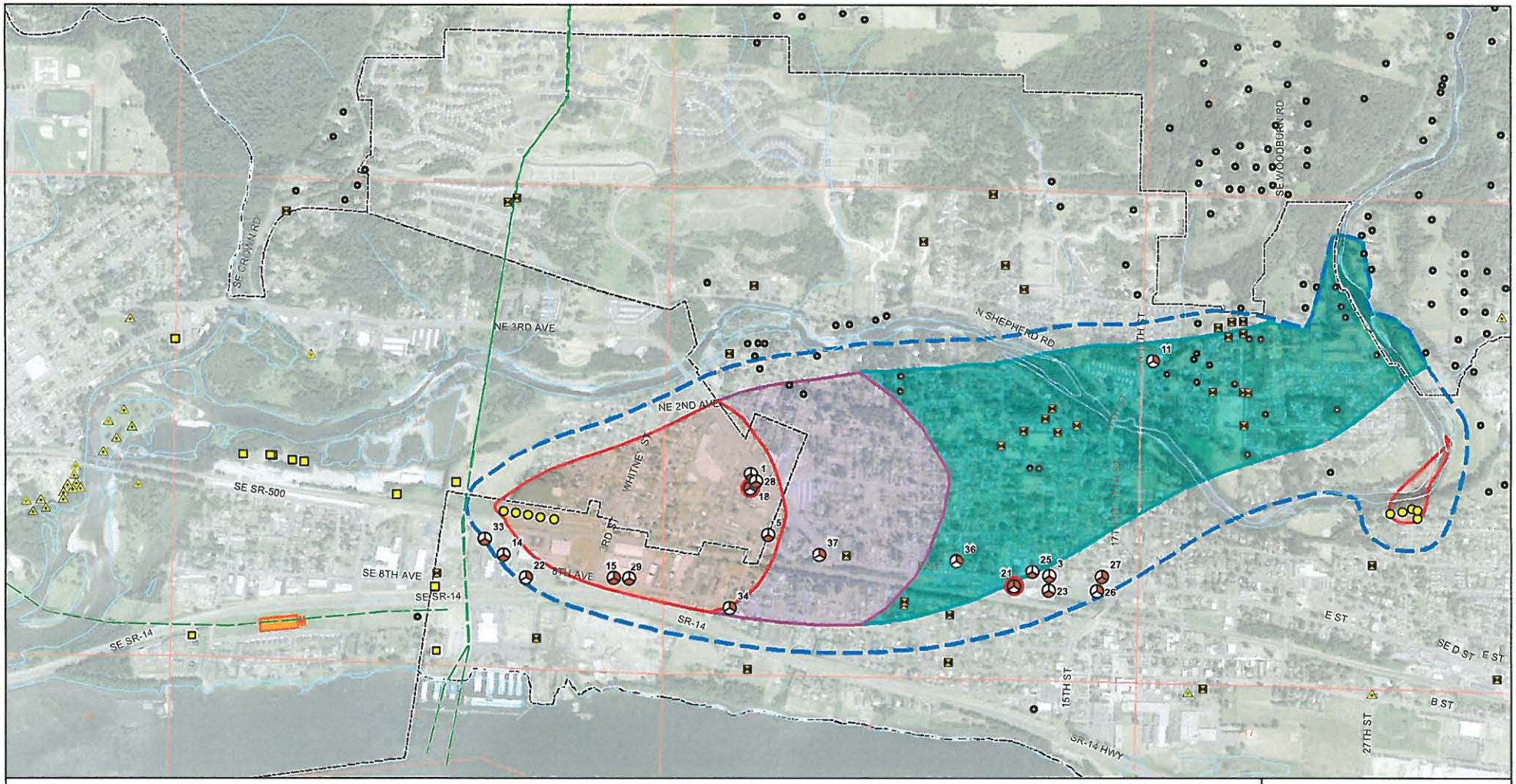
The primary purpose of this letter is to notify you that your facility is located within our WHPA. Since your business or the activities conducted at your facility may involve the use of chemicals (e.g., gasoline, underground storage tanks, hazardous waste, etc.), and the potential exists that a chemical spill from your facility may adversely impact the city drinking water supply, please notify the City of Washougal immediately if a chemical spill occurs at your facility. All spills should be reported by dialing 911 and requesting that the City of Washougal Fire Department and Southwest Washington Health Department be contacted.

Please note that the groundwater aquifer that supplies the City of Washougal's wells also supply the City of Camas 'wells. Therefore, immediate notification of City of Washougal in the event of a spill also assists the City of Camas by protecting the water supply for the entire community.

Thank you for assisting us in protecting our water supply and groundwater resources. If you have any questions, please contact me at (360) 835-2662 ext 206.

Sincerely,

John Roth
Water and Waste Water Manager
City of Washougal



DOE Sites of Concern

Table 5 ID → 11 ← Cleanup Site

Known Release

UST/LUST

Hazardous Materials

Refer to Section 4.3 and Table 5 for description.

Septic Systems

Drywells

Gas Transmission Pipelines

WSDOT Infiltration Area

Camas Supply Well

Camas Proposed Supply Well

Washougal Supply Well

Other Wells

City Limits

Critical Aquifer Recharge Area (CARA)

Wellhead Protection Capture Zones

6 Month Capture Zone

1 Year Capture Zone

5 Year Capture Zone

N

0 Feet 1,000

2007 Aerial Photo from Clark County

Figure 6
Hazardous Sites

Washougal Wellhead Protection Plan

PgG

MAILED 8-29-12

Mr. Christopher Delargy,
Terminal Superintendent
BNSF Railroad
1515 W 39th Street
Vancouver, WA 98660

Department of Ecology
Southwest Regional Office
PO Box 47775
Olympia, 98504-7775

Chief Nick Swinhart
City of Camas Fire Department
616 NE 4th Avenue
Camas, WA 98607

Ron Schumacher,
Division Chief/Fire Marshal
Washougal Fire Department
1400 A Street
Washougal, WA 98671

Chief Mitch Lackey
Camas Police Department
2100 NE 3rd Avenue
Camas, WA 98607

Chief Ron Mitchell
Washougal Police Department
1320 "A" Street
Washougal, WA 98671

MAILED 9-12-12

O'Reilly Auto Parts
CSK Auto Corp Store #3146
C/O Thompson Reuters PTS
Post Office Box 06116
Chicago, IL 60606

Dan's Top Notch
1367 N. Q Circle
Washougal, WA 98671

Gateway Community Church
1325 E Street
Washougal, WA 98671

Goodwill Industries
1943 SE 6th Avenue
Portland, OR 97214

E Street Market
642 Belle Center Road
Washougal, WA 98671

Rama Inn
Attn: Manager/Owner
544 6th Street
Washougal, WA 98671

Classic Muffler
3000 H Street
Washougal, WA 98671

Washougal School District 112
Transportation Department
4855 Evergreen Way
Washougal, WA 98671

Hi-Way Fuel
31914 SE 17th Street
Washougal, WA 98671

Wild Willies
1641 E Street
Washougal, WA 98671

Columbia Storage
Post Office Box 327
Washougal, WA 98671

Clark County Shed
4700 NE 78th Street
Vancouver, WA 98665

East County Auto Repair
462 Lillian Lane
Roseburg, OR 97470

Jimbo's Deli Mart #2
16109 NE 61st Avenue
Vancouver, WA 98686

Washougal 1st Substation
Clark Public Utilities
Post Office Box 8900
Vancouver, WA 98668

APPENDIX H1
OPERATION AND MAINTENANCE PROGRAM

OPERATION AND MAINTENANCE PROGRAM

General

This document describes the City of Washougal's (City's) existing operation and maintenance program including water system management and personnel, routine operation procedures, preventative maintenance, water quality monitoring plans, emergency response program, safety procedures, cross-connection control program and customer complaint response procedures.

Water System Management and Personnel

The City's public works department includes fourteen certified water system operators with varying degrees of experience and levels of certification. Table 1 lists each operator, their position title and certifications as defined in Washington Administrative Code (WAC) 246-292.

Table 1
Water System Personnel and Water Certifications

Name	Position Title	Certifications[1]
David Scott	City Administrator	
Trevor Evers	Public Works Director	WDM4, WTPOIT, CCS
James Dunn	Assistant Public Works Director	WDM3
John Roth	Water System Manager	WDM3, BTO, BAT, CCS
Vaughan Barber	Water System Supervisor	WDM2, CCS, BTO
Travis Davis	Water System Lead	WDM2, CCS, BAT
Grant Lewis	Water System Staff	WDM2
Adam Connolly	Water System Staff	WDM2
Chris Delaney	Water System Staff	WDM2
Chris Strong	Water System Staff	WDM1
Ryan Baker	Wastewater Supervisor	WDM1
Nathan Payne	Wastewater System Staff	WDM1
Lee Fitzpatrick	Construction Inspector	WDM2, WDS, WTPOIT, CCS
Travis Geisler	Storm Lead	WDM2
Scott Randall	Storm Staff	WDM2

1. Certification Acronyms: Numbers following acronyms indicate level of certification; IT – "In Training"

BAT – Backflow Assembly Tester
BTO – Basic Treatment Operator
CCS – Cross Connection Control Specialist
WDM – Water Distribution Manager
WDS – Water Distribution Specialist
WTPO – Water Treatment Plant Operator

Position Responsibilities and Certification

The water system manager, supervisor and staff share the responsibilities of an operator in "responsible charge" of a public water system as defined by the Washington State Department of Health (DOH). DOH requires that public water system operators be certified to a level determined by the water system's classification. The City of Washougal has a group 3 classification requiring WDM3 certification for operators in responsible charge of the system. Specific duties of each water system operator which require certification are listed below. The City provides its water system staff with opportunities for continuing education in order to maintain current operator certifications. Water system operators are currently in compliance with DOH certification requirements and training is on-going to prepare additional public works staff for certification.

<u>Water System Manager</u>

- Plan, assign, distribute and direct work of water division operators and personnel
- Recruit, select, train and develop water system staff and operators
- Provide oversight and guidance for water system operations and maintenance programs.
- Ensure compliance with water system reporting and other regulatory requirements
- Requisition materials, supplies and equipment necessary for water system function
- Inspect water system work to ensure compliance with standards; recognize and correct conditions that are in violation of safety or health standards
- Manage and maintain water system budget, make budgetary recommendations to management
- Confer with Assistant Public Works Director and Public Works Director to determine improvement project priorities; implement improvements
- Communicate with department personnel and the public to resolve complaints, concerns or questions related to water system work or activities

<u>Water System Supervisor</u>

- Assignment of daily tasks to water division personnel
- Ensure regular inspection of:
    - Water quality monitoring stations
    - Well houses
    - Reservoirs
- Ensure compliance with state and federal water quality regulations
- Oversee maintenance and repair of water and telemetry systems
- Oversee repair and replacement of waterlines
- Coordinate annual preventative maintenance programs
- Maintain records of water system maintenance
- Perform operational duties for the water system, including starting and stopping pumps and installing piping
- Manage the water system through telemetry system monitoring

Water System Lead

- Fill in for the Water Supervisor when absent
- Ensure compliance with state and federal water quality regulations
- Oversee maintenance and repair of water and telemetry systems
- Oversee repair and replacement of waterlines
- Coordinate annual preventative maintenance programs
- Maintain records of water system maintenance
- Perform operational duties for the water system, including starting and stopping pumps and installing piping
- Oversee the water system through telemetry system monitoring
- Administer the Cross Connection Control Program

Water System Staff

- Tap and install new water services
- Test water system pH and chlorine residual regularly
- Troubleshoot problems in the water system
- Prepare samples for water quality testing
- Manage database for parts inventory, well flow and booster pump data, chlorine residual, and water quality testing results
- Inspect water tank levels, chlorine tanks and well heads. Inspect pumps to ensure proper operation
- Answer emergency and after hours calls for field service

System Operation and Maintenance Procedures

Described below are major water system facilities and components as well as their routine operation and maintenance procedures. All operating procedures are performed by a certified water system operator. Landscaping at water facilities is periodically maintained, as needed, to ensure safe and reliable site access. The City also maintains an inventory of spare parts commonly required for routine maintenance of its water system. System components are identified on the Washougal Water System Map in Appendix A.

Well Houses

The City supply wells are arranged in two wellfields, the Hathaway Park (Upper) Wellfield and the Westside (Lower) Wellfield. There is one well (No. 1) active at the Hathaway Park Wellfield and five wells (Nos. 5, 6, 7 11, and 12) at the Westside Wellfield. Each of the well houses pumps raw water from the groundwater well and delivers it to either Sodium hypochlorite injectors or gas chlorinators for disinfection then on to finished water storage reservoirs either directly or via booster pump stations depending on the elevation of the storage facility. Each well house is inspected a minimum of every two days to ensure satisfactory operation. Routine operating data including wells in operation, operating hours,

production rate, and total production volume are recorded by the City's telemetry system. These records are reviewed daily.

Chlorination System

Well No. 1 at Hathaway Park has a sodium hypochlorite injection system . Chlorination equipment at the Westside Wellfield is housed primarily in Well House No. 11. Discharge mains for Well Nos. 5, 6, and 7 are manifolded together in order to share a single injector and jockey pump. Well No. 11 has an independent injector and jockey pump. Well No. 12 has an independent chlorination system with its own injector and jockey pump inside the Well No. 12 building. The chlorination systems at each wellfield are inspected daily to ensure satisfactory operation and record chlorine use. Chlorine residuals are monitored each weekday at ten locations disbursed throughout the water distribution system. Chlorine residuals are monitored each weekend day at the water quality sample site No. 25 on the Water System Map in Appendix A.

Finished Water Storage Reservoirs

The City operates seven finished water storage reservoirs. Reservoirs 1A and 1B are served directly from the well houses whereas reservoirs 2A, 2B, 3, 4A and 4B are served via booster pump stations due to their high elevation relative to the wellfields. Water storage reservoirs are inspected every 5 years for the presence of sediment and other foreign materials and to assess the condition of interior and exterior coating and lining systems. Reservoir Nos. 1A and 1B were painted on the exterior and interior in 2001. When appropriate, reservoirs will be taken out of service for cleaning. The location, elevation and capacity of each reservoir are shown on the Water System Map in Appendix A.

Booster Pump Stations

The City operates three booster pump stations serving Reservoirs 2A, 2B, 3, 4A and 4B and some customers in upper pressure zones. Booster Pump Station No. 1 pumps finished water from Reservoirs 1A and 1B up to Reservoirs 2A and 2B. Station No. 1 has three pumps each with a capacity of 1,000 gallons per minute (gpm). Booster Pump Station No. 4 pumps finished water from Reservoirs 2A and 2B up to Reservoir 4A and 4B. Station No. 4 has three pumps each with a capacity of 300 gpm. Booster Pump Station No. 3 pumps finished water to Reservoir 3. Station No. 3 has three pumps each with a capacity of 350 gpm.

Pressure Reducing Valves (PRV)

There are sixteen PRVs in the City's distribution system two of which provide an emergency intertie to the City of Camas and are normally closed. The City does not currently have a formal valve inspection or exercise program due to labor resource limitations.

Distribution Piping and Blow-offs

Distribution blow-offs and fire hydrants located at the end of dead-end mains are flushed twice yearly with more frequent operation, as needed, to maintain distribution system water quality.

Source Meters

The source meters are regularly serviced in accordance with the manufacturer's recommendations to ensure accurate flow measurement and operation.

Service Meters

The water meters are read bi-monthly by the City with half the system read each month. The City has replaced over 90 percent of all service meters with touch pad technology as part of an on-going meter replacement and upgrade project. During meter reading, the condition of the meter, meter box, and service line are observed. Items in need of replacement or repair are noted and attended to as convenient and appropriate. Large service meters are tested every year to ensure accurate operation.

Fire Hydrants

The Washougal Fire Department inspects all fire hydrants and conducts flow testing of one-fifth of existing fire hydrants annually in accordance with National Fire Protection Association guidelines.

Equipment, Supplies and Chemicals

Service representatives and suppliers for equipment and chemicals needed to operate the water system are listed in Table 2.

Table 2
Water System Equipment and Chemical Supplier Summary

Description	Supplier Name	Contact Phone
Water System Equipment and Supplies		
Pressure reducing valves/vaults (Cla-Val)	GC Systems, Inc.	(800)525-9425
Pump maintenance and repair (wells & boosters)	Mather & Sons, Inc.	(360)256-1310
Compliance sampling	Addy Labs, LLC.	(360)750-0055
Electrician (Jeff Downer)	Prestige Electric	(360)210-4269
Radio Services (telemetry)	Quality Mobile Comms	(800)808-9839
Repair parts, piping, and inventoried parts	HD Fowler Company	(503)656-3900
Metering pumps (Grundfos Metering Pumps)	PumpTech, Inc.	(503)659-6230
System intergrator	Taurus Power & Controls	(503)692-9004
Chlorine application, metering and monitoring (W&T)	Engineered Control Prd	(503)656-4880
Repair parts, piping, meters, and inventoried parts	General Pacific Co.	(503)907-2900
Repair parts, piping, meters, and inventoried parts	HD Supply Waterworks	(360)256-6151
Water System Chemicals		
Chlorine gas	Air Gas Nor Pac	(503) 978-3100
Sodium Hydroxide (pH adjustment) and Sodium Hypochlorite	Northstar Chemical	(503)625-3770

Routine operating procedures, safety practices and required safety training are documented in the City of Washougal Public Works Safety Procedures manual included as Appendix H2. Material Safety Data Sheets (MSDS) for chemicals used in the operation of the water system are included as Appendix H3.

Water Quality Monitoring Plan

The City must meet the water quality and facility standards outlined in Washington's Safe Drinking Water Act (SDWA). The following paragraphs describe Washougal's water quality monitoring procedures and demonstrate the water system's compliance with the existing and proposed water quality regulations.

System Overview

The City of Washougal obtains all of its drinking water from groundwater sources. All of these sources are disinfected with chlorine and pH adjusted for corrosion control with sodium hydroxide. Water quality is monitored, in accordance with WAC 246-290-300, for the following potential contaminants:

- Coliform (bacteriological)
- Chlorine Residual (residual disinfection)
- Disinfection By-Products
- Organic Chemicals
    - Synthetic Organic Chemicals (SOC)
    - Volatile Organic Chemicals (VOC)
- Inorganic Chemicals (IOC)
    - Asbestos
    - Nitrate-N
- Lead and Copper

The City maintains twenty-five water quality monitoring stations and an additional thirty-seven lead and copper sample sites throughout the distribution system. Locations of these monitoring stations are marked on the Water System Map in Appendix A. The type of water quality tests performed at each station is also summarized on the map. All water quality sampling is performed by water system operators with delivery to a certified testing laboratory for analysis. If laboratory results indicate a violation of treatment, monitoring or maximum contaminant level (MCL) requirements; the lab results are immediately verified. If the results are confirmed, they are either sent directly to DOH or reported by the City within 48 hours.

Bacteriological

Routine bacteriological (coliform) samples are taken each month by water system staff at seventeen coliform sampling stations located throughout the City's distribution system. To comply with the requirements of WAC 246-290-300, a total of twenty samples are taken each month, ten samples in the first half of the month and ten samples in the last half of the month. Two repeat sampling sites are located in close proximity to each of the routine sites. The City's Coliform Monitoring Plan includes a list of bacteriological sampling locations and a routine sample rotation schedule. The City's Coliform Monitoring Plan is included as Appendix H4.

Residual Disinfection

In order to comply with Washington's drinking water disinfection standards, the City must maintain a trace amount of chlorine throughout the distribution system and minimum

chlorine residual of 0.2 milligrams per liter (mg/L) at locations which are representative of the distribution system . To ensure adequate chlorine residuals, the City continuously monitors finished water discharge from the well houses. Chlorine residual and pH levels are also measured in ten samples taken each week from representative locations spread throughout the distribution system. Chlorine residual measurements typically range between 0.4 and 0.8 mg/L.

Disinfection By-Products

The City monitors disinfection by-products according to the requirements of the Environmental Protection Agency (EPA) Stage 1 and Stage 2 Disinfection By-Product Rules. The Stage 1 rule requires that the City measure total trihalomethanes (TTHM) and haloacetic acids (HAA5) once each August, the warmest month, at locations representing the longest residence time for disinfected water within the distribution system. Stage 2 rules require measurement of TTHM and HAA5 at additional monitoring sites within the distribution system; one monitoring site near the disinfection site, one at a location with average residence time and four locations with the longest residence times in the distribution system. The number of monitoring sites required is determined based on the size of the system and the number of customers served. The City of Washougal has a Schedule 3 system serving approximately 13,880 customers. Measurements are taken quarterly; in February, May, August and November. Monitoring sites for disinfection by-products are summarized in the water quality sample sites table on the Water System Map in Appendix A.

Organic Chemicals

Both synthetic and volatile organic chemicals are monitored according to EPA regulations. SOCs and VOCs are both tested at each well every three years as allowed by a waiver granted to the City by the State of Washington.

Inorganic Chemicals

The City tests each active well annually for IOCs in accordance with WAC 246-290-300. MCLs are defined in WAC 246-290-310.

Lead and Copper

The City's groundwater supply wells have a pH in the corrosive range. The City began treating the groundwater system in 2000 with sodium hydroxide to limit lead and copper leaching. This treatment has raised the typical well pH and reduced the concentration of copper.

Public Notification

The water system is required to provide public notification when MCLs are exceeded. Basic notification procedures include publication of a notice in a local newspaper, posting in public places or direct customer contact by phone or mail. Notices are issued in a manner that ensures that water system customers have adequate information regarding the water quality violation. The notice describes any measures the customer should take for their protection and what mitigating or corrective measures the City is taking.

Water Quality Records

Water quality testing records required to be kept by the water system are specified in WAC 246-290-480. Bacteriological testing records must be maintained for five years. Chemical testing records must be maintained for the life of the facility.

Emergency Response Program

The City public works department has prepared an emergency response plan in coordination with other service providers. This plan includes chain-of-command and responsibilities for water department staff, response actions for specific types of emergencies, public notification and communication with other agencies such as close coordination with Washougal Fire and Rescue for large disaster response.

Emergency Contacts

An essential component of the City's emergency response program is communications. All water system operators have cell phones with one operator designated on-call at all times should an emergency arise. The term emergency in this case means a customer service outage or any condition constituting a clear and present danger to life or property. For less severe emergencies, the water system operators will identify, isolate as appropriate and correct problems with the water system. Typically, emergencies arise from water main breaks, which can be readily isolated and service promptly restored. Water system operator cell and home phone numbers are listed in Table 3. The water department establishes a weekend and holiday on-call duty schedule each year.

If on-call duty personnel are unavailable, the following people will be contacted in the order shown:

1. Water System Manager - John Roth
2. Assistant Public Works Director - James Dunn
3. Public Works Director - Trevor Evers
4. City Administrator - David Scott

The City contracts after-hours emergency calls from both the public and the SCADA system to Sonitrol Security Systems. Sonitrol contacts water department on-call duty personnel as necessary.

Table 3
Water System Operator Contact Numbers

Water Operator	Cell	Home
Ryan Baker	772-2961	907-5751
Vaughn Barber	772-2891	931-1368
Trever Munsch	518-4649	(509) 427-8114
Travis Davis	772-0042	837-1506
Grant Lewis	518-4647	335-0632
Jeremy Morris	518-5953	991-3674
Adam Connolly	772-1322	837-3502
Chris Delaney	772-2915	606-7469
Chris Strong		324-0276
Nathan Payne	607-4697	(503) 853-1213
John Roth	772-2919	835-0267
James Dunn	772-1611	210-5067
Trevor Evers	772-2977	835-1764

The Water System Manager, Supervisor, Lead and operators have the authority to make emergency decisions relating to system operation and rental of emergency equipment, supplies and services.

City water system operations staff will immediately notify the DOH by phone when an emergency arises which causes or threatens to cause a loss in water service of more than 24 hours or reduces water quality such that public health may be threatened.

DOH Office of Drinking Water Hotline: 1-877-481-4901

Vulnerable System Facilities

The City completed a detailed vulnerability assessment in June 2004 in compliance with the 2002 Bioterrorism Act. The assessment report identified few vulnerable facilities. Details of this report are not included here in order to protect the City's water system security.

Cross-Connection Control Program

The City has developed a Cross-Connection Control Program Plan to comply with state requirements for cross-connection control programs. The plan is currently implemented by Travis Davis, a state certified CCS (see Table 1). Authority for the cross-connection control program is granted by City ordinance (see Washougal Municipal Code Chapter 13.40). The current Cross-Connection Control Program Plan is included in Appendix H5.

Customer Complaints

Water system customer complaints may be filed through the Citizen Referral form process at Washougal City Hall. Complaints regarding the water system are forwarded to water department staff members that then begin a work order to investigate and address the customer's concern. The City also accepts citizen comments and complaints through their website.

Summary

This operations and maintenance program plan documents the City of Washougal's existing water system management and personnel, routine operating procedures, preventative maintenance, water quality monitoring plans, emergency response program, safety procedures, cross-connection control program and customer complaint response procedures.

APPENDIX H2
SAFETY PROCEDURES

City of Washougal Public Works
Safety Procedures

Table of Contents

1. MANAGEMENT & EMPLOYEES RESPONSIBILITIES

A. MANAGEMENT OFFICIALS
B. MANAGERS
C. CITY SAFETY MANAGER
D. DEPARTMENT SAFETY MANAGER RESPONSIBILITIES
E. EMPLOYEE RESPONSIBILITY

2. OCCUPATIONAL ACCIDENTS, INJURIES AND ILLNESSES

A. PROCEDURE FOR INJURY OR ILLNESS ON THE JOB
B. DOCUMENTATION
C. MAINTENANCE OF OCCUPATIONAL ILLNESS AND INJURY RECORDS
D. EMPLOYEE ACCESS TO RECORDS
E. REPORTING FATAL OR MULTIPLE HOSPITALIZATION ACCIDENTS

3. HAZARD COMMUNICATION

A. PURPOSE
B. BACKGROUND
C. POLICY
D. DEFINITIONS
E. RESPONSIBILITIES
F. PROCEDURES

4. STANDARD OPERATING PROCEDURES

A. WEEKEND DUTY
B. CHLORINE CYLINDER REPLACEMENT

5. SAFETY PROCEDURES

A. MATERIALS HANDLING
B. RIGGING EQUIPMENT
C. OFFICE AND BUILDING SAFETY
D. PHYSICAL SAFETY POLICY
E. EQUIPMENT SAFETY POLICY

6. APPENDIX

A. HAZARDOUS MATERIALS COMMUNICATION AND GUIDELINES

MANAGEMENT & EMPLOYEES RESPONSIBILITIES

Responsibilities for safety and health include the establishment and maintenance of an effective communication system among workers, supervisors and management officials. To this end, all personnel are responsible to assure that their messages are received and understood by the intended receiver. Specific safety and health responsibilities for City of Washougal personnel are as follows:

Management Officials

Active participation in, and support of safety and health programs are essential. Management officials will display their interest in safety and health matters at every opportunity. At least one manager will participate in the safety and health committee meetings, incident investigations, and inspections.

Managers

The safety and health of the employees they oversee is the primary responsibility of the managers. To accomplish this obligation, managers will:

1. Verify that all safety and health rules, regulations, policies and procedures are understood and observed.
2. Require the proper care and use of all required personal protective equipment.
3. Identify and eliminate job hazards quickly through a job safety analysis.
4. Inform and train employees on the hazardous chemicals and/or procedures they MAY encounter under normal working conditions or during an emergency situation. (See "Hazard Communication" located on Page 10.)
5. Receive and take initial action on employee suggestions, awards or disciplinary measures.
6. Verify that Supervisor/Lead(s) are discussing daily safety issues for current projects and work sites. Follow up on safety interests by coordinating bi-weekly "tailgate" safety meetings.
7. Train employees (new and experienced) in the safe and efficient methods of accomplishing each job or task as necessary.
8. Review injury trends and establish prevention measures.
9. Attend safety meetings and actively participate in the proceedings.
10. Participate in incident investigations and inspections.
11. Promote employee participation in the safety and health program.
12. Actively follow the progress of injured workers and display an interest in their rapid recovery and return to work.

13. Coordinate bi – weekly tailgate safety meetings.

City Safety Manager

The City Safety Manager will be a permanent member of the Safety Committee for the purpose of advisement and training. The Safety Manager will carry the safety recommendations for various driving skill courses and provide feedback to the Committee on the effects of corrective actions.

Department Safety Manager Responsibilities

The Safety Manager that is designated for the City of Washougal Public Works Operations shall:

Have the authority to stop unsafe operations if deemed necessary;

Have access and obtain the necessary training, or designate an employee to receive the necessary training, to fulfill the Safety Manager's duties, which includes hazard identification;

Be management's representative on the departmental Safety Committee;

Appoint a designee to be responsible for the maintenance of all Safety and Health records within the department which include, but are not limited to: Safety Committee meeting minutes, inspection reports, work-related accident and illness records, completed Safety Suggestion forms, and all City of Vancouver Safety and Health programs; and

Shall inspect or appoint a designee to annually inspect the department or area of responsibility periodically for compliance with the Accident Prevention Program.

Employee Responsibility

Observe the items of responsibility established in this document as well as job safety rules which may apply to specific task assignments.

Employees MUST adhere to the following regulations in accordance with WAC 296-24-025 & WAC 296-800-110

1. Employees MUST cooperate with all other employees to eliminate accidents.
2. Employees MUST study and implement all safe practices governing their work.
3. Employees should offer safety suggestions, which may contribute to a safer work environment. Employees may forward to the Safety Manager / Safety Committee a "Hazard Report Form" (Appendix A) detailing the potential hazard and offering suggestions to eliminate the hazard.
4. Employees MUST apply the principles of accident prevention in their daily work and MUST use proper safety devices and protective equipment as required by their employment.
5. Employees MUST properly care for all personal protective equipment.
6. Employees MUST make a prompt report to their immediate supervisor, of each industrial injury or occupational illness, regardless of the degree of severity.

7. Employees MUST not wear torn or loose clothing while working around machinery.
8. Employees MUST not tamper with any safety device on equipment!
9. Employees MUST not use any equipment, personal protective equipment, personal protective clothing which has been damaged or changed from original manufacturer's specifications.
10. Conduct walk-around safety inspections at the beginning of each job, and at least weekly thereafter.

If an employee does not comply with the above standards, disciplinary action may be administered, up to and including termination.

NOTE*:*
Employees may discuss and participate in any Washington State Industrial Safety and Health Act (WISHA) safety and health related practice and may refuse to perform dangerous tasks without fear of discrimination. Discrimination includes: dismissal, demotion, loss of seniority, denial of a promotion, harassment, etc.

An employee may report any concerns regarding safety and health in the employee's work area utilizing the “Hazard Report Form”. This report must be given to the employee's manager whom will send a copy to the department Safety Manager. The Safety Manager will address the hazard or designate an employee to correct the hazard. The Safety Manager MUST forward a written response to the reporting employee on the actions taken to address the concern or hazard.

For assistance and information, including copies of the act and of specific safety and health standards, employees should contact: the Safety Manager or the nearest office of the Department of Labor and Industries.

Occupational Accidents, Injuries and Illnesses

Occupational accidents, injuries and illnesses MUST be managed in compliance with WAC 296-802 and WAC 296-27-00105

In the event of an occupational accident, injury or illness; the incident MUST be reported to the employee's supervisor as soon as possible. The supervisor will then report the incident to the Safety Manager, management and Human Resources utilizing the "Injury and Illness Incident Investigation Report" (Appendix B).

Procedure for Injury or Illness on the Job

Supervisor or lead person immediately takes charge

- Supervise and administer first aid as you wish (Good Samaritan Law applies).
- Arrange for transportation (ambulance, helicopter, company vehicle, etc.), depending on the seriousness of the injury. Protect the injured person from further injury.
- Notify owner or Management Official, if not already present.
- Do not move anything unless necessary, pending investigation of the incident.
- Accompany or take injured person(s) to doctor, hospital, home etc. (depending on the extent of injuries).
- Take injured person to family doctor, if available.
- Remain with the injured person until relieved by other authorized persons (manager, EMT, doctor, etc.).
- When the injured person's immediately family is known, the owner or supervisor should properly notify family members, preferable in person, or have an appropriate person do so.

Documentation

1. Minor Injuries – requiring doctor or outpatient care: After the emergency actions following an injury, an investigation of the incident will be conducted by the immediate supervisor and any witness to determine the causes. The findings must be documented on our "Injury and Illness Incident Investigation Report".
2. Major Injuries – fatality or multiple hospitalizations: Management Officials must see that the Department of Labor and Industries is notified as soon as possible, but at least within 8 hours of the incident. Call or contact in person the nearest office of the Department or call the OSHA toll free central number (1-800-321-6742). Management Officials will then assist the Department in the investigation.

3. The findings must be documented on our incident investigation report form and recorded on the “Log of Work Related Injuries and Illnesses” Appendix E, if applicable.

Near Misses

1. All near-miss incidents (close calls) must be investigated.
2. Document the finding on the “Injury and Illness Incident Investigation Report”.
3. Review the findings at the monthly safety meetings or sooner if the situation warrants.

The Manager MUST:

1) Immediately take measures to protect the injured or ill employee (Good Samaritan Law applies);
2) If necessary, administer first aid and have someone call 911;
3) Secure any area or situation which may cause any more accidents, such as:
   a) Barricade the unsafe area;
   b) Disable unsafe or defective equipment until repaired;
   c) Secure the area if there is a possibility of an investigation into the accident. ;
   d) Report the accident, injury or illness to the supervisor's Department Head;
   e) Complete an "Injury and Illness Incident Investigation Report" with in 24 hours and return it to the Safety Manager and his/her manger. Within 24 hours an investigation MUST be performed on any incident which requires an "Injury and Illness Incident Investigation Report."

Human Resources MUST record occupational injury and illness information on the following forms:

1. A physician's report (Appendix D), sent with employee to be filled out by the physician;
2. Log of Work Related Injuries and Illnesses;
3. OSHA’s Form 300A – Summary of Work Related Injuries and Illnesses (Appendix G).

Any preliminary investigation of the cause of a serious injury or accident MUST be conducted in compliance with WAC 296-24-020(2). Individuals who should be involved are:

(a) Victim (if possible);
(b) Safety Manager;
(c) Supervisor;
(d) Manager;
(e) Safety Committee member(s);
(f) Employee Representative;
(g) Human Resources;
(h) Others whose expertise would help expedite the process and help present a more accurate report.

Maintenance of Occupational Illness and Injury Records

The Human Resource Department MUST maintain for five years a log and summary of all recordable occupational injuries and illnesses for employees in accordance with WAC 296-27-04103.

Recordable cases include:

(a) Every occupational death;
(b) Every industrial illness;
(c) Every occupational injury that involves one of the following:
    (1.) Unconsciousness;
    (2.) Inability to perform all phases of regular job;
    (3.) Inability to work full time on regular job;
    (4.) Temporary assignment to another job;
    (5.) Medical treatment beyond first-aid.

The OSHA 300 log must be completed, signed and posted on all safety bulletin boards for the entire month of February each year for the preceding year ending on December 31st.

Access & Preservation of Employee Exposure / Medical Records

Employee medical records for job-related accidents or injuries MUST be preserved and maintained within the Human Resource Department in compliance with WAC 296-24-020(4).

Copies of employee Injury/Exposure Reports MUST be preserved and maintained in the employee's confidential medical files, with the original sent to Human Resource Department to preserve confidential files. All files to be kept in compliance with WAC 296-800-32005.

Employee Access to Records

City of Washougal MUST assure the access of each employee (or designated representative) to job related employee medical records of which the employee is the subject as required by WAC 296-27- and WAC 296-800-32000.

Whenever an employee requests access to a medical or exposure record, the City of Washougal MUST assure that access is provided in a reasonable time, place, and manner as required in WAC 296-62-05209.

Reporting Fatal or Multiple Hospitalization Accidents

Within eight (8) hours after the occurrence of an employment related accident which results in a fatality to one or more employees, or which results in the hospitalization of two (2) or more employees the Management Official or above MUST report the accident to the Department of Labor and Industries. The reporting party MUST relate the circumstances of the accident, the number of fatalities and the extent of injuries. The Director of the Department of Labor and Industries may require such additional reports, in writing or otherwise, as deemed necessary, concerning the accident.

Each report required by this subsection MUST relate the following information: Establishment name, location of the incident, time of the accident, number of fatalities or hospitalized employees, contact person, phone number, and a brief description of the incident.

Equipment involved in an accident resulting in an immediate or probable fatality MUST not be moved, until a representative of the division of industrial safety and health investigates the accident and releases such equipment, except where removal is essential to prevent further accident. Where necessary to remove the victim, such equipment may be moved only to the extent of making possible such removal.

Upon arrival of the L & I investigator, the employer MUST assign an employee to assist the investigator, the immediate supervisor and all employees who were witnesses to the accident, or whoever the investigator deems necessary to complete the investigation.

Records MUST be maintained by Human Resource Department, which contains records of occupational injuries and illnesses.

Recordable cases include:

1. Every occupational death;
2. Every industrial accident;
3. Every occupational injury that involves one of the following:
    a. Unconsciousness;
    b. Inability to perform all phases of regular job;
    c. Inability to work full time on regular job;
    d. Temporary assignment to another job;
    e. Medical treatment beyond first-aid.

4. Bloodborne/Airborne disease exposure.

Hazard Communication

Purpose

To establish a formal training and information program for employees that may be potentially exposed to hazardous chemicals in the performance of their work duties.

Background

In 1984 the Washington Industrial safety and Health Act (WISHA) promulgated the Hazard Communication safety and Health Standard (WAC 296-62-054). This regulation requires that all employees that work in an establishment where hazardous chemicals are used must receive information regarding the facilities hazard communication program. Additionally those workers in the establishment who are directly exposed (or potentially exposed) to hazardous chemicals on the job must receive additional information and training on particular hazards of the chemicals to which they are exposed.

Policy

Each agency employee shall receive information regarding the agency's Hazard Communication Program. In addition, those employees who are exposed (or potentially exposed) to hazardous chemicals as a result of their work duties shall receive additional information and training as required by this policy.

Employees shall be trained in these procedures and are required to strictly adhere to them. It is the responsibility of each employee's supervisor to ensure that trained employees understand and adhere to the instructions and procedures of this policy. It is also the responsibility of each employee covered by this policy to bring to his or her supervisors attention any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employee utilizing the "Hazard Report Form". The Safety Coordinator must approve any changes to this Hazard Communication Policy.

Definitions

Chemical means any element, chemical compound or mixture of elements and/or compounds.

Exposure or exposed means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any rout of entry (e.g. inhalation, ingestion, skin contact or absorption).

Hazardous chemical means any chemical that is physical or a health hazard.

Health hazard means a chemical for which there is statistical significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term 'health hazard' includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosive, sensitizes, hepatoxins, hephrotoxins, neurotoxins, agents which act on the hematopietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

Label means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Material Safety Data Sheet (MSDS) means written or printed material concerning a hazardous chemical(s).

Physical hazard means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water reactive.

Work area means a room or a defined space in a workplace where hazardous chemicals are produced, and where employees are present.

Responsibilities

Accident Prevention Program

The Safety Manager for the accident prevention program is responsible for the overall administration of the agency hazard communication policy and will maintain a list of materials safety data sheets (MSDS's) used throughout the agency.

Managers

All supervisors are responsible for ensuring that their employees receive adequate information and training in accordance with the requirements of this policy.

Safety Committee Members:

Each safety committee member is responsible for the overall administration of the policy and site specific written hazard communication program.

Safety Committee Members are responsible for:

A. Conducting an inventory of all hazardous chemicals in each field office location;
B. Implementation of site specific written programs for each field office location;
C. Maintaining current copies of MSDS's for all hazardous chemicals that are used in their respective regions;

D. Ensuring that a copy of the written program, chemical inventory and MSDS's are immediately available for employee review at each safety committee member's field office location.

Procedures

Hazardous Chemical Inventory

The Safety Coordinator is responsible for preparing and maintaining a current list of hazardous chemicals in their respective offices. See Appendix B for specific information that can be used in determining what products should be included in the inventory.

Container labeling

Supervisors or managers (as designated in the written hazard communication program) will ensure that all hazardous chemical received in their area of responsibility are labeled to include the following:

A. The identity of the hazardous chemical(s) used on the MSDS;
B. The appropriate hazard warning;
C. The name and address of the manufacturer.

Secondary containers into which hazardous chemicals are transferred must be labeled, tagged or marked with the identity of the hazardous chemical(s) and hazard warning(s). The identity may be any chemical or common name that is indicated on the MASD and will permit cross-referencing to be made among the list of hazardous chemicals, the label and the MSDS.

Material Safety Data Sheet (MSDS)

The MSDS is used to relay chemical hazard information from the manufacturer to the user and must be maintained at the workplace in which it is used. A copy of the written hazard communication program and applicable MSDS's shall be kept at a central location(s) to ensure that employees can access the information contained in these documents.

Each safety Committee member shall supply copies of the new MSDS's to the Safety Coordinator for the Accident Prevention Program. The Safety Coordinator shall be responsible for ensuring that all MSDS's are complete and accurate, and will maintain a MSDS master file for all hazardous chemicals used in the agency.

Employee Training

All agency employees will be informed on both the WISHA Hazard Communication Program and the requirements of this policy. Those employees who are directly exposed (or potentially exposed) to hazardous chemicals on the job must receive addition information and training on the particular hazards of the chemicals to which they are exposed or potentially exposed. It is the

responsibility of every supervisor to determine which of their employees are exposed (or potentially exposed) and need to be included in the training program.

Supervisors will coordinate and ensure the information and training of identified employees will be included in the training.

All employees will be informed of:

A. The hazard communication standard requirements;
B. Any operations in their work areas where hazardous chemicals are present;
C. The location and availability of this policy and the written hazard communication program including the chemical inventory list and MSDS's.

Training

Exposed (or potentially exposed) employee training shall include:

A. Methods and observations that may be used to detect the presence or release of hazardous chemicals;
B. Physical and health hazards of the chemicals in the work area;
C. Measures employees can take to protect themselves from the hazards present;
D. The details of this policy and written hazard communication program;
E. Signing of the training certification document.

Field safe Requirements

Agency employees that perform field activities in various areas shall avoid chemical exposure and utilize their hazard communication training when reading properly labeled containers or warning signs. In case of inadequate, improper or missing labels, employees shall contact the employer to request and obtain the necessary information.

Industrial hygienists that need to sample unknown chemicals shall use professional judgments as the potential class(es) of chemicals that may be involved and take all appropriate protective precautions. In the absence of information regarding the type or identification of chemicals involved, employees shall report to their supervisor prior to sampling to ensure that adequate safeguards and training can be implemented prior to monitoring activities.

Standard Operating Procedures

WATER & SEWER

For Weekend Personnel on Duty

DUTY #1:

Lower Well Field

Sodium Hydroxide Building

Overall visual check of building and grounds. Inspection will include looking for signs of vandalism and forced entry into any of the secured areas.

Inside the plant in addition to a quick visual inspection of the building itself special care should be taken to check for visual signs of sodium hydroxide leaks, audio and visual inspection of pumps for malfunctions, and any odor relating to electrical overheating.

Sodium hydroxide tank levels will be read, checked for normal usage, and recorded on the computer.

Sodium hydroxide pump hours will be read, checked for normal operation and recorded on the computer.

If a Sodium hydroxide leak is observed call for assistance and refer to the MSDS sheet located in the sodium hydroxide building for the appropriate PPE and handling instructions.

Chlorine room at #11 Well Building

Before entering chlorine room a visual check of the red alarm light on the exterior of the building is necessary. If light is on, do not enter building. Call for assistance and refer to the MSDS sheet located in the sodium hydroxide building for the appropriate PPE and handling instructions. If no alarm exists, then look into the chlorine room through the small window in the door, making sure that there is no alarm on the chlorine detector flashing.

If no alarms are present, one may enter the room. An automatic light fan switch is on the door and will run continuously while the door is open. A

manual switch is located in the box to the right of the door. Record chlorine weight of tank in service.

Inside #11 Well House, check that rotometers for wells on line are at preset levels. Do a visual, audio and odor check of injection pumps for chlorine and well pump.
Check each well house for vandalism, and security breach. Inside do visual, audio and odor inspection.

DUTY #2:

Water House, 2247 B Street

Perform chlorine test at sink. Ensure residual is above .4 ppm.

Record chlorine weight, and residual on the spreadsheet provided. Initial the spreadsheet in the far right column.

Retrieve daily report from printer at the telemetry station and place in 3 ring binders. Enter total of well flows and flows for well #1 in the appropriate spaces. Well #1 will not always show flows. If well #1 shows flow you must follow the instructions under the upper well field portion of these procedures.

Check the computer for the water telemetry. Look for alarms in the alarm notification box and check which wells and boosters are running. Also check reservoir levels at the four reservoirs. Finally check to see if Well #1 is running. If Well #1 is running the "Upper Well Field" checks will also have to be performed.

Click the trends box on the overview screen. Inspect this screen for any sudden drops or irregular lines in the reservoir levels.

Click on the All Reservoir Levels box. This will take you to the graph for all the reservoirs including the Lehr Rd. Standpipe. Inspect the top line for sudden drops or irregular lines. Click the Overview box to return to overview.

Lift station checks are performed by checking the "Mission" site at http://www.123mc.com/. You will have to log onto a computer using your user name and password and log into Mission with the appropriate user name and password. The Water Telemetry computer does *NOT* have an internet connection and does *NOT* have a link to the City's server. Do not attempt to shut down, modify or otherwise log into the Water Telemetry computer without specific authorization as this unit monitors crucial water operations 24/7. Once on the Mission site a map with all of the lift stations will come up. All of the sites should be green indicating normal operation. Next you would open the "data" folder in the column on the left hand side

of the screen. Inside the data folder is a “pump info” folder inside of this folder is a runtime table. The runtime table should be checked to ensure that lift station pumps are operating within their normal range.

DUTY #3:

Upper Well Field
(These checks are performed when the well is still running.)

Building and Grounds

Overall visual check of building and grounds. Inspection will include looking for signs of vandalism and forced entry into any of the secured areas.

Open the sample station and begin running the water. Measure the chlorine residual after a sufficient amount of water has run to ensure you are sampling the water in the main. Ensure that the value is greater than .6PPM. This measurement will have to be recorded on the spreadsheet at the water house.

Inside well house in addition to a quick visual inspection of the building itself special care should be taken to check for visual signs of sodium hydroxide leaks. If a leak is observed call for assistance and refer to the MSDS sheet located in the well pump building for the appropriate PPE and handling instructions. Do an audio and visual inspection of pumps for malfunctions, and any odor relating to electrical overheating.

Sodium hydroxide tank levels will be read, checked for normal usage, and recorded on the logbook.

Sodium hydroxide pump hours will be read, checked for normal operation and recorded on the logbook.

Do a visual, audio and odor check of injection pumps for chlorine and well pump.

Chlorine room at #1 Well Building

Before entering chlorine room a visual check of the red alarm light on the exterior of the building is necessary. If light is on, do not enter building. Call for assistance and refer to the MSDS sheet located in the well pump building for the appropriate PPE and handling instructions. If no alarm exists, then look into the chlorine room through the small window in the door, making sure that there is no alarm on the chlorine detector flashing. If no alarms are present, one may enter the room. An automatic light fan switch is on the door and will run continuously while the door is open. A manual switch is located in the box to the right of the door. If the well is on

check that the rotometer for the well is on line at the preset level. Record chlorine weight of tank in service this will also have to be entered into the spreadsheet at the water house.

GENERAL NOTICE

If for any reason something does not look right, seems out of place, or you have a concern make verbal contact with a certified operator. If there is an alarm visual or audible, make verbal contact with a certified operator. If you can otherwise handle the situation and simply need assistance please call from the on-call duty list. These numbers are confidential and for official use only. Do not give these numbers out.

Certified Drinking Water Operators

Name	Home Phone	Cell
Vaughn Barber	931-1368	772-2961
Travis Davis	837-1506	772-0042
Grant Lewis	335-0632	518-4647

On-Call List

Name	Home Phone	Cell
Vaughn Barber	931-1368	772-2961
Travis Davis	837-1506	772-0042
Grant Lewis	335-0632	518-4647
Ryan Baker	834-7419 or 907-5751	772-2961
Trever Munsch	(509) 427-8114	518-4649
Jeremy Morris	335-9284 or 991-3674	518-5953
Adam Connolly	837-3502	772-1322
Chris Delaney	606-7469	772-2915
Tom Derryberry	837-3030	518-4540

If duty personnel is unavailable, please contact:

John Roth at 772-2919 (cell), 835-0267 (home) or 418-0947 (pager)

If John is not available, please contact:
Jim Dunn at 772-1611 or 210-5067

If Jim is not available, please contact:

Trevor Evers at 360-835-1764 or 360-772-2977

If Trevor is unavailable, please contact:

Nabiel Shawa at 360-835-3504 or 360-518-4798

CHLORINE CYLINDER REPLACEMENT

For safety reasons, work in pairs. A second person can radio for help or possibly pull someone to safety using approved breathing apparatus.

Check both alarm lights. Check the red alarm light on the exterior of the building. If this is not on, then look into the chlorine room to make sure that there is no alarm on the chlorine detector flashing.

If no alarms are present, one may enter the room. An automatic light fan switch is on the door and will run continuously while the door is open. A manual switch is located in a lock box near outside near the entry door.

Turn off the chlorine bottle (it should only be open one half turn).

Go into the well pump room and check chlorinator (rotometer) to be sure the flow indicator ball is on zero (0) and the red flag in window is showing. Leave the booster pump running to allow any trapped chlorine to be sucked into the system.

Loosen vacuum regulator from the cylinder, but do not remove at this point. Check for leaking chlorine with the ammonia solution located in the chlorine room. Then turn the black knob on the regulator to the off position to avoid sucking air into the system. And finally, remove the regulator and hank it from the hook on the wall.

Replace the valve cap and the safety cap to the spent chlorine cylinder, then unchain it from the scales and remove it. Place new cylinder onto scales and chain in place before removing safety cap.

Check cylinder valve to be sure it is off, then crack open the valve cap and check that no chlorine is leaking from the valve before fully removing the valve cap.

Clean the mating surface of the cylinder valve, remove the used lead washer from the regulator, and install the regulator to the cylinder using a new lead washer.

Open and then quickly close the cylinder valve one quarter turn to charge the regulator with a small amount of chlorine. Use the ammonia solution to check for any leaks around the installed lead washer. If leaking, tighten regulator to cylinder or remove regulator and inspect lead gasket and replace if necessary then retest for leaks. If no leaks, slowly open cylinder valve one half turn (1/2) and leave valve wrench installed on operating nut.

Check for any leaks again with the ammonia solution, turn the black control knob on the regulator to the standby position, and reset the scale to read 150 lb (full cylinder weight).

General Materials Handling Safety

Make sure that all materials stored in tiers are stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse.

Post conspicuously the maximum safe load limits of floors within buildings and structures, in pounds per square foot, in all storage areas, except for floor or slab on grade. Do not exceed the maximum safe loads.

Keep aisles and passageways clear to provide for the free and safe movement of material handling equipment or employees. Keep these areas in good repair.

Do not store materials on scaffolds or runways in excess of supplies needed for immediate operations.

Use ramps, blocking, or grading when a difference in road or working levels exists to ensure the safe movement of vehicles between the two levels.

Do not place materials stored inside buildings under construction within 6 feet of any hoist way or inside floor openings, or within 10 feet of an exterior wall which does not extend above the top of the material stored.

> *Anchor and brace temporary floors used in steel erection, concrete forms, and shoring and other "in-process equipment" that are to be left overnight or for longer periods of time to prevent their displacement in any direction. While in "interim storage," this equipment is subject to the provisions in WAC 296-155-325(2)(i) (see previous bullet point: Do not place materials stored inside buildings under construction within 6 feet of any hoistway or inside floor openings, or within 10 feet of an exterior wall which does not extend above the top of the material stored.)*

When working on stored materials in silos, hoppers, tanks, and similar storage areas, use personal fall arrest equipment meeting the requirements of Chapter 296-155 Part C-1.

Segregate non-compatible materials in storage.

Stack bagged materials by stepping back the layers and cross-keying the bags at least every ten bags high.

Carefully handle cement and lime delivered in paper bags to prevent the bags from bursting.

> *Do not pile cement and lime bags more than ten bags high except when stored in bins or enclosures built for the purpose of storage.*

When bags are removed from the pile, keep the length of the pile at an even height and maintain the necessary step backs every five bags.

When handling cement and lime bags, wear eye protection preventing any contact with the substance (such as goggles or other sealed eye protection) and wear long sleeve shirts with close fitting collar and cuffs.

Make sure to report any susceptibility of skin to cement and lime burns.

Make sure that a hand cream or Vaseline and eyewash is provided and kept ready for use to prevent burns.

Store lime in a dry place to prevent a premature slacking action that may cause fire.

When stacking masonry blocks higher than 6 feet, taper back the stack one-half block per tier above the 6-foot level.

When stacking inside a building, distribute the piles to prevent overloading the floor.

Do not drop or throw blocks from an elevation or deliver blocks through chutes.

Do not stack lumber more than 20 feet high; if handling lumber manually, do not stack more than 16 feet high.

Remove all nails from used lumber before stacking.

Stack lumber on level and solidly supported sills, and such that the stack is stable and self-supporting.

Stack stored lumber on timber sills to keep it off the ground. Sills must be placed level on solid supports.

Place cross strips in the stacks when they are stacked more than 4 feet high.

If not racked, stack and block structural steel, poles, pipe, bar stock, and other cylindrical materials as to prevent spreading or tilting.

Wear heavy gloves when handling reinforcing steel.

When bending reinforcing steel on the job, use a strong bench set up on even dry ground or a floor to work on.

Carefully pile structural steel to prevent danger of members rolling off or the pile toppling over.

Keep structural steel in low piles, giving consideration to the sequence of use of its members.

Stack corrugated and flat iron in flat piles, with the piles not more than 4 feet high; place spacing strips between each bundle.

Frequently inspect stock piles of sand, gravel, and crushed stone to prevent their becoming unsafe by continued adding to or withdrawing from the stock.

Do not remove frozen material in a manner that would produce an overhang.

General Rigging Equipment Safety:

Inspect rigging equipment for material handling prior to use on each shift and as necessary during its use to ensure that it is safe. Remove defective rigging equipment from service.

Never load rigging equipment in excess of its recommended safe working load.

Remove rigging equipment when not in use from the immediate work area so as not to present a hazard to employees.

Mark special rigging accessories (i.e., spreader bars, grabs, hooks, clamps, etc.) or other lifting accessories with the rated capacity. Proof tests all components to 125% of the rated load prior to the first use. Maintain permanent records on the job site for all special rigging accessories.

Disposal of waste materials:

Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of the building, use an enclosed chute of wood or equivalent material.

When debris is dropped without the use of chutes, make sure that the area onto which the material is dropped is completely enclosed with barricades at least 42 inches high and 20 feet back from the projected edge of the opening above. Post at each level warning signs of the hazard of falling materials. Do not remove debris in this lower area until debris handling ceases above.

Remove all scrap lumber, waste material, and rubbish from the immediate work area as the work progresses.

Make sure to comply with local fire regulations if disposing of waste material or debris by burning.

Keep all solvent waste, oily rags, and flammable liquids in fire-resistant covered containers until removed from the work site.

Office and Building Safety Policy

Purpose

To establish requirements for the recognition and prevention of office and builiding hazards and related injuries.

Policy

General Housekeeping

Spills shall be wiped up immediately.
Notify supervisor and facilities upon discovering broken floor tiles, worn stair treads, missing handrails, slippery work surfaces, unsafe rugs or buckled carpeting, or other hazards that could cause slips, trips or falls.

Recognized Office Equipment Hazards

Machinery that is inoperable shall be turned to the off position, unplugged at the receptacle and a warning sign shall be placed on the equipment.

Equipment shall not be operated until all appropriate guards are in place. Guards that are installed on machinery shall not be removed.

When working around machinery, employees shall remove large rings, bracelets, scarves, etc., and secure loose sleeves, ties and long hair.

Sharp objects such as pencils, exacto knives, thumb tacks, scissors, knives and blades should be placed in separate containers so as to avoid hazards when reaching into desk drawers.

Employees shall use care when handling paper cutters and ensure the blade is in the down position when the cutter is not in use.

Precautionary Measures Used in Handling Electrical Sources

Cords shall not be placed in aisles and around workplaces with protective covering.

Damaged cords shall be reported to the supervisor.

Only approved surged protected extension cords with multiple plug outlets shall be used.

Fire Response and Building Safety

Emergency numbers shall be posted plainly (fire, police, and hospital, ambulance, aid car) on the safety and health bulletin boards.

Fire doors shall not be blocked and shall be inspected frequently to insure proper operation. Exits shall be plainly marked and be kept clear of stored materials.

Physical Safety Policy

Prevention of Muscle Strain

Do not move heavy office equipment such as desks, filing cabinets, or large bookshelves. Maintenance personnel or someone qualified to utilize material handling equipment shall do the job.
Do not move electronic equipment such as computers or printers.

Blood Borne Pathogens

Testing and shots are available for Hepatitis B. Ask your supervisor for information.

Attend North West Regional Training Center (NWRTC) testing on blood borne pathogens annually.

Employees must recognize that they have responsibilities for their own health and safety, and encourage other employees to work in a safe manner. Consistent with the circumstances presenting themselves, employees shall always use appropriate personal protective equipment consistent with the policies and procedures listed in the Accident Prevention and Safety Manual.

Initiate immediate self care and seek immediate medical attention and follow-up treatment as prescribed by standard medical practices and as outlined in the Employee Post Exposure Care and Procedures guideline in the Report and Form Section of the Clark County Accident Prevention Program.

Make an immediate verbal report of the exposure to their supervisor and complete the department's Injury/Exposure Report form.

If treatment is required for an occupational exposure, proceed immediately to the Emergency Room at SW Washington Medical Center. Provide

detailed information of the circumstances of the exposure to the attending health care personnel and complete applicable forms.
If the blood or other potentially infectious materials comes in contact with clothing or intact skin as an indirect exposure

Fall Protection

Training at the NWRTC is provided at no cost to the employee for fall protection

Employee will follow all guidelines from the training program and use all PPE's as outlined.

Employees shall report all unsafe conditions to the lead person or supervisor.

First Aid

All employees in direct charge of crew or CDL holders are required to have current first aid / CPR training. This is provided at no cost to the employee at NWRTC.

Know where first aid kits are located. If you use a kit report to supervisor so that they get restocked.

Although you may have first aid training you are not required to provide assistance in a medical emergency.

If you administer first aid or receive first aid you must fill out an accident form and submit to your supervisor.

Hearing Conservation

Annual hearing tests are provided by the City and all information is confidential. Results of the test will be shared with the employee.

Employees will use hearing PPE's in accordance with requirements in the Accident Prevention and Safety Manual, SOP's or per direction of a lead person or supervisor.

Employees should report non compliance to a safety committee member, lead person or supervisor.

Personal Protective Equipment (PPE)

PPE include but are not limited to protective eye wear, hearing protection, gloves, hard hat, safety vest, breathing protection, sunscreen, and air monitoring equipment.

Employees will use PPE's in accordance with requirements in the Accident Prevention and Safety Manual, SOP's, MSDS sheets or per direction of a lead person or supervisor.

Employees should report non compliance to a safety committee member, lead person or supervisor.

Replace any damaged PPE. Ask you supervisor for replacement.

Respiratory Protection

Care for and maintain their respirators as instructed, and store them in a clean sanitary location.

Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.

Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.

Evacuation

Refer to the Emergency Plan for Operations Center for more detailed information.

Notify your supervisor or Evacuation Coordinator of conditions that may threaten employees and guests.

Know specific hazard procedures, if you have a specific task for emergency response follow guidelines.

Assist Evacuation Coordinator if requested, otherwise move to designated location.

Have a disaster plan for yourself and your family.

Equipment Safety Policy

Motor Vehicle Policy

Purpose

The purpose of this policy is to establish requirements for safe motor vehicle operation and defensive driving training.

Policy

The purpose of this policy is to ensure the safety of those individuals who drive city vehicles or use personal vehicles for the purpose of City of Washougal business *and to* provide guidance on the proper use of such vehicles. It is the driver's responsibility to operate such vehicles in a safe manner and to drive defensively to prevent injuries and property damage. It is the policy of the City of Washougal to provide vehicles for business use and to reimburse employees for business use of personal vehicles according to this policy. The term "vehicle" as used for this policy includes, but is not limited to, cars, trucks, backhoes, front end loaders, graders, and any other motorized equipment. City-owned or leased vehicles shall be used for the conduct of municipal business.

Drivers Requirements

Employees that operate a motor vehicle on agency business for an average two to three times per week, (or as directed by supervisors/management) should complete a certified defensive driving course. Employees who use motor pool vehicles and/or don't meet the above guidelines are welcome to take the defensive driving class at the City of Washougal's expense.

Supervisors are responsible to ensure that new permanent employees covered by this policy complete a certified defensive driving course within a specific time frame of being hired. The time frame is be decided by Supervisors on an individual bases.

Employees that require a Commercial Driver's License (CDL) will need to meet the requirements set forth by Department of Licensing (DOL).

City of Washougal employees shall notify management if their license has been suspended or revoked.

All employees shall have in their possession a current valid driver's license while operating City of Washougal or privately owned vehicles for official City of Washougal business.

City of Washougal employees shall not operate commercial vehicles (e.g. dump trucks, sweepers, Vacuum trucks, etc.) without a valid Commercial

Drivers License (CDL). The exception being that a CDL license is not required ONLY during training of commercial vehicles.

Vehicles

All City of Washougal and Privately owned vehicles used for agency business shall be in safe and legal operating condition;

All tools and equipment that could present a hazard to department employees shall be restrained while inside the passenger compartment of all vehicles;

Employees using personal vehicles for City of Washougal business should:

- Maintain auto liability insurance that meets state minimums.
- Maintain current state vehicle inspections when required.
- Maintain their vehicle in a safe operating condition meeting the manufacturer's maintenance recommendations when driven on City of Washougal business.

Preventable/Non-Preventable Accidents

The following definitions relate to motor vehicle accidents:

A motor vehicle accident is defined as "any occurrence involving a motor vehicle which results in death, injury or property damage, unless such vehicle is properly parked (See Notes 1 and 2). Who was injured, what property was damaged and to what extent, where the accident occurred, or who was responsible or sited, are not relative factors." If vehicle is legally parked, the incident will not be subject to review.

A preventable accident is defined as "any accident involving the vehicle, unless properly parked, which results in property damage or personal injury and in which the driver failed to do everything he/she reasonably could have done to prevent or avoid the accident."

Note 1: A properly parked motor vehicle is one that is completely stopped and parked where it is legal and prudent to park such a vehicle or to stop load/unload property. Vehicles stopped to load and unload passengers are not considered parked.

Note 2: Parking on private property will be governed by the same regulations that apply on public streets and highways. A vehicle stopped in traffic in response to a sign, traffic signal or the police are not considered parked.

Seat Belt Usage

All employees of the City of Washougal shall wear seat belts while operating or riding in any vehicle while working on City of Washougal time. It is a State Law *RCW 46.61.688* that people in a motor vehicle wear a safety belt.

Confined Space

Employers must test confined spaces to determine if they are hazardous.

A confined space is defined as:

- An area that is adequately sized and configured for employee entry.
- Has limited means of access or egress.
- Is not designed for continuous employee occupancy.

Confined spaces include but are not limited to STEP tanks, manholes, catch basins, utility vaults, truck bins.

Confined space tasks include: cleaning, painting, welding, scraping, performing repairs, or maintenance.

A confined space's atmosphere may make it hazardous, such as: flammable gas, vapor or mist; high dust levels that may hamper visibility of fewer than 5 feet; Oxygen concentration above 23.5 percent or below 19.5 percent; and any condition immediately dangerous to life or health that could threaten life, cause irreversible health problems, or make it difficult to escape the space without help.

All employees involved in confined space entry including the entrant, supervisor and attendant will be trained at NWRTC annually prior to entry.

Employee shall follow all procedures in confined space entry including all PPE requirements.

Attendants stand outside of the space to monitor and protect authorized personnel.

It becomes a PERMIT-REQUIRED CONFINED SPACE if, in addition, it presents or has potential for any recognized serious hazard.

Evacuation, Trenching and Shoring

Employees will not enter a trench or excavation without receiving training from NWRTC. The training is provided at no cost to the employee.

An employee shall not enter an excavation or trench over 4 feet deep without proper sloping or shoring as determined by a competent person.

Notify One-call 48 hours prior to dig to allow time for utility locates.

Provide proper traffic control to protect citizens and employees prior to start of excavation.

In general always load out spoils to eliminate trench loading and erosion issues.

Never leave the excavation or trench unattended without proper barricades and protection.

If you observe unsafe working conditions report to the lead or competent person, or supervisor.

Workers are required to wear all PPE's.

Flagging

Training at the NWRTC is provided at no cost to the employee for flagging certification.

You must have a valid flagging card to perform flagging duties in a public right of way on non-emergency projects.

Employee to wear PPE's at all times.

Install all appropriate traffic control and signage prior to the start of work.

Ladder and Scaffold

Training at the NWRTC is provided at no cost to the employee for ladder and scaffold training and is required. Employee to follow safety guidelines provided in the training.

Use ladders only for the purpose for which they were designed.

Inspect prior to use. If defect is found remove from service and notify a lead person or supervisor.

Make sure that scaffold in installed with all braces and safety features before using.

Never relocate scaffold with personnel or equipment on it.

Portable ladders shall have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

Welding and Cutting

Do not attempt to use welding equipment until properly trained. Welding machine shall be equipped with a power disconnect switch which is conveniently located at or near the machine.

Protect yourself and others from flying objects. Make sure your own eyes and eyes of others are protected when chipping slag, etc.

Be sure the welding area has a good safe floor. Concrete or masonry is recommended. The floor should not be wood, plastic tile or carpeted. Keep combustible or flammable materials at a safe distance (at least 35 feet).

Do not use gloves or other clothing which contain oil and grease. Do wear appropriate gloves.

Always be sure your machine is properly grounded. The polarity switch must never be changed while machine is under load. Wait until the machine is idling and the circuit is open.

Protect others with a screen and yourself with a protective welding helmet. Flying sparks are a danger to your eyes. Arc rays can also cause painful burns to yourself and onlookers.

Keep a fire extinguisher handy at all times.

Avoid damp areas and keep the hands and clothing dry at all times. Dampness on the body may cause an electrical shock.

Never strike an arc on a compressed cylinder or tank, even if empty, that has contained combustible material.

Electrical Safety

Training required by this section shall be of the classroom or on-the-job type. The degree of training provided shall be determined by the risk to the employee.

Lockout/Tagout procedures apply to any servicing or maintenance work of electrical equipment.

Conductive articles of jewelry and clothing such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

Lockout / Tagout

LockOut/TagOut procedures are designed to isolate or shut off machines and equipment before employees perform any servicing or maintenance work. Each person who may work on equipment shall be trained on this standard before conducting any work. General guidelines for implementing this standard are:

Training at the NWRTC is provided at no cost to the employee for lockout/tagout.

Only persons who are trained and authorized may work on equipment.

All machinery and equipment which may be started or which may release energy during servicing must be positively locked out.

All employees must honor lockout/tagout devices. No employee may remove a lock unless they have installed it.

Each person performing service or maintenance work must have their own individual lockout device. Locks must be standardized by color, shape, size or type.

Employees implementing a lockout procedure shall notify employees in the immediate vicinity of his actions.

Machinery or equipment shall be shut down through its normal stopping procedure before the lockout device is applied.

The lockout device shall be installed at a place where the machinery or equipment can be isolated from its energy source.

The equipment shall then be checked to ensure that it is inoperable before any work is performed.

The machinery or equipment shall not be restored to operation until all tools are removed and a check is made to ensure no personnel are in a hazardous area.

Appendix

APPENDIX G

HAZARDOUS MATERIALS COMMUNICATIONS AND GUIDELINES FOR EMPLOYERS

OSHA Standards and Requirements

Hazard Communication

In 1994 the top two most frequently cited OSHA citations involved the HazCom Standard, and often resulted in fines of more than $1,000 per violation.

What is a Hazardous Chemical?

The HazCom Standard applies to all businesses where hazardous chemicals are used in the workplace. OSHA defines a hazardous chemical as any liquid, solid, or gas that could present a physical or health hazard to an employee. Examples of hazardous chemicals include cleaning agents, degreasers, flammables, greases, paints, pesticides, aerosols and compressed gases.

Which Consumer Products are Hazardous Chemicals?

Many employers do not realize that many of the same products they use at home are considered by OSHA to be hazardous chemicals. Exemptions are made for consumer products, and two criteria must be met in order to qualify. First, the product must be used in the same quantity and concentration as it would be at home. Second, it must not be used with greater frequency or for longer durations than it would be at home. For example, the average American does not buy a five-gallon bucket of degreaser, nor does the average American clean their bathroom twice a day. If you use hazardous chemicals in the workplace and do not meet the criteria for exemption, then the HazCom Standard applies to your business.

Steps Necessary For Compliance

Now that you know whether the Hazard Communication Standard applies to you, you're probably wondering "What do I have to do?" The key to successful compliance is to be proactive. Don't wait for an accident to happen or for an OSHA inspection to begin thinking about Hazard Communication. The key is understanding what you must do in order to comply. First, you must develop a written HazCom plan. Second, you should be sure that your hazardous chemical inventory list is up to date and complete. Third, make sure that all hazardous chemicals are properly labeled. Fourth, you must have accessible Material Safety Data Sheets (MSDS) for every chemical that is covered by the standard. And finally, you must properly train your employees. It's important to understand that most HazCom citations involve the absence of compliance — for example, NOT having a written hazard communication program or NOT properly training your employees.

Again, the key to compliance is pro-activity. The first step is to understand what is required of you, and the second is to take action. Develop your written plan. Train your employees. Do these

things now. True workplace safety is implemented long before accidents happen or OSHA pays a visit.

Why Does OSHA Enforce the Hazard Communication Standard?

THE ACTUAL OSHA STANDARD, 1910.1200(A)(1) SAYS,

The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

Elements of the Written Hazard Communication Program

According to the U.S. Department of Labor General Industry Digest, 1994 (Revised):

Employers shall develop, implement, and maintain at the workplace a written hazard communication program for their workplaces. Employers must inform their employees of the availability of the program, including the required list(s) of hazardous chemicals and material safety data sheets.

THE ACTUAL OSHA STANDARDS; 1910.1200(E)(1)(I) & (II) SAY,

Employers shall develop, implement, and maintain at each workplace, a written hazard commun-
hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

Hazardous Chemical Inventory

All hazardous chemicals used by the employees in your facility are to be documented in the Hazardous Chemical Inventory. This listing must be available for inspection by any employee.

The Hazardous Chemical Inventory lists the chemicals in use at that location. Any new hazardous chemicals received are to be documented in the Hazardous Chemical Inventory before use by any employee. The Material Safety Data Sheet for any chemical should also be available.

Labeling

The information on all labels should correspond to the information on the appropriate Material Safety Data Sheet. All containers must be labeled. Also, piping that carries hazardous chemicals must be labeled (example — hot water, compressed gases, high pressure water, or high pressure air).

Transfer containers are temporary containers that are used by one person for one shift only. They are not required to be labeled. According to the U.S. Department of Labor General Industry Digest, 1994 (Revised):

The employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the identity of the hazardous chemical(s) contained therein and must show hazard warnings appropriate for employee protection.

THE ACTUAL OSHA STANDARD, 1910.1200(F)(5) SAYS,

(5) Except as provided in paragraphs (f)(6) and (f)(7) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s) contained therein; and,

(ii) Appropriate hazard warnings, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

The manufacturer's name, address and emergency phone number should also be on the label. In the event of an emergency, having the emergency phone number on the label can save valuable time.

Material Safety Data Sheets

As an employer you should have a Material Safety Data Sheet (MSDS) for every chemical that your employees use or are potentially exposed to.

THE ACTUAL OSHA STANDARD, 1910.1200(G)(8) SAYS,

The employer shall maintain in the workplace copies of the required material safety data sheets for each hazardous chemical, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access, microfiche, and other alternatives to maintaining paper copies of the material safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

How to Read a Material Safety Data Sheet (MSDS)

At first glance, most material safety data sheets are confusing. However, by knowing what's in each section you can find the information that you are looking for quickly. Some sections such as Hazardous Ingredients, Transportation Information and Regulatory Information will be used mainly by the Safety Director.

OSHA requires all employees to be familiar with the hazards and precautions of the chemicals that they are working with. As an employee, it is your responsibility to remain familiar with the hazards and precautions of the chemicals that you are working with. Monthly safety meetings will help you to review and reinforce this information.

You should not use a chemical that you don't have an MSDS for. All chemicals in use should be on the Hazardous Chemical inventory for your area.

Each Material Safety Data Sheet is broken up into approximately eight sections. Those sections include follows:

PRODUCT IDENTIFICATION — Gives the name of the chemical which is the same as the name on the corresponding label.

HAZARDOUS INGREDIENTS — Lists names of chemicals that make up this particular hazardous material.

PHYSICAL CHARACTERISTICS — Lists information such as odor and appearance.

FIRE AND EXPLOSION HAZARDS — Gives the flash point (which determines if it is a flammable, combustible, or neither) and fire fighting procedures.

REACTIVITY — Lists types of chemicals that shouldn't be stored with this particular chemical.

HEALTH HAZARDS — Look in this section for symptoms of overexposure and first aid procedures.

PRECAUTIONS FOR SAFE HANDLING AND USE — This section lists the PPE that should be used when handling or using this chemical.

SPILL OR LEAK PROCEDURES — What should be done to control a spill or leak.

SPECIAL PRECAUTIONS — Special handling or use instructions are documented in this section.

TRANSPORTATION DATA — Used for DOT classifications.

REGULATORY INFORMATION — Is this chemical covered by the SARA Title III or RCRA Hazardous Waste Acts.

MINIMUM HAZARD COMMUNICATION TRAINING REQUIREMENTS

Hazard communication training is fairly simple for most employers. The training can be broken down into two phases.

Conceptual training should include:

- what do you expect your employees to know about the hazards of the chemicals that they are exposed to;

- OSHA Hazard Communication standard;

- basic hazards that employees encounter when they work with hazardous chemicals (fire,health, etc.);

- acute vs. chronic hazards;

- what is a Hazardous Chemical Inventory and where is it located in your facility;

- how to read a MSDS and where to find them;

- labeling of containers;

Practical training should include:

- health and physical hazards of each chemical;

- signs of exposure/overexposure;

- how to detect the release of a chemical;

- PPE to use with each chemical;

- special precautions you should take when using or handling;

- how to respond in an emergency involving that chemical;

- how to handle a spill or leak;

A good approach is to do your conceptual training annually and upon hiring or job change. The practical training is best handled during your monthly safety meetings. A good approach is to cover the information on the MSDS for one to two chemicals during the monthly safety meeting. Putting your employees in a room for eight hours and covering a stack of MSDS will probably only result in a very low retention of the material. By covering small chucks of the MSDS information during monthly meetings, you will get better retention. During an OSHA Inspection, the compliance Manager will interview employees to test their knowledge of the hazard communication standard. If your employees are properly trained (i.e. able to answer basic questions about the Hazard Communication program, MSDS, labeling, hazardous chemical inventory and basic chemical hazards) you can receive a citation even though your employee spent days in ineffective training. The actual OSHA standards; 1910.1200(h)(3)(i) through (iv) say,

Employee training shall include at least:

{i} Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

{ii} The physical and health hazards of the chemicals in the work area;

{iii} The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

{iv} The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

APPENDIX H3
MATERIAL SAFETY DATA SHEETS

DPD
REAGENT

DATE: November 20, 2002 REVISION: 8

MATERIAL SAFETY DATA SHEET

HF scientific, inc.
3170 Metro Parkway
Fort Myers, FL 33916-7597
(239) 337-2116

24 Hour Emergency
Telephone Number
CHEMTREC
1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION:

PRODUCT NAME: DPD FREE CHLORINE REAGENT

CATALOG NUMBERS:

HF scientific, inc.:

10119	10307	10415	10440	10501
10188	10312	10417	10441	10504
10300	10313	10425	10445	10505
10301	10403	10426	10447	11921
10306	10405	10439	10500	

For products with lot numbers above 21000

USA BlueBook

34441	34442	34443	34444	34451	34452

CHEMICAL FAMILY: Not applicable

SYNONYMS: Not applicable

FORMULA:

Carboxylate Salt	Confidential
Sodium Phosphate, Dibasic	CAS # 7558-79-4
EDTA	CAS # 6381-92-6
DPD Salt	Confidential

SECTION 2 HAZARDOUS INGREDIENTS

Hazardous Ingredient(s):	OSHA PEL	ACGIH TLV	Other Limits Recommended
DPD* Salt	Not established		None

*(N,N-Diethyl-p-Phenylenediamine)

SECTION 3 PHYSICAL DATA

BOILING POINT (F): Not applicable
SOLUBILITY IN WATER: Soluble
VAPOR PRESSURE (mm Hg): Not applicable
MELTING POINT: Not found - Decomposes
APPEARANCE AND ODOR: White to pale pink powder, no odor
VAPOR DENSITY (AIR=1): Not applicable
SPECIFIC GRAVITY (H_2O =1): Not available
EVAPORATION RATE: Not applicable

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): Not flammable
FLAMMABLE LIMITS:
LEL: Not applicable UEL: Not applicable
EXTINGUISHING MEDIA: Water, dry chemical, alcohol foam, or carbon dioxide.
FIRE FIGHTING PROCEDURES: Suitable to cause of fire. Wear protective clothing and self-contained breathing apparatus.
UNUSUAL FIRE AND EXPLOSIVE HAZARDS: May emit toxic fumes.

SECTION 5 HEALTH HAZARD EFFECTS AND FIRST AID

ROUTE(S) OF ENTRY: Inhalation? Yes. Skin? Yes. Ingestion? Yes.
HEALTH HAZARDS (ACUTE AND CHRONIC): Irritating to eyes and respiratory tract. May cause allergic skin reaction.
CARCINOGENICITY: NTP? IARC Monographs? OSHA Regulated?
Not listed
SIGNS AND SYMPTOMS OF EXPOSURE: Moderately toxic. Rash, irritation of eyes and respiratory tract. May be absorbed through skin and may be sensitizing to skin.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Allergy or sensitivity to salts of DPD.
EMERGENCY FIRST AID PROCEDURES:
Eye And Skin Exposure: Immediately flush eyes with water for 15 minutes. Call physician. Wash skin with soap and plenty of water.
Ingestion: Give large quantities of water or milk. Call physician immediately.
Inhalation: Remove to fresh air.

SECTION 6 REACTIVITY DATA

STABILITY: Stable under normal conditions of use and storage
CONDITIONS TO AVOID: Exposure to light, heat, and moisture.
INCOMPATIBILITIES (MATERIALS TO AVOID): Strong oxidizing age
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Toxic fumes
HAZARDOUS POLYMERIZATION: Will not occur

SECTION 7 SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILI
Scoop into a beaker and dissolve in water
WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WIT ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Wash thoroughly after handling. Avoid contact with eyes, skin and clothing. breathing dust. Use only with adequate ventilation. Store in a cool, dr place.
OTHER PRECAUTIONS: None

SECTION 8 CONTROL MEASURES

RESPIRATORY PROTECTION: Not necessary in normal use.
VENTILATION SYSTEMS: General mechanical ventilation satisfactor normal use.
EYE PROTECTION: Safety glasses
SKIN PROTECTION: Rubber gloves
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Lab coat, eye v safety shower
WORK/HYGIENIC PRACTICES: Wash well after handling. Avoid skin contact.

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#14161 04/03 Rev. 0.3

Date: March 18, 2005 Revision 6

MATERIAL SAFETY DATA SHEET

HF scientific, inc.
3170 Metro Parkway
Fort Myers, FL 33916-7597
(239) 337-2116
Mon-Fri 8 am - 4:30 pm

24 Hour Emergency
Telephone Number
CHEMTREC
1-800-424-9300

SECTION 1 PRODUCT IDENTIFICATION

PRODUCT NAME: AMMONIA SOLUTION

CATALOG NUMBER:
HF scientific, Inc.: 10198
U.S. Filter/Wallace & Tiernan: U409

CHEMICAL FAMILY: AMMONIA

SYNONYMS: AQUA AMMONIA, AMMONIA WATER, AMMONIA HYDRATE

FORMULA:

NH_4OH	CAS# 1336-21-6	18%
H_2O	CAS# 7732-18-5	82%

SECTION 2 HAZARDOUS INGREDIENTS

Hazardous Ingredient(s)	OSHA	ACGIH	Other Limits Recommended
Ammonium Hydroxide	35 ppm STEL	35 ppm STEL	
CAS # 1336-21-6	25 ppm PEL	25 ppm TWA	

SECTION 3 PHYSICAL DATA

MELTING POINT: -72°C (-98°F)
BOILING POINT: 36°C (97°F)
SPECIFIC GRAVITY (H_2O=1): 0.92
VAPOR PRESSURE (mm Hg): 115 at 20°C (68°F)
VAPOR DENSITY (AIR=1): 1.2
EVAPORATION RATE (H_2O = 1): Similar
SOLUBILITY IN WATER: Indefinite
APPEARANCE AND ODOR: Clear, colorless solution at room temperature with the odor of ammonia.
PERCENT VOLATILE: 100% at 212°F

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

AUTOIGNITION TEMPERATURE: 651°C (1204°F) as NH_3
FLAMMABLE LIMITS IN AIR VOLUME % AS NH_3: LEL 16%, UEL 27%

EXTINGUISHING MEDIA: Use any means suitable for extinguishing surrounding fire. Use water spray to blanket fire, cool fire exposed containers, and flush non-ignited spills or vapors away from fire.
FIRE FIGHTING PROCEDURES: Wear self contained breathing apparatus and protective clothing.

UNUSUAL FIRE & EXPLOSIVE HAZARD: See National MSDS

SECTION 5 HEALTH EFFECTS AND FIRST AID

Route(s) Of Entry: Inhalation? Yes. Skin? No.* Ingestion? Yes.
*Contact may cause skin damage.

HEALTH HAZARDS (Acute & Chronic):
Inhalation: May cause irritation to the respiratory tract, symptoms may include coughing, sore throat, and labored breathing. High concentrations may cause laryngitis, tracheitis, pulmonary edema, chest pains, or pneumonitis.
Ingestion: Toxic! May cause corrosion to the esophagus and stomach with perforation and peritonitis. Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse.

Skin Contact: May cause skin burns with vesication.
Eye Contact: Vapors may cause irritation. Splashes may cause severe pain and eye injuries such as glaucoma, corneal scars, iris atrophy, and cataracts.
Chronic Exposure: No information found.
Aggravation of Pre-existing Conditions: Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material.
CARCINOGENICITY: NTP? IARC Monographs? OSHA Regulated? Not listed

EMERGENCY FIRST AID PROCEDURES:
Eye: Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.
Ingestion: Give several glasses of water to drink to dilute. Vomiting may occur spontaneously, but do not induce. Get medical attention immediately.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SECTION 6 REACTIVITY DATA

STABILITY: Stable under ordinary conditions of use and storage.
CONDITIONS TO AVOID: Extreme heat.
INCOMPATIBILITY (MATERIALS TO AVOID): Acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxides, silver permanganate, oleum, beta-propiolactone.
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Emits toxic fumes of ammonia and nitric oxides when heated to decomposition.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 7 SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ventilate and evacuate area. Clean-up personnel require protective clothing and respiratory protection from vapors. Allow only qualified personnel to handle the spill. Contain and recover liquid when possible. Spills may be neutralized with dilute hydrochloric acid or dilute sulfuric acid and discharged to sewer with large amounts of water. Regulations for pH, ammonia content and salts for effluents must be considered. Do not flush directly into sewers. Alternately, spills may be absorbed with dry inert material and collected for disposal in a RCRA approved facility. Reportable Quantity (RQ) (CWA/CERCLA): 1000 lbs.
WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.
PRECAUTIONS TO BE TAKEN IN HANDLING & STORAGE: Keep away from heat and flame. Keep container closed when not in use.
OTHER PRECAUTIONS: Isolate from incompatible substances.

SECTION 8 CONTROL MEASURES

RESPIRATORY PROTECTION: If the TLV is exceeded, a dust / mist respirator with chemical goggles may be worn, in general, 10 times the TLV. Alternatively, a full face respirator or airline hood may be worn.
VENTILATION SYSTEMS: Local exhaust ventilation to keep below exposure limits.
SKIN PROTECTION: Wear appropriate protective clothing, including boots, gloves, lab coat, apron or coveralls to prevent skin contact.
EYE PROTECTION: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Eyewash stations in use area.
WORK/HYGIENIC PRACTICES: Wash well after handling. Avoid breathing vapors.

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AQUAEOUS
AMMONIA
(CL_2 DETECTION)

0508

BUFFER SOLUTIONS

MATERIAL SAFETY DATA SHEET

NCL of Wisconsin, Inc.
P.O. Box 8
Birnamwood, WI 54414
Emergency Telephone No: 800-424-9300 (Chemtrec)

PRODUCT NAME: BUFFER SOLUTION, pH 7.00
NCL CATALOG NUMBER: B-47
Date of this revision: 10/03/2007

1. CHEMICAL PRODUCT IDENTIFICATION

Trade name: None.
Chemical Formula: Solution in water.
Formula CAS No: Not applicable.
Molecular Weight: Not applicable.

2. COMPOSITION

Component	CAS#	Approx %
Water	7732-18-5	>98
Potassium Phosphate Monobasic	7778-77-0	<1
Sodium Hydroxide	1310-73-2	<1
Yellow food coloring	not found	<0.001

3. HAZARD IDENTIFICATION

Do not get in eyes, on skin or on clothing. Minimal contact, as with all chemicals, is a good policy to follow. Remove and wash contaminated clothing before re-use.
Routes of entry: Ingestion, inhalation, or skin contact.
Carcinogenicity: This material is not listed (IARC, NTP, OSHA) as a cancer causing agent.

4. FIRST AID MEASURES

Ingestion: Give large quantities of water. Call a physician.
Inhalation: Remove to fresh air. Give artificial respiration if breathing has stopped.
Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops.
Skin: Immediately flush skin with plenty of water. Get medical attention if irritation develops.

5. FIRE FIGHTING MEASURES:

Flash Point: Not Applicable.
Flammable Limits (LEL): **Not Applicable.**
Flammable Limits (UEL): **Not Applicable.**
Fire Extinguishing Media: Use any suitable means for surrounding materials.
Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

Evacuate area of non-essential personnel. Eliminate ignition sources.
Scoop up material and transfer to a container for proper disposal.
Ensure compliance with Federal, State, and local regulations.

7. HANDLING AND STORAGE

Store at room temperature. Avoid contact with eyes.

8. EXPOSURE CONTROLS

Airborne Exposure Limits: None established for product.

For 100% Sodium Hydroxide (product contains <1%)

OSHA Permissible Exposure Limit (PEL): 2 mg/cu.m.

ACGIH Threshold Limit Value (TLV): 2 mg/cu.m.

Ventilation System: None normally required.

Personal Respirators (NIOSH Approved): None normally required.

Skin Protection: Rubber gloves may be worn to prevent skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material.

Maintain eye-wash fountain and quick-drench facilities in work area.

9. PHYSICAL CHEMICAL PROPERTIES

Appearance: Clear, yellow liquid.

Odor: None.

Solubility: Infinitely soluble in water.

Boiling Point: Essentially the same as water.

Melting Point: Essentially the same as water.

Specific Gravity: 1.0

Vapor Density (Air=1): Essentially the same as water.

Vapor Pressure (mm Hg): Essentially the same as water.

Evaporation Rate: Essentially the same as water.

10. STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: This substance does not polymerize.

Incompatibilities: None found.

11. TOXICOLOGICAL INFORMATION:

No toxicity data for product.

For 100% Sodium Hydroxide (product contains <1%):

orl-rbt LDLo: 500 mg/kg.

Mutagenic effects cited in RTECS.

12. ECOLOGICAL INFORMATION

None found.

13. DISPOSAL CONSIDERATIONS

EPA Waste Number: None.

Ensure compliance with Federal, State, and local regulations.

14. TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated.

DOT Number: None.

15. REGULATORY INFORMATION

The CAS numbers of all components of this solution are listed on the TSCA Inventory.

16. OTHER INFORMATION

NFPA Hazard Ratings:

Health:	0
Flammability:	0
Reactivity:	0
Special Hazards:	None known.

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, NCL of Wisconsin, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Accordingly, NCL of Wisconsin, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information.

END OF MATERIAL SAFETY DATA

MATERIAL SAFETY DATA SHEET
NCL of Wisconsin, Inc.
P.O. Box 8
Birnamwood, WI 54414
Emergency Telephone No: 800-424-9300 (Chemtrec)

PRODUCT NAME: BUFFER SOLUTION, pH 4.00
NCL CATALOG NUMBER: B-44
Date of this revision: 10/17/2007

1. CHEMICAL PRODUCT IDENTIFICATION

Trade name: None.
Chemical Formula: Solution in water.
Formula CAS No: Not applicable.
Molecular Weight: Not applicable.

2. COMPOSITION

Component	CAS#	Approx %
Water	7732-18-5	>98.8
Potassium Hydrogen Phthalate	877-24-7	1.1
Red food coloring	not found	<0.001

3. HAZARD IDENTIFICATION

Do not get in eyes, on skin or on clothing. Minimal contact, as with all chemicals, is a good policy to follow. Remove and wash contaminated clothing before re-use.
Routes of entry: Ingestion, inhalation, or skin contact.
Carcinogenicity: This material is not listed (IARC, NTP, OSHA) as a cancer causing agent.

4. FIRST AID MEASURES

Ingestion: Give two glasses of water to dilute. Call a physician.
Inhalation: Remove to fresh air. Give artificial respiration if breathing has stopped.
Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops.
Skin: Immediately flush skin with plenty of water. Get medical attention if irritation develops.

5. FIRE FIGHTING MEASURES:

Flash Point: Not Applicable.
Flammable Limits (LEL): Not Applicable.
Flammable Limits (UEL): Not Applicable.
Fire Extinguishing Media: Use any suitable means for surrounding materials.
Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

Evacuate area of non-essential personnel. Eliminate ignition sources.
Scoop up material and transfer to a plastic container and send to a RCRA-approved waste facility.
Ensure compliance with Federal, State, and local regulations.

7. HANDLING AND STORAGE

Store at room temperature. Avoid contact with eyes. Do not breathe mist.

8. EXPOSURE CONTROLS

Airborne Exposure Limits: None established for product.
Ventilation System: None normally required.
Personal Respirators (NIOSH Approved): None normally required.
Skin Protection: Rubber gloves may be worn to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material.
Maintain eye-wash fountain and quick-drench facilities in work area.

9. PHYSICAL CHEMICAL PROPERTIES

Appearance: Clear, pink to red liquid.
Odor: None.
Solubility: Infinitely soluble in water.
Boiling Point: 100 C (212°F).
Melting Point: 0 C (32°F).
Specific Gravity: 1.0
Vapor Density (Air=1): Essentially the same as water.
Vapor Pressure (mm Hg): Essentially the same as water.
Evaporation Rate: Essentially the same as water.

10. STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products: None known.
Hazardous Polymerization: This substance does not polymerize.
Incompatibilities: None found.

11. TOXICOLOGICAL INFORMATION:

No toxicity data for product.

12. ECOLOGICAL INFORMATION

None found.

13. DISPOSAL CONSIDERATIONS

EPA Waste Number: None.
Ensure compliance with Federal, State, and local regulations.

14. TRANSPORT INFORMATION

DOT Shipping Name: Not Regulated.
DOT Number: None.

15. REGULATORY INFORMATION

The CAS numbers of all components of this solution are listed on the TSCA Inventory.

16. OTHER INFORMATION

NFPA Hazard Ratings:

Health:	0
Flammability:	0
Reactivity:	0
Special Hazards:	None known.

The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, NCL of Wisconsin, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Accordingly, NCL of Wisconsin, Inc. will not be responsible for damages of any kind resulting from the use of or reliance upon such information.

END OF MATERIAL SAFETY DATA SHEET

TURBINE
OIL

Material Safety Data Sheet

Chevron GST® Oils

MSDS: 6710
Revision #: 6 **Revision Date:** 11/08/00

Click here to search the product data sheet database

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEVRON GST Oil

PRODUCT NUMBER(S): CPS220091 CPS253026 CPS253027 CPS253028
CPS253029 CPS253034

SYNONYM: CHEVRON GST Oil EP ISO 32
CHEVRON GST Oil EP ISO 46
CHEVRON GST Oil ISO 100
CHEVRON GST Oil ISO 32
CHEVRON GST Oil ISO 46
CHEVRON GST Oil ISO 68
CHEVRON Turbine Oil GST EP ISO 32
CHEVRON Turbine Oil GST ISO 100
CHEVRON Turbine Oil GST ISO 32

CHEVRON Turbine Oil GST ISO 46

CHEVRON Turbine Oil GST ISO 68

COMPANY IDENTIFICATION	EMERGENCY TELEPHONE NUMBERS
Chevron Products Company	HEALTH (24 hr): (800)231-0623 or
Lubricants and Specialty Products	(510)231-0623 (International)
6001 Bollinger Canyon Rd., T3325/B10	TRANSPORTATION (24 hr): CHEMTREC
San Ramon, CA 94583	(800)424-9300 or (703)527-3887
www.chevron-lubricants.com	Emergency Information Centers
	are located in U.S.A.
	Int'l collect calls accepted

PRODUCT INFORMATION: MSDS Request:(800)414-6737 email:lubemsds@chevron.com

Environmental, Safety, & Health Info: (925) 842-5535

Product Information: (800) 582-3835

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2. COMPOSITION/INFORMATION ON INGREDIENTS

100.0 % CHEVRON GST Oil

CONTAINING

COMPONENTS	AMOUNT	LIMIT/QTY	AGENCY/TYPE
LUBRICATING BASE OIL			
SEVERELY REFINED PETROLEUM DISTILLATE			

> 98.00%	5 mg/m3 (mist)	ACGIH TWA
	10 mg/m3 (mist)	ACGIH STEL
	5 mg/m3 (mist)	OSHA PEL

The BASE OIL may be a mixture of any of the following: CAS 64741884, CAS 64741895, CAS 64741964, CAS 64741975, CAS 64742014, CAS 64742525, CAS 64742536, CAS 64742547, CAS 64742627, CAS 64742650, or CAS 72623837.

ADDITIVES

< 2.00%

COMPOSITION COMMENT:

All the components of this material are on the Toxic Substances Control Act Chemical Substances Inventory.

This product fits the ACGIH definition for mineral oil mist. The ACGIH TLV is 5 mg/m3, the OSHA PEL is 5 mg/m3.

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3. HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

EYE:

Not expected to cause prolonged or significant eye irritation.

SKIN:

Contact with the skin is not expected to cause prolonged or significant

irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

INGESTION:

Not expected to be harmful if swallowed.

INHALATION:

Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit.

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4. FIRST AID MEASURES

EYE:

No specific first aid measures are required because this material is not expected to cause eye irritation. As a precaution remove contact lenses, if worn, and flush eyes with water.

SKIN:

No specific first aid measures are required because this material is not expected to be harmful if it contacts the skin. As a precaution, remove clothing and shoes if contaminated. Wash skin with soap and water. Wash or clean contaminated clothing and shoes before reuse.

INGESTION:

No specific first aid measures are required because this material is not expected to be harmful if swallowed. Do not induce vomiting. As a precaution, give the person a glass of water or milk to drink and get medical advice. Never give anything by mouth to an unconscious person.

INHALATION:

If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

NOTE TO PHYSICIANS:

In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

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5. FIRE FIGHTING MEASURES

SPECIAL NOTES: Leaks/ruptures in high pressure systems using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FIRE CLASSIFICATION:

Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

FLAMMABLE PROPERTIES:

FLASH POINT: (COC) 374F (190C) Min.

AUTOIGNITION: NDA

FLAMMABILITY LIMITS (% by volume in air): Lower: NA Upper: NA

EXTINGUISHING MEDIA:

CO_2, Dry Chemical, Foam, Water Fog

NFPA RATINGS: Health 0; Flammability 1; Reactivity 0.

FIRE FIGHTING INSTRUCTIONS:

This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

COMBUSTION PRODUCTS:

Normal combustion forms carbon dioxide and water vapor; incomplete combustion can produce carbon monoxide.

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6. ACCIDENTAL RELEASE MEASURES

CHEMTREC EMERGENCY NUMBER (24 hr): (800)424-9300 or (703)527-3887

International Collect Calls Accepted

ACCIDENTAL RELEASE MEASURES:

Stop the source of the leak or release. Clean up releases as soon as possible, observing precautions in Exposure Controls/Personal Protection. Contain liquid to prevent further contamination of soil, surface water or groundwater. Clean up small spills using appropriate techniques such as sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Follow prescribed procedures for reporting and

responding to larger releases.

---

7. HANDLING AND STORAGE

DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.

Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner, or properly disposed of. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not

adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Special Note: Do not use in breathing air apparatus or medical equipment.

ENGINEERING CONTROLS

Use in a well-ventilated area. If user operations generate an oil mist, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended mineral oil mist exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION:

No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

SKIN PROTECTION:

No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances. Suggested materials for protective gloves include: <Nitrile> <Silver Shield> <Viton> <4H>

RESPIRATORY PROTECTION:

No respiratory protection is normally required. If user operations generate an oil mist, determine if airborne concentrations are below the recommended mineral oil mist exposure limits. If not wear a NIOSH approved respirator that provides adequate protection from measured concentrations

Stable.

CONDITIONS TO AVOID:

No data available.

INCOMPATIBILITY WITH OTHER MATERIALS:

May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

HAZARDOUS POLYMERIZATION:

Polymerization will not occur.

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11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:

The eye irritation hazard is based on an evaluation of the data for the components.

SKIN EFFECTS:

The skin irritation hazard is based on an evaluation of the data for the components.

ACUTE ORAL EFFECTS:

The acute oral toxicity is based on an evaluation of the data for the components.

ACUTE INHALATION EFFECTS:

The acute respiratory toxicity is based on an evaluation of the data for the components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or

severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

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12. ECOLOGICAL INFORMATION

ECOTOXICITY:

This material is not expected to be harmful to aquatic organisms.

ENVIRONMENTAL FATE:

This material is not expected to be readily biodegradable.

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13. DISPOSAL CONSIDERATIONS

Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

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14. TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT SHIPPING NAME: NONE

DOT HAZARD CLASS: NONE

DOT IDENTIFICATION NUMBER: NONE

DOT PACKING GROUP: N/A

ADDITIONAL INFO: Petroleum Lubricating Oil - Not Hazardous by U.S. DOT.
ADR/RID Hazard class - Not applicable.

15. REGULATORY INFORMATION

SARA 311 CATEGORIES:	1.	Immediate (Acute) Health Effects:	NO
	2.	Delayed (Chronic) Health Effects:	NO
	3.	Fire Hazard:	NO
	4.	Sudden Release of Pressure Hazard:	NO
	5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01=SARA 313	11=NJ RTK	22=TSCA Sect 5(a)(2)
02=MASS RTK	12=CERCLA 302.4	23=TSCA Sect 6
03=NTP Carcinogen	13=MN RTK	24=TSCA Sect 12(b)
04=CA Prop 65-Carcin	14=ACGIH TWA	25=TSCA Sect 8(a)
05=CA Prop 65-Repro Tox	15=ACGIH STEL	26=TSCA Sect 8(d)
06=IARC Group 1	16=ACGIH Calc TLV	27=TSCA Sect 4(a)
07=IARC Group 2A	17=OSHA PEL	28=Canadian WHMIS
08=IARC Group 2B	18=DOT Marine Pollutant	29=OSHA CEILING
09=SARA 302/304	19=Chevron TWA	30=Chevron STEL
10=PA RTK	20=EPA Carcinogen	

The following components of this material are found on the regulatory lists indicated.

SEVERELY REFINED PETROLEUM DISTILLATE

is found on lists: 14,15,17,

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows:

PETROLEUM OIL

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

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16. OTHER INFORMATION

NFPA RATINGS: Health 0; Flammability 1; Reactivity 0;

HMIS RATINGS: Health 1; Flammability 1; Reactivity 0;

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT:

This revision updates Section 4 (First Aid Measures), Section 9 (Physical and Chemical Properties), and Section 15 (Regulatory Information).

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	TPQ - Threshold Planning Quantity
RQ - Reportable Quantity	PEL - Permissible Exposure Limit
C - Ceiling Limit	CAS - Chemical Abstract Service Number
A1-5 - Appendix A Categories	() - Change Has Been Proposed
NDA - No Data Available	NA - Not Applicable

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Toxicology and Health Risk Assessment Unit, CRTC, P.O. Box 1627, Richmond, CA 94804

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The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

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THIS IS THE LAST PAGE OF THIS MSDS

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MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

SODIUM HYDROXIDE

Northstar Chemical, Inc.

PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):	**NORTHSTAR SODIUM HYDROXIDE LIQUID (1% - 40%)**
CHEMICAL NAME/CLASS:	Sodium Hydroxide Solution
PRODUCT USE:	Metal finishing, neutralization, industrial cleaners, chemical processing.
SUPPLIER/MANUFACTURER'S NAME:	**Northstar Chemical, Inc.**
ADDRESS:	**Corporate Office** 14200 S.W. Tualatin-Sherwood Rd. Sherwood, OR 97140
BUSINESS PHONE:	888-793-9476
EMERGENCY PHONE:	CHEMTREC: 800-424-9300
DATE OF PREPARATION:	January 12, 2001

Si usted no entiende las Hojas de Informacion de Seguridad sobre Materials, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the Material Safety Data Sheet, find someone to explain it to you in detail.)

2. COMPOSITION AND INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	%w/w	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			
			TLV mg/m³	STEL mg/m³	PEL mg/m³	STEL mg/m³	IDLH mg/m³	OTHER mg/m³
Sodium Hydroxide	1310-73-2	1-40	2, C	NE	2, C (Vacated 1989 PELs)	NE	10	NIOSH REL: 2 DFG MAKs: 2
Water and other ingredients. The other ingredients are each present in less than 1 percent concentration in this product.		Balance	The components present in the balance of this product do not contribute any significant, additional hazards. All hazard information pertinent to this product has been presented in the remaining sections of this Material Safety Data Sheet, per the requirements of Federal Occupational Safety and Health Hazard Communication Standard (29 CFR 1910.1200).					

NE = Not Established. C = Ceiling Limit. See Section 16 for Definitions of Terms Used.
NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product is a clear to turbid liquid solution. This solution is corrosive, and can be damaging to contaminated tissue. Ingestion of large quantities can be fatal. In the event of fire or spill, adequate precautions must be taken. This solution reacts with water to generate heat. If involved in a fire, this product may decompose to produce sodium oxides and a variety of other compounds (i.e. carbon monoxide and carbon dioxide). Emergency responders must wear the proper personal protective equipment suitable for the situation to which the are responding.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: This solution can damage skin, eyes, mucous membranes, and other contaminated tissue. Burns may not be immediately painful or visible.

INHALATION: If mists or sprays of this solution are inhaled, this product may cause pulmonary irritation, irritation of the mucus membranes, coughing, and a sore throat. Damage to the tissues of the respiratory system may occur.

CONTACT WITH SKIN or EYES: Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage possibly blindness. Skin contact may result in a "soapy" feel and cause reddening, discomfort, and irritation. Prolonged exposure may result in ulcerating burns which could leave scars.

SKIN ABSORPTION: Skin absorption is not anticipated to be a significant route of over-exposure to any component of this product.

INGESTION: Though ingestion is not anticipated to be a significant route of over-exposure to this product, if ingestion does occur burning and irritation of the mouth, throat, esophagus, and other tissues of the digestive system will occur immediately upon contact. Ingestion of large quantities may be fatal.

INJECTION: Though injection is not anticipated to be a significant route of over-exposure to this product, if it occurs, may cause local reddening, tissue swelling, and discomfort.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms.

ACUTE: This solution is corrosive, and can burn and damage eyes, skin, mucous membranes, and any other exposed tissue. If inhaled, irritation of the respiratory system may occur, with coughing, and breathing difficulty. Though unlikely to occur during occupational use, ingestion of large quantities may be fatal.

CHRONIC: Repeated skin contact with this product may result in dermatitis (inflammation and reddening of the skin).

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	3
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	1
PROTECTIVE EQUIPMENT		D

EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		

For routine industrial applications

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

SKIN EXPOSURE: If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. Washing with large amounts of clean water should continue until affected skin surface no longer feels slippery. Victim must seek medical attention.

EYE EXPOSURE: If this product enters the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Do not attempt to neutralize. Oils or ointments should not be used at this time. Victim must seek immediate medical attention.

INHALATION: If vapors, mists, or sprays of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

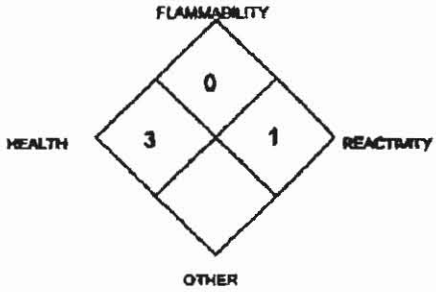
INGESTION: If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Victim should drink milk, egg whites, or large quantities of water. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or who cannot swallow.

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with victim.

5. FIRE-FIGHTING MEASURES

FLASH POINT, °C (method): Not flammable.
AUTOIGNITION TEMPERATURE, °C: Not flammable.
FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): Not applicable.
Upper (UEL): Not applicable.

NFPA RATING



FIRE EXTINGUISHING MATERIALS:

Water Spray: YES
Carbon Dioxide: YES
Foam: YES
Dry Chemical: YES
Halon: YES
Other: Any "ABC" Class.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not considered flammable or combustible. Does not support combustion. However, contact with water or acids may generate sufficient heat to ignite nearby combustible materials. Contact with aluminum, tin or zinc will result in the generation of heat and release of hydrogen gas. Run-off from fire control may cause pollution. Keep fire-exposed containers cool with water spray to prevent rupture due to excessive heat. High pressure water hose may spread product from broken containers increasing contamination. When involved in a fire, this material may decompose and produce irritating fumes and toxic gases (including carbon monoxide, carbon dioxide and sodium oxides). Products of combustion are irritating to the respiratory tract and may cause breathing difficulty. Symptoms may be delayed several hours or longer depending upon the extent of exposure.

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. If possible, prevent run-off water from entering storm drains, bodies of water, or other environmentally sensitive areas.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

The proper personal protective equipment for incidental releases (e.g.-1 L of the product released in a well-ventilated area) use impermeable gloves, specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard-hat. Self Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, Select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations. Absorb spilled liquid with polypads or other suitable absorbent materials. Neutralize residue with citric acid or other caustic neutralizing agent. Decontaminate the area thoroughly. Test area with litmus paper to confirm neutralization. Place all spill residue in a suitable container. Dispose of in accordance with Federal, State, and local hazardous waste disposal regulations (see Section 13, Disposal Considerations).

PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash hands after handling this product. Do not eat or drink while handling this material. Remove contaminated clothing immediately. Discard contaminated clothing items, or launder before re-use. Inform anyone handling such contaminated laundry of the hazards associated with this product. Use ventilation and other engineering controls to minimize potential exposure to this product.

7. HANDLING and STORAGE (Continued)

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Avoid breathing mists or sprays generated by this product. It is best to never add water to this product, always add product, with constant stirring, slowly to surface of lukewarm (80-100 °F, 27-38 °C) water, to assure product is being completely dispersed as it is added. Only trained personnel can add water to this product. Never add more product than can be absorbed by solution while maintaining temperatures below 200 °F(93 °C) to prevent boiling and spattering of caustic solution. Use in a well-ventilated location.

For Non-Bulk Containers: Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers, or in a diked area, as appropriate. Store containers away from incompatible chemicals. Keep container tightly closed when not in use. Wash thoroughly after using this material. Storage areas should be made of fire-resistant materials. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Empty containers may contain residual liquid, therefore, empty containers should be handled with care.

Bulk Containers: All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

Tank Car Shipments: Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Decontaminate equipment before maintenance begins by a triple-rinse with water followed, if necessary, by using caustic neutralizing agent and an additional rinse. Collect all rinsates and dispose of according to applicable Federal, State, or local procedures.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: If required use a corrosion-resistant ventilation system separate from other exhaust ventilation systems to ensure that there is no potential for overexposure to sprays, or mists of this product and that exposures are below those in section 2 (Composition and Information on Ingredients). Ensure eyewash/safety shower stations are available near areas where this product is used.

RESPIRATORY PROTECTION: Maintain airborne contaminant concentrations below exposure limits listed in Section 2 (Composition and Information on Ingredients). If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, or applicable State regulations. If adequate ventilation is not available or if there is potential for airborne exposure above the exposure limits (listed in Section 2) a respirator may be worn up to respirator exposure limitations, check with respirator equipment manufactures recommendations/limitations. For a higher level of protection use positive pressure supplied air respiration protection or Self Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS:

Positive pressure, full-facepiece Self Contained Breathing Apparatus; or positive pressure, full-facepiece Self Contained Breathing Apparatus with an auxiliary positive pressure Self Contained Breathing Apparatus.

EYE PROTECTION: Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION: Wear appropriate gloves for routine industrial use. Use appropriate gloves for spill response, as stated in Section 6 of this MSDS (Accidental Release Measures).

BODY PROTECTION: Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from natural rubber are generally acceptable, depending upon the task.

9. PHYSICAL and CHEMICAL PROPERTIES

Physical and chemical properties for various concentrations of Sodium Hydroxide, the main component of this product are as follows:

	Series			
	10	20	30	40
PHYSICAL STATE:	Liquid			
BOILING POINT @ 760 mm Hg:	110°C	113°C	119°C	129°C
FREEZING POINT:	-12°C 10°F	-28°C -14°F	0°C 32°F	13°C 55°F
VAPOR PRESSURE mm Hg @ 68°C:	135	110	76	46
SPECIFIC GRAVITY @ 15.6° C	1.11	1.22	1.33	1.43
DENSITY – lb-gal @ 15.6°C:	9.28	10.17	11.09	11.92
VAPOR DENSITY:	Not Determined			
EVAPORATION RATE (water = 1):	Similar to or slower than water depending upon weight percent.			
pH:	14.0 pH @ 7.5% solution			
SOLUBILITY in H_2O - % by wt:	Completely Soluble			

ODOR THRESHOLD: Not available.

APPEARANCE AND COLOR: This product is a clear light straw to turbid liquid solution.
HOW TO DETECT THIS SUBSTANCE (warning properties): Litmus paper will turn blue-purple upon contact with this solution even with low concentrations.

10. STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Thermal decomposition products of this solution can include carbon monoxide, carbon dioxide, and sodium compounds.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: This product reacts with strong acids. Additionally, it is incompatible with organic halogen compounds, organic nitro compounds, aluminum, zinc, tin, and other metals. Avoid contact with leather and wool. Reactions with various food sugars may form carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid exposure or contact to extreme temperatures and incompatible chemicals.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Additional toxicology information for components greater than 1 percent in concentration is provided below.

SODIUM HYDROXIDE:
Eye Irritancy (monkey) = 1% solution, 24 hr, Severe.
Skin Irritancy (rabbit) = 500 mg, 24 hr, Severe.
Eye Irritancy (rabbit) = 4 g, Mild.
Eye Irritancy (rabbit) = 1% solution, Severe.
Eye Irritancy (rabbit) = 50 µg, 24 hr, Severe.
Eye Irritancy (rabbit) = 1 mg, 24 hr, Severe.
Eye Irritancy (rabbit) = 100 mg with rinse, Severe.
Cytogenic Analysis System (grasshopper, parenteral) = 20 mg
LD_{50} (intraperitoneal, mouse) = 40 mg/kg.
LDLo (oral, rabbit) = 500 mg/kg.

11. TOXICOLOGICAL INFORMATION (Continued)

SUSPECTED CANCER AGENT: The components of this product's ingredients are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA; and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This product is severely irritating to contaminated tissue.

SENSITIZATION TO THE PRODUCT: No component of this product is known to be a sensitizer.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not reported to produce mutagenic effects in humans. Mutation data is available for the Sodium Hydroxide (component of this product), obtained during clinical studies on animal tissues exposed to high doses of this compound.
Embryotoxicity: This product is not reported to produce embryotoxic effects in humans.
Teratogenicity: This product is not reported to cause teratogenic effects in humans.
Reproductive Toxicity: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES: Currently there are no Biological Exposure Indices (BEIs) associated with the components of this product.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE Skin disorders can be aggravated by over-exposure to this product. Inhalation of this products mists may aggravate respiratory conditions.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure to this product.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product are relatively stable in the environment; they may degrade, after time, into other organic and inorganic constituents. Additional environmental data is available for the components of this product as follows:

SODIUM HYDROXIDE: K_{ow} = too low to be measured. Water solubility = 9 g/0.9 ml water. BOD: None.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: This product is harmful to plant and animal life if this product is released into the environment. As with all chemicals, work practices should be aimed at eliminating environmental releases.

EFFECT OF CHEMICAL ON AQUATIC LIFE This product can substantially raise the pH of an aquatic environment and can be extremely toxic to fish and aquatic plants. As with all chemicals, work practices should be aimed at eliminating environmental releases. Additional aquatic data for the components of this product is available as follows:

SODIUM HYDROXIDE:
LC_{100} (*Cyprinus carpio*) = 180 ppm/24 hr/25 °C
TL_m (mosquito fish) = 125 ppm/96 hr (fresh water)
TL_m (bluegill) = 99 mg/L/48 hr (tap water)

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EPA WASTE NUMBER: D002 (Characteristic, corrosive), applicable to wastes consisting only of this solution.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME:	Sodium Hydroxide solution
HAZARD CLASS NUMBER and DESCRIPTION:	8 (Corrosive Material)
UN IDENTIFICATION NUMBER:	UN 1824
PACKING GROUP:	II
DOT LABEL(S) REQUIRED:	Corrosive

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 154

MARINE POLLUTANT: This product does not contain any components which are designated by the Department of Transportation to be Marine Pollutants. (49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

Note: The latest DOT information is provided, please verify all DOT information as it subject to change without notice.

15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: The components of this product subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act are as follows.

COMPONENT	SARA 302	SARA 304	SARA 313
Sodium Hydroxide	No	Yes	No

SARA Threshold Planning Quantity: Not applicable.

TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

CERCLA REPORTABLE QUANTITY (RQ): Sodium Hydroxide = 1000 lbs.

OTHER FEDERAL REGULATIONS: Not applicable.

STATE REGULATORY INFORMATION: Components of this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Sodium Hydroxide.
California - Permissible Exposure Limits for Chemical Contaminants: Sodium Hydroxide.
Florida - Substance List: Sodium Hydroxide.
Illinois - Toxic Substance List: Sodium Hydroxide.
Kansas - Section 302/313 List: Sodium Hydroxide.
Minnesota - List of Hazardous Substances: Sodium Hydroxide.
Missouri - Employer Information/Toxic Substance List: Sodium Hydroxide.
New Jersey - Right to Know Hazardous Substance List: Sodium Hydroxide.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: Sodium Hydroxide.
Pennsylvania - Hazardous Substance List: Sodium Hydroxide.
Rhode Island - Hazardous Substance List: Sodium Hydroxide.
Texas - Hazardous Substance List: Sodium Hydroxide.
West Virginia Substance List: Sodium Hydroxide.
Wisconsin - Toxic and Hazardous Substances: Sodium Hydroxide.

CALIFORNIA PROPOSITION 65 No component of this product is on the California Proposition 65 lists.

LABELING (Precautionary Statements): DANGER! CORROSIVE MATERIAL! LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. MAY CAUSE LUNG DAMAGE. REACTS VIOLENTLY WITH ACIDS. REACTS WITH WATER TO GENERATE HEAT. AVOID SPATTERING BY SLOWLY ADDING TO SOLUTION. Do not get into eyes, on skin or clothing. Avoid breathing spray or mist. Do not take internally. Use with adequate ventilation and employ respiratory protection when exposed to the mist or spray. When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing. Do not transfer to unlabeled containers. Use with adequate ventilation. Wash thoroughly after handling. Keep container closed when not in use. FIRST-AID: In case of contact, immediately flush skin or eyes for at least 15 minutes. If inhaled, move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not induce vomiting. IN CASE OF FIRE: Use water, dry chemical, CO_2, or alcohol foam. IN CASE OF SPILL: Dike area to contain spill. Only trained personnel equipped full acid- protective gear should be permitted in this area. Spilled material may be absorbed into an appropriate absorbent material. Spills should be removed using a vacuum truck. Neutralize remaining traces of material with any dilute inorganic acid or citric acid and then flush with water. If necessary a liberal covering of sodium bicarbonate should then be applied and then rinsed with water. Do not wash into storm or sanitary sewer system.

TARGET ORGANS: Skin, eyes and respiratory system.

15. REGULATORY INFORMATION (Continued)

WHMIS SYMBOLS: E- Corrosive Material

16. OTHER INFORMATION

INFORMATION SOURCE: CHEMICAL SAFETY ASSOCIATES, Inc.

PREPARED BY: BASIC CHEMICAL SOLUTIONS

THIS INFORMATION IS DRAWN FROM RECOGNIZED SOURCES BELIEVED TO BE RELIABLE. BASIC CHEMICAL SOLUTIONS MAKES NO GUARANTEES NOR ASSUMES ANY LIABILITY IN CONNECTION WITH THIS INFORMATION. THE USER SHOULD BE AWARE OF CHANGING TECHNOLOGY, RESEARCH, REGULATIONS AND ANALYTICAL PROCEDURES THAT MAY REQUIRE CHANGES HEREIN. THE ABOVE DATA IS SUPPLIED UPON THE CONDITION THAT PERSONS WILL EVALUATE THIS INFORMATION AND THEN DETERMINE ITS SUITABILITY FOR THEIR USE.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:

ACGIH-- American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits.

TLV - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration.

PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase; "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.

IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. The DFG - MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA). NIOSH issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of NE is made for reference.

FLAMMABILITY LIMITS IN AIR:

Much of the information related to fire and explosion is derived from the National Fire Protection Association (NFPA). LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:

Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: LD_{50} - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; LC_{50} - Lethal Concentration (gases) which kills 50% of the exposed animals; ppm concentration expressed in parts of material per million parts of air or water; mg/m^3 concentration expressed in weight of substance per volume of air; mg/kg quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: IARC - the International Agency for Research on Cancer; NTP - the National Toxicology Program, RTECS - the Registry of Toxic Effects of Chemical Substances, OSHA and CAL/OSHA. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include TDLo, the lowest dose to cause a symptom and TCLo the lowest concentration to cause a symptom; TDo, LDLo, and LDo, or TC, TCo, LCLo, and LCo, the lowest dose (or concentration) to cause death. BEI - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.

REGULATORY INFORMATION:

This section explains the impact of various laws and regulations on the material. EPA is the U.S. Environmental Protection Agency. WHMIS is the Canadian Workplace Hazardous Materials Information System. DOT and TC are the U.S. Department of Transportation and the Transport Canada, respectively. Other acronyms used are: Superfund Amendments and Reauthorization Act (SARA); the Toxic Substance Control Act (TSCA); Marine Pollutant status according to the DOT; California's Safe Drinking Water Act (Proposition 65); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund); and various state regulations. This section also includes information on the precautionary warnings which appear on the materials package label.

CHLORINE

canexus

LIQUID CHLORINE
General Sales Specification

Parameters	Units	Specification
Chlorine	Volume %	99.5 Min.
Moisture	ppm	50 Max.
Non-Volatile Residue	ppm	50 Max.
Carbon Tetrachloride	ppm	15 Max.
Chloroform	ppm	50 Max.
Bromine	ppm	25 Max.
Nitrogen Trichloride	ppm	5 Max.

NOTES:

- Certified to NSF Standard 60.
- Meets the properties in the Food Chemical Codex Cl2 monograph, Fifth Edition.
- Meets the properties in AWWA Standard B301-04.

IMPORTANT:

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. No warranty or guarantee, expressed or implied, is made regarding performance, stability or otherwise. This information is not intended to be all-inclusive as the manner and conditions of use, handling, storage and other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, Provincial and local laws.

Date Approved: 09/14/2005
Revision No.: 2005-001

File ID: s:/Houston/PRODUCT SPECS-MANUALS/ Chlorine/SPECS/General Spec 0905.pdf

CANEXUS Chemicals
Customer Service Group
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North Vancouver, BC
CANADA V7H 1S4
Phone: (800) 699-6924
Fax: (604) 929-6918

NSF
Certified to ANSI/NSF Standards

Responsible Care
Beyond what's required.

NEXEN CHEMICALS
100 Amherst Avenue North Vancouver BC Canada V7H 1S4
T 604 929.8161 F 604 929.6918 www.nexenchemicals.com
Email sher_takai@nexeninc.com

Material Safety Data Sheets (MSDS) For Our Products

As a supplier and manufacturer of controlled products we are required under Workplace Hazardous Materials Information System (WHMIS) to provide new Material Safety Data Sheets every 3 years. Attached are our current MSDS(s) revised January 1, 2002 for the products that Nexen supply to your facility. They will also be available as Library publications on our web site www.nexenchemicals.com.

If these sheets should be sent to others in your organization please let us know and we will revise our list for future mailing. We do ask, however, that you assist us now by sending on copies of the MSDS to the appropriate people in your organization.

To assist us in ensuring you have actually received the MSDS, an acknowledgment of receipt is requested. You may respond by mail, phone or fax:

Mailing address:	Nexen Chemicals 100 Amherst Avenue North Vancouver, B.C. V7H 1S4
Phone No.:	(604) 929-8161
Fax No.:	(604) 929-6918

Your confirmation of receipt will be greatly appreciated.

If additional copies of MSDS are required, or if you have inquiries concerning MSDS please contact us at (604) 929-8161 and we will be happy to assist you.

Nexen Customer Service
January 21, 2002

SUPPLIER NOTIFICATION REQUIREMENT

SARA TITLE III

This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act ("SARA") of 1986 and 40 CFR Part 372.

Because JCI Jones Chemicals, Inc. is in Standard Industrial Classification codes 20 through 39, manufactures or processes this toxic chemical, and sells or otherwise distributes this mixture or trade name product containing a toxic chemical to you, we are required to give you this notification under SARA Title III.

This notification is required to be made each year with at least the first shipment of each mixture or trade name product to each recipient beginning January 1, 1989.

This notification must not be detached from this Material Safety Data Sheet ("MSDS"). Any copying and redistribution of this MSDS shall include copying and redistribution of this notification attached to copies of the MSDS subsequently redistributed.

This mixture or trade name product contains the following Section 313 Toxic Chemicals:

SARA TITLE III TOXIC CHEMICAL	CHEMICAL ABSTRACTS SERVICE REGISTRY NUMBER (CAS #)	PERCENT BY WEIGHT OF TOXIC CHEMICAL
Chlorine	7782-50-5	99.5%

FAX COVER SHEET

NEXEN CHEMICALS – Customer Service
100 Amherst Avenue North Vancouver BC Canada V7H 1S4
T 604 929.8161 F 604 929.6918 www.nexenchemicals.com
Email aryn_smith-avendano@nexeninc.com

DATE: May 24, 2002

2 Pages including cover page

TO:	Andrea
COMPANY:	Jones
LOCATION:	
FAX:	253-274-0733

FROM:	Aryn Smith-Avendano
SUBJECT:	NSF Certification

CONFIDENTIALITY NOTICE: This facsimile may contain PRIVILEGED AND/OR CONFIDENTIAL INFORMATION intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering it to the person addressed you may not read, copy or deliver this to anyone else. If you received this facsimile by mistake, please immediately call collect to the telephone number above. Thank you.

MESSAGE

Hi Andrea,

Please find the requested NSF certification requested.

Have a good day!

With kind regards,
Aryn Smith-Avendano
Customer Service Co-ordinator

CHLORINE

UNITED STATES FEDERAL REGULATIONS: (not a comprehensive list)

TOXIC SUBSTANCES CONTROL ACT (TSCA): Chlorine is listed on the inventory.

OSHA: Hazardous Substance under 29 CFR Section 1910, Subpart Z.

CERCLA: Hazardous Substance under 40 CFR Part 302, RQ = 10 lbs.

SARA 313: Toxic Chemical subject to the reporting requirements of 40 CFR Part 372

SARA 311/312 EPA HAZARD CATEGORIES: Immediate (Acute) Health, Sudden Release of Pressure

SARA 302: Extremely Hazardous Substance, Threshold Planning Quantity = 100 lbs.

NSF

‖ This product has been certified to NSF/ANSI Standard 60 (Certificate number 07870/07871B).

SECTION 16 - OTHER INFORMATION

VERSION:	1.2
PREPARED BY:	Canexus Chemicals Responsible Care Department. If you have any questions, contact Canexus at: 1-800-699-6924
REVISIONS:	Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document. Company changed from Nexen to Canexus on August 18, 2005.

BRAZILIAN TRANSPORTATION REQUIREMENTS:

Decreto Lei N 96.044 de 18.05.88: Regulamentação do Transporte Rodoviário de Produtos Perigosos

Portaria MT 204 de 20.05.1997: Instrução Complementar aos Regulamentos dos Transportes Rodoviários e Ferroviários de Produtos Perigosos

NBR 7500: Símbolos de Risco e Manuseio para o Transporte e Armazenagem de Materiais

NBR 7501: Terminologia - Transporte de Produtos Perigosos

NBR 7502: Transporte de Cargas Perigosas - Classificação

NBR 7503: Ficha de Emergência para o Transporte de Produto Perigoso - Características e Dimensões

NBR 7504: Envelope para o Transporte de Produtos Perigosos - Dimensões e Utilização

NBR 8285: Preenchimento da Ficha de Emergência para o Transporte de Produtos Perigosos - Procedimento

NBR 8286: Emprego de Simbologia para o Transporte de Produtos Perigosos - Procedimentos

NBR 9734: Conjunto de Equipamentos de Proteção Individual para Avaliação de Emergência e Fuga no Transporte Rodoviário de Produtos Perigosos – Procedimentos

NBR 9735: Conjunto de Equipamentos para Emergência no Transporte Rodoviário de Produtos Perigosos - Procedimentos

SECTION 15 - REGULATORY INFORMATION

CANADIAN FEDERAL REGULATIONS: (not a comprehensive list)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): Chlorine on the Domestic Substances List (DSL).

WHMIS CLASSIFICATION:

A - Compressed Gas

C - Oxidizing Material

D1A - Very Toxic Material causing immediate and serious toxic effects

D2A - Toxic Material causing other toxic effects

E - Corrosive Material

WHMIS INGREDIENT DISCLOSURE LIST: Yes, 1%

CPR COMPLIANCE

This product has been classified with the hazard criteria of the CPR, and the MSDS contains all the information required by CPR.

SECTION 11 -TOXICOLOGICAL INFORMATION

ACUTE EFFECTS:

LC50 Mouse: 137 ppm/1hr

LC50 Male rat: 260-344 ppm/1hr

CARCINOGENICITY: ACGIH: A4, Not classifiable as a human carcinogen

SENSITIZATION: Not a sensitizer

TERATOGENICITY: No information available

REPRODUCTIVE EFFECTS: No information available

MUTAGENICITY: No information available

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

LC50 Daphnia magna: 0.097 mg/L/30 min

LC50 Daphnia magna: 0.063 mg/L/60 min

LC50 Yellow perch: 0.88 mg/L/60 min

Can cause immediate damage to wildlife and plants.

ECOLOGICAL FATE INFORMATION:

Unlikely to accumulate due to reactivity with moisture and tissues.

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose the contents of a leaking cylinder to a safe out-of-door area or a hood with forced ventilation. Attached an appropriate control valve with a trap or check valve and a long piece of flexible hose connected to the valve outlet. Discharge the gas at a moderate rate into an adequate amount of about 15% aqueous sodium hydroxide or other alkali in a suitable container. When all the gas has been discharged, close the cylinder valve and transport the resulting salt solution to the plant treating unit for neutralization and disposal. The cylinder should be tagged as defective and returned to the supplier according to its directions. Follow all federal, provincial/state, and local regulations. Consult with your local supplier for additional information. Residue in empty containers can be dangerous.

SECTION 14 - TRANSPORT INFORMATION

CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:

Chlorine, Class 2.3; 8 UN1017

ERAP Index QUANTITY RESTRICTION: 500 kg

US DOT HAZARDOUS MATERIALS REGULATIONS:

Chlorine, 2.3 (Poison gas), 8 (Corrosive), UN1017

Corrosive subsidiary label is required. Classified as a Marine Pollutant. Reportable Quantity, RQ = 10 lbs.

RESPIRATORY PROTECTION:

NIOSH recommendations for chlorine concentrations in air:

Up to 5 ppm: Chemical cartridge respirator with chlorine cartridge(s), or Supplied Air Respirator (SAR). Up to 10 ppm: SAR operated in continuous flow mode, or powered air-purifying respirator with chlorine cartridge(s), or full-facepiece chemical cartridge respirator with chlorine cartridge(s), or full face-piece SCBA, or full face-piece SAR.

IDLH Conditions (10 ppm) or Planned Entry in Unknown Concentrations: Positive pressure, full face-piece SCBA, or positive pressure full face-piece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister, or escape type SCBA.

NOTE: Air purifying respirators do not protect against oxygen deficient atmospheres.

In Brazil, use equipment with certificate of approval emitted by the Ministry of Labour.

SKIN PROTECTION: Wear impervious gloves and boots and/or other protective clothing according to circumstances. Some operations may require the use of an impervious full-body encapsulating suit.

EYE AND FACE PROTECTION: Eye protection is required. Chemical safety goggles are recommended. The wearing of contact lenses is not recommended.

OTHER: Have a safety shower and eye wash station readily available in the immediate work area.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Amber liquid or greenish-yellow gas.	MELTING POINT:	-101 °C
ODOUR:	Pungent. Detection at 0.2-0.4 ppm, but unreliable.	BOILING POINT:	-34 °C
pH:	Reacts with water to produce acid solutions.	CRITICAL TEMPERATURE:	144 °C
VAPOUR PRESSURE:	638.4 kPa (6.3 atmospheres) at 20 °C	RELATIVE DENSITY:	1.33 @ 15.6 °C
SOLUBILITY:	Slightly soluble in water and soluble alkalis, but reacts liberating heat.	PARTION COEFFICIENT: n-OCTANOL/WATER	Not applicable.
VAPOUR DENSITY:	2.5 (air = 1)	EVAPORATION RATE:	Not applicable.

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Dry chlorine is stable in steel containers at normal ambient conditions.

INCOMPATIBILITY: Chlorine is extremely reactive. Liquid or gaseous chlorine can react violently with many combustible materials, and other chemicals, including water. Metal halides, carbon, finely divided metals and sulphides can accelerate the rate of chlorine reactions. Chlorine is extremely corrosive to most metals in the presence of moisture (>150 ppm water) or at high temperatures. Combines with water to produce hydrochloric and hypochlorous acid. Chlorine reacts with carbon monoxide to produce toxic phosgene, and sulphur dioxide to produce sulfuryl chloride.

HAZARDOUS DECOMPOSITION PRODUCTS: None.

HAZARDOUS POLYMERIZATION: Will not occur.

persons, such as when trying to stop the flow of gas. Use water with caution as chlorine in water may be very corrosive. Ventilate area. Chlorine gas is heavier than air and will collect in low areas.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 4 - May be fatal on short exposure. Specialized protective equipment required

FLAMMABILITY: 0 - Not combustible

REACTIVITY: 0 - Not reactive when mixed with water.

SPECIFIC HAZARDS: Oxidizing agent

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION: Evacuate unnecessary personnel from release area and keep unprotected persons upwind. Wear appropriate personal protective equipment including respiratory protection.

ENVIRONMENTAL PRECAUTIONS: Stop or reduce leak if safe to do so. Prevent chlorine from entering confined spaces, sewers or waterways.

REMEDIATION MEASURES: Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Extinguish or remove all sources of ignition. Ventilate area. Chlorine gas is heavier than air and will collect in low areas. Chlorine gas may be absorbed in alkaline solutions with a pH above 10. Notify government occupational health and safety and environmental authorities as per applicable regulations. In the United States, releases over 10 pounds must be reported to the National Response Center at 1-800-424-8802.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Follow safe handling practices for compressed gas cylinders as described by the Compressed Gas Association or the relevant agency in the country where the product is used . Regularly inspect and test piping and containment for chlorine service according to Chlorine Institute guidelines. Have emergency equipment readily available.

STORAGE: Store containers in a well ventilated area of low fire potential and away from incompatible materials. Cylinder temperature should never exceed 51 degrees C or 125 degrees F. Avoid storage of cylinders for more than 6 months. Protect containers from weather and physical damage.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE LIMITS:

ACGIH TLV-C: 0.5 ppm A4, Not classifiable as a human carcinogen

ACGIH TLV- STEL: 1.0 ppm

OSHA PEL-TWA: 0.5 ppm

ENGINEERING CONTROLS: Use general or local exhaust ventilation to maintain exposure below the exposure limits. These controls may need to be augmented by the use of process or personnel enclosures, control of process conditions, or by process modification.

Coliform Monitoring Plan for: City of Washougal

A. System Information

City of Washougal	County: Clark	System I.D. Number: 934000
Attach copy of current WFI		
Number of Routine Samples Required Monthly by Regulation: 20	Number of Sample Sites Needed to Represent the Distribution System: 20	

B. Routine and Repeat Sample Locations

Location/Address for Routine Sample Sites	Location/Address for Repeat Sample Sites
S1. 421 C Street Sample Station	1-1. 421 C Street Sample Station
	1-2. Upstream 165 C Street
	1-3. Downstream 548 C Street
S2. 324 North X Street	2-1. 324 N. X Street Sample Station
	2-2. Upstream 374 N. X Street
	2-3. Downstream 314 N. X Street
S3. 541 West Dogwood Sample Stn.	3-1. 541 West Dogwood Sample Stn.
	3-2. Upstream 541 West Dogwood
	3-3. Downstream 578 West Dogwood
S4. 493 Sheppard Rd. Sample Station	4-1. 493 Sheppard Rd. Sample Station
	4-2. Upstream 513 Sheppard Rd.
	4-3. Downstream 403 Sheppard Rd.
S5. 2324 N. L Street Sample Station	5-1. 2324 N. L Street Sample Station
	5-2. Upstream 2363 North L Street
	5-3. Downstream 2355 North L Street
S6. 3780 Birch Street Sample Stn.	6-1. 3780 Birch Street Sample Stn.
	6-2. Upstream 3831 Birch Street
	6-3. Downstream 3760 Birch Street

S7. 4283 M Drive Sample Station	**7-1. 4283 M Drive Sample Station**
	7-2. Upstream 4273 M Drive
	7-3. Downstream 4313 M drive
S8. 5525 I Street Sample Station	**8-1. 5525 I Street Sample Station**
	8-2. Upstream 5540 I Street
	8-3. Downstream 5520 I Street
S9. 35300 Evrgrn Blv. Sample Station	**9-1. 35300 Evergrn. Sample Station**
	9-2. Upstream 34900 Evrgrn. Blvd
	9-3. Downstream 35400 Evrgrn. Blvd.
S10. 605 39th Street Sample Station	**10-1. 605 39th Street Sample Station**
	10-2. Downstream 312 39th Street
	10-3. Upstream 945 39th Street
S11. 2201 C Street Sample Station	**11-1. 2201 C Street Sample Station**
	11-2. Upstream 415 22nd Street
	11-3. Downstream 230 22nd Street
S12. 607 K Street Sample Station	**12-1. 607 K Street Sample Station**
	12-2. Upstream 529 K Street
	12-3. Downstream 559 K Street
S13. 02 West Dogwood Sample Stn.	**13-1. 02 West Dogwood Sample Stn.**
	13-2. Upstream 161 West Dogwood St.
	13-3. Downstream 2550 North 4th St.
S14. 776 West U Street Sample Stn.	**14-1. 776 West U Street Sample Station**
	14-2. Upstream 756 West U Street
	14-3. Downstream 776 West U Street
S15. 2103 North O Street Sample Stn.	**15-1. 2103 North O Street Sample Stn.**
	15-2. Upstream 2093 North O Street
	15-3. Downstream 2183 North O St.

S16. 5193 N Street Sample Station	16-1. 5193 N Street Sample Station
	16-2. Upstream 5227 N Street
	16-3. Downstream 5165 N Street
S17. 5192 I Street Sample Station	17-1. 5192 I Street Sample Station
	17-2. Upstream 5223 I Street
	17-3. Downstream 931 52nd Street
S18. 1212 49th Street Sample Station	18-1. 49th Street Sample Station
	18-2. Upstream 1407 49th Street
	18-3. Downstream 1112 49th Street
S19. 4285 Addy St. Sample Station	19-1. 4285 Addy St. Sample Station
	19-2. Upstream 4260 Addy Street
	19-3. Downstream 4280 Addy Street
S20. 650 37th Street Sample Station	20-1. 650 37th Street Sample Station
	20-2. Upstream 3725 Grant Street
	20-3. Downstream 627 South 37th Street

C. Routine Sample Rotation Schedule

Month	Routine Site(s)	Month	Routine Site(s)
January	ALL	July	ALL
February	ALL	August	ALL
March	ALL	September	ALL
April	ALL	October	ALL
May	ALL	November	ALL
June	ALL	December	ALL

D. Unsatisfactory Samples

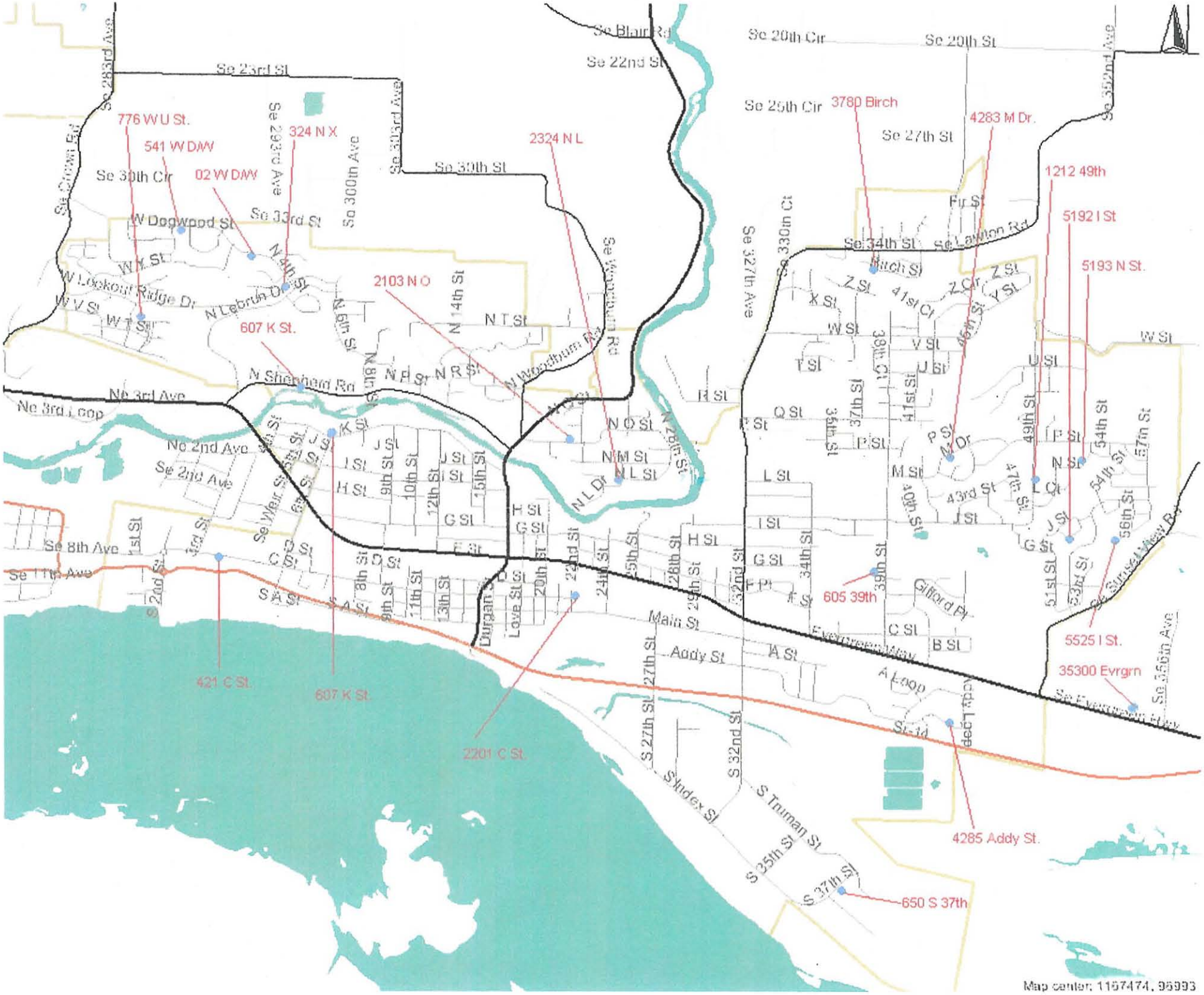
Description of Sample Collection Locations Following Unsatisfactory Samples
Following an unsatisfactory sample result, repeat samples will be collected within 24 hours in accordance with WAC 246-290-320(2). Also, as a result of the Groundwater Rule that went into effect as of December 1, 2009, triggered monitoring samples will be collected from every source in operation at the time the unsatisfactory sample was collected and analyzed for fecal indicators. Results from these triggered source samples will determine possible public notice and corrective actions in accordance with EPA letter from Margo Partridge from Region 10 dated December 2009 and attached to this plan.

E. Month Following Unsatisfactory Samples

Description of Sample Collection Locations for Month Following Unsatisfactory Samples
Regulations require a minimum of 5 routine samples in the month following an unsatisfactory routine sample. We collect 20 routine samples each month thereby addressing this requirement.

F. Preparation Information

System Name: City of Washougal	Date Plan Completed: 3/6/07	Dates Modified 5/17/12
Name of Plan Preparer: Travis Davis	Position: Maintenance III Worker	Daytime Phone # (360)835-2662
State Reviewer	Date Last Review	


776 W U St.
541 W D/W
02 W D/W
324 N X
2324 N L
2103 N O
607 K St.
3780 Birch
4283 M Dr.
1212 49th
5192 I St
5193 N St.
5525 I St.
35300 Evrgrn
605 39th
421 C St.
607 K St.
2201 C St.
4285 Addy St.
650 S 37th
Se 23rd St
Se 30th St
Se 30th Cir
Se 33rd St
Se 20th Cir
Se 20th St
Se 25th Cir
Se 27th St
Se 34th St
Se Lawton Rd
Birch St
Ne 3rd Ave
Ne 2nd Ave
Se 2nd Ave
Se 8th Ave
Se 11th Ave
Main St
Addy St
Gifford Pl
Evergreen Way
Se Sunset Ave
Se Evergreen Ave
S Index St
S Truman St
Map center: 1167474, 95993

CHLORINE

SKIN CONTACT: High concentrations of chlorine gas can cause severe irritation. Symptoms include burning and prickling sensations, reddening and blisters. Direct contact with liquid chlorine causes severe local irritation, burns and possibly frostbite.

EYE CONTACT: Chlorine gas is a severe irritant to the eyes. Symptoms include a stinging and burning sensation with tearing. Direct contact with liquid chlorine may cause burns, permanent damage, and possibly blindness.

INGESTION: Not applicable to gaseous chlorine.

EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Repeated and prolonged exposure at 5 ppm may cause respiratory effects, inflammation of the nose and corrosion of tooth enamel. No evidence of carcinogenicity in human or animal studies. Chlorine is unlikely to accumulate in the body since it reacts with water and tissues.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing respiratory disorders.

SECTION 3 – COMPOSITION

HAZARDOUS INGREDIENTS	% (w/w)	CAS NUMBER
Chlorine	99.5	7782-50-5

SECTION 4 - FIRST AID MEASURES

INHALATION: Take precautions to ensure your own safety before attempting rescue. Wear appropriate personal protective equipment and use the 'buddy' system. Remove source of chlorine or remove victim to fresh air. If breathing has stopped, a trained person should begin artificial respiration, or if the heart has stopped, cardiopulmonary resuscitation (CPR) immediately. Oxygen may be beneficial if administered by a suitably trained person. Obtain medical attention immediately.

SKIN CONTACT:. Immediately flush contaminated areas with lukewarm, gently running water for at least 20 minutes. Remove contaminated clothing. If irritation persists, obtain medical attention immediately. Use cold packs to reduce pain.

EYE CONTACT: Immediately flush contaminated eye(s) with lukewarm, gently running water for at least 30 minutes, by the clock, while holding the eyelid(s) open. Take care not to rinse contaminated water into a non-affected eye. If irritation persists, obtain medical attention immediately.

INGESTION: Not applicable to gaseous chlorine.

GENERAL COMMENTS: Provide general supportive measures (comfort, warmth, rest). Seek medical attention for all exposures except minor instances of inhalation or skin contact. First-aid procedures should be reviewed by appropriate personnel familiar with chlorine and its conditions of use in the workplace.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT:	Does not burn, but strong oxidizer and fire risk	LOWER FLAMMABILITY LIMITS:	Not applicable	SENSITIVITY TO MECHANICAL IMPACT:	Not sensitive

HAZARDOUS COMBUSTION PRODUCTS: Toxic products are formed when combustible materials burn in chlorine.

EXTINGUISHING MEDIA: Small fires: Dry chemical or carbon dioxide (CO_2). Large fires: Water spray, fog or foam as suitable for surrounding media.

FIRE FIGHTING INSTRUCTIONS: Wear adequate personal protective equipment. Remove chlorine containers from fire area if safe to do so. Use water to keep fire-exposed containers cool. Use water spray to direct escaping gas away from

canexus

Gestion responsable Responsible Care

MATERIAL SAFETY DATA SHEET

THE FOLLOWING CLAUSE DISCLAIMS CANEXUS' LIABILITY, PLEASE READ IT CAREFULLY

The information herein is provided in good faith and believed to be accurate as of the effective date shown below. However, Canexus makes no warranty (of merchantability or otherwise), express or implied, with respect to the information in this MSDS and Canexus assumes no liability resulting from use of this MSDS or the information provided therein. Since conditions for use of the products described in this MSDS are not under Canexus' control, it is the buyer's/user's responsibility to make their own investigations to determine the suitability of the information for their particular purposes and to ensure that their activities comply with all federal, state, provincial or local laws and in no event shall Canexus be liable for any claims, losses, damages or expenses of any buyer/user, or of any third party, howsoever arising.

SECTION 1 - IDENTIFICATION

PRODUCT IDENTIFIER:	**CHLORINE**
PRODUCT USE:	Pulp bleaching, water treatment, manufacture of plastics, organic and inorganic chlorides, refrigerants, and pharmaceuticals.
MANUFACTURER:	**Canexus Chemicals Canada Limited Partnership** 100 Amherst Avenue North Vancouver, British Columbia, Canada V7H 1S4 **Emergency, call: (604) 929-3441** To Request an MSDS, call: 1-800-699-6924

This MSDS is available in French upon request.

Cette fiche signalétique est disponible en français sur demande.

SECTION 2 - HAZARDS IDENTIFICATION

WHMIS CLASSIFICATION:

A - Compressed Gas

C - Oxidizing Material

D1A - Very Toxic Material causing immediate and serious toxic effects

D2A - Toxic Material causing other toxic effects

E - Corrosive Material

EMERGENCY OVERVIEW:

Greenish-yellow gas or clear amber liquid (under pressure) with a pungent odour. Compressed gas. Strong oxidizer. Contact with combustible material may cause fire or explosion. Combines with water to form corrosive hydrochloric and hypochlorous acids. Corrosive to the respiratory tract, eyes and skin. Very toxic. Can cause immediate death.

EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:

INHALATION: Chlorine is a severe nose, throat and upper respiratory tract irritant. Slight itching of the nose can occur at 0.2 ppm. At 1.0 ppm, scratchiness and dryness of the throat, coughing and minor difficulty breathing can occur. Severe shortness of breath and violent headache occur after exposue at 1.3 ppm for 30 minutes. Immediately dangerous to life or health (IDLH) at 10 ppm. Above 30 ppm, intense coughing, choking, chest pain and vomiting occur. Bronchitis and accumulation of fluid in the lungs may develop after severe exposure. High concentrations may cause death.

APPENDIX H4
COLIFORM MONITORING PLAN

APPENDIX H5
CROSS-CONNECTION CONTROL

Cross-Connection Control Program Plan
City of Washougal Water System

A. Requirement for Program

The City of Washougal, 934000,

Hereinafter referred to as "the City of Washougal and or water utility," has the responsibility to protect the public water system from contamination due to cross connections. A cross connection may be defined as *"any actual or potential physical connection between a potable water line and any pipe, vessel, or machine that contains or has a probability of containing a non-potable gas or liquid, such that it is possible for a non-potable gas or liquid to enter the potable water system by backflow."* All public water systems are required to develop and implement cross-connection control (CCC) programs. The CCC requirements are contained in Washington Administrative Code (WAC) 246-290-490 of the Group A Drinking Water Regulations. The minimum required elements of a CCC program are:

1. Establishment of legal authority and program policies;
2. Evaluation of premises for cross-connection hazards;
3. Elimination and/or control of cross connections;
4. Provision of qualified personnel;
5. Inspection and testing of backflow preventers;
6. Quality control of testing process;
7. Response to backflow incidents;
8. Public education for consumers;
9. Record keeping for CCC program;
10. Special requirements for reclaimed water use.

    Other CCC program requirements include:

11. Coordination with the Local Administrative Authority (LAA), i.e., the local building or plumbing official regarding CCC activities;
12. Prohibition of the return of used water into the public water system (PWS) distribution system;
13. Inclusion of a written CCC program in a Water System Plan (WSP).

Note: Throughout the CCC program plan the term *customer* is used. *Customer* as used herein means the property owner and/or occupant of the premises served by the City of Washougal (i.e., whoever interfaces with the City of Washougal regarding water service). Also, unless otherwise defined, all CCC-related terms used in this program have the same definitions as those contained in WAC 246-290-010 of the Washington State Drinking Water Regulations.

B. Program Objectives

The objectives of the CCC program are to:
1.Reasonably reduce the risk of contamination of the public water distribution system.

2. Reasonably reduce the City of Washougal's exposure to legal liability arising from the backflow of any contaminant originating from the customer's plumbing system and then supplied to other customers.

C. Summary of Program Decisions

The following table summarizes the major policy and program decisions adopted for the City of Washougal water system. The items in the table represent CCC program areas that have more than one acceptable approach or option.

CCC Program Decision Summary Table for the City of Washougal

Decision Item	Decision
1. Type of Program [General, WAC 246-290-490(2)(e)]	
a. Premises isolation only	
b. Premises isolation and in-premises protection (combination program)	
2. Extent of Coordination with LAA [WAC 246-290-490(2)(d)]	
a. Information exchange	
b. Interaction	
c. Joint program	
3. Relationship with Customer [Element 1]	
a. Signed service agreement or contract	
b. Ordinance/resolution; implied service agreement	
4. Enforcement of Corrective Action [Element 1]	
a. Rely upon shut-off of water service	
b. Rely upon purveyor-installed premises isolation	
5. Assessment and Re-assessment of Hazard [Element 2]	
a. By purveyor's staff or equivalent	
b. By cross-connection control specialist (CCS) employed by customer; report reviewed by purveyor's CCS	
6. Location and Ownership of Premises Isolation Assembly [Element 3]	
a. On purveyor's service line	
b. On customer's service line	
7. CCS Option – Purveyor's Program Management [Element 4]	
a. Purveyor's staff member certified	
b. Inter-agency agreement or use other agency's CCS	
c. Contract with consultant CCS	
8. Testing of Assemblies [Element 5]	
a. By purveyor's staff or purveyor-employed backflow assembly tester (BAT)	
b. By customer-employed (contractor) BAT	
9. Cost Recovery [WAC 246-290-100(4)(h) and –105(4)(p)]	
a. Borne by all customers (general water rates)	
b. Assessed to specific class (commercial meters)	
c. Each customer directly bears cost	

Cross-Connection Control and Related Materials

Acronyms and Abbreviations

ABPA	American Backflow Prevention Association
AG	air gap
ANSI	American National Standards Institute
ASR	Annual Summary Report
AVB	atmospheric vacuum breaker
AWWA	American Water Works Association
BAT	backflow assembly tester
BPA	backflow prevention assembly
CCC	cross-connection control
CCS	cross-connection control specialist
CV	single-check valve
DCAV	dual-check with atmospheric vent
DCDA	double-check detector assembly
DCV	dual-check backflow preventer
DCVA	double-check valve assembly
DOH	Washington State Department of Health
EPA	U.S. Environmental Protection Agency
HBVB	hose bib vacuum breaker
IAPMO	International Association of Plumbing and Mechanical Officials
L&I	Washington State Department of Labor and Industries
LAA	Local Administrative Authority
MCL	maximum contaminant level
NTNC	non-transient non-community
PNWS-AWWA	Pacific Northwest Section - American Water Works Association
psi	pounds per square inch
PVBA	pressure vacuum breaker assembly
PVC	polyvinyl chloride
PWS	public water system
QA/QC	quality assurance/quality control
RCW	Revised Code of Washington
ROW	right-of-way
RPBA	reduced-pressure backflow assembly
RPDA	reduced-pressure detector assembly
SBCC	Washington State Building Code Council
SDWA	Safe Drinking Water Act
SRC4	Spokane Regional Cross-Connection Control Committee
SVBA	spill-resistant vacuum breaker assembly
SWSMP	small water system management plan

The Group	Western Washington Cross-Connection Prevention Professionals Group
TNC	transient non-community
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
UPC	Uniform Plumbing Code
USC	University of Southern California
USCFCCCHR	University of Southern California - Foundation for Cross-Connection Control and Hydraulic Research
WAC	Washington Administrative Code
WSP	water system plan

Washington Administrative Code 246-290-490

This section contains Washington State Department of Health drinking water regulations relating to cross-connection control, WAC 246-290-490. These regulations first became effective in April 1999. Below is a list, definitions, abbreviations and acronyms relating to cross connections. These have been extracted from **WAC 246-290-010**.

Definitions Related to Cross-Connection Control

"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 non-pressurized receiving vessel. To be an air gap approved by the department, 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.

"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.

"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 purveyor for the protection of the public water system. The requirements of WAC 246-290-490 do not apply to backflow preventers installed for other purposes.

"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.

"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.

"Backflow assembly tester" means a person holding a valid BAT certificate issued in accordance with chapter 246-292 WAC.

"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.

"Backsiphonage" means backflow due to a reduction in system pressure in the purveyor's distribution system and/or consumer's water system.

"Combination fire protection system" means a fire sprinkler system that:

- Is supplied only by the purveyor's water;
- Does not have a fire department pumper connection; and
- Is constructed of approved potable water piping and materials that serve both the fire sprinkler system and the consumer's potable water system.

"Consumer" means any person receiving water from a public water system from either the meter, or the point where the service line connects with the distribution system if no meter is present. For purposes of cross-connection control, "consumer" means the owner or operator of a water system connected to a public water system through a service connection.

"Consumer's water system," as used in WAC 246-290-490, 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.

"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.

"Cross-connection control program" means the administrative and technical procedures the purveyor implements to protect the public water system from contamination via cross connections as required in WAC 246-290-490.

"Cross-connection control specialist" means a person holding a valid CCS certificate issued in accordance with chapter 246-292 WAC.

"Cross-connection control summary report" means the annual report that describes the status of the purveyor's cross-connection control program.

"Flow-through fire protection system" means a fire sprinkler system that:

- Is supplied only by the purveyor's water;
- Does not have a fire department pumper connection;
- Is constructed of approved potable water piping and materials to which sprinkler heads are attached; and
- Terminates at a connection to a toilet or other plumbing fixture to prevent the water from becoming stagnant.

"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.

"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.

"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

"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.

“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 purveyor to isolate the consumer’s water system from the purveyor’s distribution system.

"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.

"Unapproved auxiliary water supply" means a water supply (other than the purveyor's water supply) on or available to the consumer's premises that is either not approved for human consumption by the health agency having jurisdiction or is not otherwise acceptable to the purveyor.

"Uniform Plumbing Code" means the code adopted under RCW 19.27.031(4) and amended under chapter 51-46 WAC. This code establishes statewide minimum plumbing standards applicable within the property lines of the consumer's premises.

"Used water" means water which has left the control of the City.

Elements of The Program

The drinking water regulations for Group A public water systems in Washington, WAC 246-290, require CCC programs to include certain minimum elements. The elements are listed in WAC 246-290-490(3). This section describes how the City of Washougal intends to comply with each of the required program elements. Elements are numbered the same as they appear in the WAC.

Element 1: Adoption of a written legal instrument authorizing the establishment and implementation of a CCC program.

The City of Washougal water system has adopted a resolution City Resolution 922, reproduced as exhibit in appendix A, which authorizes the City of Washougal to implement a CCC program. The resolution also authorizes the water system to administer the Cross Connection Control Program. The primary method for protection of the distribution system will be the installation of a backflow preventer by the customer, at the customer’s expense.

Prevention of Contamination

The customer's plumbing system, starting from the termination of the Purveyor's water service pipe, shall be considered a potential high-health hazard requiring the isolation of the customer's premises by a DOH-approved, customer-installed and maintained reduced-pressure principle backflow assembly (RPBA) or reduced-pressure detector assembly (RPDA). The RPBA or RPDA shall be located at the end of the Purveyor's water service pipe (i.e., immediately downstream of the meter). Water shall only be supplied to the customer through a DOH-approved, customer-installed and maintained RPBA or RPDA. Notwithstanding the aforesaid, the Purveyor, upon an assessment of the risk of contamination posed by the customer's plumbing system and use of water, may allow:

• A single-family or duplex residential customer to connect directly to the water service pipe, i.e., without a purveyor-approved DCVA or RPBA.
• Any customer other than a single-family or duplex residential customer, as a minimum, to be supplied through a DOH-approved, customer-installed and maintained double-check valve assembly (DCVA) or double-check detector assembly (DCDA).

Conditions for Providing Service
Water service is provided based on the following terms and limitations:

1. The customer agrees to take all measures necessary to prevent the contamination of the plumbing system within his/her premises and the Purveyor's distribution system that may occur from backflow through a cross connection. These measures shall include the prevention of backflow under any backpressure or backsiphonage condition, including the disruption of the water supply from the Purveyor's system that may occur during routine system maintenance or during emergency conditions, such as a water main break.

2. The customer agrees to install, operate, and maintain at all times his plumbing system in compliance with the current edition of the Uniform Plumbing Code having jurisdiction as it pertains to the prevention of contamination and protection from thermal expansion, due to a closed system that could occur with the present or future installation of backflow preventers on the customer's service and/or at plumbing fixtures.

3. For cross-connection control or other public health-related surveys, the customer agrees to provide for the Purveyor’s employees or agents free access to all parts of the premises during reasonable working hours of the day for routine surveys and at all times during emergencies. Where agreement for free access for the Purveyor's survey is denied, the Purveyor may supply water service provided that premises isolation is provided through a DOH- approved reduced-pressure principle backflow assembly (RPBA).

4. The customer agrees to install all backflow prevention assemblies requested by the Purveyor and to maintain those assemblies in good working order. The assemblies shall be of a type, size, and make approved by DOH and acceptable to the Purveyor. The assemblies shall be installed in accordance with the Purveyor’s cross connection control program and construction standards and specifications.”

5. The customer agrees to:
(a) Have all assemblies (e.g., RPBAs and/or DCVAs) that the Purveyor relies upon to protect the public water distribution system tested upon installation, annually thereafter and/or more frequently if requested by the Purveyor, after repair, and after relocation;
(b) Have all testing done by a purveyor-approved and currently DOH-certified Backflow Assembly Tester (BAT);
(c) Have the RPBA or DCVA tested in accordance with DOH-approved test procedures; and

(d) Submit to the Purveyor the results of the test(s) on Purveyor-approved test report forms within the time period specified by the Purveyor.

6. The customer agrees to bear all costs for the aforementioned installation, testing, repair, maintenance and replacement of the RPBA, RPDA, DCVA or DCDA installed to protect the Purveyor's distribution system.

7. At the time of application for service, if required by the Purveyor, the customer agrees to submit to the Purveyor plumbing plans and/or a cross-connection control survey of the premises conducted by a purveyor-approved and DOH-certified Cross-Connection Control Specialist (CCS). The cross-connection control survey shall assess the cross-connection hazards and list the backflow preventers provided within the premises. The results of the survey shall be submitted prior to the Purveyor turning on water service to a new customer. The cost of the survey shall be borne by the customer.

8. For classes of customers other than single-family residential, when required by the Purveyor, the customer agrees to periodically submit a cross-connection control re-survey of the premises by a DOH-certified CCS acceptable to the Purveyor. The Purveyor may require the re-survey to be performed in response to changes in the customer's plumbing or water use, or performed periodically (annually or less frequently) where the Purveyor considers the customer's plumbing system to be complex or subject to frequent changes in water use. The cost of the re-survey shall be borne by the customer.

9. Within 30 days of a request by the Purveyor, a residential customer shall agree to complete and submit to the Purveyor a "Water Use Questionnaire" for the purpose of surveying the health hazard posed by the customer's plumbing system on the Purveyor's distribution system. Further, the residential customer agrees to provide within 30 days of a request by the Purveyor a cross-connection control survey of the premises by a DOH-certified CCS acceptable to the Purveyor.

10. The customer agrees to obtain the prior approval from the Purveyor for all changes in water use, and alterations and additions to the plumbing system, and shall comply with any additional requirements imposed by the Purveyor for cross-connection control.

11. The customer agrees to immediately notify the Purveyor and the local health jurisdiction of any backflow incident occurring within the customer’s premises (i.e., entry of any contaminant/pollutant into the drinking water) and shall cooperate fully with the Purveyor to determine the reason for the backflow incident.

12. The customer acknowledges the right of the Purveyor to discontinue the water supply within 72 hours of giving notice to the customer, or a lesser period of time if required to protect public health, if the customer fails to cooperate with the Purveyor in the survey of premises, in the installation, maintenance, repair, inspection, or testing of backflow prevention assemblies or air gaps required by the Purveyor, or in the Purveyor's effort to contain a contaminant or pollutant that is detected in the customer's system. Without limiting the generality of the foregoing, in lieu of discontinuing water service, the Purveyor may install an RPBA on the service pipe to provide premises isolation, and recover all costs for the installation and subsequent maintenance and repair of the assembly, appurtenances, and enclosure from the customer as fees and charges for water. The failure of the customer to pay these fees and charges may result in termination of water service in accordance with the Purveyor's water billing policies.

13. Where the Purveyor imposes mandatory premises isolation in compliance with DOH regulations, or agrees to the customer's voluntary premises isolation through the installation of a RPBA immediately downstream of the Purveyor's water meter, the customer acknowledges his obligation to comply with the other cross-connection control regulations having jurisdiction (i.e., Uniform Plumbing Code). Although the Purveyor's requirements for installation, testing, and repair of backflow assemblies may be limited to the RPBAs used for premises isolation, the customer agrees to the other terms herein as a condition of allowing a direct connection to the Purveyor's service pipe.

14. The customer agrees to indemnify and hold harmless the Purveyor for all contamination of the customer's plumbing system or the Purveyor's distribution system that results from an unprotected or inadequately protected cross connection within the customer’s premises. This indemnification shall pertain to all backflow conditions that may arise from the Purveyor's suspension of water supply or reduction of water pressure, recognizing that the air gap separation otherwise required would require the customer to provide adequate facilities to collect, store, and pump water for his/her premises.

15. The customer agrees that, in the event legal action is required and commenced between the Purveyor and the customer to enforce the terms and conditions herein, the substantially prevailing party shall be entitled to reimbursement of all incurred costs and expenses including, but not limited to, reasonable attorney's fees as determined by the Court.

16. The customer acknowledges that the Purveyor's survey of a customer's premises is for the sole purpose of establishing the Purveyor's minimum requirements for the protection of the public water supply system, commensurate with the Purveyor's assessment of the degree of hazard. It shall not be assumed by the customer or any regulatory agency that the Purveyor's survey, requirements for the installation of backflow prevention assemblies, lack of requirements for the installation of backflow prevention assemblies, or other actions by the Purveyor’s personnel constitute an approval of the customer's plumbing system or an assurance to the customer of the absence of cross connections therein.

17. The customer acknowledges the right of the Purveyor, in keeping with changes to Washington State regulations, industry standards, or the Purveyor's risk management policies, to impose retroactive requirements for additional cross-connection control measures. The Purveyor will record the customer's agreement to the above terms for service on an “Application for Water Service,” “Application for Change of Water Service,” or other such form prepared by the Purveyor and signed by the customer.

Implementation of the Cross-Connection Control Policy

The Purveyor will engage the services of a DOH-certified CCS to develop, implement and be in responsible charge of the City of Washougal’s Water System’s cross-connection control program. The Purveyor, under the direction of the aforementioned CCS, will prepare a written cross connection control program plan to implement the requirements of this resolution. The written program shall be consistent with this resolution and shall comply with the requirements of Chapter 246-290 WAC (Group A Drinking Water Regulations). The Purveyor will use the most recently published editions of the following publications as references and technical aids:

1. *Cross-Connection Control Manual, Accepted Procedures and Practice,* published by the Pacific Northwest Section, American Water Works Association, or latest edition thereof.

2. *Manual of Cross-Connection Control,* published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California, or latest edition thereof.

3. *Cross-Connection Control Guidance Manual for Small Water Systems,* published by the DOH Office of Drinking Water.

4. The Purveyor will incorporate the written program plan into the Water System Plan and will submit the plan to DOH for approval when requested. The Purveyor, in consultation with the aforementioned CCS, shall have the authority to make reasonable decisions related to cross connections in cases and situations not provided for in the resolution or written program. If any provision in this resolution, or in the written cross-connection control program is found to be less stringent than or inconsistent with the Drinking Water Regulations (Chapter 246-290 WAC), or other Washington state statutes or rules, the more stringent state statute, rule, or regulation shall apply.

The attached resolution, an implied service contract, allows the City of Washougal to protect the distribution system from contamination through a City installed backflow preventer on a customer's service. The City however, reserves the right to terminate water service if conditions are such that the water service poses a health threat or is not in compliance with City Resolution 992 and this program. The written and implied contract terms are discussed further under Element 3.

<u>Element 2:</u> Procedures and schedules for evaluating new and existing service connections to assess degree of hazard.

1. For all **<u>New Non-Residential Services,</u>** the customer will be required to submit, with the application for water service, an evaluation (performed at customer's expense) by a DOH-certified cross connection control specialist (CCS) of the degree of hazard posed by the proposed plumbing system, with recommendations for the installation at the meter of either a double-check valve assembly (DCVA) or a reduced-pressure principle backflow assembly (RPBA).

   As an alternative to the above requirement for a survey by a CCS, the customer may agree to install an approved air gap (AG) or RPBA for premise isolation as a condition of service.

2. For all **<u>New Residential Services,</u>** the customer will be required to submit with the application for water service a completed "Water Use Questionnaire" (copy shown in appendix B). If the customer's questionnaire indicates special plumbing, such as a lawn sprinkler system, hazardous water use, or unapproved water source on the premises, the customer shall submit to the City an evaluation by a DOH-certified CCS of the hazard posed by the proposed special plumbing system, with recommendations for the installation at the meter of either a DCVA or an RPBA.

   As an alternative to the above requirement for a survey by a DOH-certified CCS, the City, at its discretion, may specify the backflow preventer assembly required to be installed as a condition of service.

3. For all **<u>Existing Non-Residential Services,</u>** the City will require the customer to submit to the water utility, within nine months of notification, an evaluation by a DOH-certified CCS, of the hazard posed by the plumbing system, with recommendations for the installation at the meter of either a DCVA or an RPBA. The City may accept the recommendations or submit the recommendations to a CCS employed by the Utility for peer review and concurrence, before acceptance.

   As an alternative to the above requirement for a survey by a DOH-certified CCS, the customer may agree to install an AG or RPBA for premise isolation within 90 days of notification by the City or alternate time period acceptable to the City.

4. For all **<u>Existing Residential Services,</u>** the City will require the customer to submit to the City, within four months of notification, a completed "Water Use Questionnaire." If the customer's reply indicates special plumbing or water use on the premises, the customer shall submit an evaluation by a DOH-certified CCS of the hazard posed to the water system by the customers plumbing system, with recommendations for the installation at the meter of either a DCVA or an RPBA.

As an alternative to the above requirement for a survey by a CCS, the City may specify the backflow preventer assembly required to be installed as a condition of service. The City's CCS will provide guidance on the type of assembly to be installed.

5. For **All Existing Services,** should the customer fail to supply the required information for a hazard assessment or fail to submit a completed "Water Use Questionnaire," the City may have the assessment made by a CCS employed by the City, require the installation or an RPBA for premises isolation, or take other such actions consistent with the previously stated policies and bill the customer for the associated costs.

Cross-Connection Hazard Survey Schedule for Initial Hazard Assessments

The Schedule for initial hazard assessment is outlined in the following table. The schedule starts from the date the CCC program is established.

Initial Assessment Task	Schedule
Assessment of all new connections	At time of application for water service
Identification and assessment of high-hazard premises which are listed on Table 9 of Washington Administrative Code (WAC) 246-290-490	Within twelve months
Identification and assessment of hazardous premises supplemental to Table 9 of WAC 246-290-490	Within eighteen months
Identification of residential connections with special plumbing facilities and/or water use on premises	Within twenty four months

Cross-Connection Hazard Survey Schedule for Subsequent Hazard Re-Assessments

For subsequent cross-connection hazard surveys, procedures for evaluating the backflow prevention requirements are:

1. For **Residential Services,** the City will require the customer to submit to the City, within two months of City notification, a completed "Water Use Questionnaire." The procedure used for evaluating the hazard re-assessment and the potential change in the required backflow prevention will be the same as used for the initial assessment.

2. For all **Non-Residential Services,** the City will Require the customer to submit to the City, within two months of City notification, a hazard re-assessment (at the customers expense) by a DOH-certified CCS.

The frequency of hazard re-assessments will be shown in the table below:

Type of Service	Frequency of Re-Evaluation
Any services with reduced-pressure principle backflow assembly (RPBA)installed for premises isolation.	None required as long as the RPBA passes annual tests and inspections
Commercial services with double-check valve assembly (DCVA) installed for premises isolation.	Every two years and upon change in use or ownership
Residential services with special plumbing where the City relies upon compliance with Uniform Plumbing Code (UPC)	Every 2-3 years (questionnaire)
Residential services with DCVA installed for premises isolation.	Every 4-5 years (questionnaire)
Residential services with no known special plumbing or water use on premises.	Every 4-5 years and upon change in use, ownership, or plumbing system (questionnaire)

The City will Inform the customer that the City's survey of a customer's premises (whether by a representative of the City or through the evaluation of a questionnaire completed by the customer) is for the sole purpose of establishing the City's minimum requirements for the protection of the public water supply system, and that the required backflow protection will be commensurate with the City's assessment of the degree of hazard.

The City will also inform the customer or any regulatory agencies when the City's survey, requires the installation of backflow prevention assemblies, lack of requirements for the installation of backflow prevention assemblies, or other actions by the city's personnel or agent do not constitute an approval of the customer's plumbing system or an assurance to the customer or any regulatory agency of the absence of cross connections.

<u>Element 3:</u> Development and implementation of procedures and schedules for elimination and/or control of cross-connections.

Backflow Preventer Requirements
The following service policy shall apply to all new and existing customers:

1. The City of Washougal will require that water service to all **non-residential customers** be isolated at the meter by a DOH-approved DCVA or RPBA acceptable to the City of Washougal. All high hazard connections of the type described in Table 9 of WAC 246-290-490 shall be isolated with an RPBA and or AG.

2. The City of Washougal will require all **residential customers** with facilities of the type described in Table 9 of WAC 246-290-490 to be isolated with an RPBA. All other residential customers with special plumbing or water use on the premises will be isolated with a DCVA. “Special plumbing” includes, but is not limited to, the following:

a. A lawn irrigation system;
b. A solar heating system;
c. An auxiliary source of supply, e.g., a well or creek;
d. Piping for livestock watering, hobby farming, etc.;
e. Residential fire sprinkler system; and
f. Property containing a small boat moorage.

3. **For all customers that have a written service contract with the City of Washougal, the required premises isolation DCVA or RPBA shall be:**

• Purchased and installed by the customer (at the customer's expense) immediately downstream of the water meter in accordance with the City of Washougal standards

• Maintained, tested, and inspected in accordance with the City of Washougal standards

For new customers, the City of Washougal will not turn on water (except for testing purposes) at the meter until the customer complies with the above requirements. The failure of the customer to comply with the City of Washougal installation and maintenance requirements shall constitute a breach of contract by the customer. The City of Washougal may then proceed with corrective action provisions stipulated in the contract.

4. **Customers without written contracts** are considered to have an implied contract that requires the customer to bear all reasonable costs of service. The City of Washougal will install the required DCVA or RPBA on the service, upstream of the meter, and charge the customer for the cost of the initial installation, and all future maintenance, testing, and repair, as set forth in the City of Washougal’s schedule of rates and charges. The failure of the customer to pay these costs shall constitute a breach of contract by the customer, and the City of Washougal will proceed with the established delinquency of payment procedures.

As an alternative, the customer may sign a service contract and install the required backflow preventer downstream of the meter in accordance with the City of Washougal installation standards.

5. **Approved Backflow Preventers and Installation**

All backflow preventers relied upon by the City of Washougal to protect the public water system shall meet the definition of "approved backflow preventer" as contained in WAC 246-290-010. The City of Washougal will obtain and maintain a current list of assemblies approved for installation in Washington State from the DOH Office of Drinking Water. All backflow preventers will be installed in:

- The orientation for which they are approved;
- A manner and location that facilitates their proper operation, maintenance, and testing or inspection;
- A manner that will protect them from weather-related conditions such as flooding and freezing; and
- Compliance with applicable safety regulations.

Installation standards contained in the most recently published edition of the Pacific Northwest Section, American Water Works Association (PNWS-AWWA) *CCC Manual* or the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USCFCCCHR) *CCC Manual* shall be followed unless the manufacturer's requirements are more stringent.

The water utility has no regulatory responsibility or authority over the installation and operation of the customer's plumbing system. The customer is solely responsible for compliance with all applicable regulations and for prevention of contamination of his plumbing system from sources within his/her premises. Any action taken by the water utility to survey plumbing, inspect or test backflow prevention assemblies, or to require premises isolation (installation of DCVA or RPBA on service) is solely for the purposes of reducing the risk of contamination of the City of Washougal distribution system. The City of Washougal will inform the customer that any action taken by the water utility shall not be construed by the customer as guidance on the safety or reliability of the customer's plumbing system. The City of Washougal will not provide advice to the customer on the design and installation of plumbing other than through the general public education program discussed in Element 8.

Except for easements containing the City of Washougal distribution system, the City of Washougal will not undertake work on the customer's premises.

6**. Schedule for Installation of Backflow Preventers**

The following table shows the schedule that the City of Washougal will follow for installation of backflow preventers when they are required (based on the hazard evaluation).

Type of Service	Schedule
New connections with cross-connection hazards	Before service is initiated
Existing connections with Table 9-type hazards and other high cross-connection hazards	Within 90 days after notification
Existing connections with other than Table 9 of WAC 246-290-490 or high cross-connection hazards	Within 180 days after notification (suggested)
Existing fire protection systems using chemicals or supplied by unapproved auxiliary water source	Within 90 days after notification
Existing fire protection systems not using chemicals and supplied by purveyor's water	Within 1 year after notification (suggested)

The City of Washougal may consider granting an extension of time for installation of backflow prevention assembly for an existing connection if requested by the premises owner.

<u>Element 4:</u> Provision of qualified personnel, including at least one person certified as a CCS, to develop and implement the CCC program.

1. **Program Administration:** The responsibility for administration of the CCC Program rests with the City of Washougal. The City of Washougal Mayor and Council establish general policy direction and risk management decisions.

2. The City of Washougal will employ or have on staff at least one person certified by DOH as a CCS to develop and implement the CCC program. As an alternative, or when no staff or employees are properly qualified, the City of Washougal may retain a DOH-certified CCS on contract to provide the necessary expertise and services.

3. The following cross-connection related tasks will be performed by or under the direction of the City of Washougal certified CCS (on staff or under contract):

• Preparation of and recommendations regarding changes to the CCC program;
• Performance of and/or reviews of CCC hazard evaluations;
• Recommendations on the type of backflow preventer to be installed;
• Recommendations on schedules for retrofitting of backflow preventers;
• Inspections of backflow preventers for proper application and installation;
• Reviews of backflow preventer inspection and test reports;
* Reviews of proposed design drawings of the water system for the purposes of eliminating or controlling cross connections;

• Reviews of backflow testing quality control information;
• Recommendations and/or the granting of exceptions to mandatory premises isolation;
• Participation in or cooperation with other water utility staff in the investigation of backflow incidents and other water quality problems;
• Completion of Backflow Incident Reports; and
• Completion of CCC Activity and Program Summary Reports.

4. The City of Washougal may delegate other CCC program activities to other personnel who are not certified CCSs, including clerical support staff. These activities include:

• Administration of paperwork associated with service agreements;
• Mailing, collecting, and initial screening of hazard evaluation/water use questionnaires;
• Mailing of assembly testing notices;
• Receiving and screening of assembly testing reports;
• CCC program database administration and record keeping;
• Dissemination of public education material; and
• Assisting tasks associated with coordination with the LAA.

5. The following table identifies the current CCS employed or retained on contract by the City of Washougal to manage the City of Washougal CCC program and/or act as the CCC technical resource for the City of Washougal:

Name of CCS	
Address	
City, State, Zip	
Telephone Number	
CCS Certification Number	

<u>Element 5:</u> Development and implementation of procedures to ensure that approved backflow preventers are inspected and/or tested (as applicable).

1. Inspection and Testing of Backflow Preventers

All backflow preventers that the City of Washougal relies upon for protection of the water system will be subject to inspection and, if applicable, testing.

Inspection and testing of backflow preventers will be as follows:

• The City of Washougal DOH-certified CCS will inspect backflow preventers for proper application (i.e., to ensure that the preventer installed is commensurate with the assessed degree of hazard).

• Either a DOH-certified CCS or backflow assembly tester (BAT) will perform inspections of backflow preventers for correct installation.

• A DOH-certified backflow assembly tester will test all assemblies relied upon by the City of Washougal to protect the public water system.

2. Frequency of Inspection and Testing
Inspection and testing of backflow preventers will be conducted:

• At the time of installation;
• Annually after installation;
• After a backflow incident; and
• After repair, reinstallation, relocation, or re-plumbing.

The City of Washougal may require a backflow preventer to be inspected and/or tested more frequently than once a year, when it protects against a high-health hazard or when it repeatedly fails tests or inspections.

3. Responsibility for Inspection and Testing

The City of Washougal will be responsible for inspection and testing of all City of Washougal owned backflowpreventers. The City of Washougal will require the customer to be responsible for inspection and testing of backflow preventers owned by the customer. The customer shall employ, at customer expense, a DOH-certified BAT pre-approved by the City of Washougal to conduct the inspection and test within the time period specified in the testing notice sent by the City of Washougal. The test report shall be completed and signed by the BAT, then countersigned and returned by the customer to the City of Washougal, before the due date specified by the City of Washougal. The customer may request an extension of the due date for returning a test report by submitting a written request to the City of Washougal. The City of Washougal may grant one extension up to 90 days.

4. Approved Test Procedures

The City of Washougal will require that all assemblies relied upon to protect the public water system be tested in accordance with DOH-approved test procedures as specified in WAC 246-290-490(7)(d). Any proposal to use alternate test procedures must be approved by the City of Washougal CCS.

5. Notification of Inspection and/or Testing

The City of Washougal will notify in writing all customers who own backflow preventers that are relied upon to protect the public water system to have their backflow preventer(s) inspected and/or tested. Notices will be sent out not less than 30 days before the due date of the inspection and/or test. The notice will also specify the date (up to 30 days after the due date of the inspection and/or test date) by which the inspection/test report must be received by the City of Washougal.

6. Enforcement

When a customer fails to send in the inspection/test report within 15 days after the due date specified, and the City of Washougal has not approved an extension to the due date, the City of Washougal will take the following enforcement action:

- The City of Washougal will send a second notice giving the customer an additional 15 days to send in the inspection/test report.

- If the customer has not sent in the inspection/test report within 10 days of the due date given in the second notice, the City of Washougal will send a third notice, by certified mail, giving the customer an additional 15 days to send in the report. The notice will also inform the customer that failure to satisfactorily respond to this notice will result in water service shut-off.

- The City of Washougal will send copies of the third notice to the owner and occupants of the premises (if different from the customer) and to the LAA.

- If the owner and/or occupants have not responded satisfactorily to the City of Washougal within 10 days of the due date specified in the third notice, the City of Washougal will implement water service shut-off procedures.

<u>Element 6:</u> Development and implementation of a backflow prevention assembly testing quality assurance/quality control program

1. The City of Washougal will maintain a list of local, DOH-certified BATs that are pre-approved by the City of Washougal to perform the following activities:

- Backflow preventer inspection for proper installation; and
- Backflow assembly testing.

Pre-Approval Qualifications

BATs who wish to be included on the City of Washougal preapproved list and/or provide testing in the City of Washougal service area must apply to the City of Washougal and furnish the following information:

- Evidence of current DOH certification in good standing;
- Make and model of testing equipment
- Evidence of test equipment verification of accuracy and/or calibration within the past 12 months

2. Quality Assurance

The City of Washougal CCS will review within 30 days of receipt the backflow preventer inspection/test report forms submitted by the customer. The City of Washougal CCS will provide follow up on test reports that are deficient in any way. The City of Washougal CCS will report incidences of fraud or gross incompetence on the part of any BAT or CCS to DOH Operator Certification program staff.

Element 7: Development and implementation (when appropriate) of procedures for responding to backflow incidents.

1. Backflow Incident Response Plan

The City of Washougal CCS will participate in developing a backflow incident response plan that will be part of the water system's emergency response program as required by WAC 246-290-415(2). The incident response plan will include, but will not be limited to:

- Notification of affected population;
- Notification and coordination with other agencies, such as DOH, the LAA, and the local health jurisdiction;
- Identification of the source of contamination;
- Isolation of the source of contamination and the affected area(s);
- Cleaning, flushing, and other measures to mitigate and correct the problem; and
- Apply corrective action to prevent future backflow occurrences.

2. Technical Resources

The City of Washougal will use the most recently published edition of the manual, *Backflow Incident Investigation Procedures*, published by the PNWS-AWWA as a supplement to the Backflow Incident Response Plan for the City of Washougal.

Element 8: Development and implementation of a cross-connection control public education program.

1. Customer Education

The City of Washougal will distribute with water bills or some other means, at regular intervals, public education brochures to system customers. For residential customers, such brochures will describe the cross-connection hazards in homes and the recommended assemblies or devices that should be installed by the homeowner to reduce the hazard to the public water system. The education program will emphasize the responsibility of the customer in preventing the contamination of the public water supply. The City of Washougal staff will produce the public education brochures or the City of Washougal will obtain brochures from:

• PNWS-AWWA;
• Spokane Regional Cross-Connection Control Committee (SRC4);
• Western Washington Cross-Connection Prevention Professionals Group (The Group);
• USC FCCCHR;
• Other national backflow prevention associations, such as the American Backflow Prevention Association (ABPA); and/or
• Other water utilities.

The information distributed by the City of Washougal will include, but not be limited to, the following subjects:

• Cross-connection hazards in general;
• Irrigation system hazards and corrective actions;
• Fire sprinkler cross-connection hazards;
• Importance of annual inspection and/or testing of backflow preventers; and
• Thermal expansion in hot water systems when backflow preventers are installed for premises isolation.

The City of Washougal will distribute information brochures to all customers every two to three years, and to every new customer at the time the service agreement is signed.

2. Public Outreach

In cooperation with other water utilities, the City of Washougal will participate in an outreach program consisting of participation in fairs, exhibits, and other events.

<u>Element 9:</u> Development and maintenance of cross-connection control records.

1. Types of records and data to be maintained

The City of Washougal will maintain records of the following types of information required by WAC 246-290-490:

• Service connections/customer premises information including:
o Assessed degree of hazard; and
o Required backflow preventer to protect the public water system.

• Backflow preventer inventory and information including:
o Air gap (AG) location, installation and inspection dates, inspection results and person conducting inspection;
o Backflow assembly location, assembly description (type, manufacturer, make, model, size, and serial number), installation, inspection and test dates, test results and data, and person performing test; and
o Information on atmospheric vacuum breakers used for irrigation system applications, including manufacturer, make, model, size, dates of installation and inspections, and person performing inspections.

The City of Washougal will maintain records on all assemblies that protect the public water system from contamination. At a minimum, the City of Washougal will maintain records on all premises isolation assemblies required to protect the public water system.

2. Reports to be Prepared and Submitted to DOH

The City of Washougal will prepare the following reports required by WAC 246-290-490 including:

- Cross-connection control program activities report for the calendar year, to be sent to DOH when requested;
- Cross-connection control program summary information, when required, or when there are significant policy changes;
- Backflow incident reports to DOH (and voluntarily to the PNWS-AWWA CCC Committee); and
- Documentation when exceptions to mandatory premises isolation are granted.

At a minimum, the City of Washougal's CCS will prepare and sign the exceptions reports.

The City of Washougal CCS will review all CCC-related reports for correctness and the manager of the public water system shall sign the CCC reports before submission to DOH.

<u>Element 10:</u> Additional cross-connection control requirements for reclaimed water.

At this time the City of Washougal does not receive or distribute reclaimed water. In the event that reclaimed water use is proposed within the City of Washougal service area, the City of Washougal will make all cross-connection control requirements mandated by the Permitting Authority in accordance with Chapter 90.46 RCW part of the written CCC program plan and comply with such additional requirements.

Other Provisions

1. Coordination with Local Administrative Authority Both WAC 246-290-490 and the Uniform Plumbing Code amended for Washington require coordination between the water purveyor and the Local Administrative Authority (LAA) in all matters pertaining to cross-connection control. The water utility will provide a copy of this CCC program to the City of Washougal Building Department. The water utility will inform the LAA of any changes in policy or procedure that may impact the LAA. The water utility will provide information to the LAA in a timely manner regarding any:

- Requirement imposed on a residential customer for the installation of a DCVA or an RPBA on the service, with a description of the cross-connection hazard identified;
- Upgrade of the premises isolation backflow preventer, i.e., from a DCVA to an RPBA;

• Action taken to discontinue water service to a customer; and
• Backflow incident known by the water utility to have contaminated the public water system or a customer's plumbing system.

2. The water utility will pursue development of a written agreement with the Local Administrative Authority regarding the details of the coordination on CCC issues between the two parties. The agreement will include, but not be limited to, the following items:

• The purpose of the written agreement;
• Identification of the parties and other interested agencies;
• Delineation of responsibilities;
• Procedures regarding new service connections;
• Procedures regarding existing and changes to existing services;
• Special policies and procedures, such as for fire protection and irrigation services;
• Procedures regarding water service shut-offs, backflow incidents, and other events;
• Communications between parties; and
• Other contingencies."

3. Prohibition of Return of Used Water. The water utility must prohibit the intentional return of used water to the City of Washougal distribution system per WAC 246-290-490 (2)(l).

Used water is defined as water that has left the control of the City of Washougal. This includes water used for heating and cooling purposes and water that may flow back into the distribution system from customers with multiple connections.
It is the policy of the City of Washougal water system to:

• Prohibit the intentional return of used water to the distribution system by any customer served by the public water system; and
• Require that all customers with multiple connections, where the hydraulics permit the potential return of used water, to install a backflow preventer (DCVA or RPBA) commensurate with the degree of hazard at each point of connection.

4. "Unapproved Auxiliary Supplies. All water supplies
other than those owned by the City of Washougal are considered unapproved auxiliary supplies as defined in WAC 246-290-010. The City of Washougal will require backflow protection for customers with auxiliary supplies on their premises as follows:

• Per Table 9 of WAC 246-290-490, the City of Washougal will require the installation of an RPBA for premises isolation at the service connection to any customer having an unapproved auxiliary supply on the premises that is served by the City of Washougal water system.

5. "Tanker Trucks. The City of Washougal may allow tanker trucks to obtain water from the City of Washougal's water system under the following conditions:

- The tanker truck is equipped with an approved AG or an approved RPBA with a current satisfactory inspection or test report."

6. "Temporary Water Connections. The City of Washougal will not supply water through temporary connections, such as those used for construction projects or main disinfection, except through a backflow preventer arrangement approved by the City of Washougal. The applicant for the temporary connection shall document that the backflow preventer is a DOH-approved model and has passed an inspection and/or test within the past 12 months and/or upon relocation, whichever is more recent."

Relationship to Other Planning and Operations Program Requirements

The City of Washougal will consider the requirements and consequences of the CCC program on the utility's planning and operations requirements. Such considerations include, but are not limited to ensuring:

- Promoting adequate communication between CCC program personnel and other water utility staff;
- That adequate training is provided to all staff to recognize potential cross-connection control problems;
- That cross-connection issues be considered in water quality investigations;
- That the design of the water distribution system makes adequate provisions for expected head losses incurred through the installation of backflow assemblies;
- That CCC program personnel be consulted in the design of water and wastewater treatment facilities and when proposals are made to receive or distribute reclaimed water;
- That operations under normal and abnormal conditions do not result in excessive pressure losses; and
- That adequate financial and administrative resources are available to carry out the CCC program.

tomers of such expected shut-off; provided, however, that the water department will not be responsible for any damage which may result from any cessation of service such as above outlined, nor for failure to give notice of shut-off when circumstances are such that it is impossible to give notice as above stated. (Ord. 240 Art. 8 § 3, 1958)

13.36.040 Preference to customer during shortage.

In case of shortage of supply, the city reserves the right to give preference in the matter of furnishing service to customers, as in the judgment of its representatives shall be for the best interests of the city, from the standpoint of public convenience and necessity. (Ord. 240 Art. 8 § 4, 1958)

Chapter 13.40

CROSS CONNECTION CONTROL

Sections:

13.40.010 Compliance with regulations.
13.40.020 Enforcement authority.
13.40.030 Approval of standards and backflow prevention assemblies.
13.40.040 Testing of backflow prevention assemblies and inspection of air gaps.
13.40.050 Access to user's premises.
13.40.060 Failure of customer to cooperate – Grounds for termination of service.

13.40.010 Compliance with regulations.

All users of the city's water supply shall comply with the Uniform Plumbing Code Chapter 10, State of Washington Cross Connection Regulations, WAC 246-290-490, and the current edition of the Cross Connection Control Manual – Accepted Procedure and Practice published by the Pacific Northwest Section of American Waterworks Association. (Ord. 1247 § 1 (Exh. A), 1997; Ord. 1033 § 1, 1991)

13.40.020 Enforcement authority.

The city shall enforce the provisions of these regulations through the director of public works. The director of public works may delegate responsibilities to a certified cross connection control specialist/inspector. The city's standards may supersede the state regulations, but in no case shall they be less stringent. (Ord. 1033 § 2, 1991)

13.40.030 Approval of standards and backflow prevention assemblies.

All approved standards for cross connections shall be approved by the director of public works or his designee. All backflow prevention assemblies required by these regulations shall be a model approved by the Washington State Department of Health. Further, approved backflow prevention assemblies required by these regulations shall be installed under the direction of the director of public works and/or under the supervision of the cross connection specialist/inspector per city standards. (Ord. 1033 § 3, 1991)

13.40.040 Testing of backflow prevention assemblies and inspection of air gaps.

All RPBAs, RPDAs, DCDAs, DCVAs and PVBAs are required to be tested at least annually

and all air gaps installed in lieu of an approved backflow prevention assembly shall be inspected at least annually. Completed test reports shall be returned to the city within 30 days after receipt of the yearly test notification. Tests and inspections may be required on a more frequent basis at the discretion of the director of public works. (Ord. 1247 § 1 (Exh. A), 1997; Ord. 1033 § 4, 1991)

13.40.050 Access to user's premises.

Only authorized employees of the city with proper identification shall have reasonable access at reasonable hours of the day to the user's premises to which water is supplied. The city shall abide by all appropriate legal means to facilitate this access. Water service shall be refused or terminated to any premises for failure to allow necessary inspections upon the city's request as above set forth. (Ord. 1033 § 5, 1991)

13.40.060 Failure of customer to cooperate – Grounds for termination of service.

Failure of the customer to cooperate in the installation, maintenance, repair, inspection or testing of backflow prevention assemblies required by these regulations and incorporated in this chapter shall be grounds for termination of water service to the premises or the requirement for an air gap separation. This determination shall be made at the discretion of the public works director or his designee. (Ord. 1033 § 6, 1991)

Washington State Department of Health

Office of Drinking Water

Public Water System Cross-Connection Control Activities
Annual Summary Report for Year 2011

Part 1: Public Water System (PWS) and Cross-Connection Control Specialist (CCS) Information

PWS ID: 93400	PWS Name: WASHOUGAL, CITY OF	County: CLARK
Provide name and Cert No. of CCS who develops and implements your CCC program		
CCS Name (last, first & mi): Davis, Travis V.		CCS Phone: (360) 835-8501
CCS Cert No.: 11699	BAT Cert. No. (if applicable): B5186	
CCS is (check one):	PWS owner or employee ☑	On contract to PWS ☐ Volunteer or other ☐

Part 2: Status of Cross-Connection Control (CCC) Program at end of 2011

PWS has(check one box in each column below):	
A written CCC program plan Y ☑ N ☐	CCC implementation activities Y ☑ N ☐

(Written program may be a separate document, or part of water system plan or small water system management program).

Provide information regarding PWS's specific CCC Program Elements

Program Element Number	Description of Element [See WAC 246-290-490(3)]	This Program Element is Currently:	
		Included in Written Program	Being Implemented or Is Completed
1	Legal Authority Established	Y ☑ N ☐	Y ☑ N ☐
2	Hazard Evaluation Procedures and Schedules	Y ☑ N ☐	Y ☑ N ☐
3	CCC Procedures and Schedules	Y ☑ N ☐	Y ☑ N ☐
4	Certified CCS Provided	Y ☑ N ☐	Y ☑ N ☐
5	Backflow Preventer Inspection and Testing	Y ☑ N ☐	Y ☑ N ☐
6	Testing Quality Control Assurance Program	Y ☑ N ☐	Y ☑ N ☐
7	Backflow Incident Response Procedures	Y ☑ N ☐	Y ☑ N ☐
8	Public Education Program	Y ☑ N ☐	Y ☑ N ☐
9	CCC Records	Y ☑ N ☐	Y ☑ N ☐
10	Reclaimed Water Permit	Y ☐ N ☐ N/A ☑	Y ☐ N ☐ N/A ☑

Part 3A: System Characteristics at End of 2011

Indicate the number of connections of each type that the PWS serves (whether or not they are protected by backflow preventers). **Estimate if necessary.**

Type of Service Connection	Number
Residential (As defined by PWS)	4488
All Other (Include dedicated fire sprinkler and irrigation lines and PWS-owned facilities such as water and wastewater treatment plants and pumping stations, parks, piers and docks.)	468
Total Number of Connections	4956

Part 3B: Cross-Connection Control for High-Hazard Premises or Systems Served by the PWS

If PWS does not serve any high-hazard premises or systems, check here ☐ and go to Part 4A.

- Complete all cells. Enter zero (0) in cells if PWS does not serve such premises.
- Estimate number of connections served if necessary (OK to use phone book).
- Hazard evaluations do not need to be done to complete this table.

Type of High-Hazard Premises or Systems [WAC 246-290-490(4)(b)]	Number of Connections at end of 12/31/2011			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP	C. With Column B AG Inspected or RP Tested [2]	D. Granted Exception from Mandatory Premises Isolation
Agricultural (farms and dairies)	0	0	0	0
Beverage bottling plants (including breweries)	0	0	0	0
Car washes	3	3	3	0
Chemical plants	4	4	4	0
Commercial laundries and dry cleaners	0	0	0	0
Both reclaimed water and potable water provided	0	0	0	0
Film processing facilities	0	0	0	0
Dedicated fire protection systems with chemical addition or using unapproved auxiliary supplies	0	0	0	0
Food processing plants (including canneries, slaughter houses, rendering plants)	0	0	0	0
Hospitals, medical centers, nursing homes, veterinary, medical and dental clinics, and blood plasma centers	9	7	7	0
Separate irrigation systems using purveyor's water supply and chemical addition[4]	0	0	0	0
Laboratories	1	1	1	0
Metal plating industries	0	0	0	0
Petroleum processing or storage plants	0	0	0	0
Piers and docks	1	1	1	0
Radioactive material processing plants or nuclear reactors	0	0	0	0
Survey access denied or restricted	0	0	0	0
Wastewater lift/pump stations (non-residential only)	14	14	14	0
Wastewater treatment plants	1	1	1	0
Unapproved auxiliary water supply interconnected with potable water supply	3	3	3	0
Wood Pressure Treater/Lumber Mill	2	2	2	0
Totals	38	36	36	0

[1]Count multiple connections or parallel installations as ***separate*** connections.

[2]Count only those connections with AG or RPBA installed for premises isolation. Don't include connections with in-premises protection only, or connections with DCVA/DCDAs installed for premises isolation.

[3]Count only those connections whose premises isolation preventers were inspected (AG) or tested (RPBA) during 2011.

[4]For example, dedicated lines to irrigation systems in parks, playgrounds, golf courses, cemeteries, estates, etc.

[5]Premises with hazardous materials or processes (requiring isolation by AG or RPBA) such as: aircraft and automotive manufacturers, pulp and paper mills, metal manufacturers, military bases, and wholesale customers that pose a high hazard to the PWS. May be grouped together in categories, e.g.: other manufacturing or other commercial. If needed, attach additional sheet giving same information as requested in table.

Part 3C: Cross-Connection Control for Medical Category High-Hazard Premises Served by the PWS

If PWS does not serve any medical type premises, check here ☐ and go to Part 4A.

- Complete all cells. Enter zero (0) in cells if PWS does not serve such premises.
- Estimate number of connections served if necessary (OK to use phone book).
- Hazard evaluations do not need to be done to complete this table.

Type of High-Hazard Premises or Systems [WAC 246-290-490(4)(b)]	Number of Connections at end of 12/31/2011			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP	C. With Column B AG Inspected or RP Tested[2]	D. Granted Exception from Mandatory Premises Isolation
Hospitals				
Hospitals (include psychiatric hospitals and alcohol and drug treatment centers)	0	0	0	0
Facilities for Treatment and Care of Patients Not Located in Hospitals Counted Above				
Same day surgery centers	0	0	0	0
Out-patient clinics and offices	0	0	0	0
Alternative health out-patient clinics and offices	0	0	0	0
Psychiatric out-patient clinics and offices	0	0	0	0
Chiropractors	2	1	1	0
Hospice care centers	0	0	0	0
Childbirth centers	0	0	0	0
Kidney dialysis centers	0	0	0	0
Blood centers	0	0	0	0
Dental clinics and offices	4	4	4	0
Facilities for Housing Patients				
Nursing homes	0	0	0	0
Boarding homes	1	0	0	0
Residential treatment centers	0	0	0	0
Other Medical-Related Facilities				
Mortuaries	0	0	0	0
Morgues and autopsy facilities (not in hospitals)	0	0	0	0
Veterinarian offices, clinics and hospitals	2	2	2	0
All other (describe in Part 6: Comments on page 6)	0	0	0	0
Totals	9	7	7	0

[1]Count multiple connections or parallel installations as ***separate*** connections.

[2]Count only those connections with AG or RPBA installed for premises isolation. Don't include connections with in-premises protection only, or connections with DCVA/DCDAs installed for premises isolation.

[3]Count only those connections whose premises isolation preventers were inspected (AG) or tested (RPBA) during 2011.

Part 4A: Backflow Preventer Inventory and Testing Data During Year 2011

- Complete all cells. Enter zero (0) if there are no backflow preventers in that category.
- Count only the backflow preventers that the PWS relies upon for protection of the distribution system. If your records do not distinguish between premises isolation and in-premises protection preventers, enter all data in Premises Isolation section and check the box.
- Count AVBs on irrigation systems only. **If you do not track AVBs, enter "UNK".**
- Count multiple tests or failures for any particular backflow preventer as one test or failure for that backflow preventer.
- Multiple Service or Parallel Connections: Count each assembly separately.
- Assemblies on Dedicated Fire or Irrigation Lines: Count as Premises Isolation Assemblies.

If PWS does not track AVBs Check here: ☑

	Backflow Preventer Category and Testing/Inspection Information	Air Gap	RPBA	RPDA	DCVA	DCDA	PVBA	SVBA	AVB
Premises Isolation, including preventers isolating PWS-owned facilities. ***If In-Premises Protection preventers are also included, check here.*** ☐									
Rows 1-3 pertain ONLY to Premises Isolation preventers in service at beginning of 2011									
1	In service on 1/1/2011	13	59	1	15	0	0	0	unk
2	Inspected and/or Tested in 2011[1]	13	55	1	14	0	0	0	unk
3	Failed Inspection or Test in 2011	0	5	0	2	0	0	0	unk
Rows 4 - 6 pertain ONLY to NEW Premises Isolation preventers installed during 2011									
4	New preventers installed in 2011[2]	0	3	0	1	0	0	0	unk
5	Inspected and/or Tested in 2011[1]	0	3	0	1	0	0	0	unk
6	Failed inspection or test in 2011[3]	0	0	0	0	0	0	0	unk
7	Preventers taken out of service in 2011[3]	0	0	0	0	0	0	0	0
Premises Isolation Total at end of 2011[4]		13	62	1	16	0	0	0	unk
In-Premises Protection (Fixture Protection or Area Isolation), including preventers within PWS-owned facilities.									
Rows 8 - 10 pertain ONLY to In-Premises Protection Preventers in service at beginning of 2011									
8	In service on 1/1/2011	0	51	0	1085	36	7	0	unk
9	Inspected and/or Tested in 2011[1]	0	49	0	1009	35	7	0	unk
10	Failed Inspection or Test in 2011	0	9	0	35	2	0	0	unk
Rows 11 - 13 pertain ONLY to NEW In-Premises Protection Preventers installed during 2011									
11	New preventers installed in 2011[2]	0	1	0	35	3	0	0	unk
12	Inspected and/or Tested in 2011[1]	0	1	0	35	3	0	0	unk
13	Failed inspection or test in 2011	0	0	0	5	0	0	0	unk
14	Preventers taken out of service in 2011[3]	0	0	0	0	0	0	0	0
In-Premises Protection Total at end of 2011[4]		0	52	0	1120	39	7	0	unk
Grand Total at end of 2011		13	114	1	1136	39	7	0	unk

[1]Initial and/or routine annual inspection (for proper installation and approval status) and/or test (for testable assemblies only using DOH/USC test procedures).Includes preventers installed on connections where backflow prevention was not previously required and any preventers that replaced those in service at beginning of 2011. Replacement preventers may be of a different type than the original.

[2]Includes preventers installed on connections where backflow prevention was not previously required and any preventers that replaced those in service at the beginning of 2011. Replacement preventers may be of a different type than the original.

[3]New or existing preventers taken out of service, whether or not they were replaced by the same type or different type of preventer.

[4]Total at end of 2011 should be equal to the number of preventers in service at beginning of 2011 plus those installed during 2011 minus the number of preventers taken out of service during 2011.

Part 4B: Other Implementation Activities in 2011

Complete all cells. Enter zero (0) if not applicable.

Activity or Condition	Number
New service connections evaluated for cross-connection hazards to PWS in 2011.	58
New service connections requiring backflow protection to protect PWS.[1]	43
Existing service connections evaluated for cross-connection hazards to PWS in 2011.	16
Existing service connections requiring backflow protection to protect PWS.[1,2]	16
Exceptions granted to high-hazard premises per WAC 246-290-490(4)(b) in 2011.[3]	0
CCC enforcement actions taken by PWS during 2011.[4]	0

[1]Include services where either premises isolation or in-premises preventers were required to protect the PWS.

[2]Include existing services that need new, additional or higher level backflow prevention.

[3]A DOH Exceptions to Hazard Premises Form *must* be attached for each exception granted during the year.

[4]"Enforcement actions" mean actions taken by the PWS (such as water shut-off, PWS installation of backflow preventer) when the customer fails to comply with PWS's CCC requirements.

Part 5: Backflow Incidents and "Off-Normal" Events in 2011

	Backflow Incidents, Risk Factors and Indicators during 2011	Number (Enter 0 if none)	Check if Data Not Available
Backflow Incidents during 2011			
1	Backflow incidents that contaminated the PWS[5].	0	☐
2	Backflow incidents that contaminated the customer's drinking water system ***only***[5].	0	☐
Risk Factors for Backflow during 2011			
3	Distribution main breaks per 100 miles of pipe.	3.13	☐
4	Low pressure events (<20 psi in PWS distribution system).	0	☑
5	Water outage events.	0	☑
Indicators of Possible Backflow during 2011			
6	Total health-related complaints received by PWS.[6]	0	☐
7	Received during BWA or PN events.[7]	0	☐
8	Received during low pressure or water outage events.	0	☐
9	Total aesthetic complaints (color, taste, odor, air in lines, etc.).	5	☐
10	Received during BWA or PN events.[7]	0	☐
11	Number of these complaints received during low pressure or water outages events.	0	☐

[5]Complete and submit a Backflow Incident Report form for each known backflow incident.

[6]Such as stomach ache, headache, vomiting, diarrhea, skin rashes, etc.

[7]"**BWA**" means ***Boil Water Advisory*** and "**PN**" means ***Public Notification*** for water quality reasons.

Part 6: Comments and Clarifications

Enter comments or clarifications to any of the information included in this report. Note for on-screen completion: Comments will not "word wrap" from one line to the next. Press to continue on new line. Maximum length of each comment is 255 characters, including spaces.

Part No.	Date Added	Comment
Pt 3C	2/8/10	The PWS serves one chiropractor and one boarding home (assisted living facility) that do not have premise isolation backflow preventers. They were assessed initially and found to have no hazards present necessitating premise isolation. This year (2010) we will perform hazard surveys on both facilities to determine if their degree of hazard has changed.
Pt 3C	2/7/11	Hazard assessments were performed on the two facilities that do not have premise isolation - the Assisted living facility, and a Chiropractors office. Neither facility was found to have any hazards to the pws that warrant retrofitting premise isolation assemblies. After reviewing the activities that take place in both facilities, it is my professional opinion that neither of them qualify as a "medical" type establishment. Both facilities have adequate point of use - or in premise protection where needed, and access to both premises was given without hesitation. The requirement for premise isolation or granted exception does not apply.
Pt 4A	2/8/11	Again this year, assemblies not tested were either vacant homes or commercial bldgs that were isolated from the PWS by the utility owned shut-off valves. All of which will be required to have testing performed within a reasonable amount of time as a condition of restoring service.
Pt 4A	2/27/12	Again this year, assemblies not tested were vacant homes and commercial spaces that were not using water. They were isolated from the PWS by the utility owned shut-off valves. All of which will be required to have testing performed within a reasonable amount of time as a condition of restoring service.
Pt 4A	2/28/12	Both Premise isolation and in premise protection assembly inventory start of year numbers differ from 2010's end of year numbers because we have been looking at facilities and the location and nature of their water service. Some of the assemblies were reclassified from premise isolation to in premise protection. Part of an ongoing process of cleaning up our database to ensure the accuracy of our data.

Part 7: Report Completion Information

I certify that the information provided in this CCC Activities Report is complete and accurate to the best of my knowledge.		
CCC Program Mgr. Name[1]: Travis V. Davis		Title: Maintenance Worker III
Signature:		Date: 02/28/2012
Phone: (360) 835-8501	E-mail: tdavis@ci.washougal.wa.us	
I have reviewed this report and certify that the information provided is complete and accurate to the best of my knowledge.		
PWS Mgr./Owner Name[2]: John Roth		Title: Water System Manager
Signature:	Op. Cert. No.: 10060	Date: 02/28/2012

[1] CCC Program Manager is generally the CCS who is responsible for development and implementation of 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.

APPENDIX I
WUE PERFORMANCE REPORT

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Date Submitted: 4/9/2012

Water Use Efficiency
Annual Performance Report - 2011

WS Name: WASHOUGAL, CITY OF Water System ID# : 93400 WS County: CLARK

Report submitted by: *Travis Davis*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *12/13/2010* To *12/12/2011*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*589,506,000* gallons
Authorized Consumption (AC) – Annual Volume	*548,996,487* gallons
Distribution System Leakage – Annual Volume TP – AC	*40,509,513* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*6.9 %*
3-year annual average	*6.7 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *01/22/2008* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

Reduce residential peak day demand by 5% over a 6 year period.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

Residential peak day demand has decreased by 4.2% as compared to 2007 (before our efficiency goals were enacted). This equates to an annual savings of approximately 13.6 MG. Current WUE measures the City employs are: Conservation awareness signs posted during the irrigation season, historical bar graph representation of consumption on utility bills, and providing conservation kits and recommendations to our water customers at community events and upon request.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Additional conservation efforts we engage in are: Leak surveys every 3 years, annual large meter testing & calibration, and customer notification of any high or abnormal water consumption at their home or office.

Do not mail, fax, or email this report to DOH

APPENDIX J
WATER RIGHTS

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

May 8, 2012

City of Washougal
Attn Trevor Evers
1701 C Street
Washougal WA 98671

Re: Water Right Application No. G2-30564

Dear Mr. Evers:

Enclosed is a copy of the Department of Ecology's *Report of Examination.* This report contains our decision regarding your application.

Your application has been approved.

A Permit will be issued consistent with the enclosed *Report of Examination* after the appeal period has expired, if no appeals have been filed.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. 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 Order:

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 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.

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://www1.leg.wa.gov/CodeReviser.

If you have any questions, please call (360) 407-6300.

Sincerely,

Michael J. Gallagher
Section Manager
Water Resources Program

Enclosures: Report of Examination
Your Right To Be Heard

By Certified Mail: 7010 1670 0002 4158 1845

DEPARTMENT OF
ECOLOGY
State of Washington

State of Washington
Report of Examination for Water Right

PRIORITY DATE	WATER RIGHT NUMBER
January 20, 2011	G2-30564

MAILING ADDRESS	SITE ADDRESS (IF DIFFERENT)
City of Washougal 1701 C Street Washougal, WA 98671	

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
1,325	GPM	2,120

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)
Municipal Supply		1,325	GPM		2,120	01/01-12/31

REMARKS

IRRIGATED ACRES ADDITIVE	IRRIGATED ACRES NON-ADDITIVE	PUBLIC WATER SYSTEM INFORMATION WATER SYSTEM ID	PUBLIC WATER SYSTEM INFORMATION CONNECTIONS
		93400	

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well No. 1	73300050, 76516072, 76516074		1N	4E	8	NW SE, NE SW	45° 34'N	122° 20'W
Well No. 3	73300050, 76516072, 76516074		1N	4E	8	NW SE, NE SW	45° 34'N	122° 20'W
Well No. 10	73300050, 76516072, 76516074		1N	4E	8	NW SE, NE SW	45° 34'N	122° 20'W

Datum: NAD83/WGS84

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

NA

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Area served by the City of Washougal as described in the mostly recent Water System Plan approved by the Department of Health

Proposed Works

Upper Wellfield, consisting of existing Well Nos. 1,3, and 10, casings up to 16" in diameter and ranging in depth from 75 to 150 feet deep. Well Nos. 1 and 10 are currently in use and Well No. 3 is currently in standby status

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	Completed	December 31, 2030

Measurement of Water Use

How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Annually
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

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", WAC 173-173.

Department of Ecology personnel, upon presentation of proper credentials, must 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.

WAC 173-173 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.

Proof of Appropriation

The water right holder must file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and

the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the superseding permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I find the change of water right as recommended will not be detrimental to existing rights or the public welfare.

Therefore, I ORDER the requested approval of Application No. G2-30564 subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 8th day of May 2012.

Michael J. Gallagher

Michael J. Gallagher, Section Manager

Your Right To Appeal

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- 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.
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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

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INVESTIGATOR'S REPORT
Application for Water Right -- Washougal City
Water Right Control Number G2-30564
Phil Crane, Department of Ecology Contact

BACKGROUND

Cost Reimbursement

This application is being processed under a cost reimbursement agreement between the applicant, City of Washougal (City) and the Department of Ecology (Ecology). This report has been prepared by HDR Engineering, Inc. under a contract and Work Assignment with Ecology.

The City submitted an application to appropriate public ground water to Ecology on January 20, 2011. The application is for 1,325 gallons per minute (gpm) for municipal supply. The application was accepted by the Ecology Southwest Regional Office and was assigned as Ground Water Application G2-30564. A second application, G2-30565, was filed by the City at the same time for 4,675 gpm, also for municipal supply. Application G2-30565 is for the City's Lower Wellfield and Application G2-30564 is for the City's Upper Wellfield.

The intent of these two applications is to secure water rights which are non-additive and that authorize the current rate of withdrawal at each of the existing Upper and Lower Wellfields. The City's water rights are currently "capped" at an authorized total withdrawal of 3,786 acre-feet per year (af/yr).

Pacific Groundwater Group (PGG) completed a Phase I review for both applications which is documented in their letter report dated March 15, 2011.. The City requested that Ecology complete the Phase II review and process the water right application under the cost reimbursement program using an independent consultant on contract to Ecology. HDR Engineering was selected by the City to perform the Phase II services.

Description and Purpose of Proposed Application

Table 1 Application Summary

Attributes	Summary
Name	City of Washougal
Priority Date	1/20/2011
Instantaneous Quantity	1325 gpm (non-additive)
Annual Quantity	2120 af/yr (non-additive)
Purpose of Use	Municipal Supply
Period of Use	Year Round
Place of Use	Area served by the City of Washougal as described in a Department of Health approved Water System Plan

Table 2 Proposed Sources of Withdrawal or Diversion

Source Name	Parcel	WellTag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
Well 1	73300050, 76516072, and 76516074		01N	04E	08	NWSE and NESW	45°34'N	122°20'W
Well 3	73300050, 76516072, and 76516074		01N	04E	08	NWSE and NESW	45°34'N	122°20'W
Well 10	73300050, 76516072, and 76516074		01N	04E	08	NWSE and NESW	45°34'N	122°20'W

Legal Requirements for Approval of Appropriation of Water

Chapters 90.03 and 90.44 RCW authorize the appropriation of public water for beneficial use and describes the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340 and RCW 90.44.050. In accordance with RCW 90.03.290, determinations must be made on the following four criteria in order for an application for water rights to be approved:

- Water must be available
- There must be no impairment of existing rights
- The water use must be beneficial
- The water use must not be detrimental to the public interest

This report serves as the written findings of fact concerning the investigation regarding Water Right Application Number G2-30564.

Public Notice

RCW 90.03.280 requires that notice of a water right application be published once a week, for two consecutive weeks, in a newspaper of general circulation in the area where the water is to be stored, diverted and used.

Notice of this application was published in the Columbian newspaper on February 10, 2001, and February 16, 2011. No protests were filed to this application. A copy of the Affidavit of Publication is included as Attachment A.

Consultation with the Department of Fish and Wildlife

The Department must give notice to the Department of Fish and Wildlife (WDFW) of applications to divert, withdraw or store water (RCW 77.57.020). The Department notified WDFW of this application by email and no response was received from WDFW.

State Environmental Policy Act (SEPA)

The combination of this application and the associated application, G2-30565, is greater than 2,250 gpm, so a SEPA threshold determination is needed for this application.

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INVESTIGATION

Site Visit and Existing Reports

A site visit was conducted by Jerry Louthain of HDR on September 27, 2011 with City Engineer, Rob Charles. Mr. Charles pointed out the location of the Upper and Lower Wellfields and the specific locations for each of the wells in the two wellfields. For the Upper Wellfield, Well No. 1 was within a fenced area and is currently in use as a production well, with Well No. 10 used as a production well as needed in the summertime, and Well No. 3 is currently a standby well. Two other well houses also exist in this wellfield, which formerly housed production wells that have been abandoned. This Upper Wellfield is located just north of the intersection of 28th and I Street, between I Street and the Washougal River. Well No. 1 is nearest to I Street, and Well Nos. 3 and 10 are just north of Well No. 1. The two abandoned wells are just west of Well No. 1. The entire wellfield is within approximately a 60 foot by 300 foot area.

The following reports were reviewed as part of this investigation:

- *Phase 1 Assessment for City of Washougal Cost Recovery Agreement Water Right Applications G2-30564 and G2-30565*, March 15, 2011, Pacific Groundwater Group.
- *City of Camas Water Supply Alternatives Investigation,* including *Appendix A, Lower Washougal River Groundwater Flow Model,* October 22, 2004, Pacific Groundwater Group.
- *Technical Memorandum, Assessment of Changes in Washougal River Baseflow Associated with Potential Water Right Transfer*, December 16, 2011, Pacific Groundwater Group.

The following is a brief summary of the content of these reports:

Summary of *Phase 1 Report, PGG, March 2011*

This report described the purpose and intent of the two applications filed by the City and the production capacities for each of the wells in the Upper and Lower Wellfields. The report also discussed the hydrological setting for the wellfield areas, with a description of the geology and the two principal aquifers in the vicinity, the Pleistocene Alluvial Aquifer (PAA), and the Sand and Gravel Aquifer (SGA).

The Lower Washougal River Groundwater Flow Model that was developed by PGG was described and how PGG used this model to analyze the effects to other water users in the vicinity. Through the use of this model and the analysis by PGG it was determined that the shift in production of moving more ground water production from the Upper Wellfield to the Lower Wellfield would not be anticipated to impair any other water users, including the City of Camas Well 14.

In addition, this report clarified that since these two applications are non-additive, they are neutral to other water users and can be processed prior to any other pending water right applications within this same source.

Summary of *City of Camas Study and Lower Washougal River Groundwater Flow Model Report, PGG, Oct. 2004*

This study and groundwater flow model report was developed to plan for a future additional source of water supply for the City of Camas from the PAA. The model was used to develop an assessment of regional drawdown from ground water pumping and to plan out and design expansion of the Camas wellfield and to provide information needed for the City of Camas water right applications.

Summary of *Technical Memorandum, Assessment of Changes in Washougal River Baseflow Associated with Potential Water Right Transfer, PGG, December 2011*

In this technical memorandum, PGG described how the Camas/Washougal ground water flow model (described above) was used to assess the impacts of the proposed water rights applications by City of Washougal.

PGG ran the model to assess the effects of these two water right applications. PGG ran two scenarios to accomplish this evaluation. The first scenario evaluated pumping under the current water rights authorizations with 2,800 gpm pumping in the Upper Wellfield. The second scenario moved 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield. PGG then determined the quantity of water exchanged between the aquifer and the Washougal River for each scenario and calculated the difference to determine the effects of the proposed exchange on river flow.

PGG determined that moving 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield causes about 0.5 cfs *less* streamflow depletion in the lower Washougal River between the Upper Wellfield and the Lower Wellfield. This is because the aquifer at the Upper Wellfield is directly in hydraulic connection with the Washougal River whereas a portion of the aquifer in the Lower Wellfield area is disconnected from the river because of a bedrock high that is exposed near the river.

Proposed Use and Basis of Water Demand

The City filed this application for the wells in the Upper Wellfield, along with Application No. G2-30565 for the wells in the Lower Wellfield to request approval of the amount of water for each their wellfields to conform to the pumping capacity of each of the wellfields. This application is for 1,325 gpm and Application No. G2-30565 is for 4,675 gpm, for municipal supply, for a total of 6,000 gpm for the two wellfields. The applications do not increase the quantity or rate of water use. The City has filed these two applications to supplement their existing rights, with the requested total instantaneous pumping

rate from each of these applications to match the total production capability from each of the two wellfields.

It should be noted that Application No. G2-30564 for 1,325 gpm is limited to a maximum annual quantity that can be withdrawn at this pumping rate which is 2,120 afy, so this application could not be approved for more than this annual quantity.

The City is currently updating their Water System Plan, with the 20-year planning period shown to be through the year 2030. The current draft of the Water System Plan also shows that the year 2009 is the highest water production year in recent years as 611.79 million gallons(mg), which is equivalent to 1,878 afy. Projections to the year 2030 show the water demand to be 985 mg, which is equivalent to 3,024 afy.

Comparing this projected demand to the City's existing water rights of 3,786 afy shows that the City already has sufficient existing water rights to meet and exceed their 20-year projected demand.

Other Rights Appurtenant to the Place of Use

Table 3 below shows the City's existing water rights which consist of five water right claims and two certificates, with each document for a specific well or wells. The individual Qi and Qa is shown for each of these documents with the total Qi for these shown as 6,350 gpm. The individual values for Qa exceed the total "capped" amount of water rights of 3,786 afy, however the notation for Certificate No. G2-25796 states that this water right limits the total system Qa to 3,786 afy.

Table 3. City of Washougal Water Rights

*non-additive
**G2-25796 limits total water system to 3,786 ac-ft/yr

Water Right	*WR Qi (gpm)*	*WR Qa (ac-ft/yr)*
Claim 000733	1,100	1,777.75
Claim 000774	850	1,371
Claim 000755	850	1,371
Claim 000776	850	1,371
Claim 000777	1,200	1936
G2-25796	1,100	1,419.5
G2-24581	400	322.6*
Total	6,350	3,786**

Water Availability

For water to be available for appropriation, it must be both physically and legally available.

Physical and Legal Availability

In the case of this application, the water availability requirement has essentially already been satisfied in that the City already has in total, the existing water rights for the amount of water shown in the application and that no additional water is proposed to be appropriated under this application. This application is merely to obtain a water right for the Lower Wellfield that matches the City's existing pumping amounts from the wells in the Lower Wellfield. This application is supplemental on both a Qi and a Qa basis, to the City's existing water rights.

Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal facility is one that (a) is constructed in compliance with well construction requirements and (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.

- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.

- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows. Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

Impairment, Qualifying Ground Water Withdrawal Facilities, and Well Interference

Qualifying ground water withdrawal facilities are defined as those wells which in the opinion of the Department are adequately constructed. An adequately constructed well is one that (a) is constructed in compliance with well construction requirements; (b) fully penetrates the saturated thickness of an aquifer or withdraws water from a reasonable and feasible pumping lift (WAC 173-150); (c) the withdrawal facilities must be able to accommodate a reasonable variation in seasonal pumping water levels; and (d) the withdrawal facilities including pumping facilities must be properly sized to the ability of the aquifer to produce water.

From the review of the information provided in the documentation by PGG (the March, 2011 Phase 1 Report, and the 2004 Groundwater Flow Model Report and the December 2011 Technical Memorandum), it does not appear that there would be any impairment of existing water rights in the vicinity from the transfer of 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield. The reason is that there is adequate transmissivity in the aquifer to support the ground water pumping that is already occurring. The existing wells are operating properly without excessive drawdown or well interference.

Impairment: Surface Water and Instream Flows

The PAA is in hydraulic connection with the Washougal River and, in places, the Columbia River. Ground water pumping under the current conditions reduces the amount of flow in the Washougal River by inducing water to flow from the river into the aquifer or capturing the discharge of ground water flowing into the river from the aquifer.

PGG used the Camas/Washougal ground water flow model to determine the effects of ground water pumping on Washougal River flow for the water rights authorizations for the current water rights and the proposed new water right. PGG determined that moving 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield causes about 0.5 cfs *less* streamflow depletion. This is because the aquifer at the Upper Wellfield is directly in hydraulic connection with the Washougal River whereas a portion of the aquifer in the Lower Wellfield area is disconnected from the river because of a bedrock high that is exposed near the river. The 0.5 cfs change in river flow capture from the new water rights authorizations will likely be captured from the Columbia River. However, the Columbia River is not flow limited in this area.

Beneficial Use

The use of water for municipal supply purposes is defined in statute as a beneficial use (RCW 90.54.020(1)). Water has been used from this source for municipal supply purposes for many years under the authority of the City's existing water rights.

Public Interest Considerations

Approval of this water right for municipal supply purposes is in the public interest. No protests or objections have been filed to the approval of this application. In addition, Ecology notified the

Washington Department of Fish and Wildlife about this application to see if WDFW had any comments or specific concerns about this application and no response was received from WDFW.

Conclusions

In conclusion, approval of this application for the recommended quantities meets the following four criteria that must be met for a water right to be approved:

- Water must be available
- There must be no impairment of existing rights
- The water use must be beneficial
- The water use must not be detrimental to the public interest

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

Withdrawal Rate

1,325 gpm (Non-additive)

Annual Quantity

2,120 acre-feet per year (Non-additive)

Purpose of Use

Municipal Supply

Point of Withdrawal

NW¼SE¼ and NE ¼SW ¼, Section 8, Township 1 North, Range 4E.W.M.

Place of Use

Area served by the City of Washougal as described in a Department of Health approved Water System Plan.

Report Writer	*Date*
Phil Crane	5/8/2012
Reviewed by Phil Crane	*Date*

LIST OF ATTACHMENTS

Attachment A- Affidavit of Publication

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Selected References

Phase 1 Assessment for City of Washougal Cost Recovery Agreement Water Right Applications G2-30564 and G2-30565. Pacific Groundwater Group, March 15, 2011

City of Camas Water Supply Alternatives Investigation, Pacific Groundwater Group, October 22, 2004

Lower Washougal River Groundwater Flow Model, (Appendix A of PGG, October 22, 2004 report)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

May 8, 2012

City of Washougal
Attn Trevor Evers
1701 C Street
Washougal WA 98671

Re: Water Right Application No. G2-30565

Dear Mr. Evers:

Enclosed is a copy of the Department of Ecology's *Report of Examination.* This report contains our decision regarding your application.

Your application has been approved.

A Permit will be issued consistent with the enclosed *Report of Examination* after the appeal period has expired, if no appeals have been filed.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. 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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ADDRESS AND LOCATION INFORMATION

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If you have any questions, please call (360) 407-6300.

Sincerely,

Michael J. Gallagher
Section Manager
Water Resources Program

Enclosures: Report of Examination
Your Right To Be Heard

By Certified Mail: 7010 1670 0002 4158 1852

DEPARTMENT OF
ECOLOGY
State of Washington

State of Washington
Report of Examination for Water Right

PRIORITY DATE
January 20, 2011

WATER RIGHT NUMBER
G2-30565

MAILING ADDRESS
City of Washougal
1701 C Street
Washougal, WA 98671

SITE ADDRESS (IF DIFFERENT)

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
4,675	GPM	3,786

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)
Municipal Supply		4,675	GPM		3,786	01/01-12/31

REMARKS

IRRIGATED ACRES ADDITIVE	IRRIGATED ACRES NON-ADDITIVE	PUBLIC WATER SYSTEM INFORMATION WATER SYSTEM ID	PUBLIC WATER SYSTEM INFORMATION CONNECTIONS
		93400	

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well No. 5	89935000		1N	3E	12	NE SE, NW SE	45°34'N	122°22'W
Well No.6	89935000		1N	3E	12	NE SE, NW SE	45°34'N	122°22'W
Well No.7	89935000		1N	3E	12	NE SE, NW SE	45°34'N	122°22'W
Well No.11	89935000		1N	3E	12	NE SE, NW SE	45°34'N	122°22'W
Well No.12	89935000	APN125	1N	3E	12	NE SE, NW SE	45°34'N	122°22'W

Datum: NAD83/WGS84

Place of Use (See Attached Map)

PARCELS (NOT LISTED FOR SERVICE AREAS)

NA

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Area served by the City of Washougal as described in the mostly recent Water System Plan approved by the Department of Health

Proposed Works

Lower Wellfield, consisting of existing Well Nos. 5, 6, 7, 11, and 12 with casings up to 16" in diameter and ranging in depth from 75 to 150 feet deep. All five wells are currently available for use

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	Completed	December 31, 2030

Measurement of Water Use

How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Annually
What volume should be reported?	Total Annual Volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

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", WAC 173-173.

Department of Ecology personnel, upon presentation of proper credentials, must 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.

WAC 173-173 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.

Proof of Appropriation
The water right holder must file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the superseding permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

Findings of Facts
Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated.

Therefore, I ORDER the requested approval of Application No. G2-30565 subject to existing rights and the provisions specified above.

Signed at Olympia, Washington, this 8th day of May 2012.

Michael J. Gallagher

Michael J. Gallagher, Section Manager

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Phil Crane, Department of Ecology Contact

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Cost Reimbursement

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The intent of these two applications is to secure water rights which are non-additive that authorize the current rate of withdrawal at each of the existing Upper and Lower Wellfields. The City's water rights are currently "capped" at an authorized total withdrawal of 3,786 acre-feet per year (af/yr).

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Description and Purpose of Proposed Application

Table 1 Application Summary

Attributes	Summary
Name	City of Washougal
Priority Date	1/20/2011
Instantaneous Quantity	4675 gpm (non-additive)
Annual Quantity	3786 af/yr (non-additive)
Purpose of Use	Municipal Supply
Period of Use	Year Round
Place of Use	Area served by the City of Washougal as described in a Department of Health approved Water System Plan

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Source Name	Parcel	WellTag	Twp	Rng	Sec	QQ Q	Latitude	Longitude
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This report serves as the written findings of fact concerning the investigation regarding Water Right Application Number G2-30565.

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The Department must give notice to the Department of Fish and Wildlife (WDFW) of applications to divert, withdraw or store water (RCW 77.57.020). The Department notified WDFW of this application by email and no response was received from WDFW.

State Environmental Policy Act (SEPA)

The combination of this application and the associated application, G2-30564, is greater than 2,250 gpm, so a SEPA threshold determination is needed for this application.

The City, acting as Lead Agency, issued a Determination of Nonsignificance (DNS) on August 26, 2011, according to the SEPA Rules, Chapter 197-11 WAC, as a non-project proposal relating to Application Nos. G2-30564 and G2-30565. This DNS was issued as a follow-up to the Environmental Checklist submitted on May 26, 2011. The DNS was distributed to numerous Federal, State, Regional, and Local agencies, as well as newspapers in the vicinity and local interest groups, with written comments accepted by the City until September 9, 2011. The City received just one written comment within this time frame, but it wasn't related to this non-project action, since the comment related to construction activity.

INVESTIGATION

Site Visit and Existing Reports

A site visit was conducted by Jerry Louthain of HDR on September 27, 2011 with City Engineer, Rob Charles. Mr. Charles pointed out the location of the Upper and Lower Wellfields and the specific locations for each of the wells in the two wellfields. For the Lower Wellfield, all five wells, Well Nos. 5, 6, 7, 11, and 12 are currently in use as production wells. This Lower Wellfield is located just north of the railroad track and west of Whitney Street. The wells are located along an east-west line, with the wells approximately 100 feet apart. The most westerly well is Well No. 6, and then Well No. 7, Well No. 5, Well No. 11, and Well No. 12 being the most easterly well within the wellfield. The entire wellfield is within approximately a 50 foot by 500 foot fenced area.

The following reports were reviewed as part of this investigation:

- *Phase 1 Assessment for City of Washougal Cost Recovery Agreement Water Right Applications G2-30564 and G2-30565*, March 15, 2011, Pacific Groundwater Group.
- *City of Camas Water Supply Alternatives Investigation,* including *Appendix A, Lower Washougal River Groundwater Flow Model,* October 22, 2004, Pacific Groundwater Group.
- *Technical Memorandum, Assessment of Changes in Washougal River Baseflow Associated with Potential Water Right Transfer*, December 16, 2011, Pacific Groundwater Group.

The following is a brief summary of the content of these reports:

Summary of *Phase 1 Report, PGG, March 2011*

This report described the purpose and intent of the two applications filed by the City and the production capacities for each of the wells in the Upper and Lower Wellfields. The report also discussed the hydrological setting for the wellfield areas, with a description of the geology and the two principal aquifers in the vicinity, the Pleistocene Alluvial Aquifer (PAA), and the Sand and Gravel Aquifer (SGA).

The Lower Washougal River Groundwater Flow Model that was developed by PGG was described and how PGG used this model to analyze the effects to other water users in the vicinity. Through the use of this model and the analysis by PGG it was determined that the shift in production of moving more ground water production from the Upper Wellfield to the Lower Wellfield would not be anticipated to impair any other water users, including the City of Camas Well 14.

In addition, this report clarified that since these two applications are non-additive, they are neutral to other water users and can be processed prior to any other pending water right applications within this same source.

Summary of *City of Camas Study and Lower Washougal River Groundwater Flow Model Report, PGG, Oct. 2004*

This study and groundwater flow model report was developed to plan for a future additional source of water supply for the City of Camas from the PAA. The model was used to develop an assessment of regional drawdown from ground water pumping and to plan out and design expansion of the Camas wellfield and to provide information needed for the City of Camas water right applications.

Summary of *Technical Memorandum, Assessment of Changes in Washougal River Baseflow Associated with Potential Water Right Transfer, PGG, December 2011*

In this technical memorandum, PGG described how the Camas/Washougal ground water flow model (described above) was used to assess the impacts of the proposed water rights applications by City of Washougal.

PGG ran the model to assess the effects of these two water right applications. PGG ran two scenarios to accomplish this evaluation. The first scenario evaluated pumping under the current water rights authorizations with 2,800 gpm pumping in the Upper Wellfield. The second scenario moved 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield. PGG then determined the quantity of water exchanged between the aquifer and the Washougal River for each scenario and calculated the difference to determine the effects of the proposed exchange on river flow.

PGG determined that moving 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield causes about 0.5 cfs *less* streamflow depletion in the lower Washougal River between the Upper Wellfield and the Lower Wellfield. This is because the aquifer at the Upper Wellfield is directly in hydraulic connection with the Washougal River whereas a portion of the aquifer in the Lower Wellfield area is disconnected from the river because of a bedrock high that is exposed near the river.

Proposed Use and Basis of Water Demand

The City filed this application for the wells in the Lower Wellfield, along with Application No. G2-30564 for the wells in the Upper Wellfield to request approval of the amount of water for each their wellfields to conform to the pumping capacity of each of the wellfields. This application is for 4,675 gpm and Application No. G2-3056 is for 1,325 gpm, for municipal supply, for a total of 6,000 gpm for the two wellfields. The applications do not increase the quantity or rate of water use. The City has filed these two applications to supplement their existing rights, with the requested total instantaneous pumping rate from each of these applications to match the total production capability from each of the two wellfields.

The City is currently updating their Water System Plan, with the 20-year planning period shown to be through the year 2030. The current draft of the Water System Plan also shows that the year 2009 is the highest water production year in recent years as 611.79 million gallons (mg), which is equivalent to 1,878 afy. Projections to the year 2030 show the water demand to be 985 mg, which is equivalent to 3,024 afy.

Comparing this projected demand to the City's existing water rights of 3,786 afy shows that the City already has sufficient existing water rights to meet and exceed their 20-year projected demand.

Other Rights Appurtenant to the Place of Use

Table 3 below shows the City's existing water rights which consist of five water right claims and two certificates, with each document for a specific well or wells. The individual Qi and Qa is shown for each of these documents with the total Qi for these shown as 6,350 gpm. The individual values for Qa exceed the total "capped" amount of water rights of 3,786 afy, however the notation for Certificate No. G2-25796 states that this water right limits the total system Qa to 3,786 afy.

Water Availability

For water to be available for appropriation, it must be both physically and legally available.

Physical and Legal Availability

In the case of this application, the water availability requirement has essentially already been satisfied in that the City already has in total, the existing water rights for the amount of water shown in the application and that no additional water is proposed to be appropriated under this application. This application is merely to obtain a water right for the Lower Wellfield that matches the City's existing pumping amounts from the wells in the Lower Wellfield. This application is supplemental on both a Qi and a Qa basis, to the City's existing water rights.

Table 3. City of Washougal Water Rights

Water Right	*WR Qi (gpm)*	*WR Qa (ac-ft/yr)*
Claim 000733	1,100	1,777.75
Claim 000774	850	1,371
Claim 000755	850	1,371
Claim 000776	850	1,371
Claim 000777	1,200	1936
G2-25796	1,100	1,419.5
G2-24581	400	322.6*
Total	6,350	3,786**

*non-additive
**G2-25796 limits total water system to 3,786 ac-ft/yr

Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal facility is one that (a) is constructed in compliance with well construction requirements and (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.

- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.

- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows. Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

Impairment, Qualifying Ground Water Withdrawal Facilities, and Well Interference

Qualifying ground water withdrawal facilities are defined as those wells which in the opinion of the Department are adequately constructed. An adequately constructed well is one that (a) is constructed in compliance with well construction requirements; (b) fully penetrates the saturated thickness of an aquifer or withdraws water from a reasonable and feasible pumping lift (WAC 173-150); (c) the withdrawal facilities must be able to accommodate a reasonable variation in seasonal pumping water levels; and (d) the withdrawal facilities including pumping facilities must be properly sized to the ability of the aquifer to produce water.

From the review of the information provided in the documentation by PGG (the March, 2011 Phase 1 Report, and the 2004 Groundwater Flow Model Report and the December 2011 Technical Memorandum), it does not appear that there would be any impairment of existing water rights in the vicinity from the transfer of 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield. The

reason is that there is adequate transmissivity in the aquifer to support the ground water pumping that is already occurring. The existing wells are operating properly without excessive drawdown or well interference.

Impairment: Surface Water and Instream Flows

The PAA is in hydraulic connection with the Washougal River and, in places, the Columbia River. Ground water pumping under the current conditions reduces the amount of flow in the Washougal River by inducing water to flow from the river into the aquifer or capturing the discharge of ground water flowing into the river from the aquifer.

PGG used the Camas/Washougal ground water flow model to determine the effects of ground water pumping on Washougal River flow for the water rights authorizations for the current water rights and the proposed new water right. PGG determined that moving 1,525 gpm of pumping from the Upper Wellfield to the Lower Wellfield causes about 0.5 cfs *less* streamflow depletion. This is because the aquifer at the Upper Wellfield is directly in hydraulic connection with the Washougal River whereas a portion of the aquifer in the Lower Wellfield area is disconnected from the river because of a bedrock high that is exposed near the river. The 0.5 cfs change in river flow capture from the new water rights authorizations will likely be captured from the Columbia River. However, the Columbia River is not flow limited in this area.

Beneficial Use

The use of water for municipal supply purposes is defined in statute as a beneficial use (RCW 90.54.020(1)). Water has been used from this source for municipal supply purposes for many years under the authority of the City's existing water rights.

Public Interest Considerations

Approval of this water right for municipal supply purposes is in the public interest. No protests or objections have been filed to the approval of this application. In addition, Ecology notified the Washington Department of Fish and Wildlife about this application to see if WDFW had any comments or specific concerns about this application and no response was received from WDFW.

Conclusions

In conclusion, approval of this application for the recommended quantities meets the following four criteria that must be met for a water right to be approved:

- Water must be available
- There must be no impairment of existing rights
- The water use must be beneficial
- The water use must not be detrimental to the public interest

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations listed below and subject to the provisions listed above.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

4,675 gpm (Non-additive)
3,786 acre-feet per year (Non-additive)

Municipal Supply

Point of Withdrawal

NE¼SE¼ and NW ¼SE ¼, Section12, Township 1 North, Range 3 E.W.M.

Place of Use

Area served by the City of Washougal as described in a Department of Health approved Water System Plan.

Report Writer *Date*

Phil Crane 5/8/2012

Reviewed by Phil Crane *Date*

LIST OF ATTACHMENTS

Attachment A- Affidavit of Publication

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Selected References

Phase 1 Assessment for City of Washougal Cost Recovery Agreement Water Right Applications G2-30564 and G2-30565. Pacific Groundwater Group, March 15, 2011

City of Camas Water Supply Alternatives Investigation, Pacific Groundwater Group, October 22, 2004

Lower Washougal River Groundwater Flow Model, (Appendix A of PGG, October 22, 2004 report)

STATE OF WASHINGTON
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT

RECEIVED
DEPARTMENT OF ECOLOGY
JUL 15 70 001132

WATER RIGHT CLAIM

CASH___ OTHER✓ NONE___

1. NAME CITY OF WASHOUGAL

ADDRESS 1701 C St.

Washougal, Wash. ZIP CODE 98671

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water (SURFACE OR GROUND WATER)

W.R.I.A. 28 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS Well #1

B. IF SURFACE WATER, THE SOURCE IS

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 1100 GPM (CUBIC FEET PER SECOND OR GALLONS PER MINUTE) PRESENTLY USED 550 GPM

B. ANNUAL QUANTITY CLAIMED 1777.75 (ACRE FEET PER YEAR) PRESENTLY USED ~~xxxxx~~ 417.5

C. IF FOR IRRIGATION, ACRES CLAIMED PRESENTLY IRRIGATED

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED Constant

4. DATE OF FIRST PUTTING WATER TO USE MONTH YEAR 1931

5. LOCATION OF THE POINT(S) OF DIVERSION, WITHDRAWAL: 1,897.92' FEET North AND 2,305.42 FEET West FROM THE Southeast CORNER OF SECTION 8

BEING WITHIN SE ¼ OF SECTION 8 T. 1 N. R. 4E (E.or W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT BLOCK OF

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:

City of Washougal - Water System

Clark COUNTY Washington

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal Water System

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: Appropriation - City Owned

DO NOT USE THIS SPACE

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.

DATE RETURNED REGISTRY NUMBER

JUL 15 70 000773 < THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM REGISTRY NO.

John H. Lindberg

ASSISTANT DIRECTOR DIVISION OF WATER MANAGEMENT-DEPARTMENT OF WATER RESOURCES

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

X Gerald B. Harlan P.E.
City Engineer

DATE July 13, 1970

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF $2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

ORIGINAL
DWR

RETURN ALL THREE COPIES WITH CARBONS INTACT ALONG WITH YOUR FEE TO
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT
UNION AVE BUILDING-OLYMPIA WASHINGTON 98504

STATE OF WASHINGTON
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT

RECEIVED
DEPARTMENT OF ECOLOGY
JUL 15 70 001133
CASH___ OTHER ✓ NONE___

WATER RIGHT CLAIM

1. NAME CITY OF WASHOUGAL

ADDRESS 1701 C St.

Washougal, Washington ZIP CODE 98671

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground (SURFACE OR GROUND WATER)

W.R.I.A 28 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS Well # 2

B. IF SURFACE WATER, THE SOURCE IS

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 850 GPM (CUBIC FEET PER SECOND OR GALLONS PER MINUTE) PRESENTLY USED 650 GPM

B. ANNUAL QUANTITY CLAIMED 1371 (ACRE FEET PER YEAR) PRESENTLY USED 260

C. IF FOR IRRIGATION, ACRES CLAIMED PRESENTLY IRRIGATED

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: Constant

4. DATE OF FIRST PUTTING WATER TO USE MONTH YEAR 1925

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 1,957.35 FEET North AND 2,469.39 FEET West FROM THE Southeast CORNER OF SECTION 8

BEING WITHIN SE ¼ OF SECTION 8 T. 1 N. R. 4E (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT BLOCK OF

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED.

City of Washougal - Water System

Clark COUNTY Washington

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal Water System

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: Appropriation - City Owned

DO NOT USE THIS SPACE

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DATE RETURNED REGISTRY NUMBER

RL 1570000771 THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM REGISTRY NO.

John H. Lillber

ASSISTANT DIRECTOR DIVISION OF WATER MANAGEMENT-DEPARTMENT OF WATER RESOURCES

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

X Gerald B. Halon, P.E.
City Engineer

DATE July 13, 1970

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF $2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

RETURN ALL THREE COPIES WITH CASHIER'S CHECK OR MONEY ORDER FOR YOUR FEE TO
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT
UNION AVE. BUILDING, OLYMPIA, WASHINGTON 98504

ORIGINAL
DWR

STATE OF WASHINGTON
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY
JUL 15 70 001135
CASH___ OTHER ✓ NONE___

1. NAME CITY OF WASHOUGAL

ADDRESS 1701 C St.

Washougal, Washington ZIP CODE 98671

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water (SURFACE OR GROUND WATER)

W.R.I.A. 28 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS Well #4

B. IF SURFACE WATER, THE SOURCE IS

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 850 GPM PRESENTLY USED 650 GPM (CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 1371 PRESENTLY USED 70 (ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED ____ PRESENTLY IRRIGATED ____

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: As needed for make-up

4. DATE OF FIRST PUTTING WATER TO USE: ____ MONTH ____ YEAR 1939

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 1987.14 FEET North AND 2,306.92 FEET West FROM THE Southeast CORNER OF SECTION 8

BEING WITHIN SE ¼ OF SECTION 8 T. 1 N. ____ R. 4 E (E.OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT ____ BLOCK ____ OF

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED.

City of Washougal - Water System

Clark COUNTY Washington

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal Water System

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED.

Appropriation - City Owned

DO NOT USE THIS SPACE

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.

DATE RETURNED REGISTRY NUMBER

JUL 15 70 000776 < THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM REGISTRY NO.

ASSISTANT DIRECTOR DIVISION OF WATER MANAGEMENT-DEPARTMENT OF WATER RESOURCES

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

X Scott R. Hudson P.E.
City Engineer

DATE July 13, 1970

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF $20 MUST ACCOMPANY THIS WATER RIGHT CLAIM

RETURN ALL THREE COPIES WITH CARBONS INTACT ALONG WITH YOUR FEE TO
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT
UNION AVE. BUILDING OLYMPIA, WASHINGTON 98501

ORIGINAL
WR

STATE OF WASHINGTON
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT

RECEIVED
DEPARTMENT OF ECOLOGY
JUL 15 70 00 1 1 36

WATER RIGHT CLAIM

CASH ___ OTHER ___ NONE ✓

1. NAME CITY OF WASHOUGAL

ADDRESS 1701 C Street

Washougal, Washington ZIP CODE 98671

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground Water (SURFACE OR GROUND WATER)

W.R.I.A. 28 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS Well #5

B. IF SURFACE WATER, THE SOURCE IS

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 1200 GPM PRESENTLY USED 800 GPM (CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 1936 PRESENTLY USED 126 (ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED ___ PRESENTLY IRRIGATED ___

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: Make-up as needed

4. DATE OF FIRST PUTTING WATER TO USE ___ MONTH September YEAR 1942

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL 1,676.92 FEET North AND 1,751.82 FEET West FROM THE Southeast CORNER OF SECTION 12

BEING WITHIN SE OF SECTION 12 T 1 N. ___ R. 3 E (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT ___ BLOCK ___ OF ___ (GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED

City of Washougal - Water System

Clark COUNTY Washington

7. PURPOSE(S) FOR WHICH WATER IS USED: Municipal Water System

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: Appropriation - Lease

S P & S Railway

DO NOT USE THIS SPACE

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS, AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE

DATE RETURNED REGISTRY NUMBER

JUL 15 70 0000777 < THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM REGISTRY NO.

ASSISTANT DIRECTOR DIVISION OF WATER MANAGEMENT-DEPARTMENT OF WATER RESOURCES

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

X Harold B. Hooker P.E. City Engineer

DATE July 13, 1970

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

A FEE OF $2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

ORIGINAL

RETURN ALL THREE COPIES WITH CARBONS INTACT ALONG WITH YOUR FEE TO
DEPARTMENT OF WATER RESOURCES
DIVISION OF WATER MANAGEMENT
UNION AVE BUILDING OLYMPIA WASHINGTON 98501

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ 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 3, 1981	G 2-25796	G 2-25796 P	G 2-25796 C

NAME
CITY OF WASHOUGAL, FOR BURLINGTON NORTHERN INC.

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
1701 "C" Street	Washougal	Washington	98671

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.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
2 wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	1100	1419.5

QUANTITY, TYPE OF USE, PERIOD OF USE
1419.5 acre-feet per year municipal supply continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
Well field: 1500 feet north and 1300 feet west of the Southeast corner of Section 12.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, E. OR W.J W.M.	W.R.I.A.	COUNTY
David G. Parker DLC	12	1 N	3 E	28	Clark

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 Washougal.

PROVISIONS

"The total annual water allocation for the City of Washougal shall be limited to 3,786 acre-feet per year for municipal use from all rights."

The access port shall be maintained at all times on the well (s).

At such time that the Department of Ecology determines the regulation and management of the subject waters is necessary and in the public interest, an approved measuring device shall be installed and maintained in accordance with RCW 90.03.360 and WAC 508-64-020 through WAC 508-64-040.

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 Olympia *Washington, this* 23rd *day of* April, *19* 82

DONALD W. MOOS, Director
Department of Ecology

ENGINEERING DATA
OK 4-20-82

by E.W. Asselstine, Regional Manager

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ 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
May 31, 1977	G 2-24581	G 2-24581 P	G 2-24581 C

NAME
CITY OF WASHOUGAL

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
1701 C. Street	Washougal	Washington	98671

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.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	400	322.6

QUANTITY, TYPE OF USE, PERIOD OF USE		
322.6 acre-feet per year	municipal supply	continuously

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION–WITHDRAWAL
800 feet north and 1300 feet east of the center of Section 16.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
Joseph Gibbons DLC #49	16	1	4 E	28	Clark

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 Washougal.

PROVISIONS

"The total annual water quantity for the City of Washougal municipal supply for all rights shall be limited to 3,786 acre-feet per year."

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gauge may be installed in addition to the access port.

Owing to the proximity of neighboring wells, the certificate holder is reminded of his responsibility towards same and advised that he may be required to regulate his withdrawal pumping rate if existing rights are injuriously affected.

An approved measuring device shall be installed and maintained in accordance with RCW 90.03.360, WAC 508.64.020 through WAC 508-64-040 (Installation, operation and maintenance requirements attached hereto).

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 Olympia, *Washington, this* 28th *day of* August, 19 80

WILBUR HALLAUER, DIRECTOR
Department of Ecology

ENGINEERING DATA
OK RPM 8-26-80

by E.W. Asselstine
E.W. Asselstine, Regional Manager

FOR COUNTY USE ONLY

APPENDIX K
SEPA DOCUMENTATION

If you would like to receive these transmittals electronically or submit comments you may do so by emailing skasziewicz@ci.washougal.wa.us

Date published: June 15, 2012

June 15, 2012

Please find enclosed an environmental **Determination of Nonsignificance (DNS)** issued pursuant to the State Environmental Policy Act (SEPA) Rules (Chapter 197-11, Washington Administrative Code). The enclosed review comments reflect evaluation of the environmental checklist by the lead agency as required by WAC 197-11-330 (1)(a)(i). You may comment on this determination within fourteen (14) days of its issuance, after which the DNS will be reviewed in light of the comments received by **June 29, 2012.**

Please address any correspondence to: City of Washougal
Mitch Kneipp MK
Interim Community Development Director
1701 C Street
Washougal, WA 98671

DISTRIBUTION:

Federal Agencies: U.S. Army Corps of Engineers – Portland and Seattle
U.S. Fish and Wildlife, Jim Clapp - **email**
U.S. Forest Service-10600 NE 51st Circle, Vancouver, WA 98682

State Agencies: Department of Ecology
SEPA Document Unit, PO Box 47703, Olympia, WA 98504-7703 - **email**
Rebecca Schroeder - **email**
Rod Thysell, Water Quality Specialist - **email**
Department of Transportation
Jeff Barsness, Southwest Region - **email**
Dept. of Commerce - Review Team **- email**
Department of Fish & Wildlife
Anne Friesz, Area Habitat Biologist – **email**
George Fornes – **email**
Department of Natural Resources
External SEPA Coordinator, Olympia – email
John Byerly, Castle Rock – **email**
Aquatic Leasing – **email**
Office of Archaeology & Historic Preservation, Robert G. Whitlam – State Archaeologist
Office of Archaeology & Historic Preservation, Gretchen Kaehler - **email**
Yakama Confederated Tribes - **email**

Regional Agencies: Fort Vancouver Regional Library
Clark County Environmental Public Health, Carla Sowder - **email**
Clark County Conservation District, Becky Meats - **email**

Vancouver Audubon Society
Southwest Clean Air Agency, Dave Joyner – **email**
Building Industry Association - **email**
Lower Columbia Fish Recovery Board, Steve Manlow – **email**

Local Agencies: City of Washougal
Dan Shafar, Wallis Engineering – **email**
Community Development Department, Project File

Other: The Columbian, Scott Hewitt/Pauline Sipponen - **email**
The Oregonian, Bill Stewart - **email**
Post Record, Dawn Feldhaus - **email**
Clark County Natural Resource Council – **email**
C-TRAN - **email**
Washington Trout, Kurt Beardslee
Northwest Natural Gas
Katie Gough - Clark County Area Engineer - **email**
Roger Binns - New Construction Account Manager - **email**
Verizon, Engineering **- email**
Clark Public Utility
Northshore Neighborhood Association
Skyriver Homeowner's Association (SRHOA), Don Bohlin
Parties of Record

NOTICE OF
DETERMINATION OF NONSIGNIFICANCE

NOTICE IS HEREBY GIVEN that the following proposal has been determined to have no probable significant adverse impacts on the environment, and that an environmental impact statement is not required under RCW 43.21C.030(2)(c). **Written comments on the following DNS may be submitted to the Responsible Official by: June 29, 2012.**

ENV #12060006 (City of Washougal – Water System Plan)
This is a non-project review for an update to the Water System Plan. The city is seeking approval of this Water System Plan by the Washington State Department of Health. Separate local agency approval and permits will be obtained later for any Capital Improvement Projects implemented based on the recommendations of the plan.

SEPA DETERMINATION: **Determination of Non-Significance**

Proponent: John Roth
Water System Manager
City of Washougal
1701 C Street
Washougal, WA 98671

Lead agency: City of Washougal, Washington

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by: **June 29, 2012.**

Responsible Official: Mitch Kneipp
Position/title: Interim Community Development Director
Address: 1701 "C" Street, Washougal, WA 98671
Phone: (360) 835-8501
Date: **June 14, 2012**

Signature: _____
Mitch Kneipp, Interim Community Development Director

The complete file is available to the public for review at city hall, located at 1701 C Street, Washougal, WA 98671.

NOTE: In making a threshold determination, the SEPA Rules require the lead agency to consider mitigation measures which an agency or the applicant will implement as part of the proposal [Chapter 197-11-330(1)(c) WAC]. This DNS is based on the conclusion that the requirements of the City of Washougal Municipal codes, and applicable State and Federal regulations will serve to mitigate any adverse impacts of this proposal.

APPEALS:

Any agency or person may appeal the city's issuance of a final DNS. Substantive appeals of the DNS refer to conditioning or denial of, or failure to condition or deny a proposal under the authority of SEPA by a nonelected city official, city planning commission or hearing examiner.

Appeals under this section shall be processed as follows: For a proposal which may be approved by an administrative official without public hearing, SEPA appeals must be filed in writing in conjunction with, and within the limitation period applicable to, an available administrative appeal of the applicable permit or approval. An appeal under this section shall be made to the Washougal Hearing Examiner within 14 days of the issuance of the permit or approval. The decision of the hearing examiner shall be final and not subject to further administrative appeal.

Appeal application packets are available at city hall, 1701 C Street, Washougal, WA 98671.

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

City of Washougal Water System Plan Update

2. Name of applicant:

City of Washougal Public Works Department

3. Address and phone number of applicant and contact person:

John Roth
Water System Manager
1701 C Street
Washougal, WA 98671
(360) 8352662 ext 206

4. Date checklist prepared:

June 7, 2012

5. Agency requesting checklist:

City of Washougal

6. Proposed timing or schedule (including phasing, if applicable):

Development of the Water System Plan Update occurred between late 2009 and 2012.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

The Water System Plan Update includes a 6-year and 20-year capital improvement program (CIP). Projects in the CIP are anticipated to be implemented as need and available financing warrant.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

None.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

This Water System Plan Update was concurrently submitted to the Washington State Department of Health (DOH) Drinking Water Program for review and approval.

10. List any government approvals or permits that will be needed for your proposal, if known.

Approval of this Water System Plan Update by DOH is required prior to adoption by the City. Local agency approval and permits will be obtained for any CIP projects implemented based on the recommendations in this plan.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

- **Chapter 1 – provides water system history and summary of existing facilities**
- **Chapter 2 – presents planning data and water demand projections used to estimate future water use**
- **Chapter 3 – develops criteria and presents analysis of existing water system facilities including pressure zones, storage, pump stations and distribution piping based on this criteria and estimated water demands**
- **Chapter 4 - outlines the City's water use efficiency program including conservation efforts and water use reduction goals**
- **Chapter 5 – presents a financial analysis including water rate and system development charge (SDC) evaluation**
- **Appendices – include water rights information, City operation and maintenance program information, wellhead protection assessment and estimated costs for recommended capital improvements**

TO BE COMPLETED BY APPLICANT

EVALUATION FOR
AGENCY USE ONLY

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

This plan pertains to the City of Washougal's Urban Growth Area (UGA) in Clark County between the City of Camas and the Columbia River Gorge National Scenic Area (CRGNSA). See Figure 1-1 in the Plan document for a vicinity map.

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): **Flat, rolling, hilly**, steep slopes, mountainous, other . . . . . .

b. What is the steepest slope on the site (approximate percent slope)?

Slopes within Washougal's water service area are as steep as 90% although CIP projects described in the plan are generally within urbanized areas with much flatter topography.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Soils in the water service area include clay, sand, silt and gravel.
Soil types will be considered on a project specific basis.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Soil stability will be considered on a project specific basis.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

No filling or grading activities are identified in the plan. Any filling or grading will be determined on a project specific basis.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Some erosion is expected during construction of individual projects identified in the plan. On-site erosion control measures will be determined on a project specific basis.

Future project actions will be required to comply with WES Chapter 2 (Erosion Control, Clearing and Grading

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

To be determined on a project specific basis.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

On-site erosion control measures will be determined on a project specific basis.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Temporary equipment emissions are anticipated during CIP project construction.
No permanent emissions are associated with the provision of drinking water.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None known or expected.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

No emissions expected.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Campen and Gibbons Creeks (flow into the Columbia River); Washougal and Columbia Rivers; Steigerwald Lake and Price Reservoir, a tributary to Lacamas Creek are within or adjacent to water service area boundaries.

Future projects that may impact these areas will be required to comply with WMC 16.040.070 (Wetlands)

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

To be determined on a project specific basis.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

To be determined on a project specific basis.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

To be determined on a project specific basis.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Portions of the City's water system infrastructure lie within the 100 year floodplains of the Columbia and Washougal Rivers. Flood protection or facility relocation will be determined on a project specific basis.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

To be determined on a project specific basis.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Groundwater will continue to be withdrawn under existing water rights.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Does not apply.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Does not apply.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Does not apply.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Does not apply.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR
AGENCY USE ONLY

4. **Plants**

a. Check or circle types of vegetation found on the site:

__X__ deciduous tree: alder, maple, aspen, other

__X__ evergreen tree: fir, cedar, pine, other

__X__ shrubs

__X__ grass

__X__ pasture

_____ crop or grain

__X__ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

__X__ water plants: water lily, eelgrass, milfoil, other

__X__ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

To be determined on a project specific basis.

c. List threatened or endangered species known to be on or near the site.

To be determined on a project specific basis.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

To be determined on a project specific basis.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: **hawk, heron, eagle, songbirds**, other:
mammals: **deer**, bear, elk, beaver, other:
fish: bass, **salmon, trout**, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

Threatened species in the Washougal River: Lower Columbia River Chinook salmon and Columbia River bull trout

Future projects that may impact these will be required to comply with WMC 16.040.055 (Fish and wildlife habitat conservation areas)

c. Is the site part of a migration route? If so, explain.

The Washougal water service area is within the Pacific Flyway, a regional migratory bird route that includes much of western Washington.

d. Proposed measures to preserve or enhance wildlife, if any:

To be determined on a project specific basis.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity will be required at proposed booster pump stations to operate pumps, heating and control equipment and lighting and at reservoirs to operate control equipment and lighting.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

To be determined on a project specific basis.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

To be determined on a project specific basis.

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No.

1) Describe special emergency services that might be required.

Does not apply.

2) Proposed measures to reduce or control environmental health hazards, if any:

Does not apply.

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

To be determined on a project specific basis.

3) Proposed measures to reduce or control noise impacts, if any:

To be determined on a project specific basis.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?

Small municipality with an existing public water system and adjacent UGA composed of pasture, forest land and rural residential development.

b. Has the site been used for agriculture? If so, describe.

There are some existing pasture lands within the City's UGA.

c. Describe any structures on the site.

To be identified on a project specific basis.

d. Will any structures be demolished? If so, what?

Future CIP projects include demolition of an existing pump station and reservoir. Although not anticipated, other structures may be identified for demolition on a project specific basis.

e. What is the current zoning classification of the site?

The water service area encompasses all City zoning designations and the water system serves all of these zoning classifications.

f. What is the current comprehensive plan designation of the site?

To be determined on a project specific basis.

g. If applicable, what is the current shoreline master program designation of the site?

Does not apply.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

To be determined on a project specific basis.

i. Approximately how many people would reside or work in the completed project?

To be determined on a project specific basis.

j. Approximately how many people would the completed project displace?

Does not apply.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The Water System Plan Update was developed in accordance with the City of Camas and Clark County Coordinated Water System Plans as well as Washougal comprehensive planning documents.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not apply.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not apply.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply.

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Elevations of future water system structures will be determined based on water system hydraulics and site constraints. Approximate elevations will be determined during pre-design and submitted with the SEPA checklist for each project.

b. What views in the immediate vicinity would be altered or obstructed?

To be determined on a project specific basis.

c. Proposed measures to reduce or control aesthetic impacts, if any:

To be determined on a project specific basis.

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None anticipated. To be determined on a project specific basis.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

To be determined on a project specific basis.

c. What existing off-site sources of light or glare may affect your proposal?

None anticipated.

d. Proposed measures to reduce or control light and glare impacts, if any:

To be determined on a project specific basis.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

Water-related recreation in the Washougal and Columbia Rivers.

b. Would the proposed project displace any existing recreational uses? If so, describe.

None anticipated.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

To be determined on a project specific basis.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

Future project actions will be required to comply with WMC 16.40 (Historic and Cultural Preservations)

None known.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

None known.

c. Proposed measures to reduce or control impacts, if any:

To be determined on a project specific basis.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

To be determined on a project specific basis.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Does not apply, water system facilities are not intended for public access.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Does not apply.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

To be determined on a project specific basis.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

To be determined on a project specific basis.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Does not apply, water system facilities are not intended for public access.

g. Proposed measures to reduce or control transportation impacts, if any:

Temporary transportation impacts may occur during construction of individual projects indentified in the plan. Traffic control measures to be determined on a project specific basis.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No, water system facilities are considered public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Does not apply.

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

To be determined on a project specific basis.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

To be determined on a project specific basis.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Joan J.

Date Submitted: 6/8/2012

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Temporary construction impacts for identified CIP projects to be determined on a project specific basis.

Proposed measures to avoid or reduce such increases are:

Construction management best practices.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

No impact is expected as a result of this Water System Plan Update.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

No anticipated depletion of resources as a result of this Water System Plan Update.

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Construction of identified CIP projects has the potential to damage wetlands or floodplains, however, construction will generally occur adjacent to existing roadways in urbanized areas.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Project site selection to minimize disturbance in sensitive areas and construction management best practices.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed projects in the CIP are consistent with existing land use plans.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Does not apply.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

No increased transportation or public service demand anticipated. Utility needs to be determined on a project specific basis.

Proposed measures to reduce or respond to such demand(s) are:

Does not apply.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The Water System Plan Update does not knowingly conflict with any local, state or federal law.

APPENDIX L
WATER DEMAND UPDATE MEMO

Murray, Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 ■ Portland, Oregon 97204-2919 ■ PHONE 503.225.9010 ■ FAX 503.225.9022

TECHNICAL MEMORANDUM

DATE: March 16, 2009

PROJECT: 07-0843.420

TO: Mr. Trevor Evers, Public Works Director
Mr. John Roth, Water/Wastewater Manager
City of Washougal

FROM: Chris H. Uber, P.E.
Brian M. Ginter, P.E.
Murray, Smith & Associates, Inc.

RE: Long-Range Water Demand Forecast

DRAFT

General

This technical memorandum presents existing and future water demands for the City of Washougal's (City) water service area. Future water demand projections will be based on existing planning information regarding land use, population growth and historical water production. These projected water demands will subsequently be used as the basis for evaluating the capacity of existing water system facilities and determining the required system improvements necessary to satisfy future demand conditions including needed water rights and water supply improvements as part of upcoming water system master planning work. These projects will also be used to support the City's application for new water rights near the Steigerwald Lake National Wildlife Refuge.

Planning Period

The planning period for this water demand forecast update is through the year 2050, approximately 40 years, and also analyzes saturation development conditions of the service area. Saturation development occurs when all existing developable land within the City's water service area has been developed. Estimating saturation development allows the City to determine the ultimate size of certain water facilities needed to serve long-term water needs.

Current Service Area and Service Connections

The existing population for the City is approximately 13,880 with 4,950 total water system service connections. The City's current water service area extends beyond the City limits as illustrated in Figure 1. There are approximately 25 residential customers served outside the City limits. A breakdown of the number and classification of the existing water service connections is shown in Table 1.

Table 1
2008 Water Service Connection Summary

Service Type	Number of Services
Residential	
Single Family	4,251
Multi-Family	369
Commercial	101
Port of Camas/Washougal commercial and industrial customers	221
Public	8
Total	**4,950**

Water Demands

Existing and future water demands were estimated from a review of historical water demand data provided by City staff and analysis of anticipated future development for the City's current service area. Water demand projections presented in this technical memorandum are developed on an equivalent residential unit (ERU) basis consistent with Washington State Department of Health (DOH) Comprehensive Water System Planning requirements.

Historical Water Production and Consumption

The City Public Works Department staff record daily production meter readings at all of the City's groundwater supply wells. These daily well production meter readings reflect daily consumption and are used to estimate historical annual, peak month and peak day water demand trends. Table 2 summarizes water production totals for 1999 to 2008.

Table 2
Historical Water Demand Summary

Year	Population	Total Annual Production, (million gallons)	Daily Demand (million gallons per day)		
			Annual Demand	Peak Month	Peak Day
1999	8,339	544.02	1.49	1.92	2.79
2000	8,595	587.79	1.61	2.42	3.41
2001	8,790	611.88	1.68	2.21	2.67
2002	9,100	614.20	1.68	2.39	3.04
2003	9,775	587.42	1.61	2.44	3.26
2004	10,431	674.86	1.85	2.76	3.67
2005	11,087	641.46	1.76	2.91	3.71
2006	11,743	711.51	1.95	3.22	5.10
2007	12,025	611.36	1.67	2.50	3.66
2008	12,314	582.67	1.60	2.44	3.00

Future Water Demand Forecast

Water demand forecasts for the planning horizon through the year 2050 were developed using historical water demand trends and forecasting population growth and commercial/industrial growth within the City's Urban Growth Area (UGA). A summary of key assumptions for the demand forecasts is presented below:

- Based on an analysis of consumption data from 1999 to 2003, it is estimated that 60 percent of the existing water demand is residential in nature and that future water use characteristics will not change significantly.

- The total number of ERUs calculated as the total production divided by the annual average household residential water service usage.

- Residential population growth is estimated as three (3) percent annually. The population growth is based on a review of previous water system planning, City and County Comprehensive Plans, and historical data.

- Water demand growth from non-residential land uses is estimated as one (1) percent annually. The water demand growth is based on a review of previous water system planning, City and County Comprehensive Plans, and historical data.

- Peak month demand (PMD) is estimated at 1.5 times average daily demand (ADD) based on 2003 to 2008 water use trends presented in Table 2.

- Maximum day demand (MDD) is estimated at 2.1 times ADD based on 2003 to 2008 water use trends presented in Table 2.

Table 3 summarizes the water demand forecast, to include the saturation development demand discussed in the next subsection.

Table 3
Water Demand Forecast Summary

Year	Population	Total ERUs[1]	Annual Water Demand (mg)	ADD (mgd)	PMD (mgd)	MDD (mgd)
2010	14,301	9,463	794	2.18	3.27	4.57
2015	16,579	10,569	887	2.43	3.65	5.10
2020	19,219	11,832	993	2.72	4.08	5.71
2025	22,281	13,274	1,114	3.05	4.58	6.41
2030	25,828	14,924	1,253	3.43	5.15	7.21
2035	29,942	16,812	1,411	3.87	5.81	8.12
2040	34,711	18,976	1,593	4.36	6.54	9.17
2045	40,240	21,460	1,802	4.94	7.41	10.37
2050	46,649	24,310	2,041	5.59	8.39	11.74
2053[2]	**51,000**	**25,325**	**2,130**	**5.82**	**8.73**	**12.23**

1) Total number of ERUs based on a per ERU ADD water demand of 230 gallons per ERU per day (gpd/ERU).
2) Estimated timing of Saturation Development based on projected growth rates (as presented below)

Saturation Development Water Demand Estimates

Estimates of water demands at saturation development within the City's UGA were developed from historical water usage data and from land use planning guidelines. Current land use zoning as documented in the City's Comprehensive Plan is illustrated in Figure 2. Development within the UGA for saturation development conditions was assumed to occur at the maximum allowed zoning densities. Water demand under the saturation development condition is summarized in Table 4.

The following approach was used to develop the saturation development water demand:

- Based on City land use zoning designations and densities, a total number of dwelling units per residential area was calculated. The ERU water use rate previously developed was applied to the total number of dwelling units to project a total residential water demand under saturation development conditions.

- Based on Clark Country inventories of vacant and developed lands by land use type and 2003 water consumption data, an existing combined commercial and industrial water use rate of 1,400 gallons per day per acre (gpd/acre) and a combined public lands and open space rate of 100 gpd/acre were calculated. These rates were applied to the land uses assuming full development.

- The Clark County Comprehensive Plan identifies a Washougal "purveyor area," illustrated in Figure 3, of 11,317 acres outside the City's UGA. This land is zoned a mix of agricultural, forest, rural and scenic Gorge. It is anticipated that significant portions of lands from this "purveyor area" will not be added to the City's water service area over the planning horizon.

Table 4
Saturation Development Water Demand Summary

Zoning	Area (acres)	ADD (gal/day)	ADD (mgd)	MDD (mgd)	Number of ERUs
Residential	2,870	3,691,928	3.69	7.75	16,052
Commercial	1,015	1,420,603	1.42	2.98	6,177
Industrial	468	655,016	0.66	1.38	2,848
Open Space	439	43,878	0.04	0.09	191
Public	132	13,214	0.01	0.03	57
Total (existing UGA)	**4,923**	**5,824,639**	**5.82**	**12.23**	**25,325**
Expanded Purveyor Area	11,317	153,894	0.15	0.32	669
Total (With Expanded Purveyor Area)	**16,240**	**5,978,533**	**5.98**	**12.55**	**25,994**

Summary

Based on projected land use development patterns and forecasted population growth rates coupled with historical water use trends and characteristics, a planning level ultimate maximum daily water demand of approximately 12.23 mgd is anticipated at saturation development. The estimated maximum daily water supply needs presented herein are intended to support long-range planning related to current water rights and for future incorporation in water system master planning.

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APPENDIX M
PROJECT SITING INFORMATION

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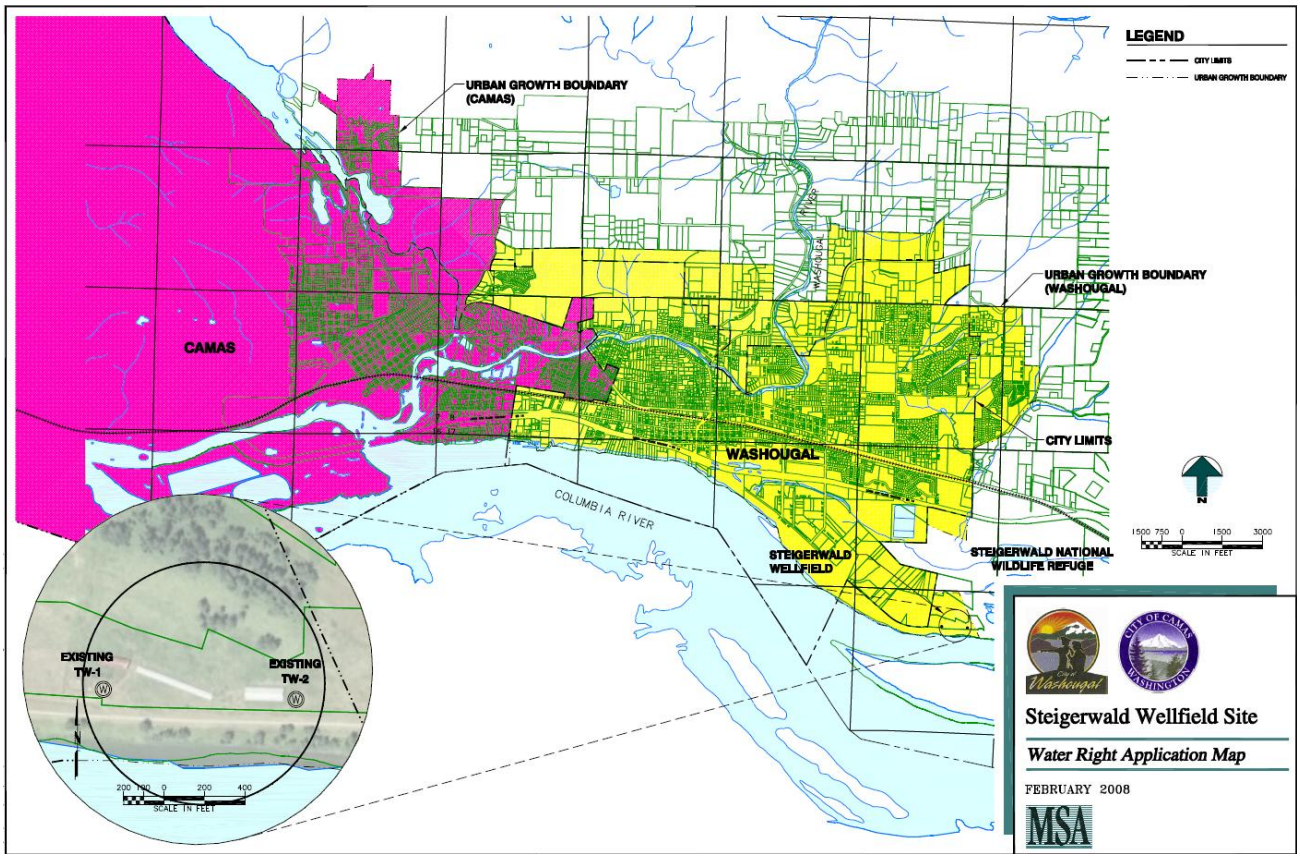
Appendix M includes additional information related to the siting of specific capital improvement projects. These projects include source expansion for demands beyond the 20-year planning period of this plan, Reservoir No. 6 as discussed in Section 3, and a new Operations Center identified in the Public Works Operations Facility Plan. These projects are discussed further below.

Steigerwald Wellfield

Under Washington Administrative Code (WAC) 173-500-040, Water Resource Inventory Areas (WRIAs) were formalized and the Department of Ecology was given responsibility for the development and management of these planning boundaries. In July 2006, the Salmon-Washougal & Lewis Watershed Management Plan WRIAS 27-28 was adopted. The plan allocated a portion of the available groundwater supply in these WRIAs to the Cities of Camas and Washougal, specifically a wellfield near the Steigerwald Wildlife Refuge.

A review of the available lands near the Steigerwald Wildlife Refuge was made considering the needed size of proposed wellfield and adequate hydrogeologic characteristics. The property at 24 South A Street, Washougal, owned by the Port of Washougal was identified as the best available site. This site was identified in the joint water rights application submitted in 2009.

Figure M-1
Proposed Steigerwald Wellfield Site

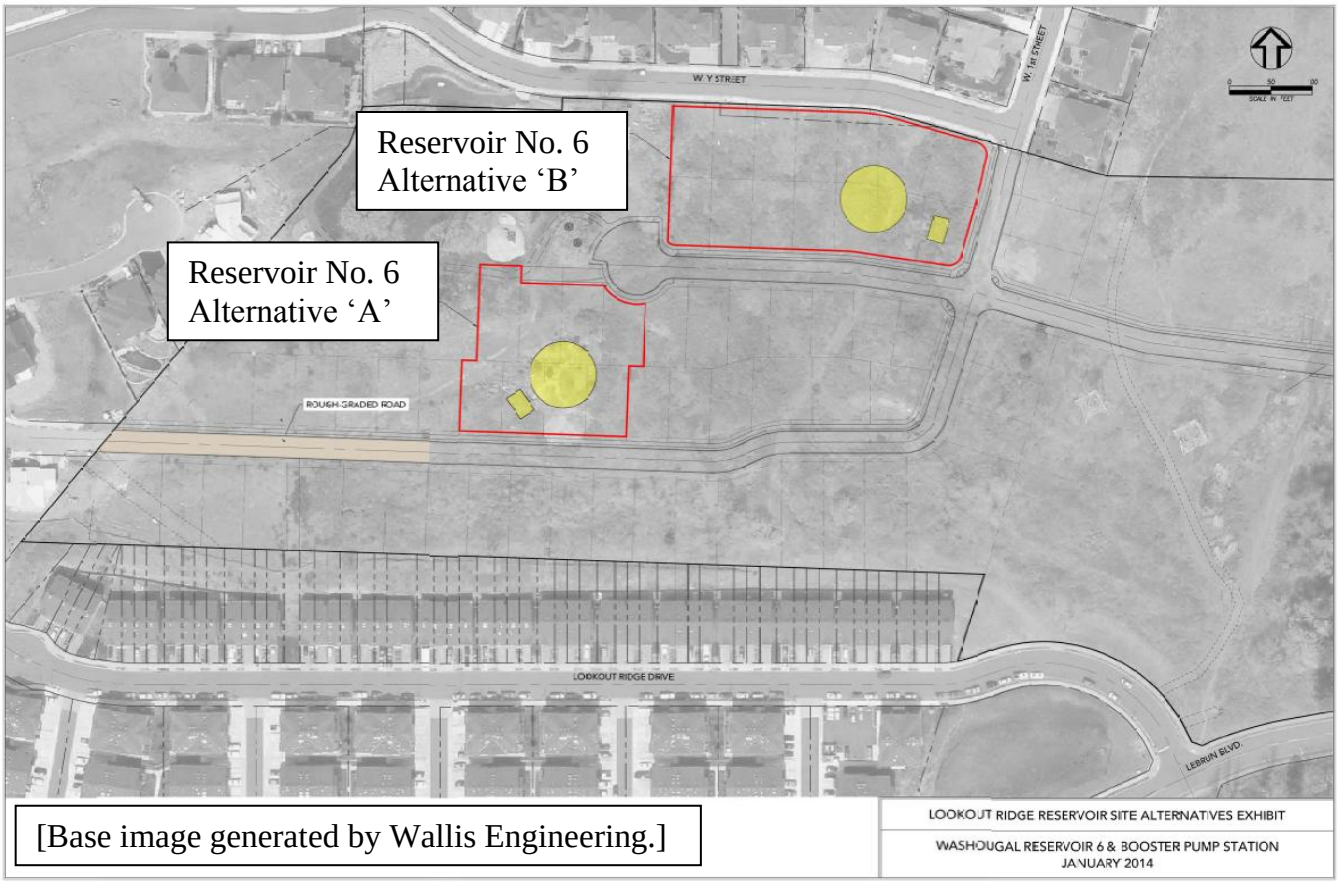


Reservoir No. 6 Site Alternatives

In Section 3, a Pressure Zone 3 storage deficiency and concerns over excessive main line pressures were identified. A new mid-level Pressure Zone 6 reservoir was recommended to provide a transition zone to mitigate both concerns. The proposed Reservoir No. 6 has an approximate capacity of 0.6 MG and an approximate overflow elevation of 400 feet.

After a more detailed alternatives site evaluation, Wallis Engineering and City staff have identified a site southwest of the intersection of West Y Street and West 1st Street. It was determined that the site provides the maximum benefit to the City by providing the largest amount of customers that can initially be switched over to the new mid zone pressure level created by this project. There are also advantages to this site for providing future service to unincorporated areas of the City of Washougal north of the proposed site. Lastly from a land use perspective, this site is connected to an existing city park and can be conveyed to the city through a boundary line adjustment.

Figure M-2
Reservoir No. 6 Site Alternatives



Operations Center

The City of Washougal Public Works Operations Facility Plan identified a site for a new Operations Facility. The following discussion is taken from the plan.

Planning Assessment

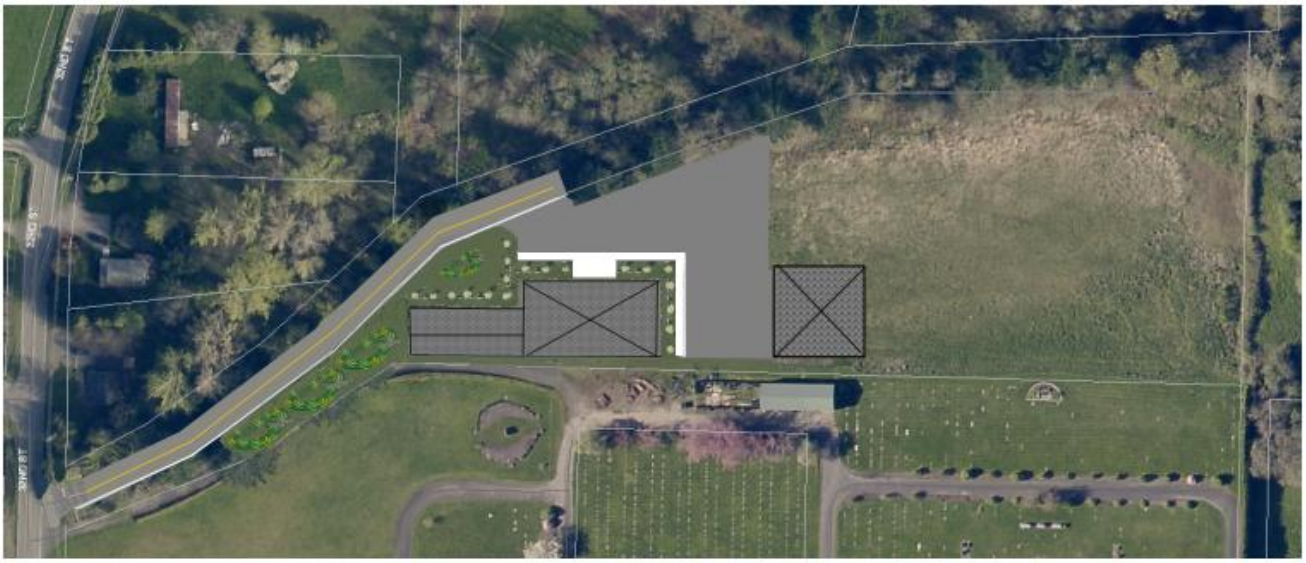
Zoning

The site of the current Operations Facility (OPS) is zoned TC-C (Town Center – Core). The Operations Facility is currently located adjacent to the downtown core and its current location may not meet the future needs of the community.

Relocation

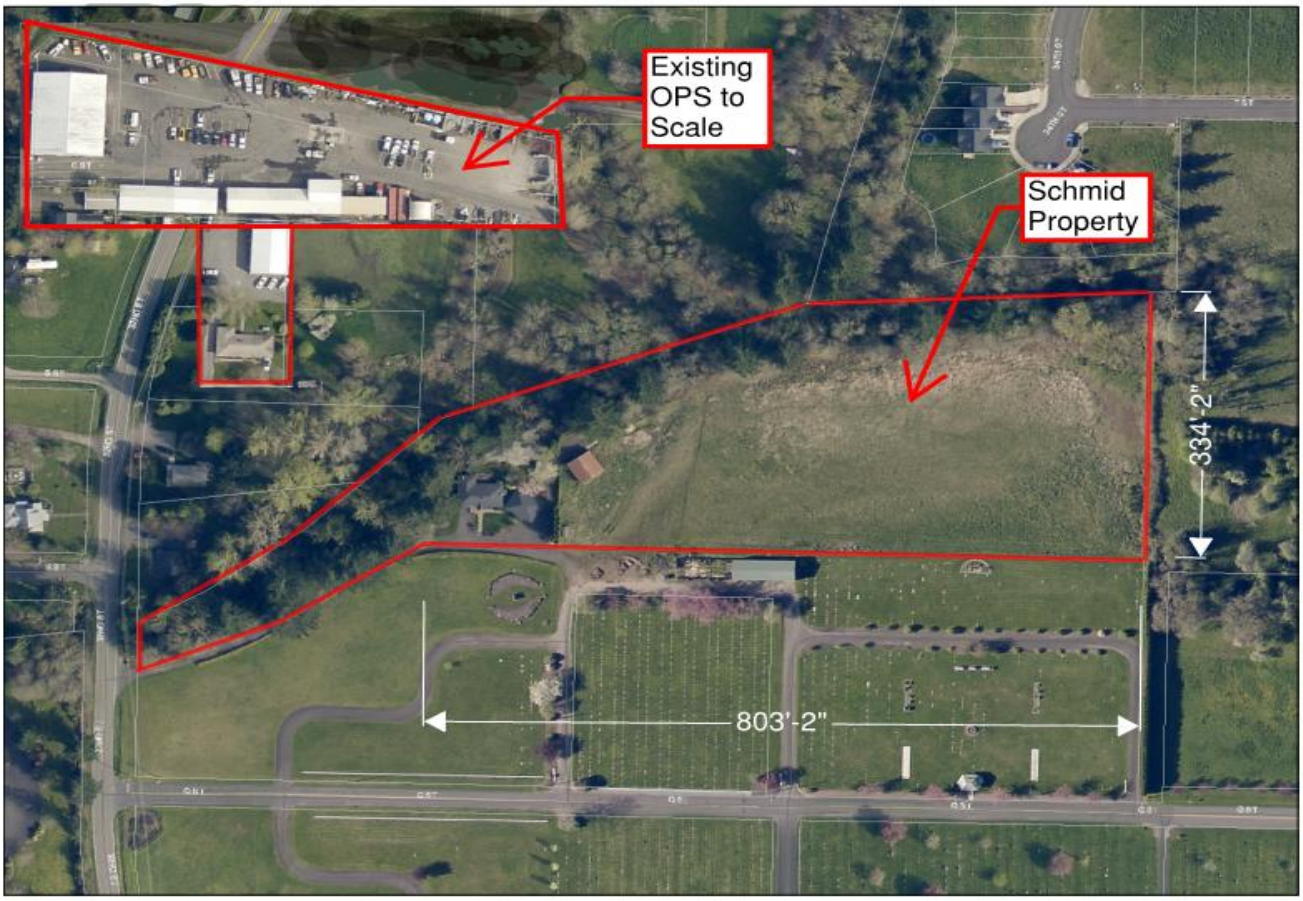
Any new site would likely require a lengthy re-zoning process. After conversations regarding relocation of the OPS conceptual ideas were reviewed. It was suggested that it may be in the best interest of the City to purchase additional property as it becomes available, projected costs remain uncertain.

One such concept can be seen below. The property is the Schmid property off 32nd Street just north of the Cemetery.



Relocating a facility has many challenges. For example:

- Facility poorly located can increase costs if crew deadhead mileage and response times increase; neighborhood complaints are costly to mitigate and can create political ill will within the community.



Schmid Property/OPS Site Comparison

Measurements are "approximate" derived from GIS. We are very early in the planning process for an M&O site and nothing has been determined, however the purchase of this property may be worth consideration.

1. I believe with proper screening the site would be better suited for an OPS Center vs. a subdivision. An OPS Center would be closed on weekends, a subdivision would bring traffic and noise even on the weekend.
2. Cemetery maintenance facilities could be part of the OPS Center which would include a equipment wash facility. Currently staff is washing equipment behind the storage building without consideration of stormwater impacts.
3. Property is centrally located which would reduce mileage.
4. Most future city growth will occur to the NE.
5. Encumbering the property now would give the city options for future use.
6. Overall cost seems low and existing residence could be remodeled to function as OPS admin offices
7. Could be partially funded by the enterprise funds or bonds

Why Plan?

There are many issues and challenges for relocating a new public work OPS. The City is growing and recruiting and retaining quality staff will continue to be critical functions that must be considered in our planning. Meeting service expectations, protecting facility and equipment investments; all present challenges. Efficient, safe, sustainable, and well-designed maintenance and

operations facilities will be key to the City's successful delivery of services in the future. Washougal should begin planning now by:

- Using Pre-Design Planning
- Asking for Realistic Funding
- Addressing Design Challenges

Pre-Design Planning would produce a Needs Assessment, Site Selection, and Master Planning. An effective needs assessment, thoughtful site selection, and comprehensive master plan are critical first steps. They not only ensure appropriate funding, but also save dollars by eliminating inefficient, piece meal, facility upgrades that may not fit future needs. Planning ahead ensures any additions or relocation will be the right size for current operations as well as tomorrow's expansion of staff, fleet, materials, storage and office space.

Conclusions

- Currently, the Operations Facility (OPS) is inadequate to safely and efficiently serve the needs of the department.
- Operations staffing levels are low and the Department struggles to keep up with critical maintenance. Due to current system deficiencies, low staffing levels, regulatory and permit requirements; staffing increases will further exacerbate issues with the current OPS facility.
- Shops, storage buildings and office space are scattered. Management staff is too remote from crews to function properly in a Supervisory capacity.
- Yard space for equipment and bulk storage is inadequate.
- Fleet Shop for maintaining City vehicles is outdated and inadequate in size.
- Operations' Office Building is inefficiently laid out with no room to accommodate future growth.
- After analyzing the future needs of each Division, this study concluded that to provide adequate vehicle, equipment and bulk storage for the next ten years, the Department will require expansion, renovation, or relocation. The current core site where most of the divisions and offices are located is too small to accommodate future needs. The current OPS site may not be situated (downtown redevelopment area) properly to meet the city's goals for downtown revitalization.
- After exploring several new sites within the City limits, this study found that it may be politically and financially more responsible in the long run to consider relocating the entire Operations Division to another site.

However, in the short term, <u>proactive planning should be a priority</u> for the City so as to avoid costly reactive expenditures and piece meal projects that will not meet the needs of the department.