

APPENDIX C
YELM 2012 WHPA MODEL TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

Date: January 19, 2012 **Project No.:** 113-99719

To: Stephanie Ray, Project Manager; City of
Yelm, WA

From: Michael Klisch, LHG, and Emanuele Pellichero; Golder Associates Inc.

RE: CITY OF YELM WHPA MODELING RESULTS

1.0 WHPA MODELING APPROACH

The most up-to-date version of the McAllister Groundwater Model, which encompasses a broad area of Thurston County and used to support the City's water right applications and mitigation program; herein referred to as the "existing model" was modified in order to delineate updated Wellhead Protection Areas (WHPA) for the City's drinking water supply wells. Details of the existing model construction and calibration are provided by CDM (2002a and 2002b), Golder (2008a and 2008b), and City of Yelm (2011).

The wellhead protection areas were delineated for the following wells:

- Water supply well SW Well 1A (recently drilled); and
- The City's downtown wells, Well 1A and Well 2.

The existing model used for the delineations is a steady-state model built in Groundwater Vistas (GWV) 6.11 (ESI, 2011). The existing steady-state model modified for the WHPA delineations was originally named “base_30a”. The steps involved in adapting and modifying the base model (base_30a) into the new WHPA model are explained in the sections below, and is hereafter referred to as the Yelm 2012 WHPA Model, or the “revised model”. Note that for the purpose of this analysis, model simulations were run only under steady-state conditions.

1.1 Refinements To Existing Model

In order to improve model resolution and more accurately define the WHPA capture zones, the model grid spacing was adjusted in the vicinity of the City's three drinking water supply wells. The size of the cells was refined from 250 feet by 250 feet to approximately 35 feet by 35 feet for an area about 500 feet wide centered around each well location (note that Wells 1A and 2 are located in close proximity, approximately 65 feet apart). The entire model grid was then smoothed using an automated grid smoothing routine incorporated into GWV. A maximum grid change ratio of 1.5 was used in order to gradually adjust the size of the grid cells away from the cells containing the wells. The revised model grid is shown on Figure TM-1.



1.1.1 Changes in Model Boundaries and Mass Balance

Because the grid refinements will cause changes in the conductance of boundary conditions such as drains, rivers, or constant heads, the revised model boundary conductances were checked for consistency against the existing model. Where cells were split during grid refinement, the sum of the conductances of the split cells were equivalent to the conductances of the original cells in the existing model.

The model was then run to evaluate the mass balance differences between the existing and revised model. For this comparison, SW Well 1A, which was not included in the existing base model, was switched off.

The mass balance components for the two models and the net-flow comparison are summarized in Table TM-1. The net-flow comparison in Table TM-1 shows that there are negligible differences ($< 2.1\%$) in mass balance between the two models. The primary reason for the differences in mass balance is because a different set of starting heads were used for each model. The existing model starting heads could not be used in the revised model because of a different number of grid cells resulting from the refinement of the grid around the three Yelm wells. Therefore, the starting heads in the revised model were set to the top of layer 1.

1.1.2 Changes in Groundwater Heads and Flow Direction

The model-predicted groundwater heads and groundwater flow directions from the revised model were visually compared to the heads and groundwater flow directions in the existing model. No significant changes in groundwater elevations and flow directions were observed. In addition, modeled groundwater heads were compared between the two models at 11 target locations used in the existing model for calibration. Results are summarized in Table TM-2. Differences in hydraulic heads at all target locations are relatively small ($< 1.3\%$), always falling below 0.4 ft. Also in this case, no significant changes in groundwater elevations were depicted. The interpreted groundwater contours from the model-predicted hydraulic heads for the Qva and TQu are shown in Figures TM-2 and TM-3, respectively.

1.2 Model Updates

New City water supply well SW Well 1A was completed in October 2010 (Golder, 2011). SW Well 1A is located in the Tahoma Terra area west of downtown Yelm in Thurston County, Washington. The well is located in SE $\frac{1}{4}$, SE $\frac{1}{4}$, Section 23, T17N, R1E W.M. (1,106,790 ft northing and 593,521 ft easting, Washington State Plane South). The pumping rate for SW Well 1A was set to 942 acre-feet per year (112,421 ft³/d, or an annual average pumping rate of 584 gallons per minute; gpm) based on the annual water right quantity. As the well screen is located both in model layers 8 and 9, GWV split its pumping rate between these two layers proportional to the thickness of each layer as:

- Layer 8 – 51,990.5 ft³/d
- Layer 9 – 60,430.2 ft³/d

The pumping rate was revised for Wells 1A and 2 based on their annual water right quantities. The new pumping rate was set to a combined rate of 894.92 acre-feet per year (106,802 ft³/d, or an annual average pumping rate of 555 gpm) for the two wells, or a pumping rate of 53,401.3 ft³/d (277.5 gpm) for each well.

1.3 Capture Zone Analysis Approach

Capture zones for the three City wells were delineated using the particle tracking software MODPATH (Pollock, 1994) in GWV 6.11 (ESI, 2011). MODPATH uses a particle tracking scheme that allows an analytical expression of the particle's flow to be obtained within each grid cell. Particle paths are computed by tracking from one cell to the next until the particles reaches a boundary, an internal sink/source, or satisfies some other termination criterion (Pollock, 1994). In order to define groundwater flow paths in proximity of the City's wells, a total of 150 particles were placed in the revised model in concentric circles around SW Well 1A, and Wells 1A and 2. For SW Well 1A, as the well is screened in two layers, 50 particles were placed both in layer 8 and layer 9. For Wells 1A and 2, as they fall in neighboring cells and both wells are screened only in layer 3, only one circle of 50 particles was placed around both wells in layer 3.

The MODPATH simulation was run for 10,000 days. Reverse particle tracking was used to delineate the capture zones for each well. Time-of-travel markers were placed along the particle paths indicating the six-month, and one-, five-, and ten- time-of-travel zones defining the WHPAs.

2.0 YELM 2012 WHPA DELINEATION RESULTS

The results of the analysis to delineate the WHAP capture zones are shown in Figure TM-4. This figure indicates that:

- The particle pathlines are generally consistent with the groundwater flow direction;
- The particles' velocity changes in relationship with the magnitude of the hydraulic conductivity and the hydraulic gradient present along the particle paths in the revised model;
- The presence of wells or boundary conditions can influence groundwater flow and consequently disrupt particles pathlines; and
- Upward or downward vertical flow is occasionally seen in the revised model, particularly with regard to Wells 1A and 2. Vertical flow causes a noticeable decrease in the particles' velocity. The vertical hydraulic conductivities (K_v) defined in all layers are lower than the corresponding horizontal hydraulic conductivities (K_h), particularly in lower permeability layers such as, layer 2, 4 and 7, where K_v values range between 2.5×10^{-3} ft/d and 5×10^{-3} ft/d.

2.1 SW Well 1A – TQu Aquifer

As mentioned in Section 1.2, SW Well 1A is screened both in layer 8 and layer 9. For this reason, two different capture zones were delineated for this well in each layer. As hydraulic properties for layers 8 and 9 are very homogenous in the Yelm area and no other wells or boundary conditions are present in the vicinity of SW Well 1A, the two capture zones delineated in MODPATH present a very regular shape and do not display any apparent sign of flow disruption. Moreover, with the hydraulic properties being identical in layers 8 and 9, the shape of the two capture zones tend to coincide. However, the capture zone in layer 9 appears slightly more elongated than in layer 8. This is the result of particles travelling faster in layer 9 as the pumping rate for SW Well 1A is slightly higher than in layer 8, as explained in Section 1.2. No evidence of vertical flow was observed in the capture zones delineated for SW Well 1A.

2.2 Downtown Wells 1A and 2 – Qva Aquifer

The capture zones delineated in layer 3 for Wells 1A and 2 are irregularly shaped and noticeably different than the capture zone for SW Well 1A. In particular, there is a bend in the mid part of the five-year capture zone for Wells 1A and 2, which results from a combination of factors, including the presence of several wells located along the particle paths in layer 3, the close proximity of drain boundaries to the capture zone, and a significant decrease in hydraulic conductivity (from 640 ft/d to 70 ft/d) present along the particle pathlines at distance.

The shape of the capture zone for Wells 1A and 2 is more elongated than for the capture zones delineated for SW Well 1A. This is due to the combination of a higher hydraulic gradient present in layer 3, particularly in the southern part of the Yelm area close to the constant head (CH) boundaries, and the presence of a very high hydraulic conductivity area defined in layer 3 (640 ft/d) around Yelm. The downtown wells' capture zone is also wider than the SW Well 1A capture zone, which reflects the fact that in the Yelm area the thickness of layer 3 (about 40 ft) is considerably less than the thickness of layers 8 and 9, respectively approximately 185 ft and 200 ft. Vertical flow from layer 4 to layer 3 is apparent in close proximity of the downtown wells (west side of capture zone). Sporadic vertical flow from a stream boundary in layer 1 downwards to layer 3 is also apparent in the south-western part of the downtown wells capture zone where particles travel west-east for a short distance.

3.0 REFERENCES

City of Yelm, 2011, Water Right Mitigation Plan, Mitigation for City of Yelm Water Right Application: G2-29085 – Priority Date January 10, 1994. Prepared February 2011.

CDM, 2002a. Model Construction and Steady-state Calibration - McAllister Wellfield Numerical Model. Prepared for Yelm of Olympia Public Works Dept. April 2002.

CDM, 2002b. Final Report – McAllister Wellfield Numerical Model. Prepared for Yelm of Olympia Public Works Dept. July 2002.

Environmental Simulations Inc, 2011, Groundwater Vistas, version 6.14, build 2.

Golder Associates, Inc, 2008a. Groundwater Modeling of Water Right Applications and Transfers. Prepared for Yelm of Yelm. January 29, 2008.

Golder Associates, Inc, 2008b. Future Demand/Supply Forecast and Groundwater Modeling for Mitigation Planning. October 10, 2008.

Golder Associates, Inc, 2011, The City of Yelm Southwest Well 1A Development Report; Drilling, Well Construction and Testing. Prepared March 15, 2011.

Pollock, D.W, 1994, User's guide for MODPATH/MODPATH-PLOT, Version 3: A particle tracking post-processing package for MODFLOW, the U.S. Geological Survey finite-difference ground-water flow model. U.S. Geological Survey Open-File Report 94-464. September 1994.

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TABLE TM-1
MASS BALANCE FOR THE EXISTING AND REVISED MODELS AND NET FLUX COMPARISON

Boundary	⁽¹⁾ Existing Model (base_30a)			⁽²⁾ Revised Model (whpp_03)			Difference in Net Flux (Existing minus Revised)	
	Flux IN (ft ³ /day)	Flux OUT (ft ³ /day)	Net Flux (ft ³ /day)	Flux IN (ft ³ /day)	Flux OUT (ft ³ /day)	Net Flux (ft ³ /day)	(ft ³ /day)	%
CH	11,415,160	10,142,214	1,272,947	12,254,091	10,968,764	1,285,327	-12,380	1.0
Well	0	1,779,391	-1,779,391	0	1,779,391	-1,779,391	0	0.0
Riv	4,144,095	4,933	4,139,162	4,058,093	4,235	4,053,858	85,304	2.1
Drn	0	4,023,003	-4,023,003	0	3,947,612	-3,947,612	-75,391	-1.9
GHB	0	0	0	0	0	0	0	0.0
Str	0	0	0	0	0	0	0	0.0
Rch	390,300	0	390,300	387,849	0	387,849	2,451	0.6
ET	0	0	0	0	0	0	0	0.0
Lake	0	0	0	0	0	0	0	0.0
Total	15,949,555	15,949,541	15	16,700,033	16,700,002	31	-16	1.8
% Error	0	---	---	0	---	---	---	---

NOTES: (1) Most up-to-date version of the McAllister Groundwater Model used to support the City of Yelm's water right applications and mitigation program (City of Yelm, 2011).

(2) Yelm 2012 WHPA Model

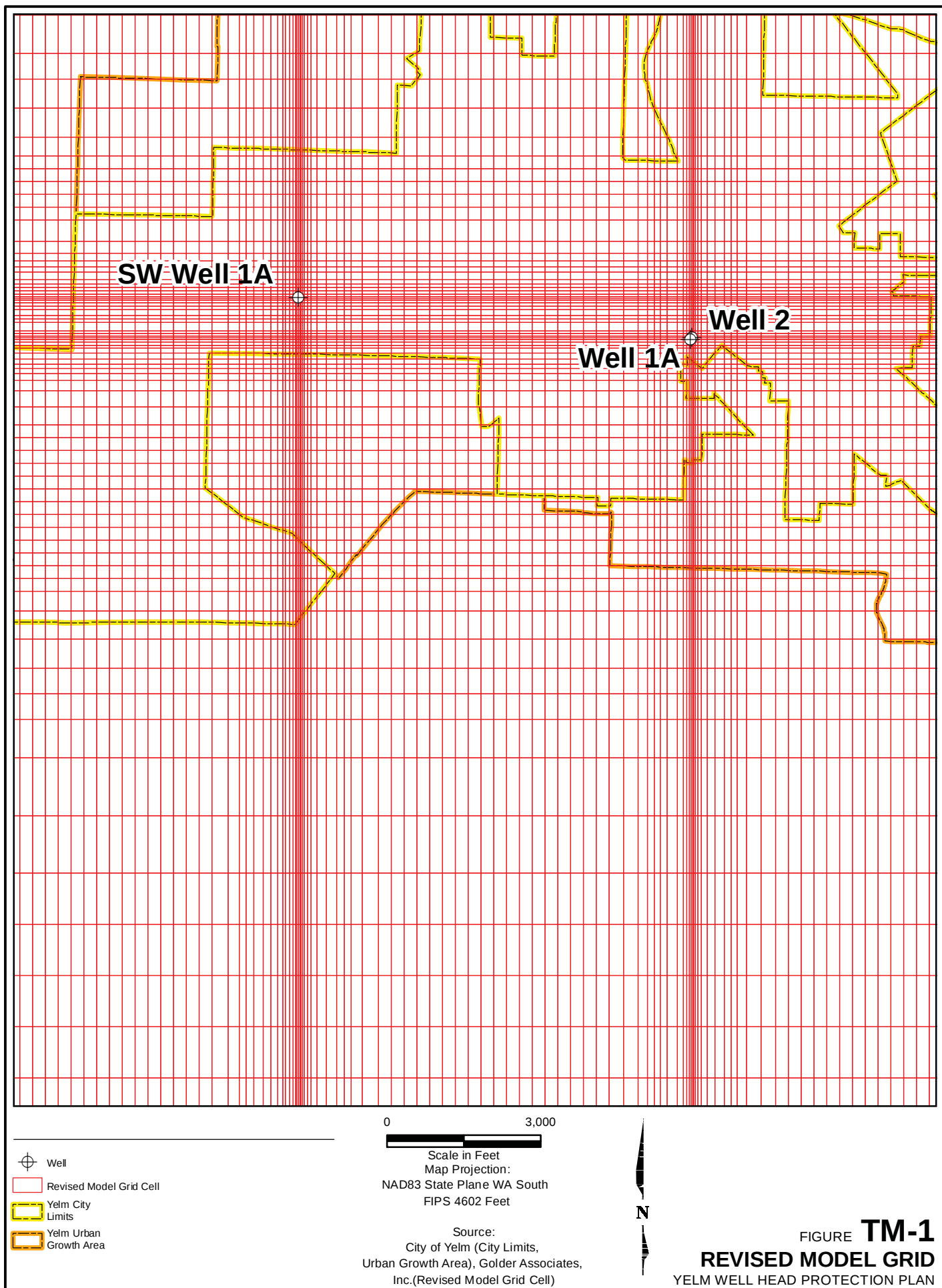
TABLE TM-2
HYDRAULIC HEAD COMPARISON BETWEEN EXISTING AND REVISED MODELS

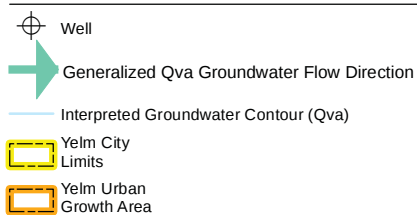
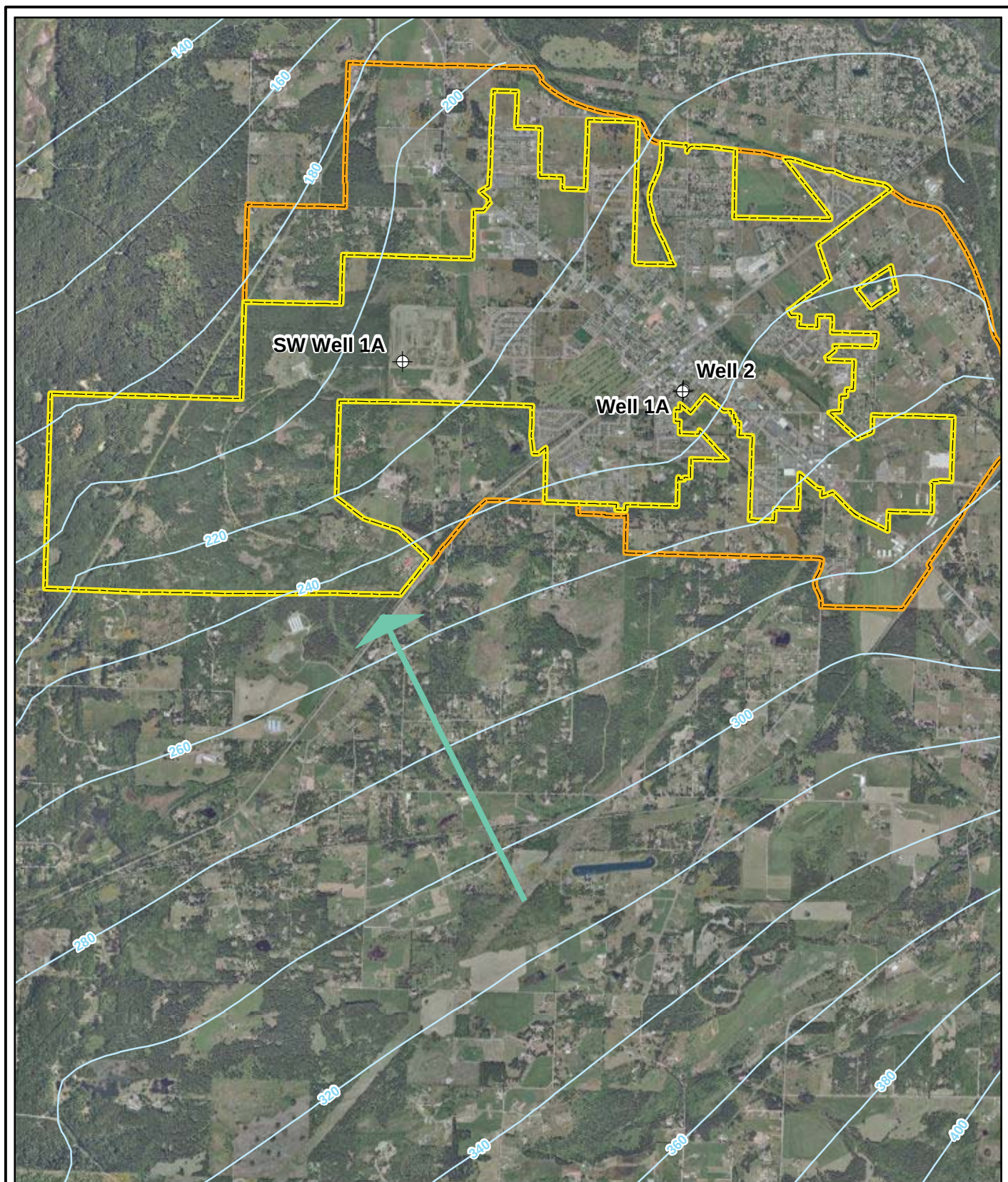
Target Location	⁽¹⁾ Model Coordinates (ft)		Model Layer No.	Hydraulic Heads (ft)		Difference in Hydraulic Heads (Existing minus Revised)	
	X	Y		⁽²⁾ Existing Model (base_30a)	⁽³⁾ Revised Model (whpp_03)	(ft)	%
TW-2	1078513	627081	5	30.3	29.9	0.4	1.3
TW-3	1081651	619218	5	31.9	31.6	0.3	0.9
MW-4	1088419	622867	5	15.3	15.3	0	0.0
MW-3	1090688	623230	5	15.3	15.2	0.1	0.7
MW-17	1093098	624466	5	18.2	18.3	-0.1	0.5
Lakeside	1093415	620077	5	26.2	26.5	-0.3	1.1
17N/01E-08L03	1088410	605088	5	104.5	104.2	0.3	0.3
16N/01E-05F01_(Rainier)	1088244	580257	5	225.9	225.9	0	0.0
Shana_Well1	1057261	615406	3	115	114.6	0.4	0.3
Yelm_1	1118555	592668	3	250.5	250.3	0.2	0.1
SW_Yelm_1	1099413	590228	8	182.4	182.3	0.1	0.1

NOTES: (1) Washington State Plane South

(2) Most up-to-date version of the McAllister Groundwater Model used to support the City of Yelm's water right applications and mitigation program (City of Yelm, 2011).

(3) Yelm 2012 WHPA Model





0 4,500
 Scale in Feet
 Map Projection:
 NAD83 State Plane WA South
 FIPS 4602 Feet

Source:
 ESRI (Imagery), City of Yelm (City Limits,
 Urban Growth Area), Golder Associates,
 Inc. (Wells, Groundwater Contours)



FIGURE **TM-2**
INTERPRETED
GROUNDWATER
CONTOURS FOR THE QVA
 YELM WELL HEAD PROTECTION PLAN

Golder Associates

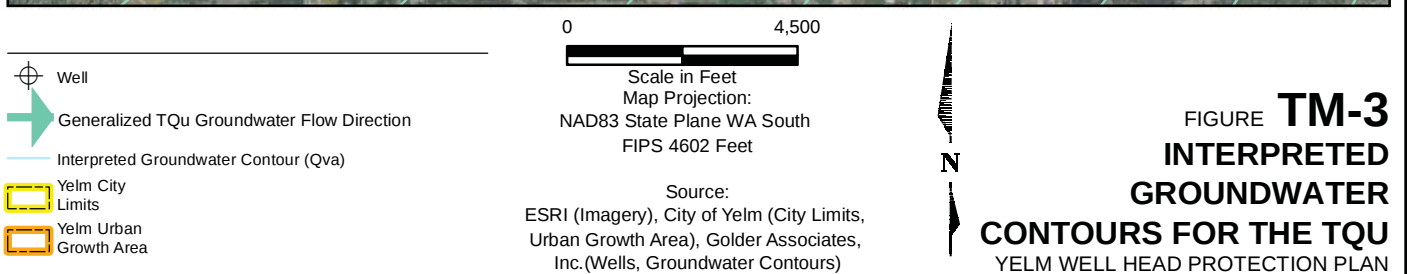
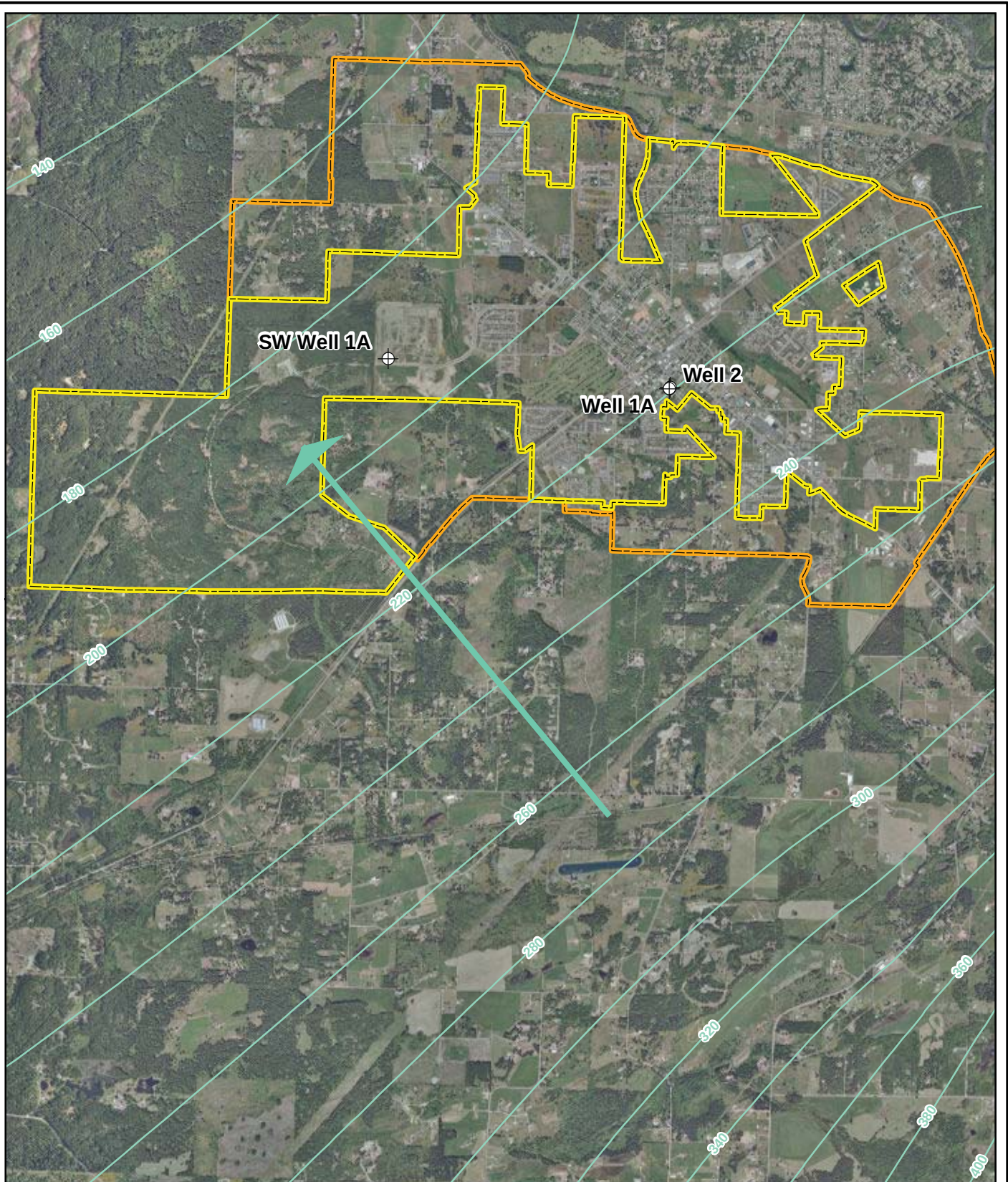


FIGURE **TM-3**
INTERPRETED
GROUNDWATER
CONTOURS FOR THE TQU
 YELM WELL HEAD PROTECTION PLAN

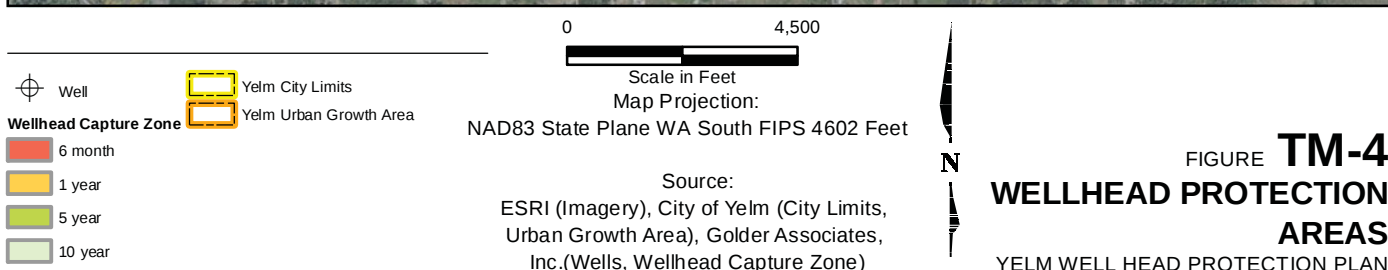
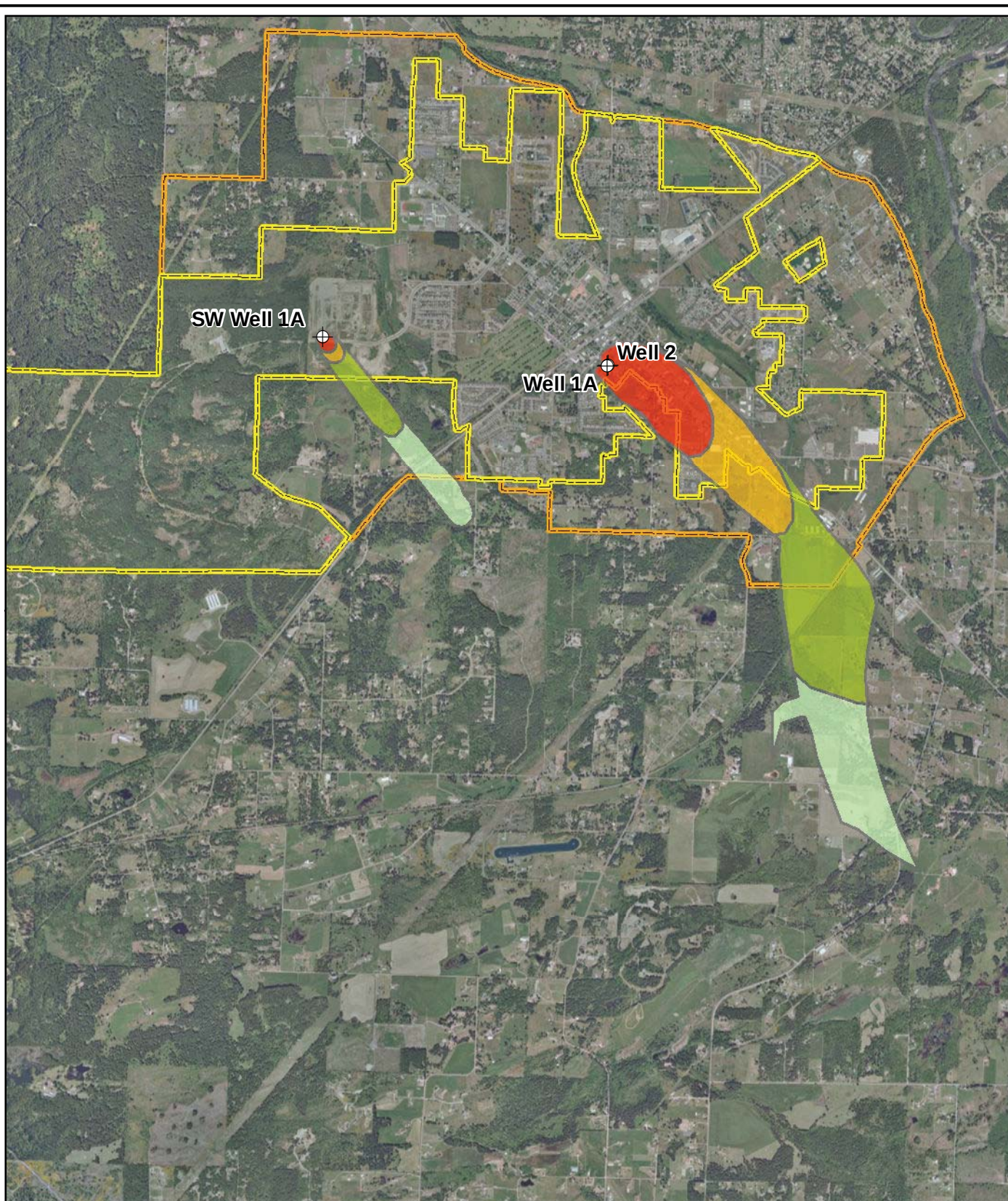


FIGURE **TM-4**
WELLHEAD PROTECTION
AREAS
 YELM WELL HEAD PROTECTION PLAN

APPENDIX D
SW WELL 1A GROUNDWATER CONTAMINATION
SUSCEPTIBILITY ASSESSMENT FORM

Ground Water Contamination Susceptibility Assessment Survey Form Version 2.2

IMPORTANT!

Please complete one form for each ground water source (well, wellfield, spring) used in your water system.
Photocopy as necessary.

PART I: System Information

Well owner/manager : City of Yelm, Washington

Water system name : Yelm, City of

County: Thurston

Water system number: 99350

Source number: planned new source

Well depth: 633 feet (ft.) (From WFI form)

Source name: SW Well 1A

WA well identification tag number: ALM - 113

_____ well not tagged

Number of connections: 3,217**

Population served: 6,215**

Township: 17N

Range: 1E

Section: 23

1/4 1/4 Section: SE SE

Latitude/longitude (if available): 46 deg 56' 28.44" N / -122 deg 38' 07.87"

How was lat./long. determined?

___ global positioning device ___ survey X topographic map

other:

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 10 / 08 / 10 month/day/year

last reconstruction: ____ / ____ / ____ month/day/year

_____ information unavailable

2) Well driller: Duane Stevenson, Boart Longyear, Sherwood, Oregon

☐ well driller unknown

3) Type of well:

☒ **Drilled:** ☐ rotary ☐ bored ☐ cable (percussion) ☐ **Dug**

☐ **Other:** ☐ spring(s) ☐ lateral collector (Ranney)
☐ driven ☐ jetted ☐ other: _____

Additional comments: _____

4) Well report available? ☒ YES (attach copy to form) ☐ NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: 2,100 gpm (gallons/min)

Source of information: 72-hr constant rate pumping test

If not documented, how was pumping rate determined? _____

☐ Pumping rate unknown

6) Is this source treated? ☐ YES ☒ NO NOTE: SW Well 11 is planned new supply source; well not yet in use.

If so, what type of treatment:

☐ disinfection ☐ filtration ☐ carbon filter ☐ air stripper ☐ other

Purpose of treatment (describe materials to be removed or controlled by treatment):

7) If source is chlorinated, is a chlorine residual maintained: ☐ YES ☐ NO

Residual level: _____ (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

☐ (less than) 20 ft ☐ 20-50 ft ☐ 50-100 ft ☐ 100-200 ft ☒ (greater than) 200 ft
☐ information unavailable

2) Depth to ground water (static water level):

☐ (less than) 20 ft ☐ 20-50 ft ☐ 50-100 ft ☒ (greater than) 100 ft
☐ flowing well/spring (artesian)

How was water level determined?

___ well log ___ other: measured manually using water-level indicator

___ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch)
or
_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ☐ YES ☐ NO

5) Wellhead elevation (height above mean sea level): 386 (ft)

How was elevation determined? ☒ topographic map ☐ Drilling/Well Log ☐ altimeter
☐ other: _____
☐ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

X evidence of a confining layer in well log
 — no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the bottom of the lowest confining layer? X YES NO

 information unavailable

7) Sanitary setback:

___ (less than) 100 ft* ☒ 100-120 ft ___ 120-200 ft ___ (greater than) 200 ft
* if less than 100 ft describe the site conditions:

8) Wellhead construction: NOTE: Wellhouse constructed around pump and wellhead is proposed in design. Final
Final design will also include controlled access by security fencing.

☒ wellhead enclosed in a wellhouse

☒ controlled access (describe): Currently, the wellhead is capped and secured.

___ other uses for wellhouse (describe): _____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ (less than) 18 ft (no Department of Ecology approval)

___ (less than) 18 ft (Approved by Ecology, include documentation)

☒ (greater than) 18 ft

___ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

___ (less than) 10 in/yr

___ 10-25 in/yr

☒ (greater than) 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 306,952,045 (gallons)

How was this determined?

 meter

 estimated: pumping rate ()

 pump capacity ()

X other: Annual water right quantity

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : 450 (ft)

1 year ground water travel time : 636 (ft)

5 year ground water travel time: 1,421 (ft)

10 year ground water travel time: 2,010 (ft)

NOTE: Groundwater movement was estimated using a numerical groundwater flow model. Please Refer to the City's Wellhead Protection Plan for modeled wellhead protection area capture zones.

Information available on length of screened/open interval?

X YES NO

Length of screened/open interval: 147 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? X YES NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? X YES NO (mark and identify on map).

Comments: Stormwater retention pond. Pond will be relocated before the well is put into service.

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	_____	_____	_____	_____
stormwater injection wells	_____	_____	_____	_____
other injection wells	_____	_____	_____	_____
abandoned ground water well	_____	_____	_____	_____
landfills, dumps, disposal areas	_____	_____	_____	_____
known hazardous materials clean-up site	_____	_____	_____	_____
water system(s) with known quality problems	_____	_____	_____	_____
population density (greater than) 1 house/acre	_____	_____	_____	_____
residences commonly have septic tanks	_____	_____	X	_____
Wastewater treatment lagoons	_____	_____	_____	_____
sites used for land application of waste	_____	_____	_____	_____

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the wellhead and time of travel areas with this form.*

Please locate and mark any of the following.) NOTE: No known or suspected soil or groundwater contamination sites were identified in the 6-month or 1-, 5-, 10-yr capture zones. Please refer to City's WHPP for more information.

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

No known or suspected soil or groundwater contamination sites were identified in the 6-month or 1-, 5-, or

10-yr capture zones. 10-yr capture zone is within rural residential land use and intersects a transportation

corridor - herbicide application and septic system use likely.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions:
(Unless listed on assessment, MCLs are listed in assistance package.)

A. <u>Nitrate</u> : (Nitrate MCL = 10 mg/l)	<u>YES</u>
Results greater than MCL	_____
(less than) 2 mg/liter nitrate	<u>X</u>
2-5 mg/liter nitrate	_____
(greater than) 5 mg/liter nitrate	_____
Nitrate sampling records unavailable	_____
B. <u>VOCs</u> : (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	<u>YES</u>
Results greater than MCL or SAL	_____
VOCs detected at least once	_____
VOC test performed but never detected	<u>X</u>
VOC sampling records unavailable	_____
C. <u>EDB/DBCP</u> :	<u>YES</u>
(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)	
EDB/DBCP detected below MCL at least once	_____
EDB/DBCP detected above MCL at least once	_____
EDB/DBCP never detected	<u>X</u>
EDB/DBCP tests required but not yet completed	_____
EDB/DBCP tests not required	_____
D. <u>Other SOC</u> s (pesticides and other synthetic organic chemicals):	<u>YES</u>
Other SOC detected	_____
Other SOC tests performed but none detected *	<u>X</u>
Other SOC tests not performed	_____

*If any SOC in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOC detected, list test methods here: EPA methods 549.2, 531.2, 515.4, 525.2, 548.1, 508.1

E. Bacterial contamination:

YES

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).

Total coliform 2 MPN/100 ml
E. Coli <2 MPN/100 ml

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. _____

Source sampling records for bacteria unavailable _____

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

___ YES

X NO

Describe with references to map produced in Part IV:

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___ YES

X NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

X YES

___ NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

☐ YES ☒ NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
6 month travel time	☐	☒	☐
6 month-1 year travel time	☐	☒	☐
1-5 year travel time	☐	☒	☐
5-10 year travel time	☐	☒	☐

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
1 year travel time	☐	☒	☐
1-5 year travel time	☐	☒	☐
5-10 year travel time	☐	☒	☐

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Suggestions and Comments

Did you attend one of the susceptibility workshops? ☐ YES ☒ NO

Did you find it useful? ☐ YES ☐ NO

Did you seek outside assistance to complete the assessment? ☒ YES ☐ NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

**Construction/Decommission (“x” in circle)**

☐ Decommission *ORIGINAL INSTALLATION*

Tax Parcel No. (Required) 78640000024

[illegible]

U.S. 100-5-2-2000

APPENDIX E
ENVIRONMENTAL DATA RESOURCES (EDR) REPORT
EXECUTIVE SUMMARY

Wellhead Protection Contaminant Source Inventory

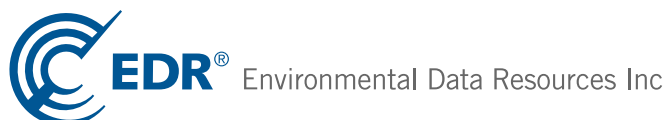
105 Yelm Ave. West

Yelm, WA 98597

Inquiry Number: 3269533.1s

March 01, 2012

The EDR Radius Map™ Report with GeoCheck®



440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

105 YELM AVE. WEST
YELM, WA 98597

COORDINATES

Latitude (North): 46.9235000 - 46° 55' 24.60"
Longitude (West): 122.6042000 - 122° 36' 15.12"
Universal Transverse Mercator: Zone 10
UTM X (Meters): 530134.8
UTM Y (Meters): 5196520.5
Elevation: 447 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 46122-H5 MCKENNA, WA
Most Recent Revision: 1990

West Map: 46122-H6 TENALQUOT PRAIRIE, WA
Most Recent Revision: 1990

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year: 2009
Source: USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 7 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
CITY OF YELM 105 W YELM AVE YELM, WA 98597	ALLSITES	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

State- and tribal - equivalent NPL

HSL..... Hazardous Sites List

State- and tribal - equivalent CERCLIS

CSCSL..... Confirmed and Suspected Contaminated Sites List

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

AST..... Aboveground Storage Tank Locations
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL..... Institutional Control Site List

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
SWTIRE..... Solid Waste Tire Facilities
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs

Local Land Records

LIENS 2..... CERCLA Lien Information
LUCIS..... Land Use Control Information System

Other Ascertainable Records

DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
MINES..... Mines Master Index File
TSCA..... Toxic Substances Control Act
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System

EXECUTIVE SUMMARY

MLTS.....	Material Licensing Tracking System
RADINFO.....	Radiation Information Database
RAATS.....	RCRA Administrative Action Tracking System
DRYCLEANERS.....	Drycleaner List
INDIAN RESERV.....	Indian Reservations
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
COAL ASH.....	Coal Ash Disposal Site Listing
COAL ASH DOE.....	Sleam-Electric Plan Operation Data
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/15/2011 has revealed that there are 4 RCRA-SQG sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RITE AID 5286 YELM AVE</i>	<i>909 YELM AVE E</i>	<i>NNE 1/2 - 1 (0.974 mi.)</i>	<i>12</i>	<i>10</i>
<i>LIVINGSTON BOATS INC</i>	<i>406 RAILROAD ST</i>	<i>N 1 - 2 (1.432 mi.)</i>	<i>G47</i>	<i>74</i>
WAL MART SUPERCENTER 3705	17100 STATE RT 507 SE	ENE 1 - 2 (1.482 mi.)	H52	98
<i>LASCO BATHWARE</i>	<i>801 NORTHERN PACIFIC</i>	<i>N 1 - 2 (1.580 mi.)</i>	<i>I64</i>	<i>119</i>

EXECUTIVE SUMMARY

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 06/15/2011 has revealed that there are 5 RCRA-CESQG sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
FRONTIER VILLAGE PROF DRYCLEAN	404 1ST ST SE & MOSMAN	NNW 1 - 2 (1.208 mi.)	D26	43
GORDERS AUTO REBUILD	103 1ST ST N	N 1 - 2 (1.281 mi.)	E33	50
PENSKE TRUCK LEASING CO LP	801 NORTHERN PACIFIC RD	N 1 - 2 (1.580 mi.)	I63	108
BNH AUTO WRECKING	17505 110TH AVE SE	E 1 - 2 (1.701 mi.)	K74	158
YELM COMMUNITY SCHOOLS	14901 YELM HWY SE	NNW >2 (2.224 mi.)	111	185

Federal ERNS list

ERNS: The Emergency Response Notification System records and stores information on reported releases of oil and hazardous substances. The source of this database is the U.S. EPA.

A review of the ERNS list, as provided by EDR, and dated 10/03/2011 has revealed that there are 2 ERNS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
16507 STATE ROUTE 507 SE	16507 STATE ROUTE 507 S	NE 1/2 - 1 (0.949 mi.)	A9	9
13431 SOLBERG RD.	13431 SOLBERG RD.	SSW >2 (2.241 mi.)	112	186

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Ecology's Solid Waste Facilities Handbook.

A review of the SWF/LF list, as provided by EDR, and dated 10/11/2011 has revealed that there is 1 SWF/LF site within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
W.E. & B. LIMITED	15708 123RD AVENUE	S 1 - 2 (1.007 mi.)	B18	24

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the LUST list, as provided by EDR, and dated 11/22/2011 has revealed that there is 1 LUST

EXECUTIVE SUMMARY

site within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>FLYING M</i>	<i>35618 HWY 507 S</i>	<i>ENE >2 (2.389 mi.)</i>	<i>120</i>	<i>189</i>

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the UST list, as provided by EDR, and dated 11/22/2011 has revealed that there are 15 UST sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
RAINIER CHEVRON	16518 YELM AVE SE	NE 1/2 - 1 (0.975 mi.)	A13	22
<i>YELM SHELL</i>	<i>706 YELM AVE E</i>	<i>NNE 1 - 2 (1.019 mi.)</i>	<i>C21</i>	<i>37</i>
MICHAEL J MCCASLIN	107 S 1ST ST	N 1 - 2 (1.276 mi.)	E31	48
<i>GORDERS AUTO REBUILD</i>	<i>103 1ST ST N</i>	<i>N 1 - 2 (1.281 mi.)</i>	<i>E34</i>	<i>52</i>
<i>NISQUALLY VALLEY GOLF COURSE</i>	<i>MOSSMAN & EDWARDS</i>	<i>NNW 1 - 2 (1.315 mi.)</i>	<i>37</i>	<i>55</i>
<i>SAFEWAY FUEL CENTER YELM AVE</i>	<i>1109 A YELM AVE E</i>	<i>NNW 1 - 2 (1.431 mi.)</i>	<i>F43</i>	<i>59</i>
<i>HARTS LAKE ASSOCIATES</i>	<i>402 NW RAILROAD</i>	<i>N 1 - 2 (1.432 mi.)</i>	<i>G44</i>	<i>60</i>
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.568 mi.)	I60	105
NORTHWEST DELI MART 46	608 YELM HWY	NNW 1 - 2 (1.584 mi.)	J69	152
<i>CREAMERY TRANSPORT CO INC</i>	<i>17025 HANNUS RD SE</i>	<i>SE 1 - 2 (1.614 mi.)</i>	<i>72</i>	<i>155</i>
<i>GLACIER NORTHWEST INC YELM PLA</i>	<i>705 NW RHOTON RD</i>	<i>N 1 - 2 (1.708 mi.)</i>	<i>L77</i>	<i>160</i>
<i>FOUR CORNER GROCERY</i>	<i>11500 BALD HILLS RD</i>	<i>E 1 - 2 (1.745 mi.)</i>	<i>M84</i>	<i>166</i>
<i>YELM MAINTENANCE SITE</i>	<i>17526 HWY 507 SE</i>	<i>ENE 1 - 2 (1.781 mi.)</i>	<i>O88</i>	<i>169</i>
<i>WOOD FABRICATORS</i>	<i>1001 NE RHOTON RD</i>	<i>N 1 - 2 (1.918 mi.)</i>	<i>92</i>	<i>172</i>
<i>FLYING M</i>	<i>35618 HWY 507 S</i>	<i>ENE >2 (2.389 mi.)</i>	<i>120</i>	<i>189</i>

State and tribal voluntary cleanup sites

VCP: Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

A review of the VCP list, as provided by EDR, and dated 01/24/2012 has revealed that there are 3 VCP sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>YELM SHELL</i>	<i>706 YELM AVE E</i>	<i>NNE 1 - 2 (1.019 mi.)</i>	<i>C20</i>	<i>25</i>
<i>LIVINGSTON BOATS INC YELM</i>	<i>406 RAILROAD ST</i>	<i>N 1 - 2 (1.432 mi.)</i>	<i>G46</i>	<i>62</i>
<i>WOOD FABRICATORS</i>	<i>1001 NE RHOTON RD</i>	<i>N 1 - 2 (1.918 mi.)</i>	<i>92</i>	<i>172</i>

EXECUTIVE SUMMARY

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there are 2 ICR sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
WOOD FABRICATORS	1001 NE RHOTON RD	N 1 - 2 (1.918 mi.)	92	172

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

ALLSITES: Information on facilities and sites of interest to the Department of Ecology.

A review of the ALLSITES list, as provided by EDR, and dated 01/31/2012 has revealed that there are 38 ALLSITES sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
JIFFY LUBE STORE 2812	1002 E YELM AVE	NNE 1/2 - 1 (0.957 mi.)	11	9
RITE AID 5286 YELM AVE	909 YELM AVE E	NNE 1/2 - 1 (0.974 mi.)	12	10
WE & B LIMITED	15708 123RD AVE	S 1 - 2 (1.007 mi.)	B19	25
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
YCOM NETWORKS CONST YARD	10812 BALD HILL RD SE	ENE 1 - 2 (1.084 mi.)	22	41
MOUNT RAINIER CLINIC INC	503 1ST ST S	NNW 1 - 2 (1.178 mi.)	D24	42
FRONTIER VILLAGE PROF DRYCLEAN	404 1ST ST SE & MOSMAN	NNW 1 - 2 (1.208 mi.)	D26	43
MICHAEL J MCCASLIN	107 S 1ST ST	N 1 - 2 (1.276 mi.)	E32	50
GORDERS AUTO REBUILD	103 1ST ST N	N 1 - 2 (1.281 mi.)	E34	52
NISQUALLY VALLEY GOLF COURSE	MOSSMAN & EDWARDS	NNW 1 - 2 (1.315 mi.)	37	55
SAFeway FUEL CENTER YELM AVE	1109 A YELM AVE E	NNW 1 - 2 (1.431 mi.)	F43	59
HARTS LAKE ASSOCIATES	402 NW RAILROAD	N 1 - 2 (1.432 mi.)	G44	60
LIVINGSTON BOATS INC YELM	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G46	62
JOHNS MEADOWS	16440 MIDDLE RD SE	NNE 1 - 2 (1.480 mi.)	49	90
WAL MART SUPERCENTER 3705	17100 SR 507 SE	ENE 1 - 2 (1.482 mi.)	H50	91
SAMANTHA RIDGE	502 CRYSTAL SPRINGS ST	N 1 - 2 (1.565 mi.)	58	102
CENEX HARVEST STATES YELM	509 RHOTON RD	N 1 - 2 (1.577 mi.)	I61	107
PENSKE TRUCK LEASING CO LP	801 NORTHERN PACIFIC RD	N 1 - 2 (1.580 mi.)	I63	108
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.580 mi.)	I64	119
YELM AREA RELIABILITY	16302 RAILWAY RD SE	NNE 1 - 2 (1.583 mi.)	66	151
WESTSTAR INC	608 YELM AVENUE	NNW 1 - 2 (1.584 mi.)	J67	151
CREAMERY TRANSPORT CO INC	17025 HANNUS RD SE	SE 1 - 2 (1.614 mi.)	72	155
BNH AUTO WRECKING	17505 110TH AVE SE	E 1 - 2 (1.701 mi.)	K73	157
GLACIER NORTHWEST	705 NORTHWEST RHOTON RD	N 1 - 2 (1.708 mi.)	L78	161
VAIL RD DRUG LAB	11515 VAIL RD SE	E 1 - 2 (1.709 mi.)	M80	163
BILLS TOWING	801 W YELM AVE	NNW 1 - 2 (1.710 mi.)	N81	164
FOUR CORNER GROCERY	11500 BALD HILLS RD	E 1 - 2 (1.745 mi.)	M84	166
YELM MAINTENANCE SITE	17526 HWY 507 SE	ENE 1 - 2 (1.781 mi.)	O88	169
T AUTOMOTIVE SERVICE	16713 CANAL RD SE	NNE 1 - 2 (1.893 mi.)	P91	171
WOOD FABRICATORS	1001 NE RHOTON RD	N 1 - 2 (1.918 mi.)	92	172
HOFFMAN PLAT	9405 CULLENS RD	N 1 - 2 (1.958 mi.)	Q94	177
CULLENS ROAD PLAT	9329 CULLENS RD	N >2 (2.011 mi.)	Q98	179
YELM DRUG CHEMICAL DU	NW COR OF FLUME RD & BR	NNE >2 (2.018 mi.)	100	180

EXECUTIVE SUMMARY

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
YELM WWTP	931 NORTHERN PACIFIC RD	NNE >2 (2.032 mi.)	R103	182
YELM COMMUNITY SCHOOLS	14901 YELM HWY SE	NNW >2 (2.224 mi.)	111	185
NISQUALLY VALLEY CARE CENTER	9414 357TH ST S	ENE >2 (2.254 mi.)	T113	187
FLYING M	35618 HWY 507 S	ENE >2 (2.389 mi.)	120	189
WEST AIR AVIATION	18324 COOK RD 6	E >2 (2.488 mi.)	126	195

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the CSCSL NFA list, as provided by EDR, and dated 01/24/2012 has revealed that there are 4 CSCSL NFA sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
LIVINGSTON BOATS INC YELM	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G46	62
BILLS TOWING	801 W YELM AVE	NNW 1 - 2 (1.710 mi.)	N81	164
WOOD FABRICATORS	1001 NE RHOTON RD	N 1 - 2 (1.918 mi.)	92	172

CDL: Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological , damage and death. Biological hazards associated with intravenous needles, associated with intravenous needles, feces, and blood risks.

A review of the CDL list, as provided by EDR, and dated 02/09/2009 has revealed that there is 1 CDL site within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	11822 HOBBY ST SE	WSW 1 - 2 (1.578 mi.)	62	107

HIST CDL: This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

A review of the HIST CDL list, as provided by EDR, and dated 02/08/2007 has revealed that there are 5 HIST CDL sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	11822 HOBBY ST SE	WSW 1 - 2 (1.578 mi.)	62	107
Not reported	12220 HILLCREST	WSW 1 - 2 (1.959 mi.)	96	178
Not reported	14504-C SE BERRY VALLEY	NW >2 (2.085 mi.)	104	183
Not reported	9346 BRIDGE RD	NNE >2 (2.204 mi.)	S107	184
Not reported	9110 PEPPERIDGE LANE	NNE >2 (2.414 mi.)	W122	194

EXECUTIVE SUMMARY

US HIST CDL: A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

A review of the US HIST CDL list, as provided by EDR, and dated 09/01/2007 has revealed that there is 1 US HIST CDL site within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
15913 SE 90TH AVE	15913 SE 90TH AVE	N >2 (2.292 mi.)	U116	188

Records of Emergency Release Reports

HMIRS: The Hazardous Materials Incident Report System contains hazardous material spill incidents reported to the Department of Transportation. The source of this database is the U.S. EPA.

A review of the HMIRS list, as provided by EDR, and dated 10/04/2011 has revealed that there are 2 HMIRS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	16507 STATE ROUTE 507 S	NE 1/2 - 1 (0.948 mi.)	A7	9
Not reported	16507 STATE ROUTE 507 S	NE 1/2 - 1 (0.948 mi.)	A8	9

SPILLS: Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

A review of the SPILLS list, as provided by EDR, and dated 01/03/2012 has revealed that there are 39 SPILLS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
UNKNOWN	10826 VANCIL ROAD	NE 1/2 - 1 (0.701 mi.)	2	7
PUGET SOUND ENERGY- PSE	10730 MORRIS ROAD	NE 1/2 - 1 (0.849 mi.)	4	8
Not reported	15836 123 AVENUE	S 1/2 - 1 (0.994 mi.)	15	23
UNKNOWN	15011 119TH WAY SE YELM	SW 1 - 2 (1.005 mi.)	16	24
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
Not reported	118 MOSSMAN AVENUE SOUT	NNW 1 - 2 (1.170 mi.)	D23	41
Not reported	15218 123RD AVENUE SOUT	SSW 1 - 2 (1.197 mi.)	25	42
Not reported	222 YELM AVENUE EAST	N 1 - 2 (1.226 mi.)	27	47
PUGET SOUND ENERGY	12520 MORRIS ROAD SE	S 1 - 2 (1.226 mi.)	28	47
PUGET SOUND ENERGY	15235 105TH AVENUE SOUT	NW 1 - 2 (1.235 mi.)	29	47
Not reported	10535 GROVE ROAD	NE 1 - 2 (1.248 mi.)	30	47
UNKNOWN	10405 GROVE ROAD SE, YE	NE 1 - 2 (1.287 mi.)	36	54
AMTEK	406 RAILROAD STREET	N 1 - 2 (1.431 mi.)	G40	57
WAL MART SUPERCENTER 3705	17100 SR 507 SE	ENE 1 - 2 (1.482 mi.)	H50	91
Not reported	17246 110 TH AVENUE SOU	E 1 - 2 (1.500 mi.)	54	101
UNKNOWN	11610 HOBIE STREET SOUT	WSW 1 - 2 (1.521 mi.)	56	102
Not reported	16145 RAILWAY RD	N 1 - 2 (1.526 mi.)	57	102
CHIROPRACTIC OFFICE	604 YELM HWY SE, SUITE	NNW 1 - 2 (1.582 mi.)	J65	151
WESTSTAR INC	608 YELM AVENUE	NNW 1 - 2 (1.584 mi.)	J67	151
Not reported	11647 VAIL ROAD SOUTHEA	ESE 1 - 2 (1.705 mi.)	75	159

EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
GLACIER NORTHWEST	705 NORTHWEST RHOTON RD	1 - 2 (1.708 mi.)	L78	161
Not reported	14945 129TH LANE SE	SW 1 - 2 (1.726 mi.)	83	165
Not reported	909 YELM AVENUE WEST	NNW 1 - 2 (1.772 mi.)	87	168
Not reported	16747 CANAL ROAD SE	NNE 1 - 2 (1.868 mi.)	P90	171
Not reported	110TH AND VAIL ROAD SOU	E 1 - 2 (1.934 mi.)	93	177
Not reported	HWY 507/ VAIL RD SE	ENE 1 - 2 (1.997 mi.)	97	179
GERBER & SONS	9801 BRIDGE RD SE	NE >2 (2.026 mi.)	101	182
Not reported	9543 BRIDGE ROAD SOUTHE	NNE >2 (2.103 mi.)	106	183
Not reported	9346 BRIDGE ROAD	NNE >2 (2.204 mi.)	S108	184
Not reported	11234 AERO LANE SE	E >2 (2.205 mi.)	109	184
PREVIOUS OWNER	119 VIEW DRIVE NORTHWES	N >2 (2.206 mi.)	110	184
Not reported	15913 90TH AVE SE	N >2 (2.290 mi.)	U115	188
RESIDENCE	9132 BRIDGE RD	NNE >2 (2.350 mi.)	V117	188
Not reported	9132 BRIDGE ROAD	NNE >2 (2.350 mi.)	V118	189
UNKNOWN	35807 94TH AVENUE SOUTH	ENE >2 (2.357 mi.)	119	189
Not reported	9110 PEPPERIDGE LANE SO	NNE >2 (2.414 mi.)	W121	194
Not reported	12635 WAGON WHEEL ROAD	SW >2 (2.474 mi.)	X123	194
Not reported	13103 ZELLER ROAD SE	SW >2 (2.475 mi.)	124	195
Not reported	12648 WAGONWHEEL ROAD	SSW >2 (2.479 mi.)	X125	195

Other Ascertainable Records

RCRA-NonGen: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA-NonGen list, as provided by EDR, and dated 06/15/2011 has revealed that there are 6 RCRA-NonGen sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
VAIL RD DRUG LAB	11515 VAIL RD SE	E 1 - 2 (1.709 mi.)	M80	163
T AUTOMOTIVE SERVICE	16713 CANAL RD SE	NNE 1 - 2 (1.893 mi.)	P91	171
WOOD FABRICATORS	1001 NE RHOTON RD	N 1 - 2 (1.918 mi.)	92	172
YELM DRUG CHEMICAL DU	NW COR OF FLUME RD & BR	NNE >2 (2.018 mi.)	100	180
WEST AIR AVIATION	18324 COOK RD 6	E >2 (2.488 mi.)	126	195

TRIS: The Toxic Chemical Release Inventory System identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III, Section 313. The source of this database is the U.S. EPA.

A review of the TRIS list, as provided by EDR, and dated 12/31/2009 has revealed that there are 2 TRIS sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.580 mi.)	I64	119
GLACIER NORTHWEST INC YELM PLA	705 RHOTON RD	N 1 - 2 (1.708 mi.)	L79	163

EXECUTIVE SUMMARY

FTTS: FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act) over the previous five years. To maintain currency, EDR contacts the Agency on a quarterly basis.

A review of the FTTS list, as provided by EDR, and dated 04/09/2009 has revealed that there are 2 FTTS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
YELM SD 2	404 YELM AVE W	N 1 - 2 (1.431 mi.)	F41	58
LIVINGSTON BOATS INC	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G47	74

HIST FTTS: A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

A review of the HIST FTTS list, as provided by EDR, and dated 10/19/2006 has revealed that there are 2 HIST FTTS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
YELM SD 2	404 YELM AVE W	N 1 - 2 (1.431 mi.)	F41	58
LIVINGSTON BOATS INC	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G47	74

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 10/23/2011 has revealed that there are 42 FINDS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
YELM PRAIRIE ELEMENTARY	16535 110TH AVE. SE	ENE 1/2 - 1 (0.731 mi.)	3	7
MILL POND INTERMEDIATE SCHOOL	909 MILL RD SE	NNW 1/2 - 1 (0.948 mi.)	6	8
JIFFY LUBE STORE 2812	1002 E YELM AVE	NNE 1/2 - 1 (0.957 mi.)	11	9
RITE AID 5286 YELM AVE	909 YELM AVE E	NNE 1/2 - 1 (0.974 mi.)	12	10
RAINIER CHEVRON	16518 YELM AVE SE	NE 1/2 - 1 (0.975 mi.)	A14	23
WE & B LIMITED	15708 123RD AVE	S 1 - 2 (1.005 mi.)	B17	24
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
YCOM NETWORKS CONST YARD	10812 BALD HILL RD SE	ENE 1 - 2 (1.084 mi.)	22	41
MOUNT RAINIER CLINIC INC	503 1ST ST S	NNW 1 - 2 (1.178 mi.)	D24	42
FRONTIER VILLAGE PROF DRYCLEAN	404 1ST ST SE & MOSMAN	NNW 1 - 2 (1.208 mi.)	D26	43
MICHAEL J MCCASLIN	107 S 1ST ST	N 1 - 2 (1.276 mi.)	E32	50
GORDERS AUTO REBUILD	103 1ST ST N	N 1 - 2 (1.281 mi.)	E33	50
YELM EXTENSION SCHOOL	107 FIRST ST NORTH	N 1 - 2 (1.283 mi.)	E35	54
YELM EXTENSION SCHOOL	203 N FIRST ST	N 1 - 2 (1.318 mi.)	38	57
YELM MIDDLE SCHOOL	402 YELM AVE. W	N 1 - 2 (1.430 mi.)	F39	57

EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
LACKAMAS ELEMENTARY	16240 BALD HILL RD	N 1 - 2 (1.431 mi.)	F42	58
HARTS LAKE ASSOCIATES	402 NW RAILROAD	N 1 - 2 (1.432 mi.)	G45	61
LIVINGSTON BOATS INC	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G47	74
FORT STEVENS ELEMENTARY	16525 100TH WAY SE	NNE 1 - 2 (1.456 mi.)	48	90
WAL MART SUPERCENTER 3705	17100 STATE RT 507 SE	ENE 1 - 2 (1.482 mi.)	H53	100
CENEX HARVEST STATES YELM	509 RHOTON RD	N 1 - 2 (1.577 mi.)	I61	107
PENSKE TRUCK LEASING CO LP	801 NORTHERN PACIFIC RD	N 1 - 2 (1.580 mi.)	I63	108
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.580 mi.)	I64	119
NORTHWEST DELI MART 46	608 YELM HWY	NNW 1 - 2 (1.584 mi.)	J70	155
CREAMERY TRANSPORT CO INC	17025 HANNUS RD SE	SE 1 - 2 (1.614 mi.)	72	155
BNH AUTO WRECKING	17505 110TH AVE SE	E 1 - 2 (1.701 mi.)	K74	158
CENTRAL REDDIMIX INC	705 RHOTON RD	N 1 - 2 (1.708 mi.)	L76	160
GLACIER NORTHWEST INC YELM PLA	705 NW RHOTON RD	N 1 - 2 (1.708 mi.)	L77	160
VAIL RD DRUG LAB	11515 VAIL RD SE	E 1 - 2 (1.709 mi.)	M80	163
BILLS TOWING	801 W YELM AVE	NNW 1 - 2 (1.710 mi.)	N82	165
FOUR CORNER GROCERY	11500 BALD HILLS RD	E 1 - 2 (1.745 mi.)	M85	168
YELM MAINTENANCE SITE	17526 HWY 507 SE	ENE 1 - 2 (1.808 mi.)	O89	170
T AUTOMOTIVE SERVICE	16713 CANAL RD SE	NNE 1 - 2 (1.893 mi.)	P91	171
WOOD FABRICATORS	1001 NE RHOTON RD	N 1 - 2 (1.918 mi.)	92	172
HOFFMAN PLAT	9405 CULLENS ROAD	N 1 - 2 (1.958 mi.)	Q95	178
CULLENS ROAD PLAT	9329 CULLENS ROAD	N >2 (2.011 mi.)	Q99	180
YELM DRUG CHEMICAL DU	NW COR OF FLUME RD & BR	NNE >2 (2.018 mi.)	100	180
YELM WATER RECLAMATION FACILIT	931 NORTHERN PACIFIC RO	NNE >2 (2.031 mi.)	R102	182
YELM HIGH SCHOOL 12	1315 YELM AVE. W	NNW >2 (2.093 mi.)	105	183
YELM COMMUNITY SCHOOLS	14901 YELM HWY SE	NNW >2 (2.224 mi.)	111	185
NISQUALLY VALLEY CARE CENTER	9414 357TH ST S	ENE >2 (2.254 mi.)	T114	187
WEST AIR AVIATION	18324 COOK RD 6	E >2 (2.488 mi.)	126	195

UIC: A listing of underground injection wells.

A review of the UIC list, as provided by EDR, and dated 11/22/2011 has revealed that there are 3 UIC sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CHURCH OF JESUS CHRIST OF LDS	10423 CLARK ROAD SE	N 1/2 - 1 (0.896 mi.)	5	8
TODAY'S DENTAL	502 WEST YELM AVENUE	NNW 1 - 2 (1.515 mi.)	55	101
TAHOMA TERRA INFILTRATION GALL	14848 LONGMIRE ST SE	NW 1 - 2 (1.587 mi.)	71	155

MANIFEST: Hazardous waste manifest information.

A review of the MANIFEST list, as provided by EDR, and dated 12/31/2010 has revealed that there are 6 MANIFEST sites within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
RITE AID 5286 YELM AVE	909 YELM AVE E	NNE 1/2 - 1 (0.974 mi.)	12	10
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C20	25
LIVINGSTON BOATS INC	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G47	74
WAL MART SUPERCENTER 3705	17100 STATE RT 507 SE	ENE 1 - 2 (1.482 mi.)	H51	91
PENSKE TRUCK LEASING CO LP	801 NORTHERN PACIFIC RD	N 1 - 2 (1.580 mi.)	I63	108
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.580 mi.)	I64	119

EXECUTIVE SUMMARY

NPDES: A listing of permitted wastewater facilities.

A review of the NPDES list, as provided by EDR, and dated 01/31/2012 has revealed that there are 4 NPDES sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
YELM AREA RELIABILITY	16302 RAILWAY RD SE	NNE 1 - 2 (1.583 mi.)	66	151
GLACIER NORTHWEST	705 NORTHWEST RHOTON RD	N 1 - 2 (1.708 mi.)	L78	161
CULLENS ROAD PLAT	9329 CULLENS RD	N >2 (2.011 mi.)	Q98	179
NISQUALLY VALLEY CARE CENTER	9414 357TH ST S	ENE >2 (2.254 mi.)	T113	187

AIRS: State of Washington, Department of Ecology, Washington Emissions Data System.

A review of the AIRS list, as provided by EDR, and dated 12/31/2010 has revealed that there are 3 AIRS sites within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
LIVINGSTON BOATS INC YELM	406 RAILROAD ST	N 1 - 2 (1.432 mi.)	G46	62
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.568 mi.)	I59	103
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.580 mi.)	I64	119

Inactive Drycleaners: A listing of inactive drycleaner facility locations.

A review of the Inactive Drycleaners list, as provided by EDR, and dated 12/31/2010 has revealed that there is 1 Inactive Drycleaners site within approximately 2.5 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
FRONTIER VILLAGE PROF DRYCLEAN	404 1ST ST SE & MOSMAN	NNW 1 - 2 (1.208 mi.)	D26	43

FINANCIAL ASSURANCE: A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

A review of the FINANCIAL ASSURANCE list, as provided by EDR, and dated 11/21/2011 has revealed that there are 5 FINANCIAL ASSURANCE sites within approximately 2.5 miles of the target property.

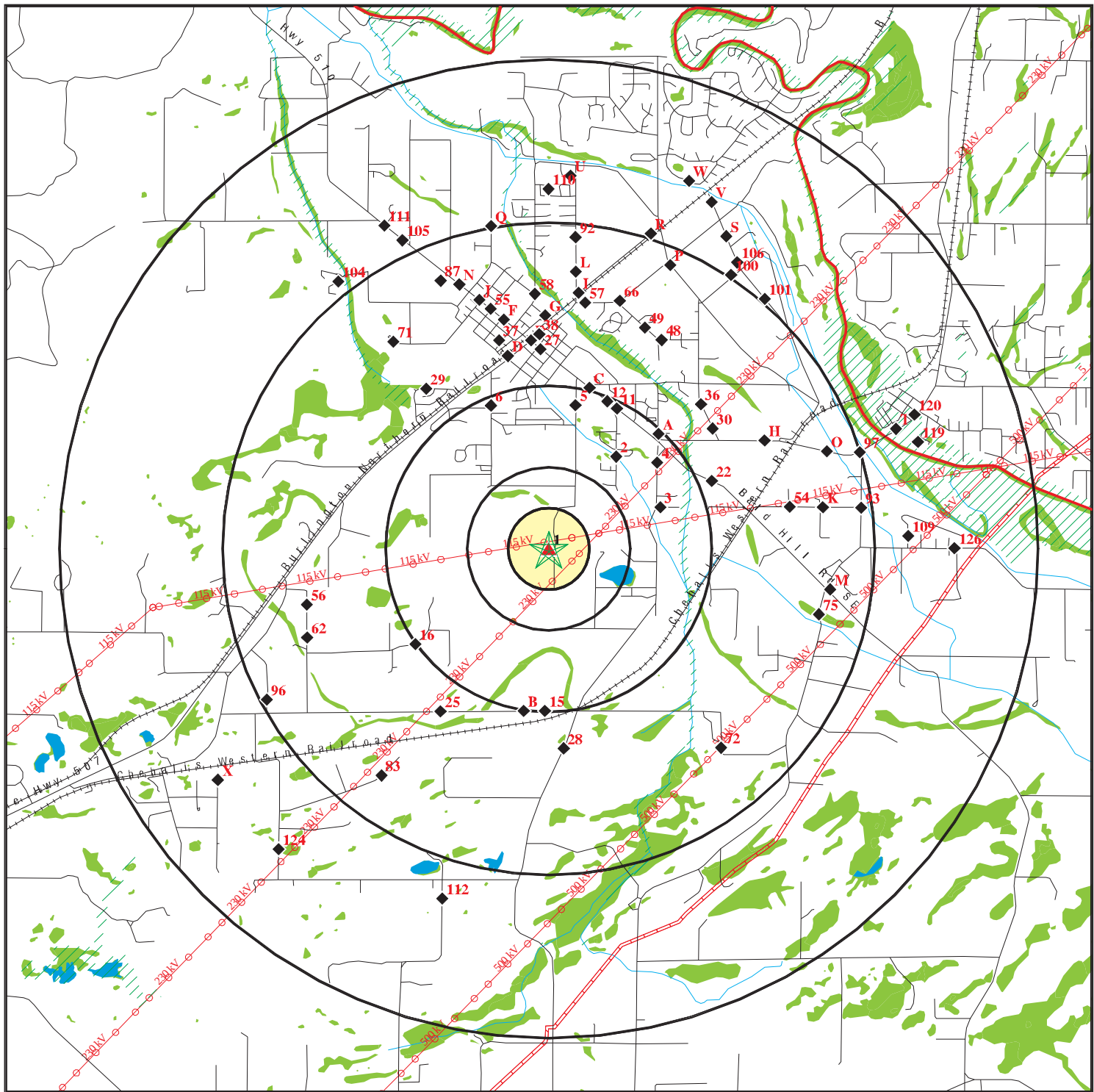
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
HASSAN CORPORATION	16507 SR 507	NE 1/2 - 1 (0.949 mi.)	A10	9
YELM SHELL	706 YELM AVE E	NNE 1 - 2 (1.019 mi.)	C21	37
LASCO BATHWARE	801 NORTHERN PACIFIC	N 1 - 2 (1.580 mi.)	I64	119
PARKS PLACE	608 W YELM AVE	NNW 1 - 2 (1.584 mi.)	J68	152
FOUR CORNER GROCERY	11500 BALD HILLS RD	E 1 - 2 (1.745 mi.)	M86	168

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 30 records.

Site Name	Database(s)
18220 SE BALD HILLS RD	US HIST CDL
MANKE LUMBER CO ROY PIT	ALLSITES
BAYDO CHEVROLET ROY	ALLSITES
HYDRAULIC FLUID SPILL ROW 328TH ST	CSCSL, ALLSITES
GIGLIOTTI PAT CABINET CO	RCRA-NonGen, FINDS, ALLSITES
RITE AID 5286	RCRA-SQG, FINDS, ALLSITES
KEN M SPOONER FARMS INC	ALLSITES, UST
TAHOMA TERRA	ALLSITES
WAL MART STORE 3705-01 SR510 EXT	ALLSITES
DESCHUTES DRUG LAB	ALLSITES
VAIL RD 153RD TO BALD HILL RD	ALLSITES, NPDES
VAIL ROAD	ALLSITES
YELM RITE AIDE	ALLSITES, CSCSL NFA, VCP
HASSAN CORP	RCRA-LQG, FINDS, ALLSITES, UST
YELM GARAGE	FINDS, ALLSITES
RAINIER COMMONS - CHEVRON	ALLSITES, SPILLS
YELM/TRUMP PLAT	UIC
206 3RD ST	HIST CDL
7842 RAINER ROAD	HIST CDL
7843 RAINER ROAD.	HIST CDL
CHEVY STEP VAN	HIST CDL
AMTECH CORP	FTTS, HIST FTTS
YELM WWTP	SWF/LF
YELM GARAGE	UST
DESCHUTES DRUG LAB	RCRA-NonGen, FINDS
15913 90TH SE AVE	US CDL
18220 BALD HILLS SE RD	US CDL
9502 CULLENS RD	US CDL
RAINIER CHEVRON	FINANCIAL ASSURANCE
SAFEWAY #1619	FINANCIAL ASSURANCE

OVERVIEW MAP - 3269533.1s



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

▲ Manufactured Gas Plants

■ National Priority List Sites

■ Dept. Defense Sites

■ Indian Reservations BIA

■ County Boundary

■ Power transmission lines

■ Oil & Gas pipelines from USGS

■ 100-year flood zone

■ 500-year flood zone

■ National Wetland Inventory

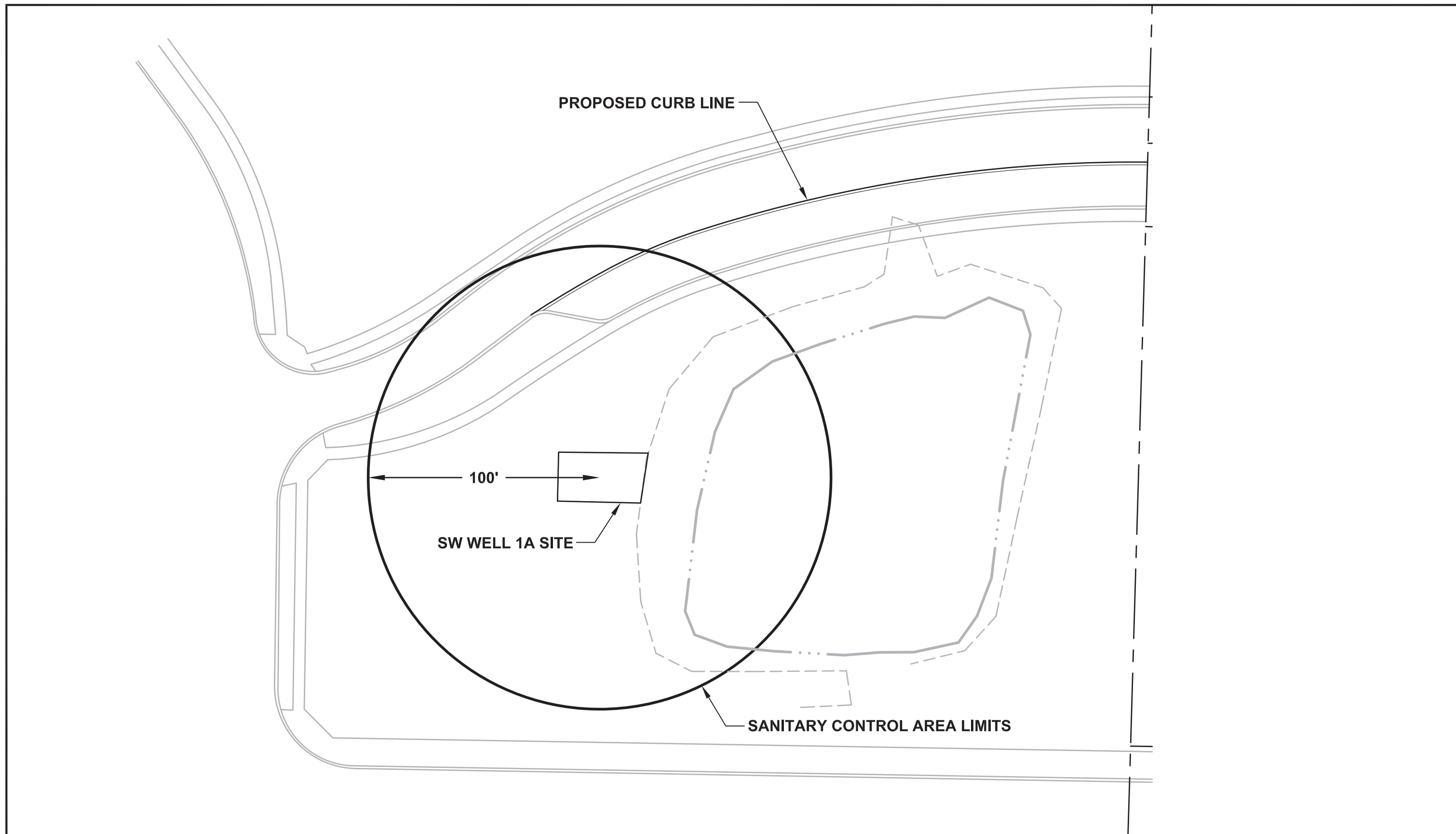
0 3/4 1 1/2 3 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Wellhead Protection Contaminant Source Inventory
ADDRESS: 105 Yelm Ave. West
Yelm WA 98597
LAT/LONG: 46.9235 / 122.6042

CLIENT: Golder Associates, Inc.
CONTACT: Kenny Janssen
INQUIRY #: 3269533.1s
DATE: March 01, 2012 6:59 pm

APPENDIX F
SW WELL 1A SANITARY CONTROL AREA
AND DECLARATION OF COVENANT



RETURN ADDRESS

Document Title(s)

DECLARATION OF COVENANT

Reference Numbers(s) of related documents

Additional Reference #s on page

Grantor(s) (Last, First and Middle Initial)

CITY OF YELM

Additional grantors on page

Grantee(s) (Last, First and Middle Initial)

THE PUBLIC

Additional grantees on page

Legal Description (abbreviated form: i.e. lot, block, plat or section, township, range,
quarter/quarter)

TRACT F OF BLA080229YL & TRACT A OF BLA080229YL

Additional legal is on page

Assessor's Property Tax Parcel/Account Number

78640000024

78640000019

Additional parcel #s on page

The Auditor/Recorder will rely on the information provided on this form. The staff will not read the document to verify the accuracy or completeness of the indexing information provided herein.

Pages: 3

4289485
09/19/2012 04:16 PM Covenant
Thurston County Washington
CITY OF YELM



DECLARATION OF COVENANT

The City of Yelm (City) grantor, being the undersigned, owner in fee simple of the land described herein, hereby declare this covenant and place same on record.

The City, the grantor herein, is the owner in fee simple of the following described real estate situated in Thurston County, State of Washington; to wit:

Section A: SEE ATTACHED LEGAL EXHIBIT 'A'

on which the City owns and operates a municipal potable water well and waterworks, supplying water for public use located on said real estate, at:

Section B: SEE ATTACHED EXHIBIT 'B'

and, grantor is required to keep the water supplied from said well free from impurities which might be injurious to the public health.

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor's water supply.

NOW, THEREFORE, the grantor agrees and covenants that said grantor's heirs, successors and assigned will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 100 (One Hundred) feet of the well herein described, so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drain fields, sewer lines, underground storage tanks, roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, insecticides, hazardous waste, or garbage of any kind or description.

These covenants shall run with the land and shall be binding to all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

WITNESS RON HARDING'S hand on this 13th day of Sept., 2012.

Ron Harding (Seal)
Mayor Ron Harding

State of Washington)

County of Thurston)

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 13th day of Sept., 2012, personally appeared before me Mayor Ron Harding to me known to be the individual described in and who executed the within instrument, and acknowledge that he signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal the day and year last above written.

DANA SPIVEY
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
NOVEMBER 1, 2015

Dana Spivey DANA SPIVEY
Notary Public in and for the State of Washington, residing at
Rainier WA.
My Commission Expires: 11-1-2015

EXHIBIT "A"

Tract F of Boundary Line Adjustment No. BLA-080229YL, as recorded July 31, 2008 under Auditor's File No. 4027040, together with that portion of Tract A of Boundary Line Adjustment No. BLA-080229YL, as recorded July 31, 2008 under Auditor's File No. 4027040, described as follows:

Commencing at the Northwest corner of the East half of the Southeast quarter of Section 23, Township 17 North, Range 1 East, Willamette Meridian; thence South 01°40'34" West along the West line of said East half, a distance of 1629.94 feet to the Southwest corner of said Tract A; thence South 89°10'49" East along the South line of said Tract, a distance of 558.38 feet to the most Southerly corner common to Tracts A and F of said Boundary Line Adjustment, being a point of cusp on a curve concave to the Northeast having a radius of 28.00 feet, which bears North 00°49'15" East and a central angle of 90°00'01" and being subtended by a chord which bears North 44°10'45" West 39.60 feet; thence along the line common to said Tracts A and F the following courses; Westerly, Northwesterly and Northerly along said curve, a distance of 43.98 feet; thence North 00°49'16" East tangent to said curve, a distance of 32.01 feet to the beginning of a curve tangent to said line; thence Northerly a distance of 28.89 feet along the curve concave to the West, having a radius of 154.50 feet and a central angle of 10°42'56" to a point of reverse curvature; thence Northerly a distance of 5.95 feet along the arc of said curve concave to the East having a radius of 28.00 feet and a central angle of 12°10'59" to the Point of Beginning of this description; thence departing from said common line, North 02°17'19" East tangent to said curve, a distance of 83.43 feet to the beginning of a curve concave to the Northwest having a radius of 130.50 feet, which bears North 16°08'19" West and a central angle of 14°48'23" and being subtended by a chord which bears North 66°38'23" East 33.63 feet; thence Easterly and Northeasterly along said curve, a distance of 33.72 feet to a point of reverse curvature; thence Northeasterly and Easterly a distance of 351.78 feet along the arc of said curve concave to the South having a radius of 642.00 feet and a central angle of 31°23'40" to a point of cusp on the line common to Tracts A and D of said Boundary Line Adjustment; thence South 01°40'08" West along said common line, a distance of 60.01 feet to the East corner common to Tracts A and F of said Boundary Line Adjustment, at the beginning of a curve concave to the South having a radius of 582.00 feet, which bears South 00°31'26" West and a central angle of 31°17'15" and being subtended by a chord which bears South 74°52'48" West 313.88 feet; thence along the line common to said Tracts A and F the following courses; Westerly and Southwesterly along said curve, a distance of 317.81 feet to a point of reverse curvature; thence Southwesterly and Westerly a distance of 48.83 feet along the arc of said curve concave to the Northwest having a radius of 190.50 feet and a central angle of 14°37'30" to a point of cusp on a curve, from which the radius point bears South 15°41'17" East; thence Westerly, Southwesterly and Southerly, a distance of 35.20 feet along the arc of said curve concave to the Southeast having a radius of 28.00 feet and a central angle of 72°01'24" to the Point of Beginning.

Situate in the County of Thurston, State of Washington.

End of Exhibit "A"

SUR 4289486

Pages: 1

4289486 09-15-PM
Thurston County Washington
City of Yelm

METHOD OF SURVEY

THIS SURVEY WAS PERFORMED AND ALL MONUMENTS VISITED DURING AUGUST 2012 USING A TOPCON GR-3 GPS RECEIVER FOR ORIENTATION TO HORIZONTAL DATUM, BOUNDARY TIES, ESTABLISHMENT OF PRIMARY CONTROL, USING RTK.
THIS SURVEY MEETS OR EXCEEDS THE MINIMUM STANDARDS OF WASHINGTON ADMINISTRATIVE CODE 332-130-090.

BASIS OF BEARING AND HORIZONTAL DATUM

PURSUANT TO BOUNDARY LINE ADJUSTMENT, BLA-08-0229-YL, AFN 4027040
FROM THE SOUTHEAST SECTION CORNER TO THE EAST QUARTER CORNER = NORTH 01°57'01" EAST

PROPERTY DESCRIPTION

(PURSUANT TO QUIT CLAIM DEED DATED AUGUST 16, 2012; AFN 4283111)

TRACT F OF BOUNDARY LINE ADJUSTMENT No. BLA-08-0229-YL, AS RECORDED JULY 31, 2008 UNDER AUDITOR'S FILE No. 4027040, TOGETHER WITH THAT PORTION OF TRACT A OF SAID BOUNDARY LINE ADJUSTMENT, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 23, TOWNSHIP 17 NORTH, RANGE 1 EAST, WILLAMETTE MERIDIAN;
THENCE SOUTH 01°40'34" WEST ALONG THE WEST LINE OF SAID EAST HALF, A DISTANCE OF 1,629.94 FEET TO THE SOUTHWEST CORNER OF TRACT A;
THENCE SOUTH 89°10'49" EAST ALONG THE SOUTH LINE OF SAID TRACT, A DISTANCE OF 558.38 FEET TO THE MOST SOUTHERLY CORNER OF TRACTS A AND F OF SAID BOUNDARY LINE ADJUSTMENT, BEING A POINT OF CURV ON A CURVE CONCAVE TO THE NORTHEAST HAVING A RADIUS OF 28.00 FEET, WHICH BEARS NORTH 00°49'15" EAST AND A CENTRAL ANGLE OF 90°00'01" AND BEING SUBTENDED BY A CHORD WHICH BEARS NORTH 44°10'45" WEST 39.60 FEET;
THENCE ALONG THE LINE COMMON TO SAID TRACTS A AND F THE FOLLOWING COURSES;
WESTERLY, NORTHWESTERLY, AND NORTHERLY ALONG SAID CURVE, A DISTANCE OF 43.98 FEET;
THENCE NORTH 00°49'16" EAST TANGENT TO SAID CURVE, A DISTANCE OF 32.01 FEET TO THE BEGINNING OF A CURVE TANGENT TO SAID LINE;
THENCE NORTHERLY A DISTANCE OF 28.89 FEET ALONG THE CURVE CONCAVE TO THE WEST, HAVING A RADIUS OF 154.50 FEET AND A CENTRAL ANGLE OF 10°42'56" TO A POINT OF REVERSE CURVATURE;
THENCE NORTHERLY A DISTANCE OF 5.95 FEET ALONG THE ARC OF SAID CURVE CONCAVE TO THE EAST HAVING A RADIUS OF 28.00 FEET AND A CENTRAL ANGLE OF 12°10'59" TO THE POINT OF BEGINNING OF THIS DESCRIPTION;
THENCE DEPARTING FROM SAID COMMON LINE, NORTH 02°17'19" EAST TANGENT TO SAID CURVE, A DISTANCE OF 83.43 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST HAVING A RADIUS OF 130.50 FEET, WHICH BEARS NORTH 16°08'19" WEST AND A CENTRAL ANGLE OF 14°48'23" AND BEING SUBTENDED BY A CHORD WHICH BEARS NORTH 65°38'23" EAST 33.63 FEET; THENCE EASTERLY AND NORTHEASTERLY ALONG SAID CURVE, A DISTANCE OF 33.72 FEET TO A POINT OF REVERSE CURVATURE;
THENCE NORTHEASTERLY AND EASTERLY A DISTANCE OF 351.78 FEET ALONG THE ARC OF SAID CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 642.00 FEET AND A CENTRAL ANGLE OF 31°23'40" TO A POINT OF CURV ON THE LINE COMMON TO TRACTS A AND D OF SAID BOUNDARY LINE ADJUSTMENT;
THENCE SOUTH 01°40'08" WEST ALONG SAID COMMON LINE, A DISTANCE OF 60.01 FEET TO THE EAST CORNER COMMON TO TRACTS A AND F OF SAID BOUNDARY LINE ADJUSTMENT, AT THE BEGINNING OF A CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 582.00 FEET, WHICH BEARS SOUTH 00°31'26" WEST AND A CENTRAL ANGLE OF 31°17'15" AND BEING SUBTENDED BY A CHORD WHICH BEARS SOUTH 74°52'48" WEST 313.88 FEET;
THENCE ALONG THE LINE COMMON TO SAID TRACTS A AND F THE FOLLOWING COURSES;
WESTERLY AND SOUTHWESTERLY ALONG SAID CURVE, A DISTANCE OF 317.81 FEET TO A POINT OF REVERSE CURVATURE; THENCE SOUTHWESTERLY AND WESTERLY A DISTANCE OF 48.63 FEET ALONG THE ARC OF SAID CURVE CONCAVE TO THE NORTHWEST HAVING A RADIUS OF 190.50 FEET AND A CENTRAL ANGLE OF 14°37'30" TO A POINT OF CURV ON A CURVE, FROM WHICH THE RADIUS POINT BEARS SOUTH 15°41'17" EAST;
THENCE WESTERLY, SOUTHWESTERLY AND SOUTHERLY, A DISTANCE OF 35.20 FEET ALONG THE ARC OF SAID CURVE CONCAVE TO THE SOUTHEAST HAVING A RADIUS OF 28.00 FEET AND A CENTRAL ANGLE OF 72°01'24" TO THE POINT OF BEGINNING.
SITUATE IN THE COUNTY OF THURSTON, STATE OF WASHINGTON.

REFERENCE SURVEYS

- (R1) BOUNDARY LINE ADJUSTMENT (BLA-08-0229-YL), AFN 4027040; KPFF, JULY 2008.
- (R2) PLAT OF TAHOMA TERRA PHASE 1, DIVISION 1, AFN 3830707; BUTLER SURVEYING, MAY 2006.
- (R3) PLAT OF TAHOMA TERRA PHASE 2, DIVISION 1, AFN 402173; KPFF, AUGUST 2008.
- (R4) AFFIDAVIT OF MINOR CORRECTION OF BLA-080229YL (AFN 4027040), AFN 4032054; AUGUST 2008.

GLOSSARY

FND = FOUND
CALC'D = CALCULATED
(R) = RECORD
(M) = MEASURED
(QCD) = QUIT CLAIM DEED AFN 4283111

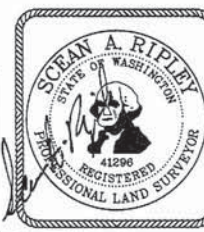


AUDITOR'S CERTIFICATE

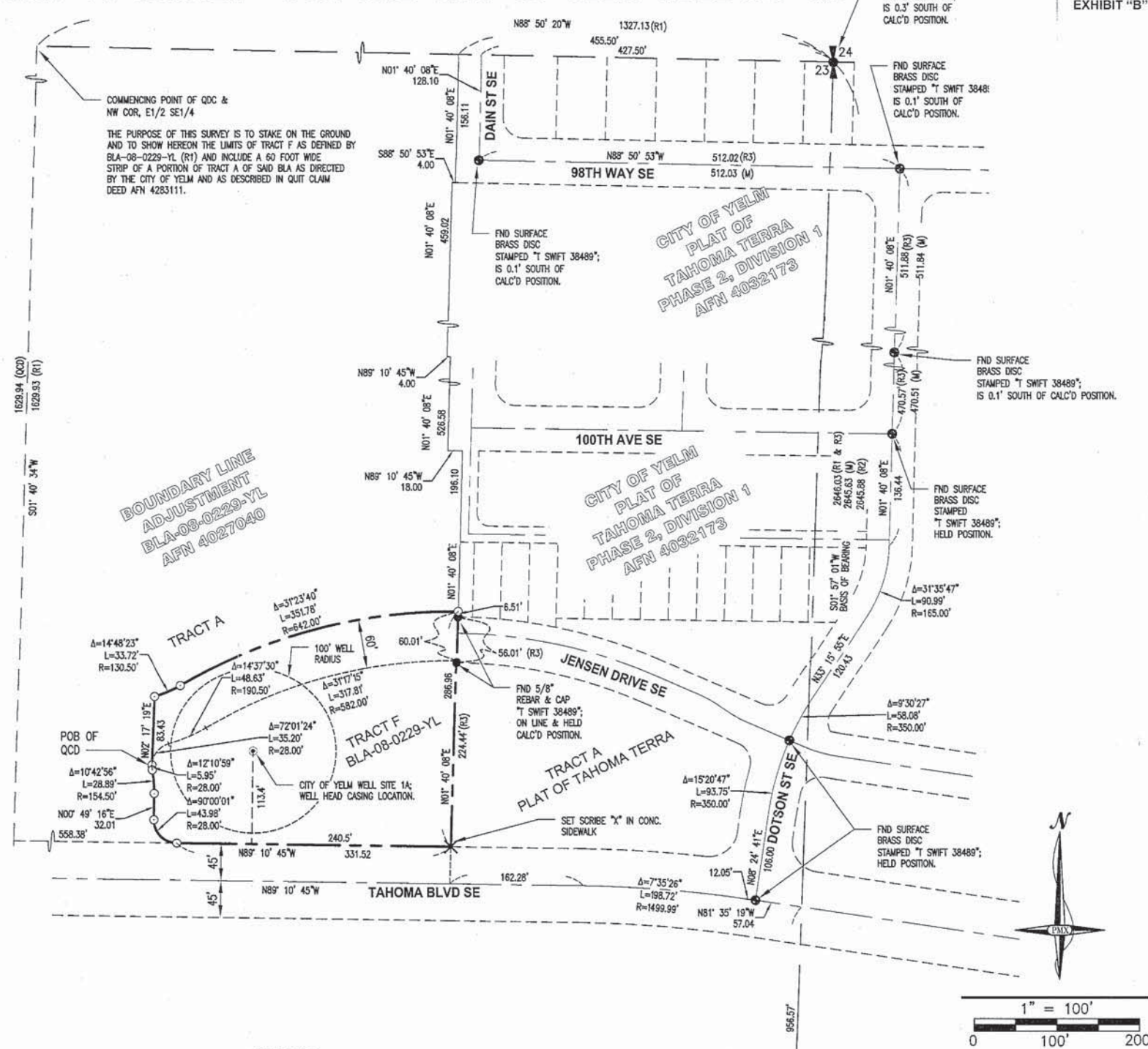
FILED FOR RECORD THIS 19TH DAY OF September 2012
AT THE REQUEST OF City of Yelm
AUDITOR'S FILE NO. 4289486
DEPUTY Kim Wyman
COUNTY AUDITOR

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST OF THE CITY OF YELM
AUGUST 10, 2012
Sean A. Ripley, PLS No. 41296
9/11/12



RECORD OF SURVEY FOR THE CITY OF YELM WELL No. 1A



LEGEND

- SET 5/8" REBAR WITH CAP "PARAMETRIX LS 41296"
- PROPERTY CORNER FOUND AS NOTED
- BRASS SURFACE MONUMENT FOUND AS NOTED

FND 5/8" REBAR & CAP
UNABLE TO READ CAP;
IS 0.1' NORTH OF
CALC'D POSITION.

N89° 10' 50" W (R1)
26 25

INDEX DATA

NE 1/4, SE 1/4, OF SECTION 23,
TOWNSHIP 17 NORTH, RANGE 1 EAST, W.M.
CITY OF YELM, THURSTON COUNTY,
WASHINGTON

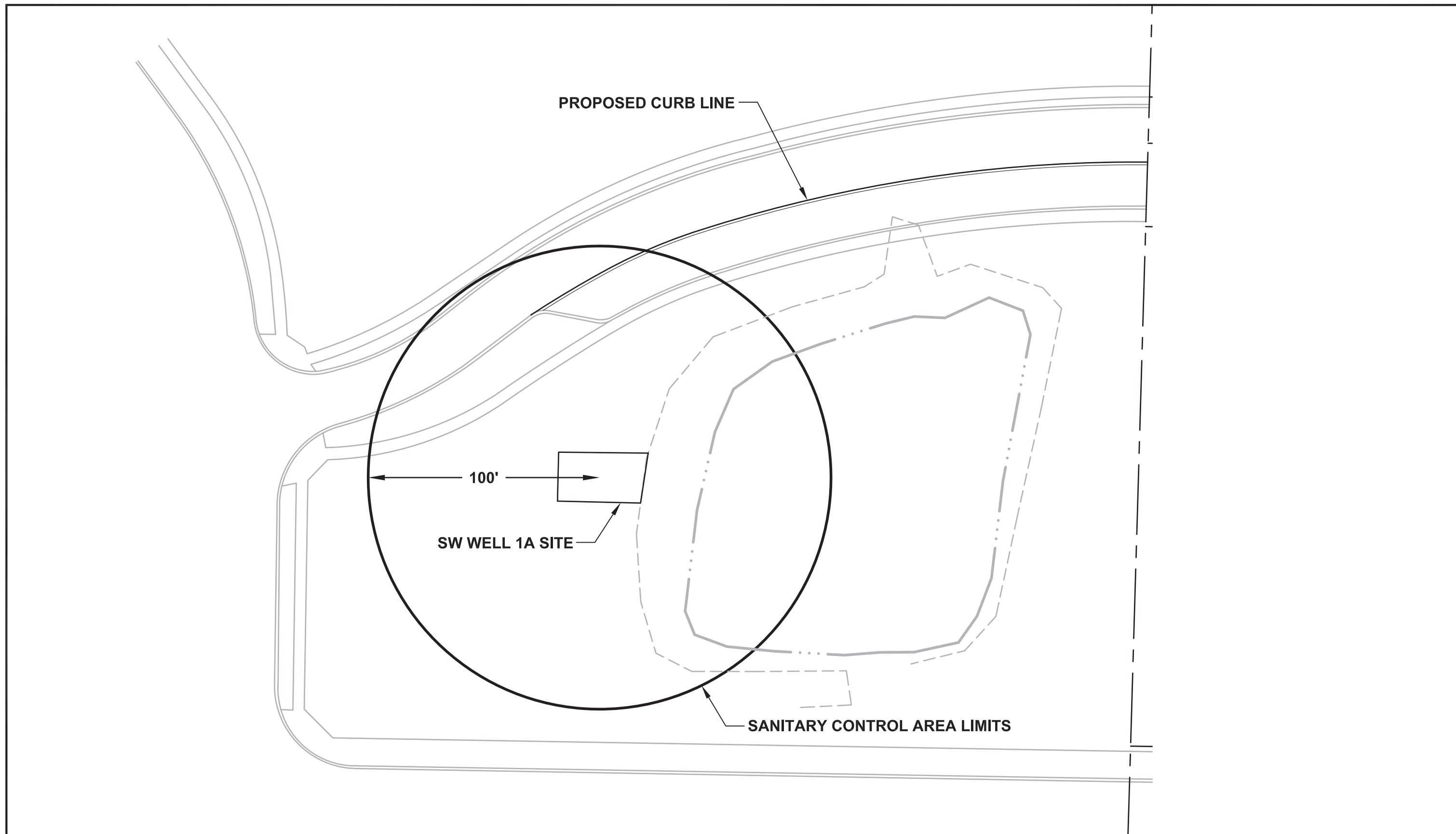
Parametrix
ENGINEERING · PLANNING · ENVIRONMENTAL SCIENCES
www.parametrix.com

PMX JOB NO. 216-1781-026

DESIGNED SAR	ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY
DRAWN SAR	SCALE 1"=100'
CHECKED DI	DATE 09/11/2012
APPROVED DI & SAR	

SHEET NO. 1 OF 1

EXHIBIT "B"



DECLARATION OF COVENANT

The City of Yelm (City) grantor, being the undersigned, owner in fee simple of the land described herein, hereby declare this covenant and place same on record.

The City, the grantor herein, is the owner in fee simple of the following described real estate situated in Thurston County, State of Washington; to wit:

Section A: SEE ATTACHED LEGAL EXHIBIT 'A'

on which the City owns and operates a municipal potable water well and waterworks, supplying water for public use located on said real estate, at:

Section B: SEE ATTACHED EXHIBIT 'B'

and, grantor is required to keep the water supplied from said well free from impurities which might be injurious to the public health.

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor's water supply.

NOW, THEREFORE, the grantor agrees and covenants that said grantor's heirs, successors and assigned will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 100 (One Hundred) feet of the well herein described, so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drain fields, sewer lines, underground storage tanks, roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, insecticides, hazardous waste, or garbage of any kind or description.

These covenants shall run with the land and shall be binding to all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

WITNESS _____ hand _____ this _____ day of _____, 2012.

_____(Seal)
Mayor Ron Harding

State of Washington)

County of Thurston)

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this _____ day of _____, 19_____, personally appeared before me Mayor Ron Harding to me known to be the individual described in and who executed the within instrument, and acknowledge that he signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal the day and year last above written.

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

My Commission Expires: _____

Exhibit A

Tract F of the City of Yelm Boundary Line Adjustment recorded July 31, 2008 under Auditor's File No. 4027040, records of the Thurston County Auditor, in the State of Washington,

Together with that portion of Tract A of the City of Yelm Boundary Line Adjustment recorded July 31, 2008, under Auditor's File No. 4027040, records of the Thurston County Auditor, in the State of Washington, described as follows:

Commencing at the Northwest corner of the East half of the Southeast quarter of Section 23, Township 17 North, Range 1 East, Willamette Meridian; thence South 01°40'34" West along the West line of said East half, a distance of 1629.94 feet to the Southwest corner of said Tract A; thence South 89°10'49" East along the South line of said Tract, a distance of 558.38 feet to the most southerly corner common to Tracts A and F of said Boundary Line Adjustment, being a point of cusp on a curve concave to the northeast having a radius of 28.00 feet, which bears North 00°49'15" East and a central angle of 90°00'01" and being subtended by a chord which bears North 44°10'45" West 39.60 feet; thence along the line common to said Tracts A and F the following courses: westerly, northwesterly and northerly along said curve, a distance of 43.98 feet; thence North 00°49'16" East tangent to said curve, a distance of 32.01 feet to the beginning of a curve tangent to said line; thence northerly a distance of 28.89 feet along the curve concave to the west, having a radius of 154.50 feet and a central angle of 10°42'56" to a point of reverse curvature; thence northerly a distance of 5.95 feet along the arc of said curve concave to the east having a radius of 28.00 feet and a central angle of 12°10'59" to the **Point of Beginning** of this description; thence departing from said common line, North 02°17'19" East tangent to said curve, a distance of 83.43 feet to the beginning of a curve concave to the northwest having a radius of 130.50 feet, which bears North 16°08'19" West and a central angle of 14°48'23" and being subtended by a chord which bears North 66°38'23" East 33.63 feet; thence easterly and northeasterly along said curve, a distance of 33.72 feet to a point of reverse curvature; thence northeasterly and easterly a distance of 351.78 feet along the arc of said curve concave to the south having a radius of 642.00 feet and a central angle of 31°23'40" to a point of cusp on the line common to Tracts A and D of said Boundary Line Adjustment; thence South 01°40'08" West along said common line, a distance of 60.01 feet to the East corner common to Tracts A and F of said Boundary Line Adjustment, at the beginning of a curve concave to the south having a radius of 582.00 feet, which bears South 00°31'26" West and a central angle of 31°17'15" and being subtended by a chord which bears South 74°52'48" West 313.88 feet; thence along the line common to said Tracts A and F the following courses: westerly and southwesterly along said curve, a distance of 317.81 feet to a point of reverse curvature; thence southwesterly and westerly a distance of 48.63 feet along the arc of said curve concave to the northwest having a radius of 190.50 feet and a central angle of 14°37'30" to a point of cusp on a curve, from which the radius point bears South 15°41'17" East; thence westerly, southwesterly and southerly, a distance of 35.20 feet along the arc of said curve concave to the southeast having a radius of 28.00 feet and a central angle of 72°01'24" to the Point of Beginning. Containing 23,246 square feet, more or less.

Situate in the City of Yelm, County of Thurston and State of Washington.

EXHIBIT B

METHOD OF SURVEY

THIS SURVEY WAS PERFORMED AND ALL MONUMENTS VISITED DURING AUGUST 2012 USING A TOPCON GR-3 GPS RECEIVER FOR ORIENTATION TO HORIZONTAL DATUM, BOUNDARY TIES, ESTABLISHMENT OF PRIMARY CONTROL, USING RTK.
THIS SURVEY MEETS OR EXCEEDS THE MINIMUM STANDARDS OF WASHINGTON ADMINISTRATIVE CODE 332-130-090.

BASIS OF BEARING AND HORIZONTAL DATUM

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PROPERTY DESCRIPTION

(PURSUANT TO QUIT CLAIM DEED DATED AUGUST 16, 2012; AFN 4283111)

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SITUATE IN THE COUNTY OF THURSTON, STATE OF WASHINGTON.

REFERENCE SURVEYS

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(R4) AFFIDAVIT OF MINOR CORRECTION OF BLA-080229YL (AFN 4027040), AFN 4032054; AUGUST 2008.

GLOSSARY

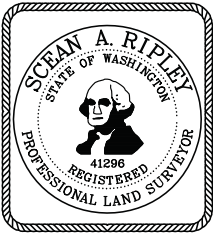
FND = FOUND
CALC'D = CALCULATED
(R) = RECORD
(M) = MEASURED
(QCD) = QUIT CLAIM DEED AFN 4283111

AUDITOR'S CERTIFICATE

FILED FOR RECORD THIS _____ DAY OF _____, 20_____
AT THE REQUEST OF _____
AUDITOR'S FILE NO. _____
DEPUTY _____ COUNTY AUDITOR _____

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST OF _____ THE CITY OF YELM _____ AUGUST 10, 2012
SCEAN A. RIPLEY, PLS NO. 41296



INDEX DATA	
NE 1/4, SE 1/4, OF SECTION 23, TOWNSHIP 17 NORTH, RANGE 1 EAST, W.M.	
CITY OF YELM, THURSTON COUNTY, WASHINGTON	

Parametrix

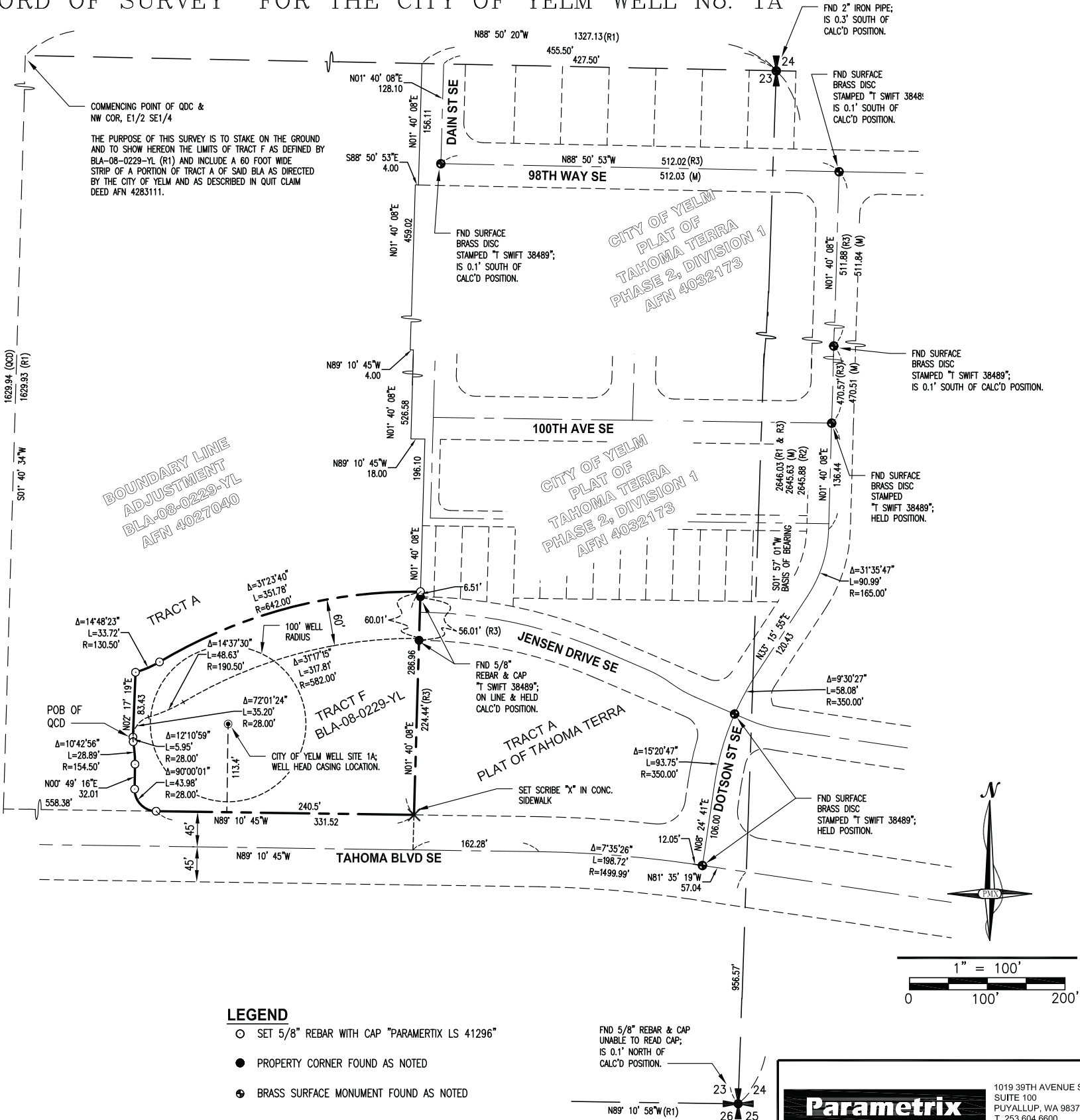
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

1019 39TH AVENUE SE
SUITE 100
PUYALLUP, WA 98374
T. 253.604.6600
F. 253.604.6799
www.parametrix.com

PMX JOB NO. 216-1781-026

DESIGNED SAR	ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY	SHEET NO. 1 OF 1
DRAWN SAR		
CHECKED DI	SCALE 1"=100'	
APPROVED	DATE 09/11/2012	

RECORD OF SURVEY FOR THE CITY OF YELM WELL No. 1A



APPENDIX G
EXAMPLE LETTERS OF NOTIFICATION AND NOTIFICATION LIST

Example Letter of Notification – Owners/Operators of Potential Sources of Contamination

Dear (Owner/Operator):

In order to protect the drinking water supply for the customers of the City of Yelm's Water System, we have developed a wellhead protection program in accordance with State requirements. As part of our wellhead protection program, we mapped the area overlying the short-term recharge zone of our drinking water supply wells. This is called our wellhead protection area.

Following identification of the wellhead protection area, we conducted an inventory of potential sources of groundwater contamination within the area. The nature of your business and its location within our wellhead protection area means that your activities have the potential to affect our drinking water supply sources.

We have notified the regulatory agencies that regulates your type of business/facility of your presence within our wellhead protection area. You should contact them to request technical assistance to help manage your business in a way that will best prevent groundwater contamination. We realize you are already careful to protect the environment as you conduct your business. We hope that informing you of your location in our wellhead protection area will result in an increase in precautions to ensure that your activities will not impact our drinking water quality.

Sincerely,

Example Letter of Notification – Regulatory Agencies/Local Governments

Dear (Agency /Local Government):

As part of the wellhead protection program for the City of Yelm Water System, we are hereby informing you of the findings of our wellhead protection area delineation. This is in accordance with State regulations (WAC 246-290-135).

The City currently has 3,188 service connections, and serves a population of approximately 5,815 people. The State Department of Health has given our system a rating of “highly susceptible.” This means that our drinking water supply is very vulnerable to contamination.

The enclosed map shows the 6-month and 1-, 5-, and 10-year time of travel boundaries for our wellhead protection area. Any groundwater contamination that occurs within this wellhead protection area has a high potential to reach our drinking water supply wells. It is therefore of utmost importance to us that all reasonable steps be taken to ensure that land use activities within this area do not contaminate our customers’ drinking water supplies.

Thank you for your support in protecting our drinking water.

Sincerely,

Example Letter of Notification – Local Emergency Responders

Dear (Emergency Responder):

The City of Yelm, WA has developed a Wellhead Protection Plan as required by the Washington State Department of Health. As part of this plan, our water system must coordinate with agencies responsible for incident/spill response procedures. Using the results of the susceptibility assessment and the findings of the wellhead protection inventory, local emergency responders are asked to evaluate whether changes in incident/spill response procedures are needed to better protect groundwater within the wellhead protection areas. As stated in Washington State Department of Health's Wellhead Protection Program Guidance Document, "If a public water system's source water is determined to be vulnerable to surface activities, special procedures may need to be incorporated into local emergency response plans". The State Department of Health has given our system a rating of "highly susceptible." This means that our drinking water supply is very vulnerable to contamination.

A map of the wellhead protection areas with potential contaminant sources is enclosed for your review. An acknowledgement of receipt of this information and/or response from your office would be appreciated.

Thank you for your support in protecting our drinking water source. If you have any questions about the plan, please feel free to contact us.

Sincerely,

Regulatory Agencies and Local Governments

Washington State Department of Ecology
Division of Water Resources
PO Box 47775
Olympia, WA 98504-7775
Phone: (360) 407-6300

Washington State Department of Health
Division of Drinking Water
PO Box 47822
Olympia, WA 98504-7822
Phone: (360) 236-3100

Thurston County Department of Public Health
and Social Services
412 Lilly Rd. NE
Olympia, WA 98506-5132
Phone: (360) 867-2500

Thurston County Planning Department
2000 Lakeridge Drive SW
Olympia, WA 98502-6045
Phone: (360) 754-3355, x5467
(Andrew Deffobis, Associate Planner)

Local Emergency Incident Responders

Tim Peterson
Emergency Coordinator/Public Works Director
901 Rhoton Road
Yelm, Washington 98597
Day Phone: (360) 458-8499
Evening Phone: (360) 894-2698

Yelm Fire District
PO Box 777
Yelm, WA 98597
Emergency Phone: 911
Business Phone: (360) 458-2799

Yelm Police Department
206 McKenzie Ave SE
Yelm, WA 98597
Emergency Phone: 911
Business Phone: (360) 458-5701

Washington State Department of
Transportation, Emergency Response
2501 112 St. SE
Tacoma, WA 98445-5104
Phone: (253) 536-6089

Thurston County Emergency Management
9521 Tilley Rd. SW
Olympia, WA 98512
Phone: (360) 867-2800

Washington State Department of Ecology
Spill Response Program
PO Box 47775
Olympia, WA 98504-7775
Phone: (360) 407-6300

City of Yelm Public Works Contact List

Tim Peterson
Emergency Coordinator/Public Works Director
901 Rhoton Road
Yelm, Washington 98597
Day Phone: (360) 458-8499
Evening Phone: (360) 894-2698

Kevin Ray
Public Works Field Supervisor
901 Rhoton Road
Yelm, Washington 98597
Day Phone: (360) 458-8406
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Edward "Smitty" Smith
Lead Water System Operator
901 Rhoton Road
Yelm, Washington 98597
Day Phone: (360) 458-8406
Evening Phone: (360) 446-7278

John Ivey
Water System Operator
901 Rhoton Road
Yelm, Washington 98597
Day Phone: (360) 458-8406
Evening Phone: (360) 250-9543

Timothy Rarick
Water System Operator
901 Rhoton Road
Yelm, Washington 98597
Day Phone: (360) 458-8406
Evening Phone: (360) 894-1272

APPENDIX H
CITY OF YELM SPILL RESPONSE PLAN (FEBRUARY 2010)

SPILL RESPONSE PLAN

Prepared for
City of Yelm, Washington
February 25, 2010

BROWN AND CALDWELL

724 Columbia St. NW, Suite 420
Olympia, Washington 98501

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Figure 4	Well #1 Pumphouse/Storage Building

SPILL RESPONSE PLAN

1.1 Introduction

This spill response plan is intended to prevent the accidental release of pollutants in the area of the groundwater well sources and for minimizing damages if such a spill occurs. This plan will be reviewed annually, and any changes to keep the plan current will be noted on the Annual Review Form (See Appendix A – Annual review Form).

1.2 Site Description

The City of Yelm Water System has two existing groundwater well sources located on Second Avenue between Washington and McKenzie Streets. Wells 1A and 2 are approximately 30 feet apart and have an average depth of 65 feet. Each well has a capacity of 1,200 gpm and discharge directly into the Baker Hill tank through a dedicated 8-inch line.

The existing site for Wells 1A and 2 is relatively flat, with grass cover, sidewalks and a paved driveway. Buildings on the site include the Well 1A and 2 pumphouses, an elevated water tank, a generator, and Well 1 (abandoned) pumphouse building used for storage and caustic soda. Figure 1 shows a map of the location of these two wells. Figures 2, 3 and 4 are photographs of the well site. The site has areas with grass cover and is relatively flat. Drainage of the site is via surface runoff. The site is fenced and gated.

Another well that has been operated in the past is Well 3A. This well was determined to be under the influence of surface water and was taken out of service in 2000.

A new well that is to be incorporated into the City system is currently planned for the new Southwest Yelm wellfield. This spill response plan will need to be updated as this well, and future wells, are put into service.

1.3 Potential Spills

1.3.1 Chlorine Gas

The City system uses a chlorine gas system installed in 2000 to disinfect the groundwater from Wells 1A and 2. The dedicated transmission main from Wells 1A and 2 to the Baker Hill reservoir has no service connections to it and provides chlorine contact for the full distance between the wells and the reservoir. One 150 lb cylinder of chlorine gas is on line, and another cylinder is on site for backup. The cylinders are contained in the Well 1 pump house building and are chained to the wall.

The Material Safety Data Sheet (MSDS) for chlorine is included in Appendix B.

1.3.2 Caustic Soda

The water system includes a 2,000-gallon polyethylene caustic soda tank in a building adjacent to the Well 1 pumphouse. The caustic soda is injected directly into the dedicated chlorine line feeding the Baker Hill reservoir. The tank was installed in 2000.

The MSDS for caustic soda is included in Appendix B.

1.3.3 Diesel Fuel

There is a 200 kW generator with a 300 gallon capacity diesel fuel tank. This tank is filled annually by the City of Yelm. The generator and fuel tank are located to the northeast of the wells on a concrete pad with a 6-inch curb.

The MSDS for diesel fuel is included in Appendix B.

1.3.4 Miscellaneous

Small amounts of oils, lubricants, cleaning fluid, and paint are stored within the buildings at the well site.

1.3.5 Hazardous Material from Vehicle Accident on Roadway

The wells are located within 100 feet of a public roadway, which could be a potential source of contamination. The spill prevention and response measures below include tasks that would address this type of spill.

1.4 Spill History

To date, there have been no known spills at the well site.

1.5 Spill Prevention

1.5.1 Spill Treatment and Containment Equipment

Spill kits will be located at the well site. These spill kits will include a 55 gallon drum with lid, 50 sorbent pads, 12 socks, 5 sorbent pillows, 1 pair of goggles, at least 1 pair of gloves, and disposable bags.

In order to be able to promptly and properly respond to a spill, the City of Yelm maintenance vehicles driven by public works staff are equipped with the following:

- A copy of the most current *Spill Prevention/Response Plan*.
- A cell phone or radio.
- Gloves and boots.
- Reflective traffic cones.
- A shovel.

1.5.2 Secondary Containment

There is a floor drain in the Caustic Soda Building that will convey any spills to a STEP tank. In the event of a spill the STEP tank pump should be turned off and the tank should be pumped out. The caustic soda tank is also within a building with a concrete foundation and 24" concrete stem wall. In the event of a spill to the sewer system, the treatment plant needs to be notified.

The generator fuel tank is mounted on a concrete foundation with a 6-inch concrete curb for spill containment.

1.5.3 Discharge Prevention Measures

Chlorine gas:

- The storage tank is visually inspected weekly.
- Leak detection testing is performed prior to introduction of chlorine into system, and after any maintenance or modifications to the system.
- The atmospheric monitoring equipment and audible alarms are inspected weekly.
- An employee is present when the chlorine gas is delivered, no work with chlorine gas shall be performed alone.
- Valves are closed after delivery and/or transfer.
- Caps are closed securely on empty vessels.
- Cylinders are handled properly with a hand truck to insure they do not drag, roll, slide or drop during handling. Cylinders are never lifted by their caps.
- Cylinders are secure at all times while in use.
- Once cylinder has been connected, valves are opened slowly and carefully. Forced freeing of “frozen” or corroded valves is not attempted.
- Regulators and valves are kept free of moisture. System shall be purged with dry inert gas (helium or nitrogen) before chlorine gas is introduced and when system is out of service.
- Offline cylinders are stored upright at the Sewer Treatment Plant with valve outlet seals and valve protection caps in place. Cylinders are stored in a well ventilated, secure area protected from the weather away from heavily traveled areas and emergency exits. The cylinder that is in use is secured to a weigh scale with chains.

Caustic soda:

- The storage tank is visually inspected weekly.
- An employee is present when the caustic soda is delivered.
- Valves are closed after delivery and/or transfer.
- Caps are closed securely on empty vessels.

Diesel fuel in generator:

- The fuel tank is visually inspected weekly.
- An employee is present when the diesel tank is filled.
- The truck driver will visually examine the discharge valve on the truck and delivery hose to determine that they are both in good condition prior to the transfer of fuel.
- After tank has been filled, tank opening is securely closed.

1.6 Spill Response Procedures

Contact numbers of Public Works Director and local, state and federal agencies are listed in Appendix C – List of Contacts.

In the event of a spill, the following measures may should be taken. If the spill threatens or directly impacts the wells, refer to the City’s Emergency Response Plan for procedures to be taken, including testing requirements and notifications.

First on Scene

- If spill has or could result in an emergency situation dial 911.
- Stop leaks if possible (turn off all ignition sources).
- Safely exit roadway and vehicle if possible.
- Evacuate immediate area, if necessary.
- In the event of skin contact, immediately wash with soap and water and remove contaminated clothing.
- In the event of eye contact, immediately wash with water for 15 minutes and call 911 for medical attention.
- If noxious gases are inhaled, move into an area with fresh air and call 911 for medical attention.
- Place reflective traffic cones/flare along roadway leading up to spill if necessary.
- Notify Public Works Director who will determine notification requirements

Contain the Spill

- Use spill kits to contain the spill.
- Construct a terrace dam or ditch to stop the flow of spill material.
- Scatter adsorbent material, or use hydrated lime if spill poses a risk to public or environmental health or is odorous
- Contact local agencies/contractors for assistance as necessary.

Determine Notification Requirements

- Public Works Director will gather information required for notification and spill reporting requirements from Department of Ecology Spill Response Team.
- If the spill is on a state or interstate roadway and may obstruct traffic for an extended period, contact the appropriate Department of Transportation regional office.
- Contact the appropriate staff at Thurston County Health Department.
- If a spill may have affected natural resources other than fish or wildlife, contact the appropriate Department of Natural Resources regional office.
- If a spill may have affected fish or wildlife, contact the appropriate Department of Fish and Wildlife regional office.
- If the spill has entered the sewer system, notify the treatment plant operations staff.

Spill Cleanup

- Recover spilled material with the use of adsorbent material until all recoverable material is recovered.

- Continue placing adsorbing material until all the spill material is controlled and can be removed from ground surface.
- Remove all adsorbent materials and dispose of properly in accordance guidelines below.
- Pump out and clean secondary containment if applicable.
- If the spill is large, contact a local excavation or pumping company to excavate or pump material and place in a storage container.
- If the spill is small, use a shovel to remove material and place into a storage container to contain.
- For caustic soda, after recovering as much caustic material as possible, add water and neutralize the remaining caustic material with dilute hydrochloric acid, citric acid, or another solid acidic material to a pH between 6 and 9. Collect neutralized caustic with a dry sorbent. Flush residual neutralized waste to the drain with excess water.

Storage and Treatment of Release Materials

- Contain the contaminated materials.
- Place in 55 gallon containers or other containers for temporary storage.
- The containers will be labeled by personnel with type of waste and date of accumulation.
- Store waste until arrangements for transport are made for final disposition at an approved disposal facility.

Disposal

- All materials and spill cleanup debris will be contained and disposed of at a permitted disposal facility. Disposal will be coordinated by Public Works Director.

Post Emergency Maintenance

- After the spilled material is cleaned up, the Public Works Director will ensure that all emergency equipment used during emergency incidents is cleaned and/or replaced if necessary.

Reporting

- Public Works Director will prepare and submit all required reports of the release and emergency response action to appropriate agencies. See Appendix B – Contacts.

Figure 1. City of Yelm Water System

Legend

- City of Yelm
- Urban Growth Area
- Active Source
- Future Source
- Inactive Source Available for Emergency Use
- Existing Active Tanks

Existing Water System

Pipe Diameter

- 2"
- 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- 16"

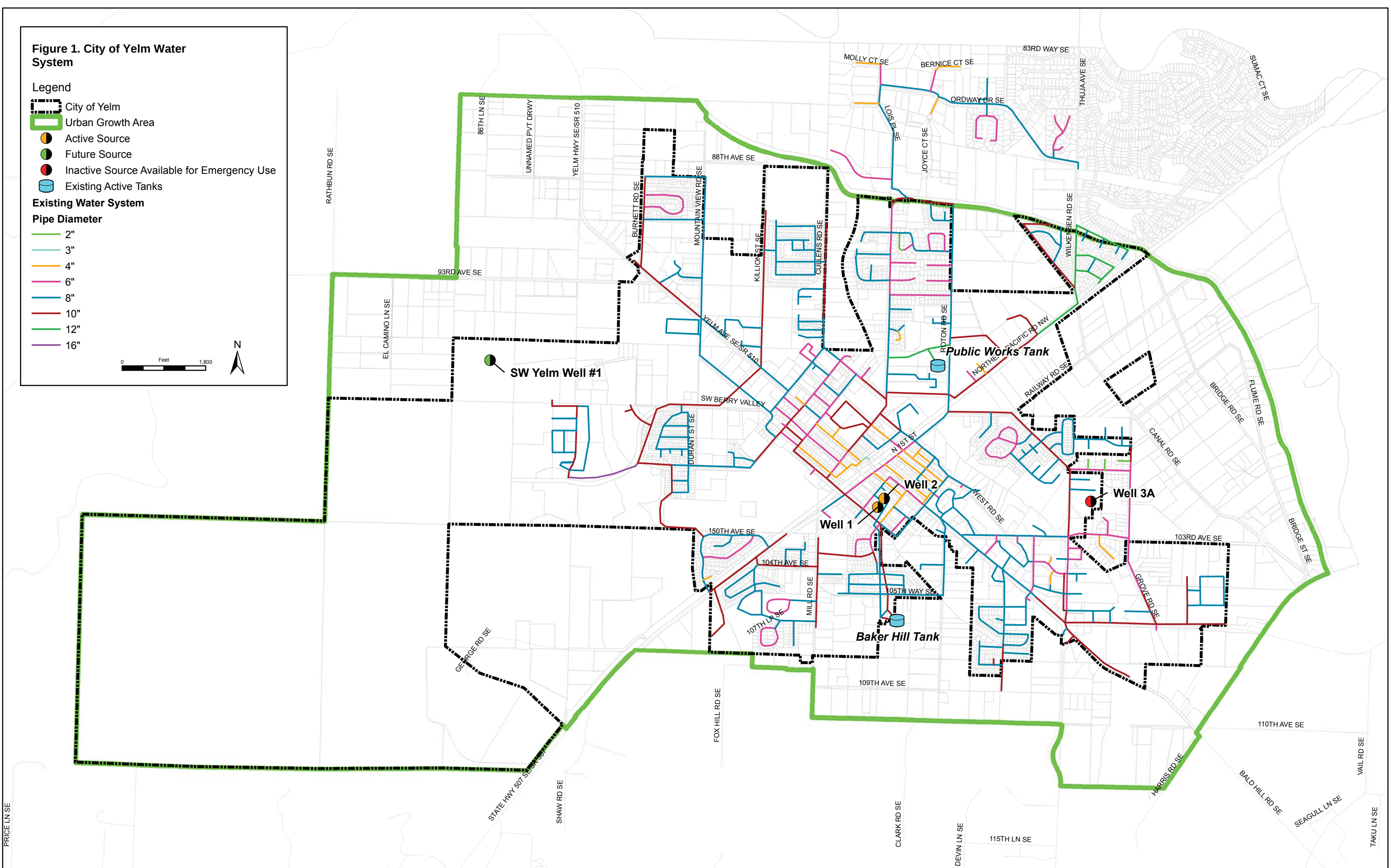
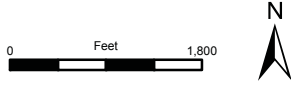




Figure 2: Well #2 Pumphouse



Figure 3: Well #1A Pumphouse



Figure 4: Well #1 Pumphouse/Storage Building

Annual Review Form

Appendix A – Annual Review Form

[illegible]

APPENDIX B

Material Safety Data Sheets



MATERIAL SAFETY DATA SHEET (CHLORINE)

I. PRODUCT IDENTIFICATION

Chemical Name : Chlorine
Trade Name : Liquid Chlorine
Synonyms : Liquefied chlorine gas, chlorine gas, chlor,
Molecular chlorine, diatomic chlorine, Cl

II. COMPOSITION / INGREDIENTS

Liquid Chlorine, % : 99.99 % by volume
Chemical Formula : Cl_2
Molecular Weight : 70.90 g/mole
CAS Registry No. : 7782-50-5

III. HAZARDS IDENTIFICATION

EXPOSURE TO THIS PRODUCT IS :

Highly toxic agent via inhalation and ingestion. Primarily an intense respiratory irritant and a major potential hazard upon contact to skin and eyes. Sufficient concentration of the gas irritates the mucous membranes. It can cause pulmonary edema. Liquid chlorine in contact with skin will cause frostbite, smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure. Vapors will cause severe irritation of eyes and throat and can cause eye and lung injury. Vapors cannot be tolerated even at low concentrations. In extreme cases, difficulty of breathing may increase to the point where death can occur from suffocation. The characteristic, penetrating odor of chlorine gas gives warning of its presence in the air.

IV. FIRST AID MEASURES

GENERAL:

Prompt treatment of anyone overcome or seriously exposed to chlorine, is of utmost importance. The patient should be removed from contaminated area. Obtain medical assistance as soon as possible.

CONTACT WITH SKIN OR MUCOUS MEMBRANES: Immediately wash contaminated skin and clothing with copious amounts of water for a minimum of 15 minutes. Contaminated clothing should be removed under the shower and the chlorine should be washed off with very large quantities of water. Skin areas should be washed with large quantities of soap and water. Never attempt to neutralize chlorine with chemicals. Salves and ointment should not be applied unless directed by a physician. Call or see a physician. (If victim has also inhaled chlorine, first aid for inhalation should be given first).

CONTACT WITH EYES: Immediately flush eyes with large amount of running water for at least 15 minutes even if minute quantities of liquid chlorine enter the eyes. Never attempt to neutralize with chemicals. The eyelids should be held apart during this period to ensure contact of water with accessible tissues of the eyes and lids. Call a physician, preferably and eye specialist, at once. If physician is not immediately available, the eye irrigation should be continued for a second period of 15 minutes. No oils or oily ointments, or any medications should be instilled unless ordered by the physician.

INHALATION: Remove victim from source of exposure. If breathing has not ceased, the patient should be placed in a comfortable position and be kept warm and remain at rest until medical help arrives. If breathing stops, administer artificial respiration. If available, oxygen should be administered. Call a physician.

INGESTION: Not pertinent, ingestion unlikely (chlorine is a gas above -34.5°C).

V. FIRE FIGHTING MEASURES

Autoignition Point : Not Applicable

Flash Point : Not Flammable

Flammability/Explosive limits : Not Flammable

Fire/Explosion Hazards: Toxic products are generated when combustibles burn with chlorine, although gas is not flammable.

Fire Prevention/ Extinguishing Media : Not Applicable

VI. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR RELEASE :

Move people from the area. Move upwind. Avoid contact with acid. Stop leaks if safe to do so. Reposition container if this will reduce or stop leakage. If leak continues, remove leaking container from vehicle or move other materials from vehicle away from container. Never use water on a chlorine leak. Water will make the leak worst. If efforts to control leak fails, and the leakage continues, suitable provision should be available with all Chlorine from the leaking containers. Chlorine maybe absorbed in solution of caustic soda, soda ash or hydrated lime.



MATERIAL SAFETY DATA SHEET (CHLORINE)

VII. HANDLING AND STORAGE

Storage Requirements: Protect against physical damage.

Store outdoors or indoors in a well-ventilated, detached, or segregated area of noncombustible construction.

Incompatible Materials: Store away from heat. Separate from combustible, organic, or easily oxidizable materials and especially isolate from acetylene, ammonia, hydrogen, hydrocarbons, ether, turpentine, and finely divided metals.

Containers: 50Kg, 68Kg and 1 Ton cylinders

Use Instructions: Wear suitable protective clothing, gloves and eye/face protection. In case of insufficient ventilation, wear suitable respiratory equipment.

EMERGENCY PROCEDURE for all emergencies – Shut off vehicle engine and any electrical equipment. Move people from immediate area; keep upwind. Consider initial evacuation distance of 100 meters in all directions. Send messenger, notify fire brigade telling them location, material, quantity, UN number and emergency contact as well as condition of vehicles and damaged observed. Do not move vehicle if movement could cause spillage. Warn traffic.

VIII. EXPOSURE CONTROLS AND PROTECTION

Ventilation: Use only in well-ventilated areas.

Protective Equipment for the eyes and skin :

Splash proof and face shield goggles, disposable latex/ rubber apron, PVC rain suits, rubber boots with pant legs over boots.

Respiratory Protection Requirements: NIOSH/MSHA approved respirator should be used.

Precautionary Hygiene/health/control measures :

Chlorine is not a serious industrial hazard if workers are adequately instructed and supervised in proper means of handling it. Avoid contact with skin, eyes, and clothing. Do not breathe mist or vapor. Wash thoroughly after handling. Safety showers and eye wash fountains should be available in storage and handling area. Any protective clothing contaminated with hydrochloric acid should be removed immediately and thoroughly laundered before wearing again.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE	: Gas at normal condition, liquefied compressed gas (as shipped)
APPEARANCE	: Greenish yellow gas, amber liquid in pressured container
ODOR	: characteristic choking/ pungent
BOILING POINT	: -34 °C = -29 °F at 1 atmosphere
FREEZING POINT	: - 101°C = -150°F
SPECIFIC GRAVITY	: Liquid = 1.467 at 0°C, 1.424 at 15°C Vapor (Gas) = 2.4
CRITICAL PRESSURE	: 76.05 atm = 1118 psia
CRITICAL TEMPERATURE	: 144°C = 291°F
SOLUBILITY IN WATER	: slightly soluble

X. STABILITY AND REACTIVITY

Stability: Stable.

Hazardous polymerization will not occur.

Hazardous decomposition product: will not decompose.

Reactivity with water: Forms a corrosive solution. Weak solutions of hydrochloric acid and hypochlorous acids are formed. Highly corrosive in the presence of moisture.

Reactivity with metals: Reacts vigorously with most metals at high temperature. Copper may burn spontaneously.

Reactions with other elements: Unites with most elements under specific conditions. These reactions may be extremely rapid.

Reactions with Inorganic Compounds: Forms soda and lime bleaches (hypochlorites). Reacts with hydrogen sulfide, ammonia or ammonium compounds.

Reactions with Organic Compounds: May form chlorinated derivatives and hydrogen chloride.

XI. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: When a sufficient concentration of chlorine gas is present, it will irritate the mucous membranes, the respiratory system and the skin. Large amounts cause irritation of eyes, coughing and labored breathing. If the duration of exposure or the concentration of chlorine is excessive, general excitement of the person affected, accompanied by restlessness, throat irritation, and sneezing and copious salivation results. The symptoms of exposure to high concentrations are retching and vomiting, followed by difficult breathing. Chlorine produces no systemic effect. All symptoms and signs result directly or indirectly from the local irritant action.

CHRONIC TOXICITY: Low concentrations of chlorine gas in the air may have a minor irritating effect or may produce slight symptoms after several hours exposure, but careful examination of persons repeatedly exposed to such conditions reportedly have shown no chronic effect.

Reproductive Effects/Cancer Information: No data available

XII. ECOLOGICAL INFORMATION

ECOTOXICITY DATA: Combination of chlorine with ammonia, organic matter, and cyanide maybe detrimental to fish life.

WATER-POLLUTION RISK CLASSIFICATION: Harmful to aquatic life in very low concentrations

XIII. DISPOSAL CONSIDERATIONS

Add to large volume of concentrated reducer (hypo, a bisulfite, or a ferrous salt and acidify with 3M H₂SO₄). When reduction is complete, add soda ash or dilute HCl to neutralize.

Dispose of in accordance with all Government and Local regulations regarding health and safety.



MATERIAL SAFETY DATA SHEET (CHLORINE)

XIV. TRANSPORT INFORMATION

Transportation of Dangerous Goods

TDG Classification: Do not ship by air.

DOT Hazard Classification: Nonflammable gas;

Label : Nonflammable gas and poison

DOT Shipping Name : Liquefied Chlorine Gas ID: UN 1017

XV. REGULATORY INFORMATION

No data available

XVI. OTHER INFORMATION

References:

1. Manufacturing Chemists' Association, 1825 Connecticut Avenue, N.W. Washington, D.C. 20009
Chemical Safety Data Sheet No. SD 80 "Chlorine" (1970)
2. Dangerous Properties of Industrial Material Report, Vol. 9, No. 4, 1989 "Chlorine"
3. "Chlorine Manual" Mabuhay Vinyl Corporation, Iligan City

THE INFORMATION CONTAINED HEREIN IS PRESENTED IN GOOD FAITH AND BELIEVED TO BE CORRECT AS OF THE DATE OF ISSUE. HOWEVER, NO WARRANTY, EXPRESS OR IMPLIED IS GIVEN BY MABUHAY VINYL CORPORATION REGARDING THE USE OF THIS MATERIAL SAFETY DATA SHEET (MSDS) .



MATERIAL SAFETY DATA SHEET (CAUSTIC SODA)

I. PRODUCT IDENTIFICATION

Chemical Name : Sodium Hydroxide
Trade Name : Caustic Soda, 50 %
Synonyms : Liquid Caustic Soda, Caustic,
Soda Lye, Lye Solution

II. COMPOSITION / INGREDIENTS

Sodium Hydroxide, % : 48 – 52 % by weight
Chemical Formula : NaOH
Molecular Weight : 40 g/mole
CAS Registry No. : 1310-73-2

III. HAZARDS IDENTIFICATION

THIS PRODUCT MAY BE : corrosive, toxic and a major potential hazard upon contact to skin and eyes.

TOXICITY ROUTES OF EXPOSURE : Ingestion can cause severe burning and pain in lips, mouth, tongue, throat and stomach. Death can result from ingestion.

OVEREXPOSURE : Causes burns and scarring.
Can cause serious damage to all body tissues contacted.

CANCER INFORMATION : Not applicable

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Chronic eye or skin conditions

IV. FIRST AID MEASURES

SKIN : Remove contaminated clothing and immediately wash skin for a minimum of 15 minutes. Call or see a physician.

EYES : Immediately flush eyes with large amount of water, occasionally lifting the upper and lower eyelids and rotating the eyeballs. Continue flushing for a minimum of 15 minutes. See a physician.

INHALATION : Remove to fresh air. If breathing stops, administer artificial respiration. See a physician.

INGESTION : DO NOT induce vomiting. If person is conscious, give 2 or more glasses of water. If unconscious, never give anything by mouth. See a physician immediately.

V. FIRE FIGHTING MEASURES

Autoignition Point : Not Applicable

Flammability/Explosive limits : Not Applicable

Fire/Explosion Hazards: Contact with strong acids may generate enough heat to ignite combustibles.

Fire Prevention : Not Applicable

VI. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR RELEASE : Completely contain spilled material with dikes, sandbags, etc., and prevent run off into the ground or surface waters or sewers. Recover as much caustic material as possible into containers for disposal. Add water and neutralize remaining caustic material with dilute hydrochloric acid, citric acid or another solid acidic material to a pH between 6 and 9. Collect neutralized caustic with a dry sorbent. Flush residual neutralized waste to the drain with excess water.

VII. HANDLING AND STORAGE

Storage Requirements: Keep container tightly closed.

FOR SMALL VOLUMES : Maybe stored in plastic jugs.

FOR LARGE VOLUMES ; Store in steel storage tanks.

INCOMPATIBLE MATERIALS : Store away from acids.
(Refer to Section X)

VIII. EXPOSURE CONTROLS AND PROTECTION

Adequate ventilation needed. TLV C : 2 mg/m³

Protective Equipment for the eyes and skin :

Goggles, respirator, disposable latex/ rubber apron,
PVC rain suit, rubber boots with pant legs over boots.

Precautionary Hygiene/control measures :

Avoid contact with skin, eyes, and clothing.

Do not breathe mist or vapor. Wash thoroughly after handling. Safety showers and eye wash fountains should be available in storage and handling area.

IX. PHYSICAL AND CHEMICAL PROPERTIES

STATE : liquid

APPEARANCE : colorless or slightly turbid

ODOR : Irritating

pH : Strong base >14

BOILING POINT : 145 °C for ~50% NaOH Solution

FLASH POINT ; Not determined

SPECIFIC GRAVITY : 1.51-1.54

VAPOR PRESSURE : ~6.3 mm Hg @ 40°C

SOLUBILITY IN : WATER: miscible, ACID : miscible



MATERIAL SAFETY DATA SHEET (CAUSTIC SODA)

X. STABILITY AND REACTIVITY

Stable under normal handling conditions. Materials and conditions to avoid (incompatibility) are:

- Chlorinated hydrocarbons, acetaldehyde, acrolein, aluminum, chlorine trifluoride, hydroquinone, maleic anhydride, and phosphorous pentoxide.
- Dilution with water evolves large quantity of heat.

Hazardous decomposition & combustion product = none
Hazardous polymerization will not occur.

XI. TOXICOLOGICAL INFORMATION

Effects from skin contact – Contact with skin can cause severe burns with deep ulcerations. Contact with solution or mist can cause multiple burns with temporary loss of hair at burn site.

Effects from eye contact – Liquid in the eye can cause severe destruction and blindness. These effects can occur rapidly affecting all parts of the eye. Mist can cause irritation with high concentration causing destructive burns.

XII. ECOLOGICAL INFORMATION

ECOTOXICITY DATA : High basicity may pose potential hazard to plant and marine life.

XIII. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all Government and Local regulations.

XIV. TRANSPORT INFORMATION

Transportation of Dangerous Goods

TDG Classification: Do not ship by air.

DOT Hazard Classification: Class 8 : Corrosive

DOT Shipping Name : Sodium Hydroxide ID: UN1824

XV. REGULATORY INFORMATION

No data available

XVI. OTHER INFORMATION

This MSDS contains information under the sixteen (16) section headings written in accordance with the International Standard ISO 11014 "Safety Data Sheet for Chemical Products".

THE INFORMATION CONTAINED HEREIN IS PRESENTED IN GOOD FAITH AND BELIEVED TO BE CORRECT AS OF THE DATE ISSUED. HOWEVER, NO WARRANTY, EXPRESSED OR IMPLIED, IS GIVEN BY MABUHAY VINYL CORPORATION REGARDING THE USE OF THIS MATERIAL SAFETY DATA SHEET (MSDS).



MATERIAL SAFETY DATA SHEET

Diesel Fuel (All Types)

MSDS No. 9909

EMERGENCY OVERVIEW

CAUTION!

**OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED**

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer. If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).



NFPA 704 (Section 16)

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**

COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000

MSDS INTERNET WEBSITE: www.hess.com (See Environment, Health, Safety & Social Responsibility)

SYNONYMS: Ultra Low Sulfur Diesel (ULSD); Low Sulfur Diesel; Motor Vehicle Diesel Fuel; Diesel Fuel #2; Dyed Diesel Fuel; Non-Road, Locomotive and Marine Diesel Fuel; Tax-exempt Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Diesel fuel may be dyed (red) for tax purposes. May contain a multifunctional additive.

3. HAZARDS IDENTIFICATION

EYES

Contact with liquid or vapor may cause mild irritation.

SKIN

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.



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INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.



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LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Diesel fuel, and in particular low and ultra low sulfur diesel fuel, has the capability of accumulating a static electrical charge of sufficient energy to cause a fire/explosion in the presence of lower flashpoint products such as gasoline. The accumulation of such a static charge occurs as the diesel flows through pipelines, filters, nozzles and various work tasks such as tank/container filling, splash loading, tank cleaning; product sampling; tank gauging; cleaning, mixing, vacuum truck operations, switch loading, and product agitation. There is a greater potential for static charge accumulation in cold temperature, low humidity conditions.

Documents such as 29 CFR OSHA 1910.106 "Flammable and Combustible Liquids, NFPA 77 Recommended Practice on Static Electricity, API 2003 "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and ASTM D4865 "Standard Guide for Generation and Dissipation of Static



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Electricity in Petroleum Fuel Systems" address special precautions and design requirements involving loading rates, grounding, bonding, filter installation, conductivity additives and especially the hazards associated with "switch loading." ["Switch Loading" is when a higher flash point product (such as diesel) is loaded into tanks previously containing a low flash point product (such as gasoline) and the electrical charge generated during loading of the diesel results in a static ignition of the vapor from the previous cargo (gasoline).]

Note: When conductivity additives are used or are necessary the product should achieve 25 picosiemens/meter or greater at the handling temperature.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Components (CAS No.)	Source	<u>Exposure Limits</u>		Note
		TWA/STEL		
Diesel Fuel: (68476-34-6)	OSHA	5 mg/m, as mineral oil mist		
	ACGIH	100 mg/m ³ (as totally hydrocarbon vapor) TWA		A3, skin
Naphthalene (91-20-3)	OSHA	10 ppm TWA		
	ACGIH	10 ppm TWA / 15 ppm STEL		A4, Skin

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.



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RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

Clear, straw-yellow liquid. Dyed fuel oil will be red or reddish-colored.

ODOR

Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE: 320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE: 0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1): > 1.0
SPECIFIC GRAVITY (H₂O = 1): 0.83 to 0.88 @ 60 °F (16 °C)
PERCENT VOLATILES: 100 %
EVAPORATION RATE: Slow; varies with conditions
SOLUBILITY (H₂O): Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ®; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute dermal LD50 (rabbits): > 5 ml/kg Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits) Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)

This material has been positive in a mutagenicity study.



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12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3, PG III	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic)	
	UN 1202 (International)	
DOT SHIPPING LABEL:	None	



Use Combustible Placard if shipping in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>Date Listed</u>
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)

**MATERIAL SAFETY DATA SHEET****Diesel Fuel (All Types)****MSDS No. 9909****16. OTHER INFORMATION**

NFPA® HAZARD RATING HEALTH: 0
FIRE: 2
REACTIVITY: 0

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

HMIS® HAZARD RATING HEALTH: 1 * * Chronic
FIRE: 2
PHYSICAL: 0

SUPERSEDES MSDS DATED: 02/28/2001

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
ANSI	American National Standards Institute (212) 642-4900	OSHA	U.S. Occupational Safety & Health Administration
API	American Petroleum Institute (202) 682-8000	PEL	Permissible Exposure Limit (OSHA)
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]	REL	Recommended Exposure Limit (NIOSH)
EPA	U.S. Environmental Protection Agency	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
HMIS	Hazardous Materials Information System	SCBA	Self-Contained Breathing Apparatus
IARC	International Agency For Research On Cancer	SPCC	Spill Prevention, Control, and Countermeasures
MSHA	Mine Safety and Health Administration	STEL	Short-Term Exposure Limit (generally 15 minutes)
NFPA	National Fire Protection Association (617)770-3000	TLV	Threshold Limit Value (ACGIH)
NIOSH	National Institute of Occupational Safety and Health	TSCA	Toxic Substances Control Act
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	TWA	Time Weighted Average (8 hr.)
		WEEL	Workplace Environmental Exposure Level (AIHA)
		WHMIS	Canadian Workplace Hazardous Materials Information System

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

APPENDIX C

Contacts

Appendix C - Contacts

Contact	Title	Daytime Number	Night Number
Tim Peterson	City of Yelm Emergency Coordinator/Public Works Director	360-458-8499	360-894-2698
Kevin Ray	City of Yelm Public Works Field Supervisor/Cross-Connection Control Specialist	360-458-8406	360-789-2722
Edward "Smitty" Smith	City of Yelm Lead Water System Operator	360-458-8406	360-446-7278
John Ivey	City of Yelm Water System Operator	360-458-8406	360-250-9543
Timothy Rarick	City of Yelm Water System Operator	360-458-8406	360-894-1272
Yelm Police Department		911	911
S.E. Thurston Fire Department		911	911
Ambulance Service		911	911
Thurston County Department of Health		360-867-2500	911
WA Department of Health Drinking Water Division		360-664-0768	877-481-4901
SW Region Office of Ecology		360-407-6300	360-407-6300
National Spill Response Center		800-424-8802	800-424-8802
Washington Emergency Management Division		800-258-5990	800-258-5990
Department of Ecology Spill Response Team		360-407-6300	
Department of Transportation		360-357-2600	
Department of Natural Resources		206-440-4000	
Department of Fish and Wildlife		360-696-6211	