ENSR INTERNATIONAL

Letter of Transmittal

ATTENTION:

Ms Krystal Rodriguez
Washington Department of Ecology
15 West Yakima Avenue, Suite 200
Yakima, WA 98902-3401

DATE:

4/21/05

PROJECT REFERENCE:

Former Unocal Bulk Fuel Terminal #0082,
Chelan, WA

PROJECT NUMBER:

06940 248

WE ARE SENDING YOU THE FOLLOWING:

Number of Originals	Number of Copies	Description
	1	Residual Soil Excavation – Excavation Execution Plan

REMARKS:

The final excavation plan is enclosed for your information. It does not include the changes we discussed in the confirmational sampling. We will take, as a minimum, two floor samples and 5 sidewall samples for final confirmation.

SIGNATURE:

James Borthen
Chelan Project Manager

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ENSR Corporation
Redmond, Washington

Residual Soil Excavation

Excavation Execution Plan

Former Unocal Bulk Plant #0082
Chelan, Washington

April 2005
Project Number 06940248-3

ENSR Corporation
Redmond, Washington

Residual Soil Excavation

Excavation Execution Plan

Former Unocal Bulk Plant #0082
Chelan, Washington

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April 2005
Document Number 06940248-3

CONTENTS

CONTENTS (Cont'd)

LIST OF TABLES

LIST OF FIGURES

1.0 PROJECT OBJECTIVES

The Washington State Department of Ecology (DOE) has identified several areas of concern at the former Unocal Bulk Plant #0082 located near Chelan, Washington. These have been summarized in Appendix C of this document. DOE listed four objectives that need to be met in order for this site to receive a "No Further Action" determination. These objectives are:

1 Address residual soil contamination at the site.

2 Provide additional information regarding Excavations #1, #2, and #3 (See Appendix B for details on existing site conditions).

3 Collect four consecutive quarters of groundwater samples with contaminant levels below MTCA Method A levels.

4 Fully characterize the soil at the site, in particular, in the following areas (See Figure 3):

a) Beneath the former truck unloaders (NE of TP-6)
b) Beneath the former oil/water separator
c) Beneath the fill drain ports of the former ASTs
d) Beneath the former catch basin
e) Beneath the joints/elbows of above and below ground product lines

Soil boring work conducted in February 2005 determined that Excavations #2, #4, #5, and #6 are within compliance with regulatory limits. The soil boring work also confirmed the existence of contaminated soils in the area of Excavation #1. These soils will be removed during the excavation phase of work covered under this document.

Excavation #3 will also require investigation during this excavation phase of work.

Subsequent to this work effort, groundwater samples will be collected in order to address item 3 above.

2.0 PROJECT SETUP

2.1 Pre-Construction Site Meeting

On the first day of operations, scheduled for Monday April 25, 2005, there will be a pre-construction site meeting. Representatives of the excavation contractor (CCS) and ENSR will meet to discuss the following:

Site safety issues
Logistics of moving trucks through the site
Work hours
Other scheduling issues
Site layout and location of stockpiling areas

2.2 Excavation Plan

CCS will present the ENSR representative with an excavation plan signed and stamped by a Washington State licensed geotechnical engineer. The plan will be presented to the ENSR representative before site work can be commence.

2.3 Health and Safety Plan

A site-specific and operations specific (excavation) Health and Safety Plan has been prepared by ENSR based upon requirements of the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). This HASP will be presented and reviewed with all contractors prior to beginning field work and will be signed and maintained in the project file, along with all other project health and safety documentation.

2.4 Modify Existing Fence

There is a cyclone fence surrounding the site. It is assumed that CCS will open portions of the fence in order to move dump trucks through the site. In particular, CCS my want to open the west side of the fence at the northwest corner. Similarly, CCS may open the northeast corner. This will allow trucks to move through the site without performing a turn around on site.

At the end of operations each day the fence shall be closed to provide site security. At the end of the project the fence will be restored to its original condition.

2.5 Lab Setup

An on-site mobile laboratory will be used for analytical services. The laboratory will be located just to the east of the site on a dirt road. Samples will be analyzed for gasoline, diesel, oil, and BTEX.

The mobile laboratory will be on site by 1:00 PM on Monday.

2.6 Site Layout

CCS shall establish areas for stockpiling clean soils, equipment staging areas, truck loading area, and decontamination facilities.

3.0 EXCAVATION

3.1 Primary Excavation Objective

The initial objective of this work is to excavate soils in the areas immediately surrounding wells MW-1 and MW-5 (monitoring wells MW-1, MW-4, and MW-5 have been abandoned). As described in Appendix B, these areas have the highest concentrations of contaminated soils remaining in place, and represent an area where groundwater is impacted by surrounding soils. It appears that the groundwater will not meet MTCA regulations as long as these contaminated soils remain in place. Therefore, removal of the soils in this area is the primary objective.

At a minimum, the area surrounding MW-1 will need to be excavated to a depth below surface of 15 feet of greater, and the area surrounding MW-5 will need to be excavated to a depth below surface of 20 feet or greater. These are the depths at which the existence of contamination was confirmed when the wells were installed.

Recent soil borings (February 2005, Figure 2) have provided analytical data Table 2) that helps define the lateral extents of the contaminated soils. This data, as well as other historical soil analytical data, are shown in Figure 3. Also shown in Figure 3 is an area which represents an estimate of soils in place at the 20' of depth bgs level that may exceed MTCA Method A soil cleanup regulations. This approximate area is the target zone for the primary excavation objective. Within that area contaminated soils may start at a depth of 5 to 15 feet and may extend to a depth of 25 to 30 feet bgs. This is particularly true in the area near MW-5.

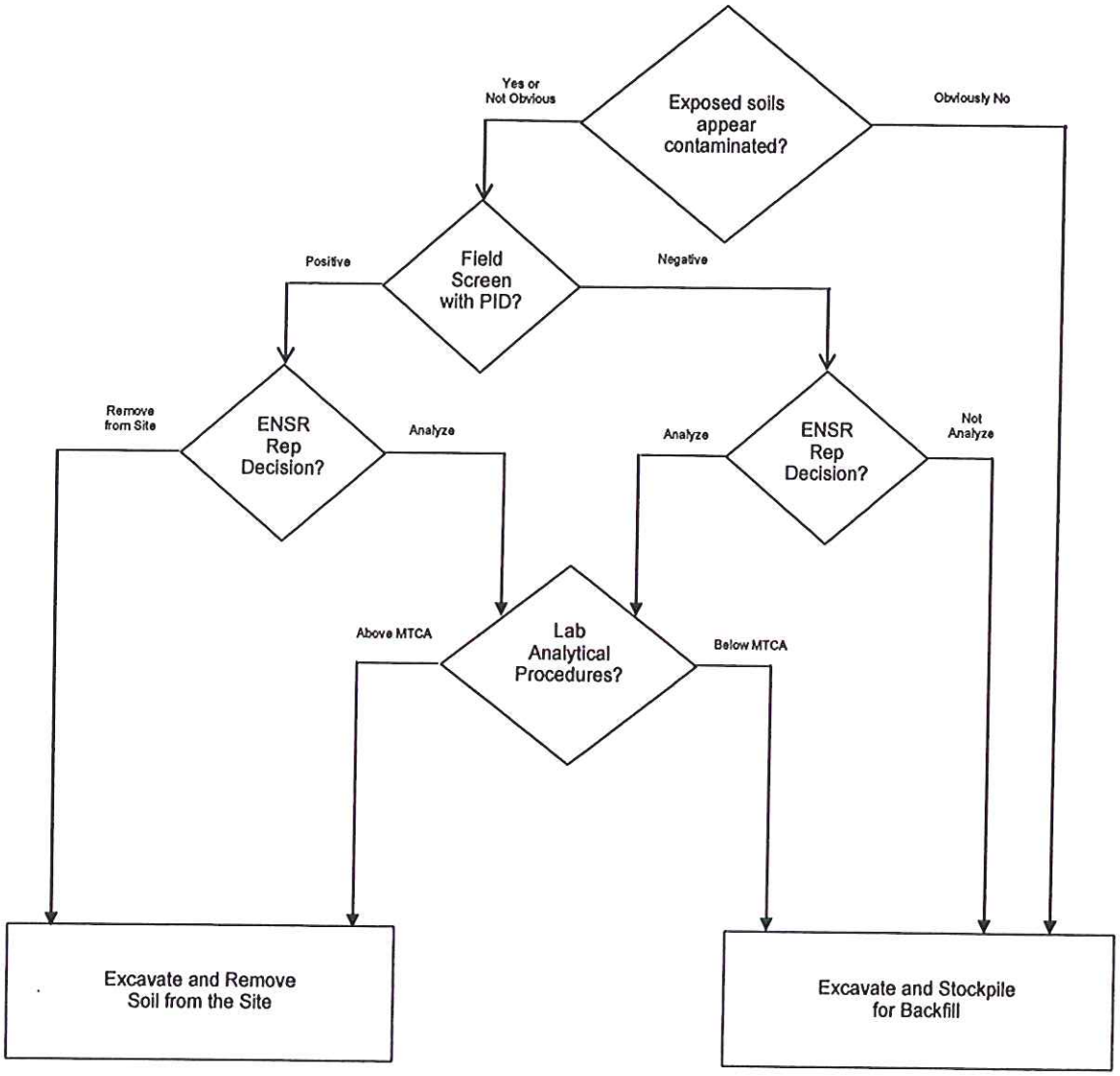
Outside of this target zone contaminated soils may extend in lateral directions. These soils will need to be explored and removed until sidewall samples and floor samples confirm that all soils that exceed cleanup regulations have been removed.

3.1.1 Primary Excavation Procedures

Excavations #1, #2, #3, #4, #5, and #6, shown in Figure 3 represent excavations performed on site during earlier site assessment work. Excavation #1 is within the Primary Excavation target zone. This area was excavated to a depth of approximately 14 feet, and back filled with clean material. This backfill material shall be excavated until native soils are encountered. Other surrounding surface soils that are field tested to be clean shall be removed from the immediate area. These backfill materials and other clean over burden soils that are removed shall be stock piled temporarily for later re-use as backfill.

When native soils or possibly contaminated soils are encountered, excavation will proceed carefully. Table 1 (below) is a decision tree that represents the logic flow that will be used by the ENSR representative for the examination and excavation of soils. It is important that all contaminated soils above MTCA Method A soil levels be excavated to their furthest extents.

Table 1
Soil Analysis Decision Tree



3.2 Secondary Excavation Objective

The secondary objective of the excavation phase is to explore the area of Excavation #3 for the presence of contaminated soils.

As described in Appendix B, contaminated soils were identified in test pit TP-1(1989) at a depth of 11' and a TPH concentration of 1,900. This analysis used EPA Method 418.1, which is a broad indicator of the presence of petroleum compounds and is not conclusive evidence of compliance with MTCA Cleanup regulations.

Excavation #3 went to a depth of 13'. However, floor samples were not collected from the excavation to confirm that all contaminated soils had been removed. This is particularly true in the area of TP-1(1989).

Therefore, test pit type excavations need to be conducted in the area of Excavation #3. One excavation should be located as close as possible to TP-1(1989), a second should be performed near the path of the former underground product lines. A third excavation may be performed based on the results of the first two. All of these excavations shall be advanced to a depth greater than 14' and conformational soil samples will be obtained.

3.2.1 Secondary Excavation Procedures

Excavation #3, shown in Figure 3, is within the area of interest for the secondary objective. This area was excavated, in previous site remediation efforts, to a depth of approximately 13 feet, and back filled with clean material. This back fill material and native surface soils shall be removed in test-pit size areas until possible contaminated soils are encountered. These back fill materials and other clean over burden soils that are removed shall be stock piled temporarily for later re-use as backfill.

The Table 1 decision tree will then be used for the examination and excavation of soils.

3.3 Additional Excavation

Additional excavation may be required based on the results of the excavation work described above.

3.4 Soil Stockpiling and Handling

Loading activities are to be conducted carefully to avoid damage to property and over spillage of TPH-containing soil from each truck.

CCS shall segregate excavated soils at the direction of the ENSR Site Representative into stockpiles for backfill, or loaded for transportation and disposal. A third option is to temporarily stock pile contaminated soils while awaiting a transfer truck. This stock pile shall be under lined with an impermeable barrior. The pile should be covered if left over night.

Each truck shall be loaded to comply with vehicle weight limits. After loading, the driver and a laborer shall remove loose, excess soil from the truck exterior with brooms/brushes. The loose soil shall be shoveled back onto the site by the laborer after the truck departs the site. The driver shall tarp the load to comply with transportation requirements for non-RCRA hazardous wastes.

The onsite ENSR representative will provide the truck driver with a signed, completed Bill of Lading for each load. The Contractor shall provide ENSR with a legible copy of each certified weigh ticket obtained one day after each certified weigh ticket is provided to the Contractor.

Until the confirmatory soil samples verify that site areas are free from TPH impacts, all vehicular and personnel access shall require decontamination prior to site departure. Soil handling equipment shall be kept onsite until no longer needed and then be decontaminated as described below, prior to departing the site. All personnel working on contaminated portions of the site shall also be decontaminated prior to departing the site.

The soil loading and off-haul schedule shall be dictated by CCS. CCS's site supervisor shall be responsible for the efficient arrival and departure of trucks to and from the site and to avoid trucks "stacking up" along nearby streets waiting to be loaded.

All vehicles used in the transportation of impacted soils shall be clean and in good repair at all times when so employed. The transporter shall not bring vehicles to the site that contain waste or waste residues from other sites. ENSR reserves the right to reject any truck that arrives at the site that is obviously not in good mechanical condition or exhibits soil residues from other sites. ENSR further reserves the right to reject and require equivalent replacement at no extra cost for rejected vehicles.

The Contractor shall retain responsibility for ensuring that all transportation-related releases of non-RCRA hazardous waste are remediated in accordance with the requirements of 40 CFR 263, to the satisfaction of all agencies with jurisdiction over the release site and ENSR.

3.5 Remedial Disposal

The impacted soils have been accepted for disposal to the Waste Management Wenatchee Landfill facility in Wenatchee, WA. Permit #269 has been received and is valid for up to 1,000 tons A copy is included in Appendix D.

3.6 Backfilling Operations

Stockpiled soils that test clean and are acceptable as back-filling materials should be used by the contractor to backfill excavations. Prior to backfilling and recompacting fill soils, an ASTM D1557 modified (5-point) compaction curve (providing maximum density and optimum moisture) test should be performed on soils stockpiled onsite and chemically tested as below the cleanup criteria, and soils imported from offsite sources. If more than one offsite source for backfill soils is imported onsite, then the above-mentioned compaction curve must be performed for each source.

A State-of-Washington licensed geotechnical subcontractor will be used to test the re-compacted soils using a nuclear density gauge to attain at least 90 percent relative compaction or a relative density consistent with City of Chelan requirements.

3.7 Excavation Sampling

Excavation sampling refers to sampling conducted during the excavation process. The analytical results obtained from these samples will be used to guide excavation efforts.

During excavation operations, the sampling will be performed by the ENSR Site Representative with the assistance of CCS. Soil samples collected will be placed in sample containers provided or approved by the laboratory. Samples shall be collected with the use of the excavator bucket and hand tools. Undisturbed soil from the center of the bucket shall be collected for samples using hand tools such as a stainless steel hand trowel or a sampling spoon. All samples shall be filled to the container rim to avoid headspace whenever possible. Collected soil samples will be extracted immediately for analysis onsite after collection.

Onsite analyses will be performed by ESN Northwest mobile laboratory units.

As a general rule, excavation soil samples will be collected at every 20 lineal feet along excavation sidewalls and excavation floor, or as indicated using field test equipment. Particular attention will be applied to the excavation floor. Field screening using a hand held PID will be used to provide initial guidance in excavation and soil removal. Sampling along the excavation walls will confirm complete removal or indicate areas for further excavation.

When all analysis indicates that no soils contaminated above MTCA Method A cleanup levels for soils are left in place across all sidewalls and the excavation floor, a final round of excavation sampling will be performed. This round of sampling will ensure that there are excavation samples every 20' (approximate) across the sidewalls and the excavation floor. As a minimum, 2 samples will be collected from each of 4 sidewalls, and 2 samples will be collected from the excavation floor. These samples will be analyzed on site.

3.8 Excavation Sampling Analytical Procedures

Excavation samples will be analyzed for total petroleum hydrocarbons as gasoline (method NWTPH-G), BTEX (method EPA 8021B), and total petroleum hydrocarbons as diesel and oil (method NWTPH-Dx with acid silica gel cleanup). Turn around times for a sample are expected to be approximately 1 hour.

3.9 Confirmational Sampling

When all excavation samples and analysis confirms the removal of all soils contaminated above MTCA Method A cleanup levels for soils, a round of Confirmational Sampling will be conducted. These samples will be collected and delivered to North Creek Analytical for analysis, and will serve to confirm the results obtained from the field laboratory.

Using the Washington State Department of Ecology's "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" (Revised October 1992) as a guide, one confimational sample will be collected from each of 4 side walls and one sampled collected from the excavation floor. This corresponds to the sampling pattern used for an excavation from which a single 20,000 gallon tank has been removed.

3.10 Confirmational Sampling Analytical Procedures

Each of the five confirmation samples will be analyzed by each of the following procedures:

Total petroleum hydrocarbons as gasoline (method NWTPH-G),
BTEX (method EPA 8021B)
Total petroleum hydrocarbons as diesel and oil (method NWTPH-Dx with acid silica gel cleanup).
Volatile organic compounds (EPA Method 8260B)
Polynuclear Aromatic Hydrocarbons (EPA Method 8270)
Lead, Chromium, Cadmium (EPA Method 6000 and 7000 series)
Polychlorinated Byphenols

4.0 SAFETY

The Contractor shall be solely and completely responsible for Project Site conditions and safety during the term of the Contract. This obligation shall include the safety of all persons within or affected by the line of construction and all private property affected by the work.

The Contractor shall prepare a site-specific Health and Safety Plan for review by the Site Representative prior to initiating the work.

The Contractor shall be fully responsible to comply with all federal OSHA and WA L&I regulations that apply to this Contract.

The Contractor's responsibility shall be continuous and not limited to working hours or days, and shall not cease until Client fully accepts the work. If Client partially accepts the work, the Contractor's responsibility for the portion of the work so accepted shall thereupon cease except for latent errors in the work or for faulty construction.

The Contractor shall be responsible for posting signs that comply with federal, state, and local agencies rules and requirements.

The Contractor shall give a "clear and reasonable warning" to its employees and the general public for any workplace or environmental exposure which results from its activities during the course of this project.

The Contractor shall be responsible for furnishing, erecting, and maintaining fences, barriers, lights, and signs as necessary for physical security, public safety, and safety of its workers. Temporary fencing or barricade shall be placed around the excavation area at the end of each workday during the course of the remediation project. The site perimeter fence must be maintained and locked at the end of each day.

Access to the site is difficult for larger vehicles due to the presence of the fence. It may be necessary to modify the fence during the excavation work. If this modification is done, then the fence shall be restored at the end of operations.

The Contractor shall store fuel, water, and equipment required for the work within the designated Contractor's Facilities Area or in the active construction areas approved by the Client.

APPENDIX A – TABLES AND FIGURES

Table 2
Soil Boring Sample Analytical Results
Former Unocal Bulk Fuel Terminal #0082
Chelan, Washington

Boring # (Depth)	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[c]
MTCA Method A mg/l	*0.03*	*7*	*6*	*9*	*100/30*	*2,000*	*2,000*
B1(3.5-4)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B1(8.5-9)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B1(13.5-14)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B1(18.5-20)	<0.0235	<0.0391	<0.0391	<0.0782	<3.91	<10.0	<25.0
B2(5-6.5)	<0.03	<0.05	<0.05	<0.10	**8.19**	**35.3**	**28.5**
B2(15-16.5)	<0.0427	<0.0712	<0.0712	<0.142	<7.12	**11.3**	<25.0
B2(20-21.5)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B2(25-26.5)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B3(15-16.5)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B3(20-21.5)	<0.0271	<0.0452	<0.0452	<0.0905	<4.52	<10.0	<25.0
B3(25-26.5)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B4(15-16.5)	<0.0269	<0.0448	<0.0448	<0.0897	<4.48	<10.0	<25.0
B4(20-21.5)	<0.0269	<0.0448	<0.0448	<0.0896	<4.48	<10.0	<25.0
B4(25-26.5)	<0.0248	<0.0413	<0.0413	<0.0826	<4.13	<10.0	<25.0
B5(10-11.5)	<0.03	<0.05	<0.05	**0.188**	**281**	**3,080**	**60.1**
B5(15-16.5)	<0.0250	<0.0416	**0.167**	**0.600**	**1,070**	**2,870**	**75.4**
B5(20-21.5)	<0.0247	<0.0412	**0.268**	**0.983**	**1,140**	**4,690**	**104**
B5(25-26.5)	<0.030	<0.050	**0.0769**	**0.143**	**373**	**2,260**	<125
B6(15-16.5)	<0.0267	<0.0444	<0.0444	<0.0889	**242**	**1,800**	<25.0
B6(20-21.5)	<0.0245	<0.0408	<0.0408	<0.0816	**378**	**7,370**	**58.6**
B6(25-26.5)	<0.0260	<0.0434	<0.0434	<0.0868	**30.8**	**86.7**	<25.0
B7(15-16.5)	<0.0300	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B7(20-21.5)	<0.0300	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B7(25-26.5)	<0.0249	<0.0415	<0.0415	<0.0828	<4.15	<10.0	<25.0
B8(15-16.5)	<0.0266	<0.0444	<0.0444	<0.0887	<4.44	<10.0	<25.0
B8(20-21.5)	<0.03	<0.05	<0.05	<0.10	<5.00	<10.0	<25.0
B8(25-26.5)	<0.0273	<0.0455	<0.0455	<0.0909	<4.55	<10.0	<25.0

NOTES:

[a] Analyzed by EPA Method 8021B.

[b] Gasoline range hydrcarbons analyzed by Ecology Northwest Method NWTPH-G.

[c] Diesel and oil range hydrcarbons analyzed by Ecology Northwest Method NWTPH-Dx.

MTCA Model Toxics Control Act

Bold analytical concentrations indicates a concentration greater than analytical reporting limits.

Gray shading represents concentrations greater than MTCA Method A levels for soil

All concentrations in mg/kg

TABLE 3
Soil Sample Analytical Results
Former Unocal Bulk Plant #0082
Highway 97 and East Street, Chelan, Washington
06940-248

	Date Collected	Depth	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[c]	TPH[d]
MTCA Method A Cleanup Levels[1]			*0.03*	*7*	*6*	*9*	*30/100*	*2,000*	*2,000*	
MW-1	11/30/1989	15	<0.025	0.046	0.22	2.6				4,600
		20	<0.025	0.029	0.079	0.83				1,300
MW-2	11/30/1989	15	<0.025	<0.025	<0.025	<0.025				6
MW-3	11/30/1989	15	<0.025	<0.025	<0.025	<0.025				19
TP-1[89]	12/4/1989	1	<0.13	1.1	<0.13	59				14,000
		11	<0.025	<0.025	<0.025	1.8				1,900
TP-2[89]	12/4/1989	5	<0.025	0.066	0.15	0.72				6,000
		11	<0.05	<0.025	<0.025	<0.025				590
TP-3[89]	12/4/1989	0	<0.025	<0.025	<0.025	<0.025				69,000
		3	<0.025	<0.025	<0.025	<0.025				160
WH-1	12/5/1989	0	--	--	--	--				150
MW-7	11/14/1992	26	<0.032	0.049	<0.032	<0.032	<6	<36		
		28.5	<0.032	0.04	<0.032	<0.032				
S-1	11/14/1992	1	<0.027	0.51	1.2	590	15,000	1,800		
MW-5	4/4/1991	20	1.4	2	4.3	14	1,200/4,000	7,000		6,600

	Date Collected	Depth	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Zylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[c]	TPH[d]
MTCA Method A Cleanup Levels[f]			*0.03*	*7*	*6*	*9*	*30/100*	*2,000*	*2,000*	
TP-1	8/29/1995	14	<0.05	<0.05	<0.05	<0.1	<1.0	<10	<25	
TP-2		10	<0.05	<0.05	<0.05	<0.1	<1.0	15		
		14	<0.05	<0.05	<0.05	<0.1	<1.0	<10	<25	
TP-3		12	<0.05	<0.05	<0.05	<0.1	<1.0	<10	<25	
TP-4		2	<0.05	<0.05	<0.05	<0.1	<1.0	50	73	
		6	<0.08	<0.08	<0.08	0.52	340	10,000	910	
		13.5	<0.05	<0.05	<0.05	<0.1	3.6	200	50	
TP-5		8	<0.05	<0.05	<0.05	<0.1	<1.0	41	40	
		13.5	<0.08	<0.9	<0.08	8.9	510	10,000	670	
TP-6		10	<0.05	<0.05	<0.05	<0.1	<1.0	13	27	
		14	<0.05	<0.05	<0.05	<0.1	<1.0	<10	28	
TP-7		6	<0.05	<0.05	<0.05	<0.1	14	<10	<25	
		14	<0.05	<0.05	<0.05	<0.1	11	<10	<25	
TP-8		10	<0.05	<0.05	<0.05	<0.1	32	37	29	
		12	<0.05	<0.05	<0.05	<0.1	44	33	120	
TP-9		10	<0.08	<0.08	<0.08	1.4	290	73	81	
		11	<0.05	<0.05	<0.05	<0.1	54	130	57	
TP-10		12	<0.05	<0.05	<0.05	<0.1	<1.0	<10	43	
TP-11	8/30/1995	6	<0.05	<0.05	<0.05	<0.1	<1.0	80	230	
TP-12		12	<0.05	<0.05	<0.05	<0.1	<1.0	<10	28	
TP-13		8	<0.05	<0.05	<0.05	<0.1	<1.0	<10	27	
TP-14		9	<0.05	<0.05	<0.05	<0.1	<1.0	<10	<25	
TP-15		12	<0.05	<0.05	<0.05	<0.1	<1.0	<10	<25	

	Date Collected	Depth	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[c]	TPH[d]
MTCA Method A Cleanup Levels[f]			*0.03*	*7*	*6*	*9*	*30/100*	*2,000*	*2,000*	
Excavation 1										
EX1-SW1-7.5-040'	4/30/2001	7.5						25.7	<25.0	
EX1-SW2-7.5-040'	4/30/2001	7.5						<10.0	<25.0	
EX1-F-11-0501	5/1/2001	11						<10.0	<25.0	
Excavation 2										
EX2-SW1-7.5-040'	4/30/2001	7.5						<10.0	<25.0	
EX2-SW2-7.5-040'	4/30/2001	7.5						1,660	330	
EX2-SW3-2.0-040'	4/30/2001	2						<10.0	<25.0	
EX2-SW2B-0501	5/1/2001	7						<10.0	<25.0	
Excavation 3										
EX3-SW1-7.5-040'	4/30/2001	7.5						325	<25.0	
EX3-SW2-7.5-040'	4/30/2001	7.5						<10.0	<25.0	
EX3-SW3-1.0-040'	4/30/2001	1						<10.0	<25.0	
EX3-SW1B-0501	5/1/2001	7						179	<25.0	
Excavation 4										
EX4-SW-0501	5/1/2001	0.5						92.3	129	
EX4-F-0501	5/1/2001	1						376	1,010	
EX4-FB-0501	5/1/2001	3						11.1	47.7	
Excavation 5										
EX5-SW-0501	5/1/2001	3.5						198	29.8	
EX5-SW2-0501	5/1/2001	3.5						<10.0	<25.0	
EX5-F-0501	5/1/2001	5.5						128	<25.0	
Excavation 6										
TP11B-3-0501	5/1/2001	3						<10.0	<25.0	
TP11B-8-0501	5/1/2001	8						<10.0	<25.0	

	Date Collected	Depth	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[c]	TPH[d]
MTCA Method A Cleanup Levels[1]			*0.03*	*7*	*6*	*9*	*30/100*	*2,000*	*2,000*	
GP-1	1/9/2003	13.5	<0.03	<0.05	<0.05	<0.1	<5.0	34.4	<25	
GP-2	1/9/2003	6	<0.03	<0.05	<0.05	<0.1	<5.0	87.8	<25	
	1/9/2003	13	<0.03	<0.05	<0.05	<0.1	<5.0	69	25.9	
GP-3	1/9/2003	11	<0.03	<0.05	<0.05	<0.1	<5.0	15	<25	
GP-4	1/9/2003	5	<0.03	<0.05	<0.05	<0.1	<5.0	<10	<25	
	1/9/2003	11	<0.03	<0.05	<0.05	<0.1	<5.0	<10	<25	
GP-5	1/13/2003	10	<0.03	<0.05	<0.05	<0.1	<5.0	46.6	<25	

all concentrations in mg/kg

a B=benzene T=toluene E=ethylbenzene X=xylenes by EPA Method 8020

b EPA Method 8015/WTPH-G

c EPA Method 8015 in '91, WTPH-Dx in '95

d EPA Method 418.1

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL DATA

Former Unocal Bulk Plant #0082

Hwy 97 and East Street, Chelan, Washington

06940-248

Well Number	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[d]	Dissolved Lead[e]
MTCA Method A Cleanup Levels[f]		*5 ug/l*	*1,000 ug/l*	*700 ug/l*	*1,000 ug/l*	*800 ug/l*	*500 ug/l*	*500 ug/l*	*15 ug/l*
MW-1	12/4/1989	270	150	94	700	NA	NA	3800	NA
	4/9/1991	280	50	41	270	2800[g]	<1000	NA	10
	8/27/1991	84	8.3	6.8	57	3000[g]	15,000[h]	5300[i]	12
	11/23/1991	250	71	43	350	12,000[g]	19,000[h]	14,000[i]	59
	2/20/1992	*well was dry at time of sampling*							
	5/21/1992	1.2	<.5	0.57	4.3	1,200	9,900	25,000	19
	8/19/1992	28	5	4.7	24	570	16,000	NA	17
	11/12/1992	75	53	19	150	1,600	12,000	NA	NA
	2/25/1993	*well was dry at time of sampling*							
	8/24/1993	15	1.6	2.2	9.1	240	18,000	<3,800[j]	NA
	7/8/1994	0.88	<0.5	<0.5	<1.0	<50	3,200	930	6.4
	1/4/1995	27	0.83	2.4	4.9	730	2,000	1,900	7.1
	6/29/1995	0.69	<0.5	<0.5	<1.0	<50	5,600	2,000	5.5
	12/29/1995	28	4.4	1.2	33	200	21,000	6,800	6.2
	6/19/1996	13.7	<0.5	<0.5	2.29	411	15,500	4,020	4.1
	12/13/1996	55	9.2	15.8	112	1,290	1,910	<750[j]	<10
	7/1/1997	5.4	<0.5	<0.5	1	94.8	1,200	<750[j]	2.9
	12/30/1997	33.6	<25	<25	124	10,490	4,800	<750[j]	7.4
	6/12/1998	1.29	<0.5	<0.5	<1.0	<50	<250	<750[j]	4.6
	12/7/1998	34.4	7.21	15.8	115	841	792	<750[j]	4.7
	6/21/1999	1.31	0.1	<0.5	1.09	<50	<250	<750[j]	2.6
	5/25/2001	0.67	<0.5	<0.5	1.24	117	889	<500	NA
	8/9/2001	1.89	<0.5	1.67	7.7	114	2,370	<500	NA
	11/13/2001	<0.5	<0.5	<0.5	<1.0	61.6	435	<500	NA
	1/30/2002	<0.5	<0.5	<0.5	<1.0	168	1,820	<500	NA
	4/29/2002	*well was dry at time of sampling*							
	7/23/2002	<0.5	<0.5	<0.5	<1.0	<50	346	<500	NA
	4/29/2003	<0.5	<0.5	<0.5	1.33	431	6,620	<500	NA
	5/21/2003	<0.5	<0.5	<0.5	<1.0	269	5,430	<500	NA
	7/16/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	10/17/2003	<0.5	<0.5	<0.5	<1.0	54.9	714	<500	NA
	1/23/2004	<0.5	<0.5	<0.5	<1.0	54.3	952	<500	NA
	4/12/2004	<0.5	<0.5	<0.5	<1.0	298	756	<500	NA
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80.0	<250	<500	NA
	10/4/2004	**<2.50**	**<2.50**	**<2.50**	**<5.00**	**<250**	**352**	**<500**	NA

Well Number	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[d]	Dissolved Lead[e]
MTCA Method A Cleanup Levels[f]		*5 ug/l*	*1,000 ug/l*	*700 ug/l*	*1,000 ug/l*	*800 ug/l*	*500 ug/l*	*500 ug/l*	*15 ug/l*
MW-2	12/4/1989	<0.5	<0.5	<0.5	<0.5	NA	NA	230[i]	NA
	4/9/1991	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	NA	9
	8/27/1991	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<2.0
	11/23/1991	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<3.0
	2/20/1992	*well was dry at time of sampling*							
	5/21/1992	<0.5	<0.5	<0.5	<0.5	<50	<500	NA	NA
	8/19/1992	*well was not sampled*							
	11/12/1992	<0.5	<0.5	<0.5	<0.5	<100	1,000	NA	NA
	2/25/1993	*well was dry at time of sampling*							
	8/24/1993	<0.5	<0.5	<0.5	<0.5	<100	<250	<750	NA
	7/8/1994	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	1/4/1995	<0.5	<0.5	<0.5	<1.0	<50	340	720	NA
	6/29/1995	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	12/29/1995	<0.5	<0.5	<0.5	<1.0	<50	2,000	1,400	NA
	6/19/1996	<0.5	<0.5	<0.5	<1.0	<50	518	<750	NA
	12/13/1996	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	7/1/1997	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	12/30/1997	NA	NA	NA	NA	NA	287	<750	NA
	6/12/1998	NA	NA	NA	NA	NA	<250	<750	NA
	12/7/1998	NA	NA	NA	NA	NA	<250	<750	NA
	6/21/1999	NA	NA	NA	NA	NA	<250	<750	NA
	5/25/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	8/9/2001	<0.5	<0.5	<0.5	<1.0	<50	<301	<750	NA
	11/13/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	1/30/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	4/29/2002	*well was dry at time of sampling*							
	7/23/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	4/29/2003	*well was dry at time of sampling*							
	5/21/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	7/16/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	10/17/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<750	NA
	1/23/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/12/2004	*well was dry at time of sampling*							
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80.0	<250	<500	NA
	10/4/2004	**<0.5**	**<0.5**	**<0.5**	**<1.00**	**<50**	**<250**	**<500**	NA

Well Number	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[d]	Dissolved Lead[e]
MTCA Method A Cleanup Levels[f]		*5 ug/l*	*1,000 ug/l*	*700 ug/l*	*1,000 ug/l*	*800 ug/l*	*500 ug/l*	*500 ug/l*	*15 ug/l*
MW-3	12/4/1989	<.5	<.5	<.5	<.5	NA	NA	9,300[i]	NA
	4/9/1991	3.9	<.5	<.5	1.6	<1,000[gj]	<1,000[hj]	NA	12
	8/27/1991	<.5	<.5	<.5	<.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<3.0
	11/23/1991	1.2	<.5	<.5	<.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<3.0
	2/20/1992	<.5	<.5	<.5	<.5	<1,000[gj]	12,000	6,600	<3.0
	5/21/1992	1	<.5	<.5	<.5	100	3,500	9,000	2.9
	8/19/1992	4.4	<.5	<.5	<1.0	<50	1,800	NA	<2.0
	11/12/1992	<.5	<.5	<.5	<.5	<100	1,800	NA	NA
	2/25/1993	1.4	<.5	<.5	<.5	<100	2,600	NA	NA
	8/24/1993	1.6	<.5	<.5	<.5	<100	1,000	<750[j]	NA
	7/8/1994	.0.95	<.5	<.5	<1.0	<50	2,000	1,200	NA
	1/4/1995	2.8	<.5	<.5	<1.0	59	11,000	2,400	NA
	6/29/1995	<.5	<.5	<.5	<1.0	<50	2,300	1,700	NA
	12/29/1995	<.5	<.5	<.5	<1.0	<50	5,100	2,900	NA
	6/19/1996	<.5	<.5	<.5	<1.0	<50	4,790	1,940	NA
	12/13/1996	<.5	<.5	<.5	<1.0	<50	<250	<750[j]	NA
	7/1/1997	<.5	<.5	<.5	<1.0	<50	<250	<750[j]	NA
	12/30/1997	NA	NA	NA	NA	NA	280	<750[j]	NA
	6/12/1998	NA	NA	NA	NA	NA	<250	<750[j]	NA
	12/7/1998	NA	NA	NA	NA	NA	<250	<750[j]	NA
	6/21/1999	NA	NA	NA	NA	NA	<250	<750[j]	NA
	5/25/2001	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	8/9/2001	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	11/13/2001	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	1/30/2002	1.35	<.5	<.5	<1.0	55	379	<500	NA
	4/29/2002	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	7/23/2002	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	4/29/2003	<.5	<.5	<.5	<1.0	<50	7,460	835	NA
	5/21/2003	<.5	<.5	<.5	<1.0	<50	4,200	<500	NA
	7/16/2003	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	10/17/2003	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	1/23/2004	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	4/12/2004	<.5	<.5	<.5	<1.0	70.8	<250	<500	NA
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80.0	<250	<500	NA
	10/4/2004	**<0.5**	**<0.5**	**<0.5**	**<1.00**	**<50**	**<250**	**<500**	**NA**

Well Number	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[d]	Dissolved Lead[e]
MTCA Method A Cleanup Levels[f]		*5 ug/l*	*1,000 ug/l*	*700 ug/l*	*1,000 ug/l*	*800 ug/l*	*500 ug/l*	*500 ug/l*	*15 ug/l*
MW-4	4/9/1991	<.5	<.5	<.5	<.5	<1,000[gj]	<1,000[hj]	NA	45
	8/27/1991	<.5	<.5	<.5	<.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	15
	11/23/1991	<.5	<.5	<.5	<.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	15
	2/20/1992	*well was dry at time of sampling*							
	5/21/1992	<.5	<.5	<.5	<.5	<50	600	2,100	41
	8/19/1992	*well was not sampled*							
	11/12/1992	*well was not sampled*							
	2/25/1993	*well was dry at time of sampling*							
	8/24/1993	<.5	<.5	<.5	<.5	<100	280	<750[i]	NA
	7/8/1994	<.5	<.5	<.5	<1.0	<50	630	910	2.9
	1/4/1995	<.5	<.5	<.5	<1.0	<50	750	880	6.4
	6/29/1995	<.5	<.5	<.5	<1.0	<50	490	1,500	2.2
	12/29/1995	<.5	<.5	<.5	<1.0	<50	1,700	1,400	6.3
	6/19/1996	<.5	<.5	<.5	<1.0	<50	2,530	1,840	5.7
	12/13/1996	<.5	<.5	<.5	<1.0	<50	<250	<750[i]	<10
	7/1/1997	<.5	<.5	<.5	<1.0	<50	<250	<750[i]	4.2
	12/30/1997	NA	NA	NA	NA	NA	<250	<750[i]	3.2
	6/12/1998	NA	NA	NA	NA	NA	<250	<750[i]	2.4
	12/7/1998	NA	NA	NA	NA	NA	<250	<750[i]	NA
	6/21/1999	NA	NA	NA	NA	NA	<250	<750[i]	NA
	5/25/2001	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	8/9/2001	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	11/13/2001	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	1/30/2002	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	4/29/2002	*well was dry at time of sampling*							
	7/23/2002	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	4/29/2003	<.5	<.5	<.5	<1.0	<50	776	<500	NA
	5/21/2003	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	7/16/2003	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	10/17/2003	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	1/23/2004	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	4/12/2004	<.5	<.5	<.5	<1.0	<50	<250	<500	NA
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80.0	<250	<500	NA
	10/4/2004	**<0.5**	**<0.5**	**<0.5**	**<1.00**	**<50**	**<250**	**<500**	**NA**

Well Number	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[d]	Dissolved Lead[e]
MTCA Method A Cleanup Levels[f]		*5 ug/l*	*1,000 ug/l*	*700 ug/l*	*1,000 ug/l*	*800 ug/l*	*500 ug/l*	*500 ug/l*	*15 ug/l*
MW-6	4/9/1991	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	NA	<5.0
	8/27/1991	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<2.0
	11/23/1991	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<3.0
	2/20/1992	<0.5	<0.5	<0.5	<0.5	<1,000[gj]	<1,000[hj]	<1,000[ij]	<3.0
	5/21/1992	<0.5	<0.5	<0.5	<0.5	<50	<500	1,700	4.7
	8/19/1992	<0.5	<0.5	<0.5	<0.5	<50	<250	NA	<2.0
	11/12/1992	<0.5	<0.5	<0.5	<0.5	<100	<500	NA	NA
	2/25/1993	*well was dry at time of sampling*							
	8/24/1993	<0.5	<0.5	<0.5	<0.5	<100	NA	NA	NA
	7/8/1994	<0.5	<0.5	<0.5	<1.0	<50	360	840	NA
	1/4/1995	<0.5	<0.5	<0.5	<1.0	<50	470	800	NA
	6/29/1995	<0.5	<0.5	<0.5	<1.0	<50	260	1,000	NA
	12/29/1995	<0.5	<0.5	<0.5	<1.0	<50	270	890	NA
	6/19/1996	<0.5	<0.5	<0.5	<1.0	<50	NA	NA	NA
	12/13/1996	<0.5	<0.5	<0.5	<1.0	<50	<250	<750[j]	NA
	7/1/1997	<0.5	<0.5	<0.5	<1.0	<50	<250	<750[j]	NA
	12/30/1997	NA	NA	NA	NA	NA	<250	<750[j]	NA
	6/12/1998	NA	NA	NA	NA	NA	<250	<750[j]	NA
	12/7/1998	NA	NA	NA	NA	NA	<250	<750[j]	NA
	6/21/1999	NA	NA	NA	NA	NA	<250	<750[j]	NA
	5/25/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	8/9/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	11/13/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	1/30/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/29/2002	*well was dry at time of sampling*							
	7/23/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/29/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	5/21/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	7/16/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	10/17/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	1/23/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/12/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80	<250	<500	NA
	10/4/2004	**<0.5**	**<0.5**	**<0.5**	**<1.00**	**<50**	**<250**	**<500**	NA

Well Number	Date Collected	Benzene[a]	Toluene[a]	Ethyl-Benzene[a]	Total Xylenes[a]	TPH-G[b]	TPH-D[c]	TPH-O[d]	Dissolved Lead[e]
MTCA Method A Cleanup Levels[f]		*5 ug/l*	*1,000 ug/l*	*700 ug/l*	*1,000 ug/l*	*800 ug/l*	*500 ug/l*	*500 ug/l*	*15 ug/l*
MW-7	11/15/1992	<0.5	<0.5	<0.5	0.7	<100	1,700	NA	NA
	2/25/1993	*well was dry at time of sampling*							
	8/24/1993	<0.5	<0.5	<0.5	<0.5	<100	<250	<750	NA
	7/8/1994	<0.5	<0.5	<0.5	<1.0	<50	600	1,300	2
	1/4/1995	<0.5	<0.5	<0.5	<1.0	<50	1,300	1,200	<2.0
	6/29/1995	<0.5	<0.5	<0.5	<1.0	<50	370	1,000	NA
	12/29/1995	<0.5	<0.5	<0.5	<1.0	<50	510	1,000	NA
	6/19/1996	<0.5	<0.5	<0.5	<1.0	<50	841	789	NA
	12/13/1996	<0.5	<0.5	<0.5	<1.0	<50	<250	<750[i]	NA
	7/1/1997	<0.5	<0.5	<0.5	<1.0	<50	<250	<750[i]	NA
	12/30/1997	NA	NA	NA	NA	NA	<250	<750[i]	NA
	6/12/1998	NA	NA	NA	NA	NA	<250	<750[i]	NA
	12/7/1998	NA	NA	NA	NA	NA	<250	<750[i]	NA
	6/21/1999	NA	NA	NA	NA	NA	<250	<750[i]	NA
	5/25/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	8/9/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	11/13/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	1/30/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/29/2002	*well was dry at time of sampling*							
	7/22/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/29/2003	<0.5	<0.5	<0.5	<1.0	<50	435	<500	NA
	5/21/2003	<0.5	<0.5	<0.5	<1.0	<50	373	<500	NA
	7/16/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	10/17/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	1/23/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/12/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80.0	<250	<500	NA
	10/4/2004	**<0.5**	**<0.5**	**<0.5**	**<1.00**	**<50**	**<250**	**<500**	NA
MW-8	5/25/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	8/9/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	11/13/2001	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	1/30/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/29/2002	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	7/23/2002	<0.5	<0.5	<0.5	<1.0	<50	319	<500	NA
	4/29/2003	<0.5	<0.5	<0.5	<1.0	<50	4,480	771	NA
	5/21/2003	<0.5	<0.5	<0.5	<1.0	<50	2,400	<500	NA
	7/16/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	10/17/2003	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	1/23/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	4/12/2004	<0.5	<0.5	<0.5	<1.0	<50	<250	<500	NA
	7/26/2004	<0.5	<0.5	<0.5	<1.50	<80.0	<250	<500	NA
	10/4/2004	**<0.5**	**<0.5**	**<0.5**	**<1.00**	**<50**	**<250**	**<500**	NA

NOTES:

Shaded values exceed MTCA Method A cleanup levels

ug/l all concentrations in micrograms per liter (approximates parts per billion-ppb), unless stated otherwise

a benzene, toluene, ethylbenzene, and total xylenes by EPA Methods 8020 or 8021B

b TPH as gasoline (TPH-G) by Ecology Methods WTPH-G or NWTPH-Gx

c TPH as diesel (TPH-D) by Ecology Methods WTPH-D or NWTPH-Dx (after sulferic acid/silica gel cleanup).

d TPH as oil (TPH-O) by Ecology Methods WTPH-418.1 or NWTPH-Dx (after sulferic acid/silica gel cleanup).

e Dissolved lead by EPA Method 7421

f Chapter 173-340 WAC "Model Toxics Control Act Cleanup Regulation; Method A Cleanup Levels for Groundwater." Amended February 12, 2001

g TPH-G by EPA Method 8015 modified

h TPH-d by EPA Method 8015 modified

i TPH-O by EPA Method 418.1

j Method reporting limit exceeded the MTCA Method A cleanup level.

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS
FORMER UNOCAL BULK PLANT #0082
HWY 97 AND EAST STREET, CHELAN ,WA 06940-248

Monitoring Well (Casing Elevation in feet)	Date Measured	Depth to Groundwater[1] (feet)	Groundwater Elevation (feet)
MW-1			
(1,112.38)	5/25/01	20.02	1092.36
	8/9/01	15.09	1097.29
	11/14/01	20.62	1091.76
	1/30/02	24.12	1088.26
	4/29/02	Dry	--
	7/22/02	14.38	1098.00
	4/29/03	25.86	1086.52
	5/21/03	24.15	1088.23
	7/16/03	14.29	1098.09
	10/16/03	17.28	1095.10
	01/23/04	21.24	1,091.14
	04/12/04	25.83	1,086.55
	07/26/04	14.34	1098.04
	10/04/04	**15.36**	**1097.02**
MW-2	5/25/01	19.46	1092.32
(1,111.78)	8/9/01	14.50	1097.28
	11/13/01	20.01	1091.77
	1/30/02	23.57	1088.21
	4/29/02	Dry	--
	7/22/02	13.77	1098.01
	4/29/03	Dry	--
	5/21/03	23.70	1088.08
	7/16/03	13.69	1098.09
	10/16/03	16.68	1095.10
	01/23/04	20.62	1,091.16
	04/12/04	Dry	Dry
	07/26/04	13.72	1098.06
	10/04/04	**14.79**	**1096.99**

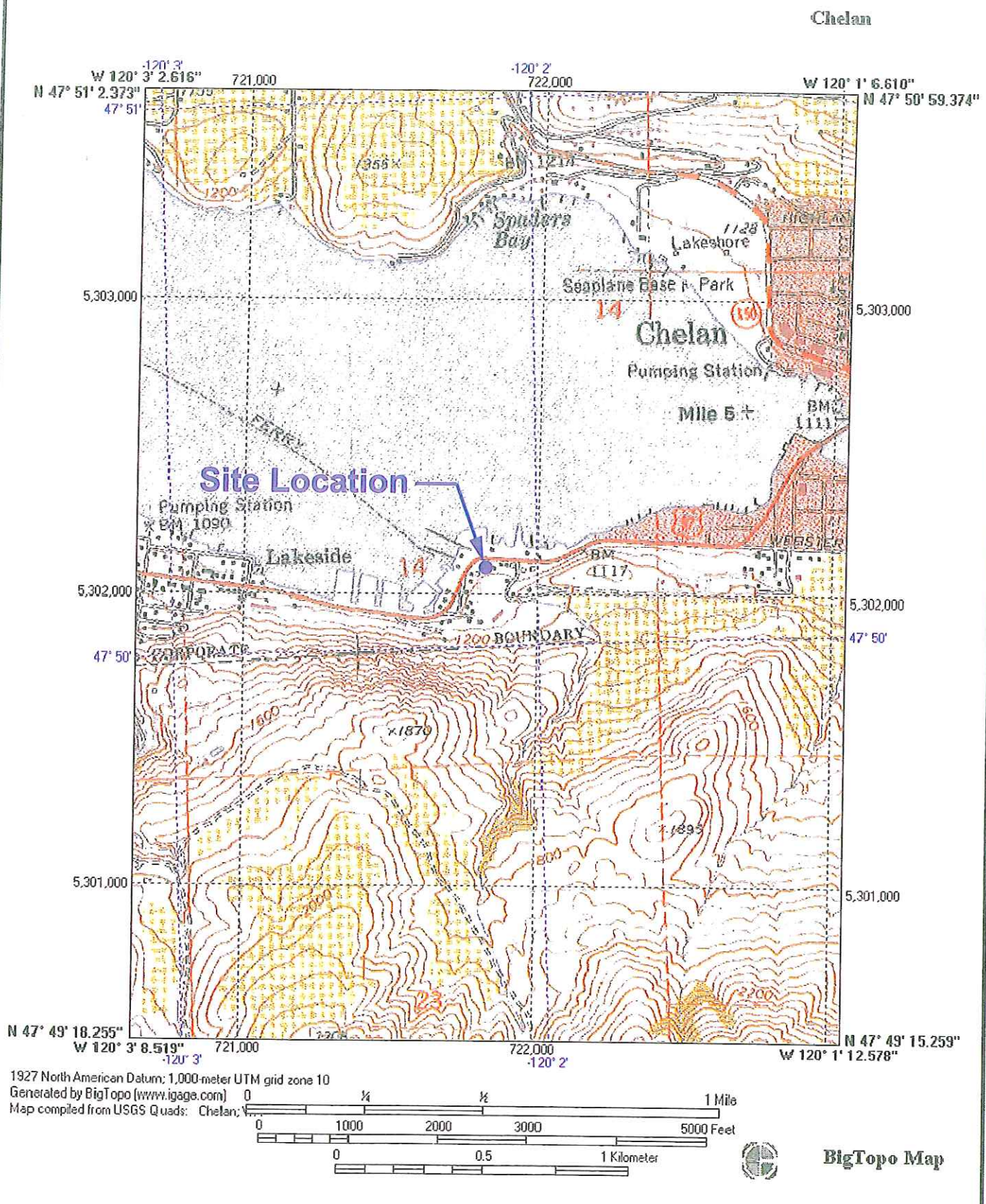
Monitoring Well (Casing Elevation in feet)	Date Measured	Depth to Groundwater[1] (feet)	Groundwater Elevation (feet)
MW-3	5/25/01	19.82	1092.33
1,112.15)	8/9/01	14.89	1097.26
	11/14/01	20.45	1091.70
	1/30/02	23.96	1088.19
	4/29/02	28.56	1083.59
	7/22/02	14.14	1098.01
	4/29/03	25.61	1086.54
	5/21/03	24.04	1088.11
	7/16/03	14.04	1098.11
	10/16/03	17.03	1095.12
	01/23/04	20.99	1,091.16
	04/12/04	25.57	1,086.58
	07/26/04	14.07	1098.31
	10/04/04	**15.12**	**1097.03**
MW-4	5/25/01	20.06	1092.29
(1,112.35)	8/9/01	15.07	1097.28
	11/14/01	20.67	1091.68
	1/30/02	24.16	1088.19
	4/29/02	Dry	--
	7/22/02	14.35	1098.00
	4/29/03	25.87	1086.48
	5/21/03	24.22	1088.13
	7/16/03	14.27	1098.08
	10/16/03	17.25	1095.10
	01/23/04	21.22	1,091.13
	04/12/04	25.82	1,086.53
	07/26/04	14.33	1098.02
	10/04/04	**15.34**	**1097.01**
MW-5			
(1,112.20)	5/25/01	19.84	1092.36
	8/9/01	14.94	1097.26
	11/13/01	20.42	1091.78
	1/30/02	24.02	1088.18
	4/29/02	28.53	1083.67
	7/22/02	14.17	1098.03
	4/29/03	25.70	1086.50
	5/21/03	24.11	1088.09
	7/16/03	14.04	1098.16
	10/16/03	17.12	1095.08
	01/23/04	21.09	1,091.11
	04/12/04	25.65	1,086.55
	07/26/04	14.17	1098.03
	10/04/04	**15.21**	**1096.99**

Monitoring Well (Casing Elevation in feet)	Date Measured	Depth to Groundwater[1] (feet)	Groundwater Elevation (feet)
MW-6 (1,112.18)	5/25/01	19.92	1092.26
	8/9/01	14.89	1097.29
	11/13/01	20.49	1091.69
	1/30/02	23.99	1088.19
	4/29/02	Dry	--
	7/22/02	14.18	1098.00
	4/29/03	25.68	1086.50
	5/21/03	24.11	1088.07
	7/16/03	14.11	1098.07
	10/16/03	17.09	1095.09
	01/23/04	21.02	1,091.16
	04/12/04	25.64	1,086.54
	07/26/04	14.15	1098.03
	10/04/04	**15.17**	**1097.01**
MW-7 (1,117.45)	5/25/01	25.02	1092.43
	8/9/01	20.12	1097.33
	11/13/01	25.61	1091.84
	1/30/02	29.22	1088.23
	4/29/02	Dry	--
	7/22/02	19.47	1097.98
	4/29/03	30.94	1086.51
	5/21/03	29.34	1088.11
	7/16/03	19.37	1098.08
	10/16/03	22.41	1095.04
	01/23/04	26.41	1,091.04
	04/12/04	30.92	1,086.53
	07/26/04	19.42	1098.03
	10/04/04	**20.49**	**1096.96**
MW-8 (1,112.66)	5/25/01	20.37	1092.29
	8/9/01	15.39	1097.27
	11/13/01	20.99	1091.67
	1/30/02	24.47	1088.19
	4/29/02	29.11	1083.55
	7/22/02	14.68	1097.98
	4/29/03	26.15	1086.51
	5/21/03	24.57	1088.09
	7/16/03	14.60	1098.06
	10/16/03	17.57	1095.09
	01/23/04	21.54	1,091.12
	04/12/04	26.12	1,086.54
	07/26/04	14.62	1098.04
	10/04/04	**15.65**	**1097.01**

Notes:

[1] The depths to groundwater were measured from the top of the casing rim.

Bold indicates measurement completed during current reporting period.



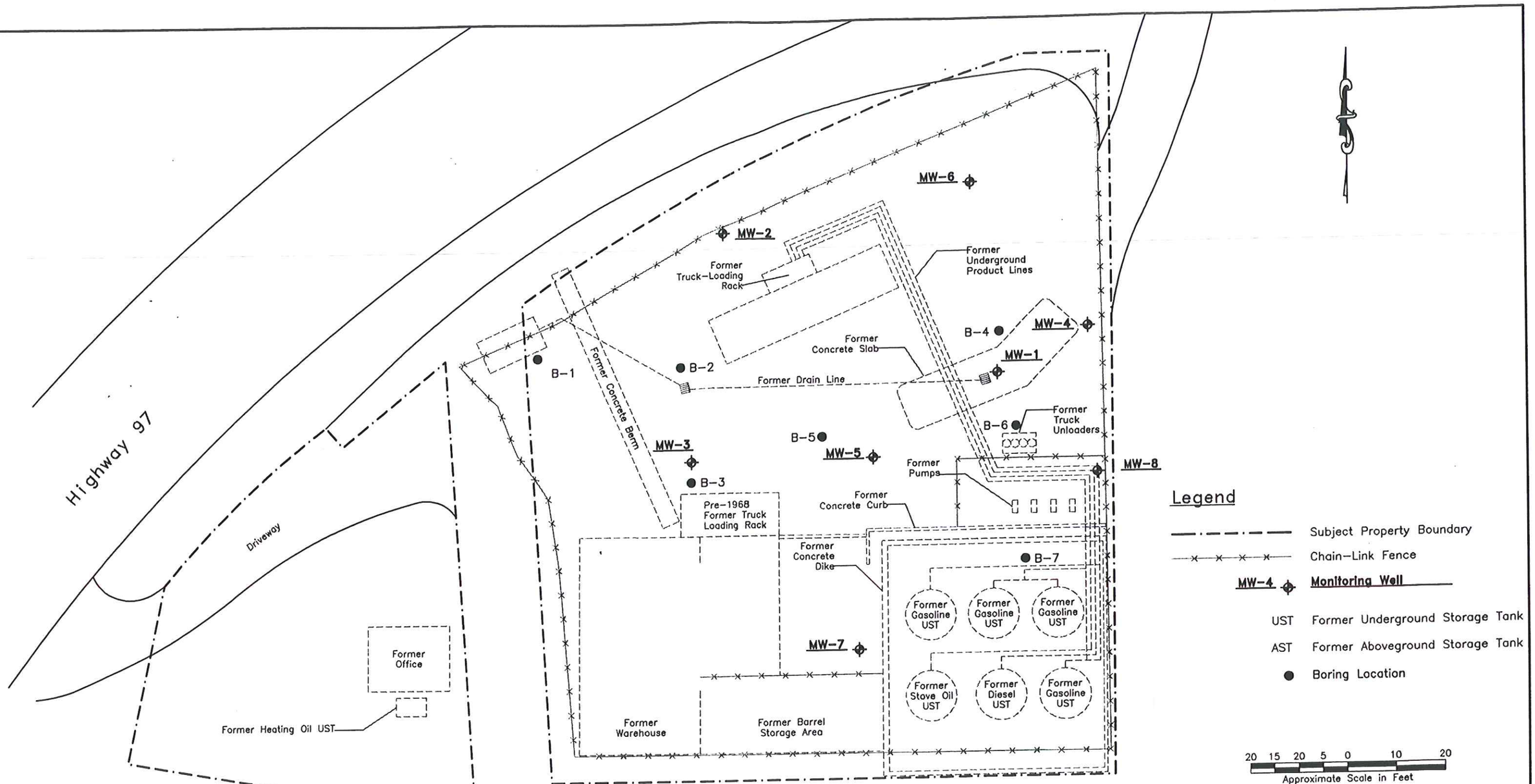
DRAWN:	K. Mongar
CHECKED:	A. Fekete
DATE:	November 10, 2004
FILENAME:	0694024813A
PROJECT NO:	06940-248-130

ENSR INTERNATIONAL

FIGURE 1

SITE LOCATION

Former Unocal Bulk Plant No. 0082
Highway 97 at East Street
Chelan, Washington

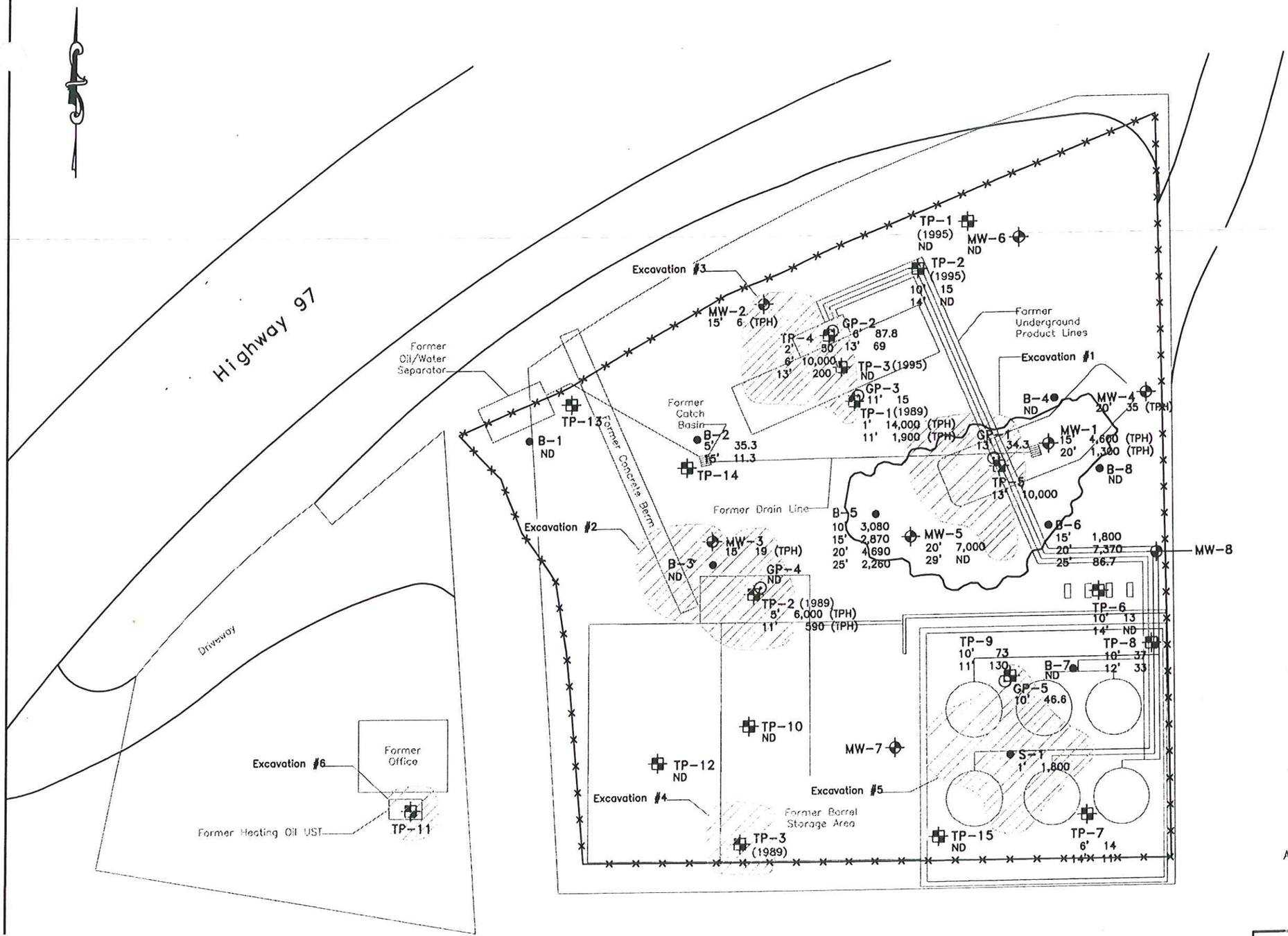


Source: GeoEngineers, AutoCAD File No. 004-02.dwg, 02/21/02

SCALE: 1" = 20' ●11x17	DESIGN: jborthen	CHECKED: A. Fekete	ENSR PROJECT NO:
FILENAME: 0694024813B jb	DRAWN: jborthen	DATE: May 25, 2004	06940-248-130

ENSR INTERNATIONAL

FIGURE 2
SOIL BORING LOCATIONS
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street
Chelan, Washington



Excavation – Historical Summary

Excavation #1
Excavate to depth of 14'
Sample taken at 11'
All excavation samples ND
TP went to 14', they did not get the TPH at 15' and 20' found in the wells (MW-1 and 5)

Excavation #3
Excavate to 13', but no floor samples taken.
Probably got most of it but did not confirm.
Possibility of impacted soils below 13' but concentrations approx 200 TPH-D

Excavation #5
Excavate to depth of 6'
There is probably impacted soils left at depth of 10' near TP-9.
Concentrations approximately 130 TPH-D

Legend

- Subject Property Boundary
- Chain-Link Perimeter Fence
- MW-4 Groundwater Monitoring Well
- TP-1 Test Pit Location
- UST Underground Storage Tank
- AST Aboveground Storage Tank
- Previous Excavations
- GP-1 Geoprobe Boring
- B-1 / 5' 35.3 Boring (auger) / Sample depth/TPH-D concentration

All concentrations are mg/kg TPH-D unless noted otherwise.

20 15 20 5 0 10 20
Approximate Scale in Feet

Source: GeoEngineers, AutoCAD drawing 004-02.dwg, 02/21/02
and
Maul, Foster, and Alongi, AutoCAD drawing 009-02.dwg, 01/27/02

SCALE: 1" = 20' @11x17	DESIGN: J. Borthen	CHECKED: A. Fekete	ENSR PROJECT NO:
FILENAME: 0694024813F	DRAWN: J. Borthen	DATE: March 2005	06940-248-130

ENSR INTERNATIONAL

FIGURE 3
SITE CONTAMINATION PROFILE
Former Unocal Bulk Plant No. 0082
Highway 97 at East Street
Chelan, Washington

APPENDIX B - BACKGROUND AND HISTORY

4.1 Site Description

The site is a vacant lot located on the south side of Highway 97, and south of Lake Chelan. It is approximately 1 mile west of downtown Chelan, at the intersection of Highway 97 and East Street (Figure 1).

The site is underlain by very dense deposits of sand and gravel. From the surface to approximately 10 feet below ground surface (bgs) the site consists of coarse gravel with some silt and sand. From 10 feet bgs to 30 feet there is medium sand with some gravel.

The depth to groundwater is 15 to 25 feet bgs and seems to correlate with water levels in Lake Chelan, which is approximately 100 yards from the northern most boundary of the site. The lowest groundwater elevations occur in March and April. Groundwater elevations are given in Table 5.

4.2 Site History

The site was occupied by a Unocal Bulk Plant from approximately 1927 to 1989. In 1992, all on-site tanks and structures were demolished and removed. Structures included office, warehouse, three gasoline ASTs, a diesel AST, a heating oil AST, four dispenser pumps, a heating oil UST, two truck loading racks and one truck unloading rack.

From 1989 to 2001, there have been several rounds of environmental investigations. This includes installing eight monitoring wells (MW-1 through MW-8, Figure 2), test pit investigations with soil removal, six excavations with soil removal (Figure 3), and geoprobe sampling. In the spring of 2001, approximately 300 cubic yards of impacted soil were removed from six excavations at the site. In the summer of 2001, an AS/SVE system was installed to remediate impacted GW and soil. The AS/SVE system was de-activated in July 2002.

4.3 Hydrogeology

In February a series of borings were conducted on the site in order to more clearly define the areas of contamination. During these borings the soils encountered seemed to be consistent across the site. The top 10 feet consisted of very dense deposits of sand and gravel and was, at times difficult to penetrate. From 10 feet bgs to 30 feet there is medium sand with some gravel.

The depth to ground water is 15 to 25 feet bgs and seems to correlate with water levels in Lake Chelan, which is approximately 100 yards from the northern most boundary of the site. The lowest ground water elevations occur in March and April. Ground water elevations are given in Table 5.

APPENDIX C – EXISTING ENVIRONMENTAL CONDITIONS

During excavation activities in April/May 2001 six excavations were performed. These excavations were placed in areas identified by earlier soil borings and test pits as being impacted. The purpose of the excavations was to remove the impacted soils with concentrations of petroleum hydrocarbons above MTCA Method A, specifically (in mg/kg):

Benzene	0.03
Toluene	7
Ethyl-benzene	6
Xylenes	9
TPH-G	100
TPH-D	2,000
TPH-O	2,000

DOE reviewed the data obtained from the excavations. Only two of the excavations (Excavations #4 and #6) received no comment from DOE, suggesting they were excavated satisfactorily. Excavation #2 appeared to be marginally acceptable to DOE. Excavations #1, #3, and #5 did not completely remove contaminants or DOE concerns. DOE comments regarding these excavations are described in Appendix C.

Subsequent to the DOE review (2002), geoprobe work was done at the site. This work appeared to have been organized so as to address the issues that DOE raised about the six soil excavations. Five geoprobes were advanced and samples taken. All geoprobe samples indicated soil contamination was below MTCA levels for soil. However, many of the probes were advanced near to previous test pits and/or inside previously excavated areas. Geoprobe samples taken at depths within the test pits may not have sampled native soil.

TPH Analysis

Frequently, in the early stages of site assessment at this facility, a general analytical method was used to test soils for presence of petroleum hydrocarbons, referred to in this document as TPH (Total Petroleum Hydrocarbons). A common analytical method to use for these applications is EPA Method 418.1. This is a broad hydrocarbon identification method that does not give concentrations for specific hydrocarbon components. Rather, it lumps gasoline, diesel, and oil hydrocarbons into one analytical concentration, called TPH.

Regulatory cleanup levels are given in a concentration for the specific components of petroleum hydrocarbons. In particular for this document, gasoline (TPH-G), diesel (TPH-D), and oil (TPH-O). Different analytical methods are used to derive these concentrations from samples.

It cannot be assumed that if a specific sample were tested for gasoline, diesel, and oil, that the sum of these numbers would equal the TPH measurement. But, the numbers should correlate. Therefore, it can be generally assumed that if the TPH measurements are low, the TPH-G, TPH-D, TPH-O measurements will also be low. It is difficult to determine compliance with TPH measurements unless the concentrations are very low.

The following sections describe the excavations, and the remaining soil contamination which is of concern to DOE (Excavations #1, #2, #3, and #5).

Excavation 1

Total petroleum hydrocarbon contamination was identified in soil, using EPA Method 418.1, during installation of well MW-1 at depths of 15 and 20 feet at concentrations of 4,600 and 1,300 mg/kg, respectively. The boring for well MW-5 encountered contamination at depths of 13', 15', and 20' at concentrations of 10,000 (diesel), 4,000 (TPH), and 7,000 (diesel) mg/kg, respectively.

Excavation 1 was placed between MW-1 and 5 and went to a depth of 14 feet. Because it did not include the area of the two wells, and did not go to the depth at which contamination was found, it can not be assumed that it removed all of the contamination identified by the monitor well installation.

In 2003, geoprobe GP-1 confirmed that the area of TP-5 in Excavation #1 is clean, but the probe was placed in nearly the same location as TP-5. So it may have only re-sampled the same soils. Additionally, it only went to a depth of 13.5 feet.

In the area of Excavation 1, remaining contaminated soils can be expected at depths in excess of 14' in portions of the excavation, and could be expected to go at least as deep as 20 feet, particularly in the areas near wells MW-1 and MW-5. Concentrations of TPH may be as high as 7,000 (diesel) mg/kg in the area of MW-5, and concentrations of TPH as high as 4,600 in the area of MW-1. These soils appear to be impacting groundwater.

Soil boring work conducted in February 2005 confirmed this data (see "Soil Boring Report," document No. 06940248-2).

Excavation 2

During test pit excavations in 1989, contamination was identified in TP-2 at depths of 5' and 11' bgs at concentrations of 6,000 (TPH) and 590 (TPH) mg/kg, respectively.

The test pit was not advanced until clean soils were encountered. Therefore, there may be soils containing 590 mg/kg TPH at 11 feet underneath the clean backfill used in Excavation 2.

Soil samples from the boring for monitor well MW-3 were below reporting limits for BTEX and TPH (one sample at 15 feet bgs).

During removal operations for Excavation #2, side wall samples were collected. The excavation appears to have been widened until sidewall samples were below reporting limits for TPH-D and TPH-O. The excavation was taken to a depth of 11 feet bgs, but, as with the test pit operations, no floor samples were collected to confirm that the vertical extents of contamination were removed.

GP-4 was located in the area of TP-2 in Excavation #2. The probe sample was advanced to a depth of 11 feet, the same depth as the test pit and the excavation. The sample at 11' is below reporting limits for BTEX, TPH-G, TPH-D, and TPH-O. This suggests that this excavation area is clean. However, the boring was advanced in an area that had been excavated twice (once for TP-3[89], and once for Excavation 2) and backfilled. The exact location of the 11 foot sample is uncertain, and whether or not native soils were actually sampled cannot be determined.

Contaminants of Concern (COC) in groundwater from well MW-3 have been below laboratory reporting limits for all analytes for more than four quarters, suggesting that any remaining contaminated soils are not impacting groundwater.

The area of Excavation #2 appears to have been remediated more completely than Excavations #1, #3, and #5. Although not properly confirmed, the only residual soils potentially remaining are at the 11 foot level bgs and may contain TPH of approximately 590 mg/kg. The makeup of the TPH (whether gasoline, diesel, or oil) is not known, but it can be assumed that soils would be below MTCA requirements for diesel and oil. The soil sample from the boring for monitor well MW-3 at 14 feet (TPH below reporting limits) provides confirmation of the vertical extent of contamination.

Boring B-3,conducted in February 2005 near the center of Excavation #2, was below recording limits for all analytes.

Excavation 3

Contamination in the area of Excavation 3 appears to be intermittent. Total Petroleum Hydrocarbon contamination was identified in test pit TP-1 (1989) at depths of 1 and 11 feet at concentrations of 14,000 and 1,900 mg/kg. Test pit TP-4 encountered TPH-diesel at depths of 2, 6, and 13 feet at concentrations of 50, 10,000, and 200 mg/kg, respectively.

Test pit TP-3 (1995) detected no analytes above reporting limits. Concentrations in samples collected from the boring for monitor well MW-2 were below reporting limits or very low for all analytes.

Excavation 3 went to a depth of 13'. It is possible that the excavation removed all contaminated soils, but, as with Excavation 2, it was not confirmed analytically through collection of excavation bottom samples. And, as with Excavation 2, if there was significant contamination at 11 feet, then it can be suspected that some contamination may exist at slightly deeper depths.

Geoprobe GP-2 was located in the area of TP-4 in Excavation #3, which was an area of high contaminate concentrations. However, the probe was place very close to TP-4, so that it may have been probing in an area that had already been excavated twice (once for the test pit and once for the excavation). Furthermore, the deepest sample taken by the probe was at the same depth as the excavation and the test pit. The probe may not have gone below the excavation to demonstrate a limit to the vertical extent of contamination.

GP-3 was located in the area of TP-1 in Excavation #3 and went to a depth of 11 feet. As with TP-2, it was located in the previously excavated area, and did not identify the lower vertical limit of contamination.

Soils that may have been left in place would include the area of TP-1 at a depth of 11 feet. A sample taken at 11 feet was below reporting limits for all analytes. Because this is a TPH analysis (Method 418.1) specific gas or diesel components were not analyzed.

These soils will be investigated during the excavation phase of work.

Excavation 5

Contamination was identified near the surface by S-1 at a depth of 1' with a concentration of 15,000 mg/kg (TPH-g). Test pit TP-9 found concentrations of 290 mg/kg TPH-g at 10 feet of depth.

Excavation 5 terminated at 6 feet bgs, which would remove the impacted soils at S-1. But, it would appear that there are soils in the area of TP-9, at depths greater than 6 feet, that may contain petroleum impacted soils.

Geoprobe GP-5 was located in the area of TP-9 in Excavation #5. This probe sample was taken at 10' of depth, which was the same depth as the test pit. There is no confirmation that soils below this level are not impacted.

There may be soils left in place with concentrations of approximately 290 (TPH-g) mg/kg in the area of TP-9.

Boring B-7 was conducted near to S-1 in February 2005. It was below reporting limits for all analytes.

Summary of Existing Groundwater Conditions

There are eight wells currently installed at the site. Wells MW-1, 2, and 3 were installed in 1989, wells MW-4, 5, and 6 were installed in 1991, MW-7 was installed in 1992 and MW-8 was installed in 2001. Groundwater from these wells has been sampled and analyzed since 1989. A summary of this data is included in Table 2.

Wells MW-2, 3, 4, 6, 7, and 8 have been, for all practical purposes, below detection limits for all analytes for the last several years.

Wells MW-1 and 5 have been above cleanup levels for diesel compounds. MW-5 has also had intermittent problems with benzene. It appears that MW-1 and 5 are impacted due to the contaminated soils still in place near those wells, as described above.

APPENDIX D - Department of Ecology Concerns

In 2002 Unocal submitted a Voluntary Cleanup Program application to the Department of Ecology (DOE). DOE reviewed the information on file and had the following comments (October 24, 2002 letter from DOE to Unocal, Mark Brearley):

Residual contaminated soil on site exceeds the MTCA Method A Cleanup Levels

Groundwater reports indicate that contaminant concentrations exceed MTCA Method A Cleanup Levels

The soils on site have not been fully characterized.

In response to these comments, Unocal performed a geoprobe investigation of the contaminated soils at the site. Unocal then submitted a NFA application in 2003. DOE determined that further actions were required to address the soil and groundwater contamination, including:

Address residual soil contamination

Provide additional information regarding the depth of Excavations 1, 2, and 3.

Collect four consecutive quarters of groundwater samples below MTCA Method A levels

Fully characterize the soil at the site

A review of the site data indicates that contaminated soils are still remaining on site. The groundwater contamination, although low in concentration, is persistent, and the trend does not indicate the cleanup levels will be met soon.

APPENDIX E – Wenatchee Landfill permit #269

WASTE MANAGEMENT, INC ....NON HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

Wenatchee Landfill

191 Webb Road Wenatchee, Washington 98802

PERMIT # 269

PERMIT TO DISPOSE OF NON-HAZARDOUS MATERIALS

This permit authorizes disposal of Customer's waste materials in accordance with the Industrial Waste & Disposal Services Agreement dated ___*National*_____.

EXPIRES: 6/15/05

GENERATOR: UNOCAL	
DESCRIPTION: ***PCS - UNLEADED GASOLINE AND DIESEL***	**TONS:** ***1000***
☐ **SPECIAL WASTE** ☒ **PCS**	
LOCATION: ***CHELAN, WASHINGTON HWY 97 & EAST STREET***	**COUNTY:*** ***Chelan***
CONTACT: ***JIM BORTHEN***	**PHONE:** ***425-881-7700***

BILLING: ***Landfill account ENSR***	**PO#:** ***N/A***	**JOB#:** ***N/A***

We accept business checks, cash, or charge(with prior approval)

SPECIAL HANDLING : ***NONE:***

APPROVED: JB ***Joan Bartz*** **DATE:** ***03/16/05 11:03:18 AM***

A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER

THERE IS A MINIMUM ONE (1) YARD CHARGE ON ALL SPECIAL WASTES

WASTE MANAGEMENT

509-884-2802 6-4

9-4

9-6 DLS