GeoEngineers

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To: Barry Leahy
Lake Chelan Community Hospital

Date: 2/6/2009

File: 18155-001-00

Regarding: Proposed Hospital Property - Apple Blossom Drive Lots 20 through 26 and Open Space Tract

Date	Description
2/6/2009	Phase I and II ESA

Remarks: Please call if you have questions.

Signed: C. Nadaffy for
Jessica Robertson

PHASE I AND II ENVIRONMENTAL SITE ASSESSMENT
PROPOSED HOSPITAL PROPERTY
APPLE BLOSSOM DRIVE
LOTS 20 THROUGH 26 AND OPEN SPACE TRACT
CHELAN, WASHINGTON

FEBRUARY 6, 2009

FOR
LAKE CHELAN COMMUNITY HOSPITAL

GeoEngineers

File No. 18155-001-00

Phase I and II Environmental Site Assessment
Proposed Hospital Property
Apple Blossom Drive
Lots 20 through 26 and Open Space Tract
Chelan, Washington
File No. 18155-001-00

February 6, 2009

Prepared for:

Lake Chelan Community Hospital
P.O. Box 489
Medina, Washington 98039

Attention: Barry Leahy

Prepared by:

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DECLARATIONS

- **"I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Sec. 312.10 of 40 CFR Part 312."***
- **"I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I performed and/or developed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."***

**A person who does not qualify as an Environmental Professional may assist in the conduct of all appropriate inquiries in accordance with ASTM E 1527-05, if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional when conducting such activities.*

Dana Carlisle for

Jessica A. Robertson, LG
Environmental Geologist

Dana Carlisle

Dana L. Carlisle, PE
Principal

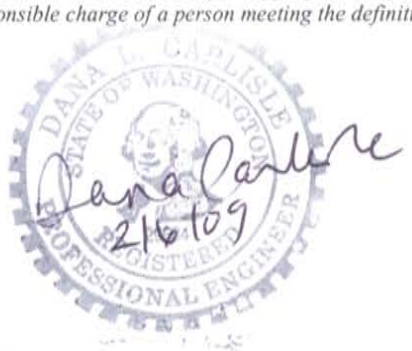

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TABLE OF CONTENTS

Page No.

TABLE OF CONTENTS (CONTINUED)

Page No.

List of Tables

Out-of-text Table

List of Figures

APPENDICES

EXECUTIVE SUMMARY

GeoEngineers has performed a Phase I and II ESA in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-05 of the Proposed Hospital Property located at Apple Blossom Drive, Lots 20 through 26 and the adjacent Open Space Tract in Chelan, Washington. Any exceptions to, or deletions from, this practice are described in Section 1.2 of this report. This assessment has revealed no evidence of RECs in connection with the subject property except for the following:

- Past use of agricultural chemicals (lead arsenate, DDT and/or other organochlorinated or organophosphorous pesticides) associated with the former orchard on the subject property is considered a REC. The subject property was formerly a portion of the Isenhart Orchard dating back to the early 1900s. A 2004 Phase II ESA for the adjacent Walmart property, which has a similar prior use history to the proposed hospital subject property, documented the presence of lead, arsenic and 4,4'DDT in shallow soils on the Walmart site. Similar to slightly higher concentrations of lead, arsenic, and organochlorine pesticides were detected in the Phase II ESA January 2009 test pit soil samples collected from the proposed hospital subject property. The adjacent property owner was able to proceed with development of the Walmart property after filing a Restrictive Covenant in 2007 and meeting other soil management conditions noted by Ecology. Ecology issued a No Further Action determination for the Walmart property in 2007.

The debris discarded on the property in the vicinity of the former house and shed in the south portion of the site does not appear to include hazardous materials at this time, and does not constitute a REC per the ASTM definition, in our opinion.

The Phase II ESA January 2009 soil sampling activities confirmed the presence of lead, arsenic and/or organochlorine pesticides in shallow soils across nearly the entire subject property. See Section 7.0 for additional "Discussion and Recommendations" based on the findings of the Phase I and Phase II ESA.

This Executive Summary should be used only in the context of the full report for which it is intended.

PHASE I AND II ENVIRONMENTAL SITE ASSESSMENT
PROPOSED HOSPITAL PROPERTY
APPLE BLOSSOM DRIVE
LOTS 20 THROUGH 26 AND OPEN SPACE
CHELAN, WASHINGTON
FOR
LAKE CHELAN COMMUNITY HOSPITAL

1.0 INTRODUCTION

This report summarizes the results of our Phase I and II Environmental Site Assessment (ESA) of the Proposed Hospital property located at Apple Blossom Drive Lots 20 through 26 and Open Space Tract in Chelan, Washington. The property is currently undeveloped but was previously an apple orchard. The property is referred to herein as the "subject property." The subject property is shown relative to surrounding physical features on the Vicinity Map, Figure 1. The layout of the subject property and surrounding properties is shown on the Site Plan, Figure 2. GeoEngineers is also completing a geotechnical engineering study for the subject property. The results of the geotechnical engineering study are reported separately.

Our study was completed at the request of Lake Chelan Community Hospital and Barry Leahy. We understand that Lake Chelan Community Hospital plans to purchase the subject property and construct a medical center (hospital and medical office buildings) in the eastern portion of the property, Lots 20 through 26. We further understand that the results of this Phase I and II ESA will be used by Lake Chelan Community Hospital as part of their evaluation of potential environmental liabilities associated with ownership and development of the subject property. This report has been prepared for the exclusive use of Lake Chelan Community Hospital. Because this environmental report is not intended for use by others, no one except Lake Chelan Community Hospital should rely on this report without first conferring with GeoEngineers.

1.1 PHASE I SCOPE OF SERVICES

The purpose of this Phase I ESA is to identify recognized environmental conditions[1] (RECs) in connection with the subject property. Our scope of services is in general accordance with American Society for Testing and Materials (ASTM) Standard E 1527-05 for Phase I ESAs and the U.S. Environmental Protection Agency's (EPA's) Federal Standard 40 CFR Part 312 "Standards and Practices for All Appropriate Inquiries (AAI)" which are intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner or bona fide prospective purchaser limitations on liability under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The standard outlines the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined by 42 U.S.C. §9601. Our services, described below, were completed in general accordance

[1] Recognized environmental conditions are defined in ASTM E 1527-05 as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

with our proposal dated November 11, 2008. These services were completed by, or under the direction of, an environmental professional as described in 40 CFR Part 312.

Our specific scope of services for the Phase I ESA is as follows:

1. Review readily available geotechnical reports, environmental reports and/or other relevant documents pertaining to environmental conditions at the subject property.
2. Review the results of a federal, state, local and tribal environmental database search provided by an outside environmental data service for listings of properties with known or suspected environmental conditions on or near the subject property within the search distances specified by ASTM. Our database and file review search included a check for and review of publications or reports on EPA and Ecology websites that might contain area-wide sampling or environmental conditions data pertaining to soil, groundwater, surface water or air on or adjacent to the subject property.
3. Review regulatory agency files regarding listed properties of potential environmental concern relative to the subject property.
4. Identify a key site manager with specific knowledge of past and present property use and request that the key site manager meet a GeoEngineers' representative on site for an interview during the visual site reconnaissance and/or an interview by phone if they are not available during the site reconnaissance. Identify and interview others familiar with the use and history of the subject property, as available and appropriate, including representatives of current occupants that likely use, store, treat, handle or dispose of hazardous substances now or in the past.
5. Interview current owners or occupants of neighboring properties as necessary to gather information or fill property use data gaps regarding the subject property.
6. Interview past owners and occupants of the subject property as necessary to gather information or fill property use data gaps regarding property use history.
7. Interview a representative of the local fire department, health department and/or the Washington State Department of Ecology (Ecology) as necessary to gather information or fill data gaps regarding the history of the subject property and surrounding properties relative to the likely presence of hazardous substances.
8. Review historical aerial photographs, fire insurance maps, city directories, and land use and tax assessor records, as available and appropriate, to identify past development history on and adjacent to the subject property relative to the possible use, generation, storage, release or disposal of hazardous substances. Attempt to identify uses of the subject property from the present back to the time that records show no apparent structures on the subject property, back to the time the property was first used for residential, agricultural, commercial, industrial or governmental purposes, or back to 1940, whichever is earliest.
9. Review current United States Geological Survey (USGS) topographic maps to identify the physiographic setting of the subject property and provide a statement on the local geologic, soil and groundwater conditions based on our general experience and sources such as geologic maps and soil surveys.
10. Conduct a visual reconnaissance of the subject property and adjacent properties to identify visible evidence of RECs.

11. Identify the source(s) of potable water for the subject property and current heating and sewage disposal system(s) used at the subject property, if any, and their age if readily ascertainable.

12. Identify data gaps relative to the Phase I ESA study findings.

13. Provide a written summary of the Phase I ESA results and identified RECs along with our opinion and recommendations regarding the potential for contamination by hazardous substances at the subject property and the significance of any data gaps identified.

1.2 PHASE II SCOPE OF SERVICES

The purpose of the Phase II ESA was to evaluate the potential presence of contamination by hazardous substances in soil at the subject property and to attempt to delineate the extent of contamination from releases (if any) associated with past use of the property or other potential sources of contamination identified during the Phase I ESA. The Phase II ESA focused on specific concerns based on the Phase I ESA. The scope of services completed for the Phase II ESA was as follows:

1. Coordinate site access and utility location and prepare a site safety plan for our employees during field activities.

2. Subcontract a private utility locate to mark the locations of underground utilities and notify the public utilities notification service to mark public utilities in the rights of way and easements.

3. Conduct Phase II ESA explorations utilizing test pit explorations completed by a subcontracted backhoe operator. The test pit explorations extended the appropriate depth to sample the upper 1 to 1.5 feet of the original orchard surface layer. Test pits will be backfilled with the excavated soils.

4. Obtain soil samples from each of the test pit explorations at approximate depth intervals ranging from 0.5- to 1.5 foot relative to the original orchard ground surface (as evident from test pit exploration and review of test pit logs from the geotechnical explorations). Field screen the soil samples for evidence of petroleum hydrocarbons and volatile organics using visual, water sheen and headspace vapor screening methods. Visually classify the samples in general accordance with ASTM D 2488 and maintain a detailed log of each test pit.

5. Select one soil sample from each test pit exploration for chemical analyses of the following: arsenic and lead by EPA 6000/7000 series methods, organochlorinated pesticides by EPA Method 8081, and/or organophosphate pesticides by EPA Method 8141.

6. Evaluate the field and laboratory data relative to Washington State Model Toxics Control Act (MTCA) Method A cleanup levels, or MTCA Method B where Method A is not available.

7. Observe the clearing of debris of the small shed near the foundation of the former residence in the southern portion of the property using the subcontracted backhoe. Obtain one soil sample of representative potentially impacted soil (if any) in the shed area for analysis of MTCA 5 metals, pesticides and petroleum hydrocarbons.

8. Prepare a summary report describing our findings and the results of our explorations and sampling. The Phase II ESA will be incorporated with the Phase I ESA documentation.

1.3 SPECIAL CONSIDERATIONS

Our scope of services did not include an environmental compliance audit or an evaluation for the presence of lead-based paint, toxic mold, polychlorinated biphenyls (PCBs) in light ballasts, radon, lead in drinking

water, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or other potentially hazardous building materials. Groundwater or surface water sampling for environmental contaminants was not part of our Phase I or II ESA services; a geotechnical evaluation of the subject property was ongoing at the time of the Phase I ESA. Our scope of services does not include an assessment of vapor intrusion into structures on the property per ASTM Standard E 2600-08.

1.4 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

Dana Carlisle is a registered Professional Engineer (PE) in Washington (#29634) and has at least 15 years of full-time experience doing Phase I ESAs. Dana is an Environmental Professional per 40 CFR Part 312. Jessica Robertson is a licensed geologist (LG) in Washington (#2570) and has at least 5 years of experience doing Phase I ESAs. Jessica is an Environmental Professional per 40 CFR Part 312.

2.0 PROPERTY DESCRIPTION

2.1 INVOLVED PARTIES

The subject property currently is owned by Naumes LLC and was formerly a portion of the Isenhart Orchards apple orchard. Lake Chelan Community Hospital is considering purchasing the property. Barry Leahy currently represents Lake Chelan Community Hospital.

2.2 LOCATION, LEGAL DESCRIPTION AND SETTING

General information, property use(s) and environmental setting of the subject property area are summarized in Table 1 below. The location is shown relative to surrounding physical features in Figure 1. The current layout of the subject property and surrounding property uses are shown in Figure 2. Photographs of the subject property are shown in Figures 3, 4 and 5.

Table 1. Subject Property Information

Topographic Map	USGS, 7.5 minute Chelan, Washington topographic quadrangle map dated 1981.
Quarter/Quarter, Section, Township and Range	SE quarter of Section 18 North, Township 27, Range 23, Willamette Meridian
Address	None established
General Location	Subject property is located south of the intersection of State Route 97A and Apple Blossom Drive in Chelan, Washington.
Legal Description	The legal description specific to the subject property has not been determined because the final plat map for Apple Blossom Center has not yet been approved. The subject property consists of 8 proposed parcels identified as Lots 20 through 26 plus the Open Space Tract identified on Naumes LLC's Apple Blossom Center plat map provided to GeoEngineers by Barry Leahy in November 2008. This plat map is included in Appendix A. The subject property is currently a portion of Chelan County Isenharts Orchards Block 2, abbreviated legal description "BSP08-001CH BSP07-3CH -04CH" per Chelan County MapOptix.
Tax Parcel Number	The subject property is currently a portion of Chelan County Parcel No. 272318627010.
Approximate Area	Eight contiguous lots totaling approximately 16.2 acres including the open space tract.

Table 1. Subject Property Information (Continued)

Existing Use(s)	Vacant land; former apple orchard.
Geologic Setting	East slope, north Cascade mountain range foothills.
Nearest Surface Water Bodies	Chelan River approximately ½ mile to southwest.
Approximate Surface Elevation	Approximately 1,300 feet above mean sea level (msl) at the northernmost property boundary, approximately 1,220 feet above msl at the southern property boundary.
Soil and Geologic Conditions	Glacially deposited sands, silts, and cobbles.
Depth to Groundwater	More than 30 feet below ground surface, based on previous reports for an adjacent property.
Inferred Direction of Shallow Groundwater Flow	To the south or southwest, based on surface topography.

Our knowledge of the general physiographic setting, geology and groundwater occurrence in the vicinity of the subject property is based on our review of the maps listed above, previous reports regarding an adjacent property, our recent geotechnical explorations at the subject property, and our general experience in the area.

2.3 SITE RECONNAISSANCE

2.3.1 Summary of Observations

A representative of GeoEngineers performed a visual reconnaissance of the subject property on December 2, 2008. Kyle Peer of Naumes LLC was identified as a "key site manager" with knowledge of property use, but was unable to meet our representative on site. Our interview with Mr. Peer took place by phone and is summarized in Section 4.0.

The subject property was accessed from Apple Blossom Drive and is currently undeveloped. Utilities have been "stubbed in" along the new right-of-way in preparation for future development.

Table 2 below summarizes conditions observed during our site reconnaissance. Section 2.3.2 contains additional details regarding conditions of potential environmental significance observed during our site reconnaissance and a summary list of known or suspected environmental conditions identified by this portion of our study. The approximate locations of the observed features discussed in this section are shown in Figure 2. Photographs of the subject property were taken to document observations made during our reconnaissance. Selected photographs are presented in Figures 3, 4 and 5.

Table 2. Summary of Site Reconnaissance Observations

Feature	Observed		Comment
	Yes	No	
Structures (existing)	X		One small wood-frame shed (unused) located on the south side of the property. Shed is in poor condition.
Structures (evidence of former)	X		Remnants of concrete foundations in the south portion of the property near the wood-frame shed are evidence of a small house (or similar structure) formerly located on the property. At several other locations on the property we observed fragments of irrigation piping and wooden apple tree supports indicative of the previous orchard on the property.
Heating/Cooling System		X	The shed is unused and has no heat/cooling.
Floor Drains, Sumps or Drywells		X	
Aboveground Storage Tanks (ASTs)	X		A discarded, disconnected AST was located near the southern property boundary, at the toe of the slope down to the adjacent stormwater pond tract. The AST is approximately 500-gallon capacity and likely was formerly used as a water tank. No petroleum staining or odors were observed on or around the tank.
Underground Storage Tanks (USTs) or Evidence of USTs		X	
Drums or Other Containers	X		One 5-gallon bucket, mostly empty but containing a small amount of dried paint, was located inside the wooden shed. No evidence of staining was observed on the ground surface surrounding this container.
Chemicals or Hazardous Materials (other than de minimis quantities of cleaning products)		X	
Evidence of Leaks, Spills or Releases Surrounding ASTs, USTs, and/or Chemical Storage Areas		X	
Stained or Corroded Floors, Walls or Drains (other than apparent water stains or minor oil stains on pavement from parked vehicles)		X	
Pipes of Unknown Origin or Use		X	
On-site Septic System		X	We could not determine the presence or absence of on-site septic systems associated with prior structures on the subject property. Residual components of an historic septic system(s) are not considered an environmental concern for the property.
Sewage Disposal System	X		Connections to municipal sewer system are available.
Potable Water Supply	X		Connections to municipal water system are available.
Solid Waste Refuse Dumpsters		X	
Hydraulic Hoists		X	
Oil/Water Separators		X	
Discolored or Stained Soil or Vegetation Potentially from Hazardous Substances	X		Burned material and charcoal observed near the concrete foundations at the former house site. No staining indicative of hazardous substances was observed.

Table 2. Summary of Site Reconnaissance Observations (Continued)

Feature	Observed		Comment
	Yes	No	
Hazardous Waste Disposal Areas		X	
Uncontained Debris, Refuse or Unidentified Waste Materials	X		Tires, mattresses, and other discarded household items were observed in and around the small shed in the southern portion of the property.
Standing Water or Other Liquids		X	
Catch Basins and Storm Water Drainage		X	Based on our observations, stormwater runoff from adjacent developed properties and roadways enters a municipal drainage system that flows to a stormwater pond south of the subject property. Stormwater on the property essentially infiltrates on the subject property.
Pits/Ponds/Lagoons		X	A stormwater pond is located on an adjacent property to the south. The stormwater pond appears newly constructed and was dry at the time of our site reconnaissance.
Waste or Wastewater Discharges		X	
Unusual Odors		X	
Stressed Vegetation		X	Vegetation over the majority of the subject property was low grasses and shrubs, as would be typical of recent regrowth after property regrading.
Fill Material	X		A thin layer of fill material, imported to level the property to design development grade, is located primarily on Lots 20 though 26. This imported fill reportedly originated from an undeveloped area formerly located on what is now the Walmart property north of SR 97A.
Water Wells (agricultural, domestic, monitoring)		X	We did not observe evidence that on-site agricultural water wells were located on the property. According to our key person interview, all irrigation water that was formerly used at the property was supplied by off-site irrigation wells that were owned by Isenhart Irrigation District.
Pad-Mounted Transformers	X		Three pad-mounted transformers were observed on the subject property adjacent to SR 97A and Apple Blossom Drive. The transformers are owned by the local utility. All three devices appeared new and in good condition. No non-PCB stickers were observed on the devices, but no staining was observed on or around the devices. Because the transformers are owned by the public utility and relatively new they are not considered an environmental concern for the subject property.
Pole-Mounted Transformers		X	
Other Conditions of Environmental Concern		X	

2.3.2 Findings

Known or suspected environmental conditions identified by this portion of the study are listed below:

- The subject property was formerly an apple orchard. As discussed later in this document, pesticides may have previously been used at the subject property.

- Relatively small quantities of discarded household and automotive items including mattresses and food packaging, tires, automotive batteries, burned material and a discarded AST (water) were observed near the location of the previous small house in the south portion of the property. Because we were unable to determine whether hazardous substances were discarded at the property; this data gap is considered potentially significant as noted in Section 2.3.3. This data gap was subsequently addressed during the Phase II portion of this study. No evidence of heating oil ASTs or USTs was observed in the vicinity of the house foundation.

2.3.3 Data Gaps

Data gaps were not identified by this portion of the study with the exception of the potential for hazardous materials discarded in the vicinity of the former house and shed in the south portion of the site. This data gap is considered significant because it relates to our ability to confirm or deny a REC associated with the discarded debris. This data gap was eliminated based on the results of the Phase II portion of this study, discussed in Section 6.0 below.

2.4 ADJACENT PROPERTY AND VICINITY OBSERVATIONS

2.4.1 Summary of Observations

We viewed properties located adjacent to and surrounding the subject property on December 2, 2008 from accessible public rights-of-way and the subject property. We did not enter adjacent properties or buildings. The subject property generally is situated in an area that is being redeveloped from original agricultural uses (fruit orchards) to commercial uses. Section 2.4.2 contains additional details regarding conditions of potential environmental significance observed during our site reconnaissance and a list of known or suspected environmental conditions identified by this portion of our study. Table 3 below outlines adjacent land uses and pertinent observations with respect to conditions that could pose a REC on the subject property. Figure 2 shows adjacent property uses and locations in relation to the subject property.

Table 3. Adjoining Streets and Adjacent Properties Observations

Direction	Adjoining Street	Position Relative to Subject Property*	Adjacent Property and Use	Comments
North	State Route 97A	Upgradient	A church and residential property is contiguous with subject property. Undeveloped former orchard land, and Walmart retail store is located north of SR 97A.	Propane tank and possible petroleum AST (approximately 500-gallon capacity) observed at church property outbuildings. No evidence of petroleum leaks, spills or releases was observed.
South	Apple Blossom Drive	Downgradient	Undeveloped former orchard and future stormwater pond	
East	Apple Blossom Drive	Crossgradient	Undeveloped former orchard	
West	None	Downgradient	Undeveloped former orchard	

Note:
* The inferred shallow groundwater flow direction in the vicinity of the subject property is toward the south or southwest as described in Section 2.2.

2.4.2 Findings

Known or suspected environmental conditions were not identified by this portion of the study with the exception of the following:

- The adjacent properties were formerly agricultural orchard with likely use and storage of agricultural chemicals. Because the subject property has similar prior uses, past use of pesticides on adjacent properties is not considered in and of itself a REC for the subject property.
- A possible petroleum AST was observed near an outbuilding at the adjacent church/residential property. However, because the observed AST was located approximately 40 to 50 feet from the subject property boundary and no evidence of leaks, spills or release were visible on the surrounding ground surface; this AST does not appear to present a REC to the subject property at this time.

2.4.3 Data Gaps

Data gaps were not identified by this portion of the study.

2.5 PREVIOUS REPORTS

2.5.1 Summary of Previous Reports

Our research did not identify prior geotechnical or environmental reports pertaining to the subject property with the exception of the concurrent geotechnical engineering report for the property by GeoEngineers (submitted under separate cover and dated December 17, 2009) and additional geotechnical work prepared for the adjacent Walmart fueling station in October 2006. Geotechnical exploration on the subject property in December 2008 included completion of eleven test pits at the property. The test pits were completed to depths of approximately 15 feet below ground surface and encountered sandy native material consisting largely of cobbles and boulders. Groundwater was not encountered. Up to 2.5 feet of fill material, likely used to level the site to surrounding finish grade, was encountered in two of the test pits completed in the northern portion of the subject property. No odors, visible staining, or sheens indicative of suspect contamination or hazardous substances were encountered in the explorations. Similar results were obtained from the four test pits completed at the adjacent Walmart fueling station site in 2006; the 2006 explorations were completed to depth ranging from 8 to 17 feet bgs. Groundwater was not encountered in the 2006 test pits and no obvious indicators of potential contamination (staining, sheens or odors) were recorded on the 2006 test pit logs for the adjacent property

2.5.2 Findings

Known or suspected environmental conditions were not identified by this portion of the study.

2.5.3 Data Gaps

Data gaps were not identified by this portion of the study.

3.0 ENVIRONMENTAL RECORDS REVIEW

3.1 DATABASE SEARCH

GeoEngineers reviewed the results of a search of pertinent environmental regulatory lists and databases for current or previous facilities listed at addresses located within ASTM-specified distances from the subject property. An initial database search was performed on November 24, 2008; following the correction of mis-mapped listings, a second database search was performed on December 8, 2008. The information reviewed was provided by a subcontracted regulatory list search service, Parcel Insight (PI). The PI report is presented in Appendix B. The report includes details regarding the listed facilities identified and maps showing the approximate locations of the listed facilities relative to the subject property.

GeoEngineers reviewed the search results for listings pertaining to the subject property. GeoEngineers also reviewed PI listing of database entries that could not be mapped by PI because of insufficient addresses (non-exact matches). Off-site facilities found within the specified distances from the subject property were evaluated for potential impact to the subject property.

The subject property was not listed. Table 4 below summarizes the listed facilities that in our opinion could pose a REC to the subject property. Other listed facilities identified in Appendix B either are located a significant distance from the subject property or are located in an inferred down- or crossgradient position relative to the subject property and are unlikely to pose a potential environmental concern to the subject property, in our opinion.

Table 4. Summary of Regulatory Database Search Listings of Potential Environmental Concern

Location	Listed Business	Listed Address	Regulatory Database	Description
Adjacent Upgradient, North across SR 97A	Isenhart's Orchard Property Former, currently Walmart	Isenhart Road, Chelan, WA	Confirmed and Suspected Contaminated Sites List No Further Action (CSCSL NFA)	Database details identify a restrictive covenant for this property. Selected Ecology files for this site were reviewed as discussed in Section 3.2 below.

3.2 REVIEW OF REGULATORY FILES

We reviewed Ecology's files for the Former Isenhart Orchard Property identified in the database search and Section 3.1. Our file review was performed on December 11, 2008. Several reports for this adjacent property were included in the Ecology file. Copies of relevant file documents are included in Appendix D. A summary of pertinent information from each of these reports follows. Our opinion of the findings from the review of regulatory files is presented in Section 3.4.

Kleinfelder, 2004a. Phase I Environmental Site Assessment, Proposed Commercial Site, Former Isenhart Orchards Property, NE of SR 97A and Isenhart Road, Chelan, Washington, dated August 27, 2004. The 2004 Phase I ESA was prepared by Kleinfelder for the property now developed into the Walmart retail store located across SR 97A, north of the proposed hospital subject property. The Phase I ESA was completed prior to Pacland's purchase of the property and before construction of the Walmart. Both the proposed hospital subject property (approximately 16 acres) and this adjacent Ecology-listed site (18 acres) were formerly portions of the 274-acre Isenhart apple orchard property. As such, the orchard

history presented in this 2004 ESA for an adjacent property is considered generally representative for the proposed hospital subject property.

According to the 2004 Phase I ESA report, the Isenhart Orchard was established by Mr. William Isenhart in the early 1900s and used as a "red delicious" apple orchard for many years. Pesticides including organophosphates as well as lead and arsenic were reported to have been used at the orchard over time. Historic storage locations for pesticides were not reported or confirmed in the 2004 Phase I ESA report. Naumes LLC purchased the 274-acre orchard property in approximately 1980, discontinued apple orchard activities in approximately 1999, and subsequently removed the apple trees in approximately 2000.

Structures located on the orchard included temporary living quarters used by migrant orchard workers, a few small permanent single-family homes, and a warehouse equipped with two aboveground fuel tanks used for fueling orchard-related vehicles. All of these features were located on what is now the Walmart property, with the exception of the warehouse and ASTs, which were located approximately as shown on Figure 2 and spanned an area currently at the intersection of Apple Blossom Drive and SR 97A, and the northeast corner of the proposed hospital subject property. Three 55-gallon drums of lube oil were also located near the warehouse as of 2004, approximately as shown on Figure 2, at a location now within the SR 97A right-of-way. No past leaks, spills or releases of hazardous materials at the warehouse or associated with the drums and ASTs were documented in the 2004 ESA and no staining was observed in the vicinity of the fuel ASTs and drum during a 2004 site reconnaissance. No documented USTs were identified on the 274-acre Isenhart Orchard property.

Kleinfelder recommended a limited Phase II ESA for the Walmart site, including collection of shallow soil samples for analyses of organophosphate pesticides, lead and arsenic. Additional Phase I ESA recommendations included removal and disposal of discarded trash and refuse and proper removal and/or decommissioning of any USTs, impacted soils, or other hazardous materials if any are encountered during redevelopment activities.

Kleinfelder, 2004b. Limited Phase II Environmental Site Assessment, Proposed Commercial Site, Former Isenhart Orchards Property, NE of SR 97A and Isenhart Road, Chelan, Washington, dated October 7, 2004. Kleinfelder's Limited Phase II ESA was conducted based on the recommendations of the August 2004 Phase I ESA. The Limited Phase II ESA scope included screening shallow soils for the presence of lead, arsenic and pesticides that might have been applied on the property historically associated with orchard operations. Twelve shallow soil samples were obtained from the property using a hand auger. Samples were collected from depths ranging from 6 inches to 1 foot bgs. All samples were analyzed for lead, arsenic, organochlorinated pesticides and organophosphorous pesticides. A summary of the results as presented in the report included the following:

- Arsenic was detected in all 12 of the soil samples analyzed at concentrations greater than the MTCA Method A soil cleanup level of 20 milligrams per kilogram (mg/kg). Detected arsenic concentrations ranged from 30 mg/kg to 140 mg/kg.
- Lead was detected in four of the 12 soil samples at concentrations greater than the MTCA Method A soil cleanup level of 250 mg/kg. The highest detected lead concentration was 710 mg/kg.
- The pesticide 4,4'DDT was detected in all 12 of the soil samples analyzed. The detected concentration of 4,4'DDT in only one of the 12 samples (11.0 mg/kg) was greater than the MTCA Method A soil cleanup level of 3.0 mg/kg.

- Except for the 4,4'-DDT result above, none of the other organochlorinated or organophosphorous pesticides was detected at concentrations exceeding MTCA Method A or B cleanup levels.

During the 2004 assessment, Kleinfelder obtained and reviewed a copy of the 2003 Area-Wide Soil Contamination Task Force (AWSCTF) documents prepared by Ecology. The AWSCTF report was completed by Ecology to present findings and recommendations pertaining to "larger" areas of "low to moderate levels" of arsenic and lead in surface soil in several Washington State counties. According to the AWSCTF report, Ecology indicates that area-wide arsenic and lead soil contamination is suspected in Chelan County, related to the long history of apple and pear orchards and associated application of pesticides in these areas. According to the Ecology report, arsenic concentrations of up to 200 parts per million (ppm) and lead concentrations ranging from 700 to 1,000 ppm are considered "low to moderate" levels of arsenic and lead in soil for properties with commercial uses where soil exposure toward children is less frequent. Kleinfelder noted that the detected arsenic and lead concentrations at the Walmart site are within the range noted by Ecology and "low to moderate."

Kleinfelder contacted Ecology to request Ecology's opinion regarding the soil sample analysis results for the Chelan Walmart site. Kleinfelder states in their October 2004 report that Ecology responded that they would likely not require additional sampling and/or soil excavation at the Walmart site because these analytes typically do not migrate in soil more than 3 or 4 feet, and because groundwater is located more than 30 feet bgs at the site. However, Ecology indicated a No Further Action determination would not be granted until the following conditions were met:

- Submittal of previous assessment reports to Ecology for review under the Voluntary Cleanup Program (VCP);
- Filing of a restrictive covenant (now known as Environmental Covenant) requiring the site owner to notify future purchasers of the presence of lead, arsenic and 4,4'DDT;
- Off-site disposal at a permitted landfill of any excavated soil containing lead, arsenic and 4,4'-DDT; and
- Any remaining impacted soil at the site with concentrations of lead, arsenic and 4,4'-DDT must by covered with impervious surfaces such as buildings or asphalt parking lots.

Kleinfelder recommended that the site owner take the recommended actions and put in place the conditions to meet Ecology's list of requirements and that the site be submitted through Ecology's VCP for No Further Action consideration.

Restrictive Covenant (Recorded on Title) between Walmart Stores, Inc. and Ecology, dated February 6, 2007. The Restrictive Covenant document is specific to the adjacent property owned by Walmart and is required because residual concentrations of lead, arsenic and 4,4'-DDT remain at that property at concentrations greater than MTCA Method A cleanup levels as documented by Kleinfelder's October 2004 Phase II ESA for the property. The Restrictive Covenant prohibits alteration or removal of any structures or parking lots at the property that may cause release or exposure of contaminated soil without written Ecology approval. The Restrictive Covenant also prohibits any activity that may interfere with "the integrity of the containment structures" or create a new exposure pathway. The Restrictive Covenant requires the property owner to notify Ecology prior to any property sales, changes in property use and changes to the restrictive covenant. A copy of the Restrictive Covenant for the Walmart property is included in Appendix D.

Washington Department of Ecology, 2007. No Further Action Determination for Isenhart Orchards Property, dated June 25, 2007. Ecology reviewed previous documents for the adjacent Walmart property, including the documents described above, as well as environmental oversight documents pertaining to the 2005-2007 construction activities for the Walmart building (note that GeoEngineers did not have access to these documents for the 2008 agency file review). Ecology concluded that no further remedial action was necessary at the site and issued a NFA determination (subject to the RC described above).

3.3 REVIEW OF AREA-WIDE CONTAMINATION REPORTS

We performed a search of Ecology and EPA websites for area-wide contamination reports that may pertain to the proposed hospital subject property. Based on this search, we identified the 2003 AWSCTF report mentioned in Section 3.2 above. We did not identify any more recent published updates to this report. AWSCTF is a 17-person panel chartered by the Washington State Departments of Ecology, Agriculture, Health, and Community, Trade, and Economic Development.

As mentioned above, the AWSCTF report included recommendations regarding "large" areas of "low- to moderate-level" arsenic and lead soil contamination that has been identified in several Washington State counties, including Chelan County, from the application of lead arsenate pesticides to tree fruit orchards. The AWSCTF does not include any specific sampling data or soil management recommendations for the proposed hospital subject property.

According to the 2003 AWSCTF report, the agencies differentiate privately owned residential sites, schools and childcare centers where children could potentially be exposed to contaminants in soil, from large commercial tracts where exposure of children is less likely. In the commercial-type scenario, the AWSCTF report indicates that "low-to-moderate" concentrations are considered as concentrations of total arsenic up to 200 mg/kg, and total lead concentrations between 700 and 1,000 mg/kg. For schools, childcare centers, and residential areas, "low-to-moderate" concentrations mean a range of up to 100 mg/kg total arsenic and 500 to 700 mg/kg total lead.

The AWSCTF report also indicates that where lead-arsenate pesticides were historically used, lead and arsenic impacts to soils are typically concentrated in the upper 6 to 18 inches of undisturbed soil, with no evidence of groundwater contamination associated with this type of application because of the very slow downward movement of these metals in soil.

The task force recommended specific approaches for managing risk of exposure to low-to-moderate lead and arsenic concentrations in soil based on the different land-use scenarios, including child-use areas, residential properties, commercial properties, and open land. A proposed hospital and open space use might warrant multiple management approaches if lead and arsenic are present in soil. The AWSCTF's general recommendations for most types of land-use scenarios may include the following:

- Soil testing where qualitative evaluations indicated the potential for exposure to contaminated soil.
- Implementation of appropriate protection measures and maintenance of surface covers that may include geotextile fabric barriers, surfacing materials such as mulch or grass cover, imported clean soil, and/or removing small or selected areas of contaminated soils (primarily in high-intensity child use areas).

- Implementation of appropriate worker protection and safety and control of dust, erosion and surface water runoff during construction for open land being developed.
- Where commercial areas are covered with impervious surfaces such as buildings or parking lots, additional response actions may not be necessary.
- Signage and/or fencing to limit trespassing, and/or appropriate vegetation ground cover maintenance, may be recommended in open-space areas near residential development.
- For mixed-use areas, (an example of mixed-use cited in the AWSCTF report is a childcare facility inside a shopping center), the child-use area recommendations should be considered for the child-use area within the larger commercial area.

3.4 FINDINGS

Known or suspected environmental conditions identified by this portion of the study are listed below:

- A 2004 Phase II ESA for the adjacent Walmart property, which has a similar prior use history to the proposed hospital subject property, documented the presence of lead, arsenic and 4,4'DDT in shallow soils on the Walmart site. The property owner was able to proceed with development of the Walmart property after filing a Restrictive Covenant in 2007 and meeting other soil management conditions noted by Ecology. Ecology issued a No Further Action determination for the Walmart property in 2007. As previously noted, past use of pesticides on adjacent properties is not considered in and of itself a REC for the subject property. However, in this case, the similar prior use history of the proposed hospital subject property and the Walmart property as part of the former Isenhart Orchard suggest that residual concentrations of lead, arsenic and/or other organochlorinated or organophosphorous pesticides may be present and thus in our opinion pesticides in soil in the subject property are considered a REC for the proposed hospital subject property.
- The 2004 Phase I ESA for the adjacent Former Isenhart Orchard property identified two 1,000-gallon fuel ASTs, drum storage area, and a warehouse on what is now the intersection and utility corridor of SR 97A and Apple Blossom Drive. The ASTs may have been partially located on the northeast corner of the proposed hospital subject property. Based on the absence of documentation or indications of leaks, spills or releases associated with the ASTs and drum storage area, the removal of these features, the subsequent redevelopment and construction of roads, and no field screening evidence of contamination in a 2008 GeoEngineers test pit completed for geotechnical purposes in this area (TP-10), we consider the prior ASTs and drum storage de minimus conditions and therefore not RECs for the subject property.

3.5 DATA GAPS

One data gap was identified during this phase of the study: portions of Ecology's file for the adjacent Walmart site (Former Isenhart Orchard property) including construction observation documents likely dated 2005-2007, were not available at the time of our agency file review. However, this data gap is not considered significant because the date range of available documents included before and after the missing documents, and the nature of the missing documents did not pertain substantively to our opinion regarding RECs. Specifically, Ecology's NFA and restrictive covenant documents, which are substantive to our findings and opinions in the Phase I ESA report for the proposed hospital subject property, were available and were reviewed.

4.0 PROPERTY HISTORY

4.1 HISTORICAL RESOURCES

Our understanding of the history of the subject property is based on a review of the information from the historical resources listed in Table 5 and interviews with the individuals listed. Selected historical research documents are included in Appendix C.

Table 5. Historical Resources Reviewed

Description	Provider or Interviewee	Dates of Coverage or Dates of Knowledge of the Property	Date Reviewed or Contacted	Comment (See Section 4.2 for findings)
Historical Aerial Photo-graphs[1]	PI	1965, 1978, 1987, 1998, and 2006	11/26/2008	
Historical Fire Insurance Maps	PI search of Sanborn maps	None	11/26/2008	Sanborn maps do not cover the subject property area
Tax Assessors Records	Chelan County Online	Recent	11/25/2008	
Historical City Directories	PI search at public libraries	1986 and 1992	11/26/2008	Streets adjacent to the subject property were not listed in the reviewed city directories.
Historical Topographic Maps	Terraserver	1981	11/25/2008	
Building Department Records	Linda Jo Williams, City of Chelan Building Department	Recent	12/01/2008	City of Chelan does not have any records regarding previous buildings at the subject property
Building Department Records	Receptionist, Chelan County Community Development	Recent	12/01/2008	Chelan County does not have any records for previous buildings at the subject property.
Title Report	Central Washington Title Services	December 1, 2008	12/22/2008	
Interview	Kyle Peer, Naumes LLC, "Key Site Manager"	Since 2001	11/25/2008 and 12/03/2008	Naumes LLC is the subject property owner.
Interview	Randy Asplund, RH2 Engineering	Recent	11/25/2008	RH2Engineering is Naumes' engineering company for the subdivision of which the subject property is a portion
Interview	Chelan Fire Department	Recent	12/01/2008	Chelan Fire has not yet responded to our request for information regarding the subject property.

Note:
[1] The scale of the photographs reviewed allowed for an interpretation of general property development/configuration, such as identifying most structures, roadways and clearings. However, the scale of the photographs did not allow for identification of specific property features, such as fuel pumps, wells or chemical storage areas on the subject property, if any.

4.2 HISTORICAL PROPERTY OWNERSHIP AND USE SUMMARY

The available historical sources indicate that the subject property was formerly a portion of a large orchard property owned by Mr. William Isenhart since the early 1900s. The large orchard property was sold to Naumes LLC in the early 1980s. In the late 1990s and early 2000s, the larger orchard property was subdivided into many smaller lots. The subject property consists of several of these smaller lots.

Based on the historical research, the subject property has been used as an apple orchard from the early 1900s until approximately 2002. Rows of apple trees are visible on all reviewed aerial photographs through 1998. Other visible subject property features include driveways and a small single-family house on the south side of the property. A warehouse and outbuildings visible adjacent to SR 97A are actually located on what is now adjacent property. The small house on the south side of the property was demolished by the late 1990s. The former heating system for this building is currently unknown, but based on the inferred small size of the house, our recent site reconnaissance observations, and our interview with Kyle Peer, property owner representative, the risk that this house used oil heat appears low. All subject property apple trees were removed by approximately 2002, according to Kyle Peer. Following that time, the subject property was regraded and utilities stubbed in along newly constructed Apple Blossom Drive in preparation for future redevelopment. Irrigation water for the apple trees was reportedly supplied by off-site wells through the Isenhart Irrigation District system. The subject property remains undeveloped and grass-covered at this time.

According to the key site manager interview, there are no USTs or ASTs at the subject property, and there have been no leaks, spills or releases of hazardous substances or petroleum at the subject property to the best of Mr. Peer's knowledge, with the exception of past pesticide use on the subject property apple orchard. According to Mr. Peer, detailed pesticide application information is not available; however, it is known that the Isenhart Orchard used then-current best practices over time, which included sprayed application of lead arsenate and/or organophosphate pesticides. Mr. Peer was unable to identify the historic storage locations for pesticides used on the property. Mr. Peer stated no knowledge of a restrictive covenant on the subject property.

4.3 ADJACENT PROPERTIES

Most of the properties adjacent to the subject property were also formerly portions of the Isenhart Orchard prior to approximately 2002. Adjacent areas to the west, south and east have been converted from their prior orchard use but remain undeveloped currently. The adjacent existing church and residential property located between the subject property and SR 97A appears as a single-family home and several small outbuildings in the 1965 aerial photograph. These buildings remain visible in all subsequent aerial photographs.

Several former Isenhart Orchard facility buildings, including apartments and wood storage buildings, were formerly located on adjacent property to the north. The nearest building, a warehouse, was demolished in approximately 2006 when SR 97A was widened and Apple Blossom Drive was constructed. The warehouse was reportedly used for storing apple crates and other orchard equipment. Most of the footprint of this building was located in what is now the intersection of these two roads, however, a small portion of the AST area south of the warehouse was located within or very near the proposed hospital subject property boundaries. The AST area consisted of two 1,000-gallon ASTs, one diesel and one gasoline, used for fueling of orchard tractors and other vehicles. Additional former orchard facility property to the north across SR 97A was redeveloped into a Walmart retail store in

approximately 2007. Environmental conditions associated with the Walmart property are discussed in more detail in Section 3.0 above.

4.4 ENVIRONMENTAL LIENS OR PROPERTY USE RESTRICTIONS

During the course of our research, we did not find that environmental liens or other property use restrictions had been filed against the subject property. An environmental covenant has been filed on the adjacent Walmart property (copy provided in Appendix D).

4.5 INFORMATION PROVIDED BY USER/USER OBLIGATIONS

We received responses to a user questionnaire, a copy of which is provided in Appendix A. According to the responses from the user-provided information (title records, environmental liens, specialized knowledge of the subject property, reason for performing the Phase I ESA, etc.), the user did not provide any specific findings that would suggest environmental conditions of potential concern or a REC relative to the subject property not previously identified in this document.

4.6 FINDINGS

This portion of the study did not identify any known or suspected environmental conditions not previously identified in this document.

4.7 DATA GAPS

Two data gaps were identified by this portion of the study:

- As of the completion of this report, the Chelan Fire Department has not responded to our request for information regarding records of USTs or hazardous materials/incidents on the subject property. Based on the results of other portions of the property history that did not identify these features at the subject property, and the likely recent nature of most fire department records on file, we consider the significance of this data gap to be low.
- No reasonably ascertainable information was available to confirm the absence or presence of any heating oil USTs or past heating oil ASTs at the former small house in the south portion of the subject property. While past heating oil use at this house cannot be excluded, it is considered possible but unlikely based on the age and type of property development. Therefore, the possible past use of heating oil at the subject property is not currently considered a REC to the subject property.

4.8 PHASE I ESA SUMMARY FINDINGS

One REC was identified by the Phase I ESA research:

- Past use of agricultural chemicals (lead arsenate, DDT and/or other organochlorinated or organophosphorous pesticides) associated with the former orchard on the subject property is considered a REC. The subject property was formerly a portion of the Isenhart Orchard dating back to the early 1900s. A 2004 Phase II ESA for the adjacent Walmart property, which has a similar prior use history to the proposed hospital subject property, documented the presence of lead, arsenic and 4,4'DDT in shallow soils on the Walmart site. The property owner was able to proceed with development of the Walmart property after filing a Restrictive Covenant in 2007 and meeting other soil management conditions noted by Ecology. Ecology issued a No Further Action determination for the Walmart property in 2007. Based on available information at this

time, the risk of soil contaminants at the subject property appears to be high; the risk of groundwater impacts from prior use of agricultural chemicals associated with orchard activities appears to be relatively low.

We noted one data gap of significance that relates to our ability to confirm or deny a second REC for the site: we were unable to discern whether debris discarded on the property in the vicinity of the former house and shed in the south portion of the site includes hazardous materials. Relatively small quantities of discarded household and automotive items including mattresses and food packaging, tires, automotive batteries, burned material and a discarded AST (water) were observed near the location of the previous small house in the south portion of the property.

5.0 PHASE II ESA

Based on the findings of the Phase I ESA portion of this study, Phase II ESA subsurface explorations were completed in selected locations on the property to assess the potential impacts to the property subsurface from the past use of pesticides at the property, as well as additional investigation in the vicinity of the former house and shed to assess the potential for hazardous materials in this area. The approximate locations of the Phase II ESA exploration locations are shown in Figure 2. Chemical analytical results for soil samples tested are presented in Table 1.

5.1 EXPLORATIONS AND SAMPLING

Twelve shallow test pit explorations (ETP-1 through ETP-12) were completed at the property on January 20, 2009. The exploration locations were spatially distributed across the property, representing approximately 1 soil sample per acre, generally similar to the spatial distribution of soil sampling done by Kleinfelder for Walmart on the adjacent property. The approximate locations of the January 2009 explorations are shown in Figure 2. The subject property surface was covered with 6 inches to 1 foot thickness of snow at the time of our Phase II ESA; snow was cleared using a backhoe from each exploration location prior to sampling.

Soil samples from each of the observed soil horizons within each test pit were screened in the field for evidence of petroleum. Metals in soil could not be screened in the field. One soil sample from each of the explorations was submitted for chemical analysis of lead, arsenic, and organochlorine pesticides. Selected soil samples were also submitted for chemical analysis of petroleum hydrocarbons and/or organophosphate pesticides. Samples were selected based for potential for impact based on our Phase I ESA observations, for example, the sample depth corresponding to the previous orchard surface. Chemical analytical results are presented in Table 1. Field procedures for the test pit explorations and soil sampling are included in Appendix F. The laboratory report and our review of the laboratory quality control (QC) are included in Appendix G.

The shallow test pit explorations ETP-1 through ETP-12 extended to maximum depths of approximately 1 to 3 feet bgs. Groundwater was not encountered in the explorations. Beneath the surface sod, the explorations generally encountered silty sand with varying amounts of gravel.

Soil sample field screening did not indicate evidence of petroleum hydrocarbons in the samples. None of the samples field screened had visible sheen. Evidence of hazardous materials was not observed near the small shed and former house foundation.

5.2 CHEMICAL ANALYTICAL RESULTS OF SOIL SAMPLES

Chemical analytical results for soil samples are summarized in Table 1, and laboratory reports are included in Appendix H.

Petroleum hydrocarbons were not detected in the surface soil sample collected from near the small shed. Organophosphate pesticides were not detected in any of the seven samples analyzed.

Lead, arsenic and/or organochlorine pesticides were detected in 11 of the 12 test pit soil samples and the soil sample from the shed area. The one test pit exception where contaminants were not detected was sample ETP-1-1.5. The detected concentrations of arsenic exceeded the MTCA Method A cleanup level of 20 mg/kg in each of the remaining 11 test pit soil samples (Table 1). The concentrations of arsenic greater than the cleanup level ranged from 43 mg/kg to 360 mg/kg (ETP-12). Of the 12 samples with detected lead concentrations, seven exceeded the MTCA Method A cleanup level of 250 mg/kg; the maximum lead concentration detected was 2,200 mg/kg in the soil sample from ETP-12. Of the 12 samples with detected organochlorine pesticides, 4,4'DDE , 4,4'DDD and/or 4,4'DDT were detected at concentrations less than the MTCA Method A or B cleanup levels with one exception: 4,4'DDE was detected at 3,000 micrograms per kilogram (µg/kg) in soil sample ETP-11-0.5, slightly greater than the MTCA Method B cleanup level of 2,900 µg/kg.

6.0 CONCLUSIONS

GeoEngineers has performed a Phase I ESA in general conformance with the scope and limitations of ASTM Practice E 1527-05 of the Proposed Hospital Property located at Apple Blossom Drive, Lots 20 through 26 and the adjacent Open Space Tract in Chelan, Washington. Any exceptions to, or deletions from, this practice are described in Section 1.2 of this report. This assessment has revealed no evidence of RECs in connection with the subject property except for the following:

- Past use of agricultural chemicals (lead arsenate, DDT and/or other organochlorinated or organophosphorous pesticides) associated with the former orchard on the subject property is considered a REC. The subject property was formerly a portion of the Isenhart Orchard dating back to the early 1900s. A 2004 Phase II ESA for the adjacent Walmart property, which has a similar prior use history to the proposed hospital subject property, documented the presence of lead, arsenic and 4,4'DDT in shallow soils on the Walmart site. Similar to slightly higher concentrations of lead, arsenic and organochlorine pesticides were detected in the Phase II ESA January 2009 test pit soil samples collected from the proposed hospital subject property. The adjacent property owner was able to proceed with development of the Walmart property after filing a Restrictive Covenant in 2007 and meeting other soil management conditions noted by Ecology. Ecology issued a No Further Action determination for the Walmart property in 2007. Based on available information at this time, the presence of soil contaminants at the subject property is confirmed; the risk of groundwater impacts from prior use of agricultural chemicals associated with orchard activities appears to be relatively low.

Based on our January 2009 explorations at the site, the presence of hazardous materials in the vicinity of the small shed and former house foundation is considered unlikely. The observed relatively small quantities of discarded household and automotive items including mattresses and food packaging, tires, automotive batteries, burned material and a discarded AST (water) that were observed in this area are likely "de minimis" in nature and do not constitute a REC per the ASTM definition.

7.0 DISCUSSION AND RECOMMENDATIONS

7.1 REC – AGRICULTURAL CHEMICALS IN SOIL

The Phase II ESA January 2009 soil sampling activities confirmed the presence of lead, arsenic, and/or organochlorine pesticides in shallow soils across nearly the entire subject property.

Based on our interpretation of the available information regarding the Walmart site, the 2003 AWSCTF report, and a February 6, 2009 phone call to Ecology's regional office we would anticipate Ecology to make at least as stringent recommendations for a hospital redevelopment on this property as they did for the Walmart redevelopment on the adjacent property. Considering a scenario for pursuing a No Further Action for the property in the future similar to what was done for the Walmart, it is foreseeable that Ecology could request the following before considering a No Further Action request for the subject property:

- The results of the January 2009 Phase II ESA findings as presented in this report for review under the VCP.
- A Work Plan, Cleanup Action Plan or similar report addressing the planned development including covering any impacted soil at the site with impervious surfaces such as buildings or asphalt parking lots or surface covers and implementation of appropriate protection measures and maintenance of non-building or pavement surface covers such as geotextile fabric barriers, surfacing materials including mulch or grass cover, imported clean soil, and/or removing small or selected areas of contaminated soils.
- Signage and/or fencing to limit trespassing, and/or appropriate vegetation ground cover and maintenance for open-space areas.
- Off-site disposal at a permitted landfill of any excavated soil associated with the development that may contain containing lead, arsenic and/or 4,4'-DDE, 4,4'-DDD or 4,4'-DDT.
- Implementation of appropriate worker protection and safety and control of dust, erosion and surface water runoff during construction for open land not planned to be developed with buildings or pavement.
- Filing of an Environmental Covenant. The current boilerplate version of the Environmental Covenant is included in Appendix E.

Note that in July 2008 Ecology announced the restructuring of the VCP and modified the program and types opinion letters available. The Walmart NFA letters were issued in 2007, prior to the program modifications. This list of items may be more or less than the agency would actually require.

7.2 SOIL HANDLING AND MANAGEMENT DURING FUTURE CONSTRUCTION

In addition to the general soil handling recommendations noted in Section 7.1, we recommend that Lake Chelan Community Hospital include a planning and budgetary contingency for handling and management of localized contaminated or impacted soil that may be encountered surrounding the former orchard warehouse AST location near the northeast corner of the property, or other locations on the property. A Soil Management Plan can be prepared for the contractor to follow to address potential petroleum-impacted soil or other contaminated soil that might be encountered during future earthwork at the site in the event that localized areas of soil that may have been impacted from past leaks, spills or releases from

the former fuel storage near the subject property and other historical site uses are encountered in excavations or utility trenches.

8.0 LIMITATIONS

This Phase I and II ESA has been prepared for use by Lake Chelan Community Hospital and Barry Leahy. GeoEngineers has performed this Phase I and II ESA of the Proposed Hospital Property at Apple Blossom Drive Lots 20 through 26 and Open-Space Tract in general accordance with the scope and limitations of our proposal dated November 11, 2008 and ASTM E 1527-05, Standard Practice for Phase I ESAs and EPA's Federal Standard 40 CFR Part 312 "Standards and Practices for All Appropriate Inquiries (AAI)."

Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted environmental science practices for Phase I ESAs in this area at the time this report was prepared. No warranty or other conditions express or implied should be understood.

Please refer to Appendix H titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

9.0 REFERENCES

Area-Wide Soil Contamination Task Force (AWSCTF). 2003. Area-Wide Soil Contamination Task Force Report, dated June 30, 2003.

GeoEngineers. 2006. Geotechnical Engineering Services, Proposed Hospital Building and Future Medical Center, US Highway 97A and Apple Blossom Drive, Chelan, Washington, Dated December 17, 2008.

GeoEngineers. 2006. Geotechnical Engineering Services, Proposed Fueling Station, Wal-Mart Store #3752, Chelan, Washington, dated October 31, 2006.

Kleinfelder. 2004a. Phase I Environmental Site Assessment, Proposed Commercial Site, Former Isenhart Orchards Property, NE of SR 97A and Isenhart Road, Chelan, Washington, dated August 27, 2004.

Kleinfelder. 2004b. Limited Phase II Environmental Site Assessment, Proposed Commercial Site, Former Isenhart Orchards Property, NE of SR 97A and Isenhart Road, Chelan, Washington, dated October 7, 2004.

Parcel Insight, Inc. (PI) aerial photographs dated 1965, 1978, 1987, 1998 and 2006.

Parcel Insight, Inc. (PI). 2008. PI Radius Map report dated December 8, 2008 (comprehensive environmental database report, including Ecology and EPA databases).

Restrictive Covenant between Walmart Stores, Inc. and Department of Ecology, dated February 6, 2007.

United States Geological Survey (USGS) topographic maps for Chelan, Washington, quadrangle provided by Terraserver, dated 1981.

Washington Department of Ecology. 2007. No Further Action Determination for Isenhart Orchards Property, dated June 25, 2007.

TABLE 1
SOIL CHEMICAL ANALYTICAL RESULTS[1]
AGRICULTURAL CHEMICALS
PROPOSED HOSPITAL AND MEDICAL CENTER, APPLE BLOSSOM DRIVE LOTS 20 THROUGH 26 AND OPEN SPACE
CHELAN, WASHINGTON

Exploration Identification[1]	Petroleum hydrocarbons (NWTPH-HCID)	Organochlorine Pesticides (EPA Method 8081A) (ug/kg)			Organophosphate Pesticides (by SIM GC/MS) (µg/kg)	Total Metals (EPA Method 6010B) (mg/kg)	
		4,4'-DDE	4,4'DDD	4,4'DDT		Arsenic	Lead
Shed Soil at surface	ND	ND	ND	29	--	12	190
ETP-1-1.5	--	ND	ND	ND	ND	ND	ND
ETP-2-3.0	--	53	ND	25	--	66	19
ETP-3-0.5	--	880	19	1,500	ND	150	780
ETP-4-1.0	--	180	ND	280	ND	43	110
ETP-5-0.5	--	85	ND	190	--	55	26
ETP-6-0.5	--	320	ND	200	ND	110	680
ETP-7-0.5	--	320	ND	670	--	140	600
ETP-8-1.0	--	20	ND	15	--	54	5.9
ETP-9-0.5	--	110	ND	280	ND	180	770
ETP-10-0.5	--	750	39	2,000	ND	120	1,500
ETP-11-0.5	--	3,000	61	1,500	--	94	540
ETP-12-0.5	--	800	47	2,100	ND	360	2,200
MTCA Method A Cleanup Level - Unrestricted Land Use	2,000 for diesel-range hydrocarbons	2,900 [2]	4,200[2]	3,000	Varies	20	250

Notes:

[1] Samples were obtained on January 20, 2009. The approximate exploration locations are shown on Figure 2.

[2] MTCA Method B cleanup level

ug/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

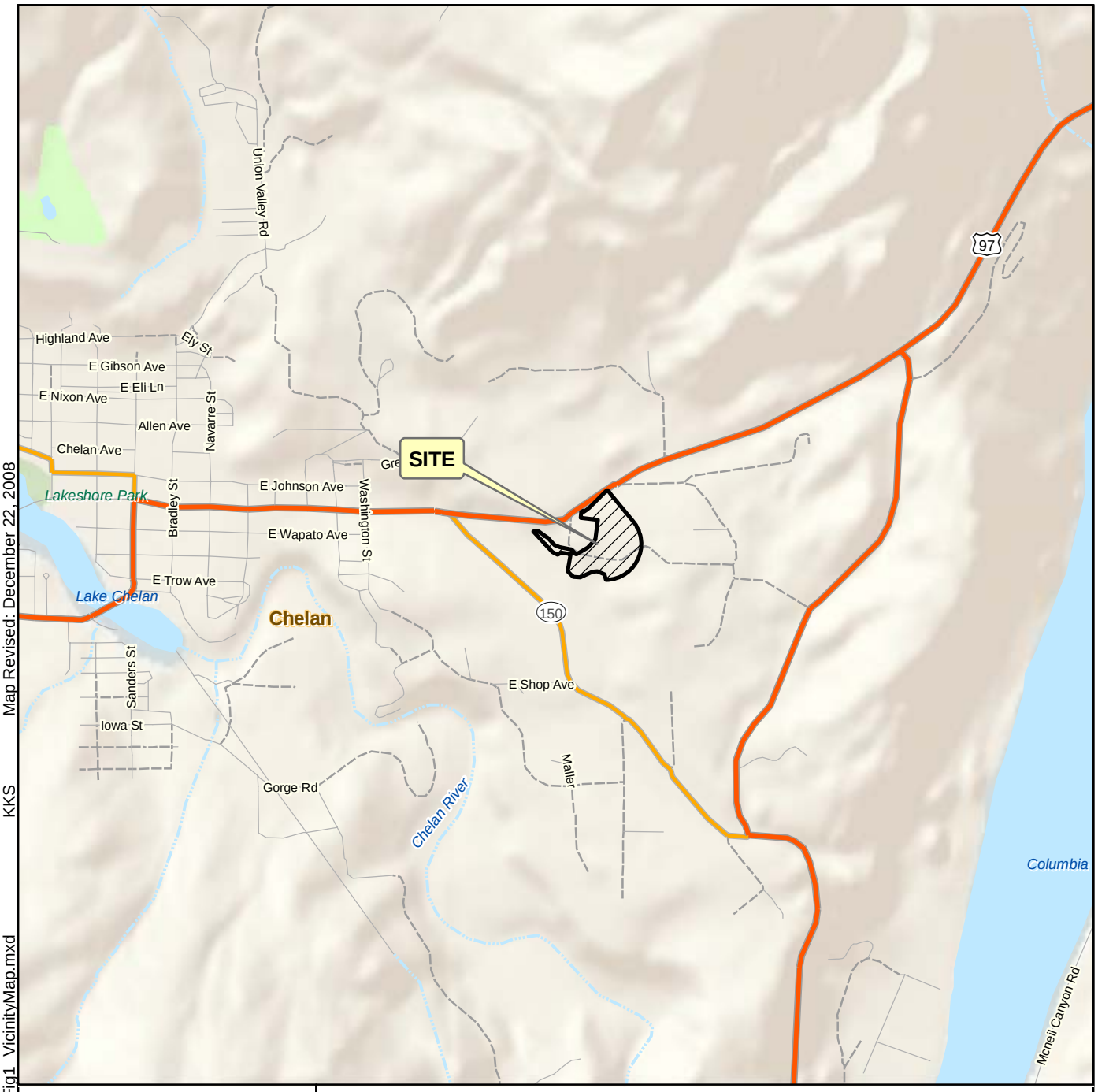
ND = not detected (refer to laboratory report for method analytes and detection limits);

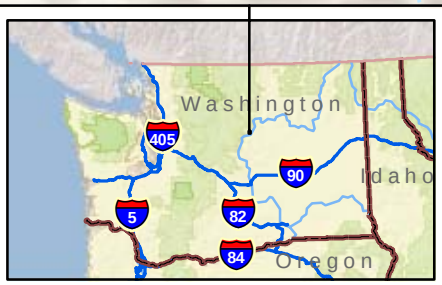
MTCA = Model Toxics Control Act

Chemical analyses performed by OnSite Environmental of Redmond, Washington; Organophosphate pesticides by Analytical Resources, Inc. of Tukwila, Washington

Shaded values exceed the referenced soil cleanup levels.

-- = not analyzed





N
W E
S

2,000 0 2,000

Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: Chelan County Parcels 2008.
ESRI Data & Maps, Street Maps 2005
Transverse Mercator, Washington North, North American Datum 1983 (feet)
North arrow oriented to grid north

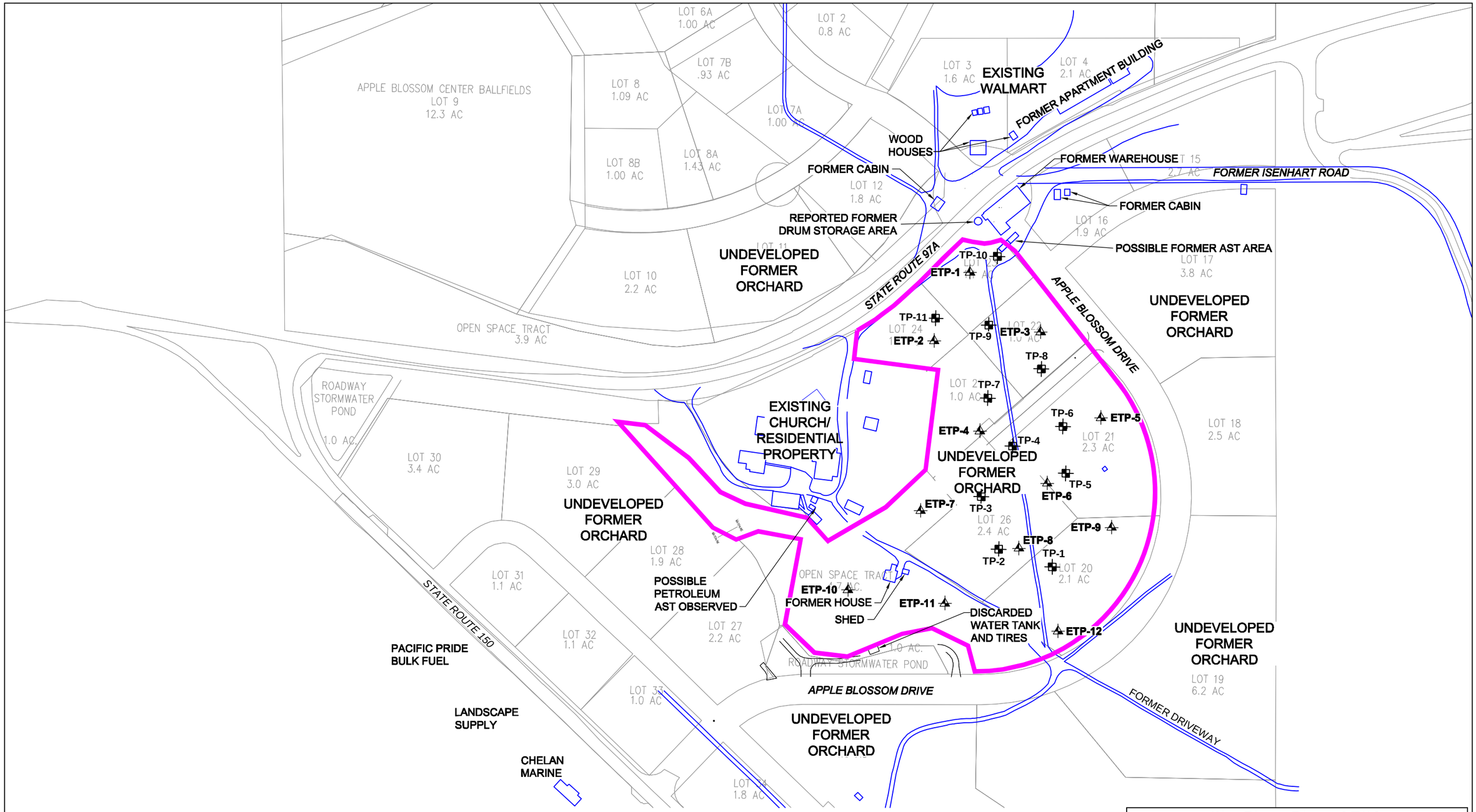
Vicinity Map

Phase I ESA
Proposed Hospital Property
Chelan, Washington

GeoEngineers

Figure 1

Office: RED Path: P:\181815500\1\GIS\1815500100_Fig1_VicinityMap.mxd KKS Map Revised: December 22, 2008



REDM\P:\18155001\00\CAD\18155001OO.dwg 02/05/09 JAR:TJM:BMK 02/05/09

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base maps provided by RH2 Engineering via email on December 1, 2008.

Legend

- Approximate Subject Property Boundary
- Former Orchard Features
- TP-1 — Geotechnical Test Pit Number and Approximate Location, 2008
- ETP-1 — Environmental Test Pit Location, 2009
- Parcel Boundaries

N W E S

250 0 250
Feet

Site Plan - Phase I ESA and Phase II ESA Explorations

Proposed Hospital Property
Chelan, Washington

GeoEngineers

Figure 2

**REPRESENTATIVE VIEW ACROSS PROPERTY
LOOKING SOUTH FROM NORTHERN PORTION**

**LOOKING WEST DOWN NORTHERN PROPERTY BOUNDARY
ADJACENT SR97A ON RIGHT SIDE OF PHOTO**

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Earth Science + Technology

SITE PHOTOGRAPHS – DECEMBER 2008

FIGURE 3

REDM:\1815500100PhotoFigures.ppt JAR 12/04/08

LOOKING EAST AT FORMER HOUSE SITE
SOUTHERN PORTION OF PROPERTY

DISCARDED TIRES, CAR BATTERIES, PAINT BUCKET
INSIDE FORMER HOUSE SITE SHED

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Earth Science + Technology

SITE PHOTOGRAPHS – DECEMBER 2008

FIGURE 4

REDM:\1815500100PhotoFigures.ppt JAR 12/04/08

LOOKING NORTHWEST ALONG WESTERN PORTION OF SUBJECT PROPERTY DESIGNATED FUTURE "OPEN SPACE TRACT"

LOOKING NORTH ACROSS ADJACENT STORMWATER POND PROPERTY TOE OF SLOPE IS SOUTHERN EXTENT OF SUBJECT PROPERTY DISCARDED WATER TANK, TIRES, OTHER DEBRIS VISIBLE

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SITE PHOTOGRAPHS – DECEMBER 2008

FIGURE 5

REDM:\1815500100PhotoFigures.ppt JAR 12/04/08

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APPENDIX A
COMPLETED USER QUESTIONNAIRE

PHASE I ESA USER QUESTIONNAIRE
PROPOSED HOSPITAL AND MEDICAL CENTER PROPERTY
APPLE BLOSSOM DRIVE LOTS 20 THROUGH 26 AND OPEN SPACE
CHELAN, WASHINGTON
FILE NO. 18155-001-00

In order to qualify for one of the federal landowner liability protections, and to enable us to fully address the objectives of the Phase I ESA, please complete the questionnaire below and provide the additional information requested.

1. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal and state or local law?

   ☐ YES ☒ NO ☐ DON'T KNOW Explain: Nothing on Title Report.

2. Are you aware of any Activity and Use Limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

   ☐ YES ☒ NO ☐ DON'T KNOW Explain: _____

3. As the user of this Phase I ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

   ☐ YES ☒ NO ☐ DON'T KNOW Explain: _____

4. Does the purchase price being paid for this property reasonable reflect the fair market value of the property?

   ☒ YES ☐ NO ☐ DON'T KNOW Explain: _____

   a. If you conclude that there is a difference and you answered NO above, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

      ☐ YES ☐ NO ☐ DON'T KNOW Explain: _____

5. Are you aware of commonly known or reasonably ascertainable information about the property that would help us identify conditions indicative or releases or threatened releases? For example,

   a. Do you know the past uses of the property?

      ☒ YES ☐ NO ☐ DON'T KNOW Explain: Agricultural (Orchard)

   b. Do you know of specific chemicals that are present or once were present on the property?

      ☐ YES ☒ NO ☐ DON'T KNOW Explain: _____

   c. Do you know of spills or other chemical releases that have taken place at the property?

      ☐ YES ☒ NO ☐ DON'T KNOW Explain: _____

   d. Do you know of any environmental cleanups that have taken place at the property?

      ☐ YES ☒ NO ☐ DON'T KNOW Explain: _____

6. Based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

☐ YES ☒ NO ☐ DON'T KNOW Explain: _____

Your Name and Organization Barry D. Leahy by Dana Corbin Date: 12-22-08

List of Requested Information, If Available

- Names and phone numbers of key individuals with knowledge of site use history.
- A map showing the boundaries of the subject site.
- Tax ID numbers for parcels included within the site.
- Copies of any past environmental site assessment and/or audit reports or risk assessment studies.
- Environmental permits.
- Registrations for underground and above-ground storage tanks (if any).
- Material data safety sheets for hazardous substances used or stored on site (if any).
- Community right-to-know plans pertaining to the site.
- Safety plans pertaining to on-site facilities.
- Reports regarding geotechnical and/or hydrogeologic conditions.
- Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the property or relating to environmental liens encumbering the property
- Recorded Activity Use Limitations (AULs)

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APPENDIX B
PARCEL INSIGHT (PI) REPORT

PARCEL INSIGHT

INCORPORATED

Parcel Insight Radius Map Report

Report ID: 739
Date: 12/8/2008

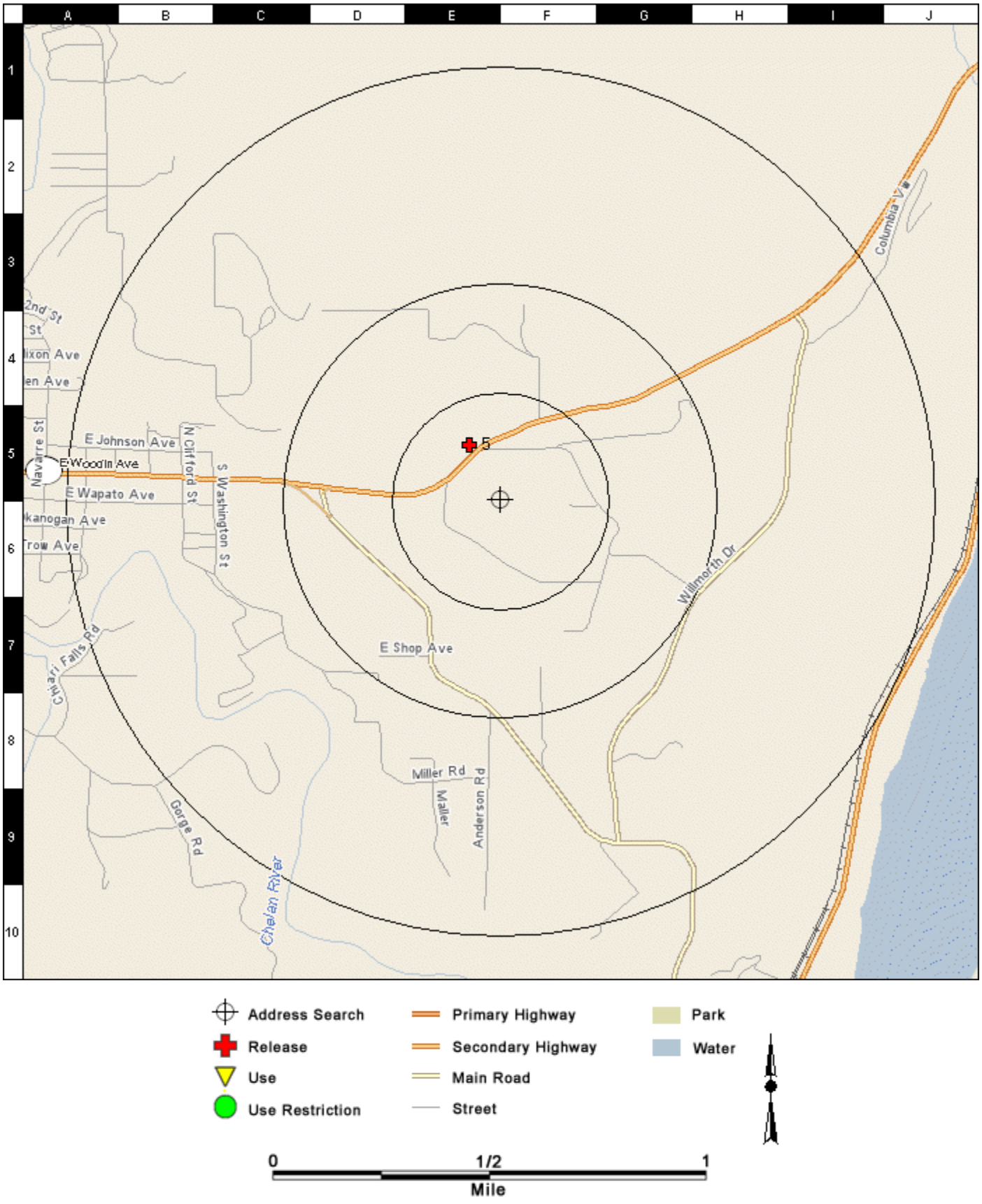
Proposed Hospital Site

HWY 97A
CHELAN, WA 98816

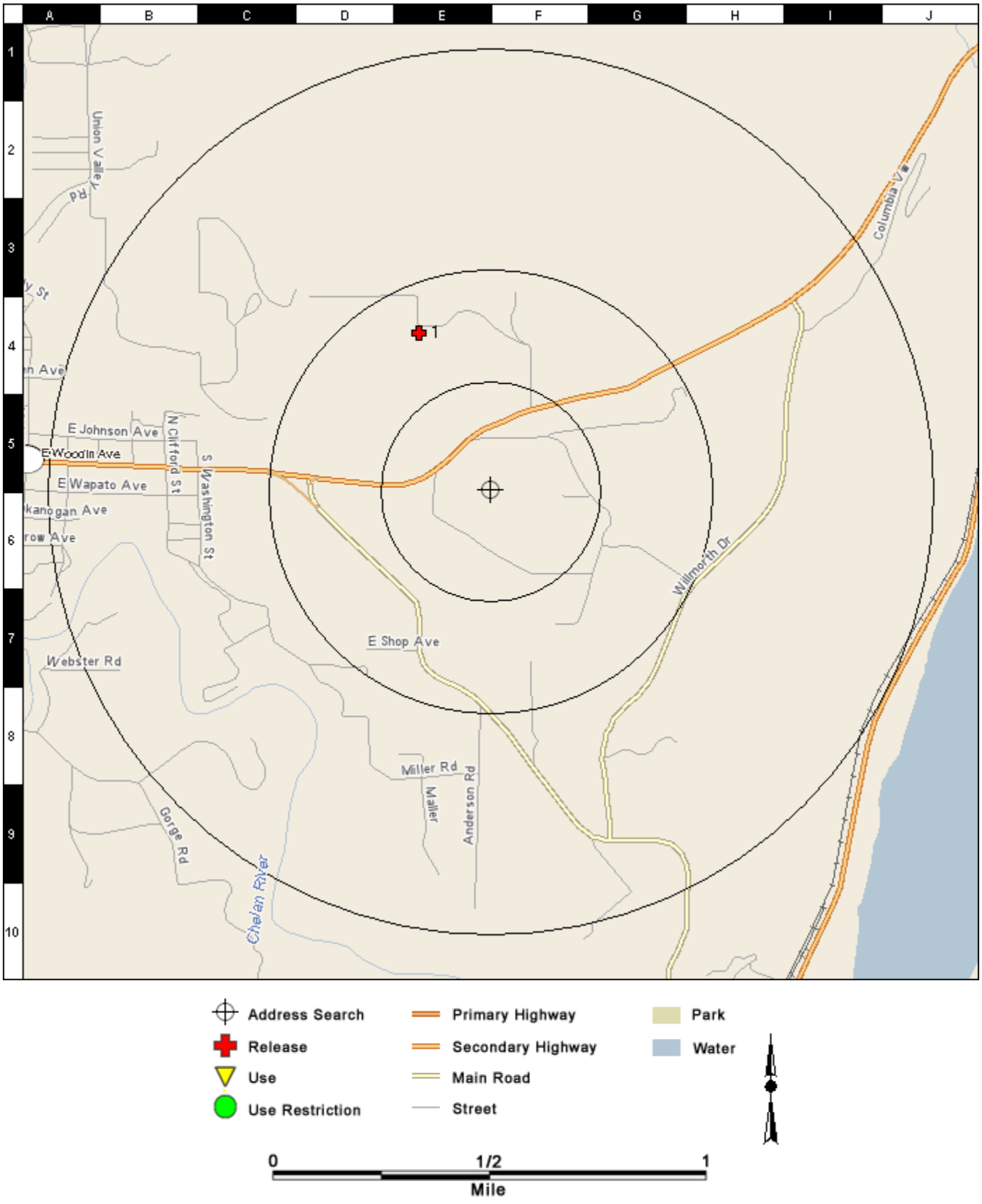
TABLE OF CONTENTS

1/4 Mile Detail Map

Overview Map



Non-Exact Match Map



Tabular Summary of Findings

RELEASE	+	*A site listed in a database that documents a release of hazardous material(s).*
USE	∇	*A site listed in a database that documents the use of hazardous material(s), but not a release of hazardous material(s).*
USE RESTRICTION	O	*A site listed in a database that documents a restriction on the use of the site related to a release of a hazardous material(s) or a formal oversight decision from a government agency.*

Map Class		*Subject Property*	*Distance*					*Total by Map Class*
			0.00 to 0.25 M	*0.25 to 0.50 M*	*0.50 to 0.75 M*	*0.75 to 1.00 M*	*1.00+ M*	
RELEASE	+		*1*					*1*
USE	∇							
USE RESTRICTION	O							

Database		*Search Radius*	*Subject Property*	*Distance*					*Total by Database Type*
				0.00 to 0.25 M	*0.25 to 0.50 M*	*0.50 to 0.75 M*	*0.75 to 1.00 M*	*1.00+ M*	
NPL	+	*1.00 M*							
RCRA CORRACTS	+	*1.00 M*							
RCRA TSD	∇	*0.50 M*							
CERCLIS	+	*0.50 M*							
CERCLIS NFRAP	+	*0.50 M*							
ERNS	+	*0.00 M*							
RCRA LQG	∇	*0.25 M*							
RCRA SQG	∇	*0.25 M*							
RCRA CESQG	∇	*0.25 M*							
LUST ACTIVE TRIBAL	+	*0.50 M*							
LUST INACTIVE TRIBAL	+	*0.50 M*							
BROWNFIELDS	O	*0.25 M*							
INST ENG CONTROLS	O	*0.50 M*							
HMIRS	+	*0.25 M*							
TRIS	+	*0.25 M*							
CSCSL	+	*0.50 M*							
CSCSL HSL	+	*1.00 M*							
CSCSL NFA	+	*0.50 M*		*1*					*1*
SWLF STATE	+	*0.50 M*							
LUST	+	*0.50 M*							
UST	∇	*0.25 M*							
SWLF STATE	+	*0.50 M*							
DECISIONS	O	*0.50 M*							
INST ENG CONTROLS	O	*0.50 M*							
RCRA ND	∇	*0.00 M*							
Totals by Distance			*0*	*1*	*0*	*0*	*0*	*0*	*1*

Exact Match Summary

				MAP CLASS		
				+	▽	○
MAP ID GRID	SITE NAME ADDRESS	PI ID # DISTANCE DIRECTION	DATABASES	RELEASE	USE	USE RESTRICTION
5 E5	Isenhart Orchards Property Former ISENHART RD, CHELAN	53025244 0.14958 NW	CSCSL NFA	X		

Non-Exact Match Summary

				MAP CLASS		
				+	▽	○
MAP ID GRID	SITE NAME ADDRESS	PI ID # DISTANCE DIRECTION	DATABASES	RELEASE	USE	USE RESTRICTION
1 E4	Stumpf Inert Waste Landfill , CHELAN	53032104 0.00000 N	SWLF STATE	X		
2 E4	Chelan Recycling Center 23235 STATE HIGHWAY 97A, CHELAN	53032096 0.00000 N	SWLF STATE	X		
3 E4	North Chelan Transfer Station 23285 STATE HWY 97A, CHELAN	53032095 0.00000 N	SWLF STATE	X		
4 E4	USDA FS WENATCHEE NF:HOLDEN MINE T31N R17E SEC 7 WM, CHELAN	53031524 0.00000 N	CERCLIS	X		

Exact Match Details

Map ID 5 0.150 M NW	GRID E5	PI ID # 53025244	LAT: 47.83583	LON: -119.97855	RELEASE +
	Site Name Isenhart Orchards Property Former **Address** ISENHART RD CHELAN, WA 98816			Databases: CSCSL NFA	

CSCSL NFA ***Confirmed and Suspected Contaminated Sites List No Further Action***

Site: ISENHART ORCHARDS PROPERTY FORMER SR 97A & ISENHART RD CHELAN, WA 98816

Facility Site ID: 5630219
County Name: CHELAN COUNTY
No Further Action Code: Restrictive Covenant, Istitutional Controls
No Further Action Date: 06/25/2007

Non-Exact Match Details

Map ID 1 0.000 M N	GRID E4	PI ID # 53032104	LAT: 47.84887	LON: -120.02926	RELEASE +
	Site Name Stumpf Inert Waste Landfill **Address** CHELAN, WA 98816			Databases: SWLF STATE	

SWLF STATE ***Solid Waste Facility Database***

Site: ,
Site_ID: CCB
Site_Name: Stumpf Inert Waste Landfill
Site_Contact_Phone: (509) 884-2400
Site_Contact_Name: Thompson
Site_Address: PO Box 3181
Site_City: Wenatchee
Site_State: WA
Site_Zip: 98807-
Name Change: 1
FacilityContactLName: Thompson
Company: Pipkin Construction
Facility Phone: (509) 884-2400
FSA/CI Comments: Formerly Box Canyon Site - change 03 report/alternate contact Don Mounter
Ownership: Private
Region: CRO
County: Chelan
Facility_Type: Landfill
Facility_Use: Inert/Demolition Waste Facility

Site_ID: CCB
Site_Name: Stumpf Inert Waste Landfill
Site_Contact_Phone: (509) 884-2400
Site_Contact_Name: Thompson
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Ownership: Private
Region: CRO
County: Chelan
Facility_Type: Landfill
Facility_Use: Inert/Demolition Waste Facility

Map ID 2 0.000 M N	GRID E4	PI ID # 53032096	LAT: 47.84904	LON: -120.02810	RELEASE +
	Site Name Chelan Recycling Center **Address** 23235 STATE HIGHWAY 97A CHELAN, WA 98816			Databases: SWLF STATE	

SWLF STATE ***Solid Waste Facility Database***

Site: ,
Site_ID: CCC1
Site_Name: Chelan Recycling Center
Site_Contact_Phone: (509) 682-4663
Site_Contact_Name: Beaton
Site_Address: PO Box 1669
Site_City: Chelan
Site_State: WA
Site_Zip: 98816-
Name Change: 0
FacilityContactLName: Beaton
Facility Phone: (509) 682-4663

Non-Exact Match Details

Map ID 2 0.000 M N	GRID E4	PI ID # 53032096	LAT: 47.84904	LON: -120.02810	RELEASE +
	Site Name Chelan Recycling Center **Address** 23235 STATE HIGHWAY 97A CHELAN, WA 98816			Databases: SWLF STATE	

FSA/CI Comments: Deleted North Chelan Recycling Center. It's the same as this file (Chelan Recycling Center.)
Ownership: Public
Region: CRO
County: Chelan
Facility_Type: Intermediate
Facility_Use: Recycling Facility

Site_ID: CCC1
Site_Name: Chelan Recycling Center
Site_Contact_Phone: (509) 682-4663
Site_Contact_Name: Beaton
Site_Address: PO Box 1669
Site_City: Chelan
Site_State: WA
Site_Zip: 98816-
Name Change: 0
FacilityContactLName: Beaton
Facility Phone: (509) 682-4663
FSA/CI Comments: Deleted North Chelan Recycling Center. It's the same as this file (Chelan Recycling Center.)
Ownership: Public
Region: CRO
County: Chelan
Facility_Type: Intermediate
Facility_Use: Recycling Facility

Map ID 3 0.000 M N	GRID E4	PI ID # 53032095	LAT: 47.57684	LON: -122.39420	RELEASE +
	Site Name North Chelan Transfer Station **Address** 23285 STATE HWY 97A CHELAN, WA 98116			Databases: SWLF STATE	

SWLF STATE ***Solid Waste Facility Database***

Site: ,
Site_ID: CCN
Site_Name: North Chelan Transfer Station
Site_Contact_Phone: (509) 682-5631
Site_Contact_Name: Woodward
Site_Address: PO Box 51
Site_City: Okanogan
Site_State: WA
Site_Zip: 98840-
Name Change: 0
FacilityContactLName: Woodward
Company: North Central Recovery Recycling
Facility Phone: (509) 422-4530
Ownership: Private
Region: CRO
County: Chelan
Section/Township/Range: 23285 State Hwy 97A, Chelan, WA 98116
Facility_Type: Intermediate
Facility_Use: Transfer Station
Notes: Operator Contact: Jim Gotti

Site_ID: CCN
Site_Name: North Chelan Transfer Station
Site_Contact_Phone: (509) 682-5631
Site_Contact_Name: Woodward

Non-Exact Match Details

Map ID 3 0.000 M N	GRID E4	PI ID # 53032095	LAT: 47.57684	LON: -122.39420	RELEASE +
	Site Name North Chelan Transfer Station **Address** 23285 STATE HWY 97A CHELAN, WA 98116			Databases: SWLF STATE	

Site_Address: PO Box 51
Site_City: Okanogan
Site_State: WA
Site_Zip: 98840-
Name Change: 0
FacilityContactLName: Woodward
Company: North Central Recovery Recycling
Facility Phone: (509) 422-4530
Ownership: Private
Region: CRO
County: Chelan
Section/Township/Range: 23285 State Hwy 97A, Chelan, WA 98116
Facility_Type: Intermediate
Facility_Use: Transfer Station
Notes: Operator Contact: Jim Gotti

Map ID 4 0.000 M N	GRID E4	PI ID # 53031524	LAT: 47.84887	LON: -120.02926	RELEASE +
	Site Name USDA FS WENATCHEE NF:HOLDEN MINE **Address** T31N R17E SEC 7 WM CHELAN, WA 98816			Databases: CERCLIS	

CERCLIS ***Comprehensive Environmental Response, Compensation, and Liability Information System***

Site: USDA FS WENATCHEE NF:HOLDEN MINE T31N R17E SEC 7 WM HOLDEN, WA 98816
County: CHELAN
Region: 10
EPA_ID: WA9122307672
FIPS_Code: 53007
US_Geological_Survey_Hydrologi: 17020009
Congressional_District: 04
Federal_Facility_Indicator: Y
NPL_Status: N
Ownership_Type: Federally Owned

OU_ID: 00
Action_Template_Order: 0
Non_NPL_Status: Superfund Alternative Site

OU_ID: 00
Action_Code: DS
Action_Short_Name: DISCVRY
Action_Code_ID: 001
Action_Lead_Type: EPA Fund
Action_Completion_Date: 3/1/1980 00:00:00
Action_Template_Order: 10
Non_NPL_Status: Superfund Alternative Site

OU_ID: 00
Action_Code: PA
Action_Short_Name: PA
Action_Code_ID: 001
Action_Lead_Type: Fed Fac
Action_Start_Date: 1992-07-01T00:00:00
Action_Completion_Date: 7/1/1992 00:00:00
Action_Template_Order: 130
Non_NPL_Status: Superfund Alternative Site

OU_ID: 00
Action_Code: SI

Non-Exact Match Details

Map ID 4 0.000 M N	GRID E4	PI ID # 53031524	LAT: 47.84887	LON: -120.02926	RELEASE +
	Site Name	USDA FS WENATCHEE NF:HOLDEN MINE		Databases: CERCLIS	
	Address	T31N R17E SEC 7 WM CHELAN, WA 98816			

Action_Short_Name: SI
Action_Code_ID: 001
Action_Lead_Type: Fed Fac
Action_Start_Date: 1996-09-25T00:00:00
Action_Completion_Date: 9/25/1996 00:00:00
Action_Template_Order: 160
Non_NPL_Status: Superfund Alternative Site

OU_ID: 00
Action_Code: OO
Action_Short_Name: SITE REASS
Action_Code_ID: 001
Action_Lead_Type: EPA Fund
Action_Start_Date: 1999-06-30T00:00:00
Action_Completion_Date: 9/18/2000 00:00:00
Action_Template_Order: 162
Non_NPL_Status: Superfund Alternative Site

OU_ID: 01
Action_Code: LW
Action_Short_Name: FF RI/FS
Action_Code_ID: 001
Action_Lead_Type: Fed Fac
Action_Start_Date: 1998-03-24T00:00:00
Action_Template_Order: 460
Non_NPL_Status: Superfund Alternative Site

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Database: *Brownfields Grant Sites*
Map Class: *Use Restriction*
Contact Number:
Web Page: *http://www.epa.gov/brownfields/index.html*
Date of Database: *2008-04-01T00:00:00*

The Brownfields Management System (BMS) is the official U.S. Environmental Protection Agency (EPA) database of the Brownfields Program. It is designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfields grant programs. BMS captures data on grantee activities (assessment, cleanup and redevelopment), funding, job training, and details on cooperative partners and leveraging efforts - a central objective of the Brownfields Program.

Database: *CERCLIS No Further Remedial Action Planned*
Map Class: *Release*
Contact Number:
Web Page: *http://www.epa.gov/superfund/sites/cursites/index.htm*
Date of Database: *2008-06-01T00:00:00*

The No Further Remedial Action Planned (NFRAP) or "Archived" designation means that, to the best of the EPA's knowledge, Superfund has completed its assessment at a site, and has determined no further steps to list this site on the NPL will be taken unless information indicating this decision was not appropriate or other considerations make a recommendation for listing appropriate at a later time. The U.S. Environmental Protection Agency (EPA) may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available and in these cases, the Archive designation is removed and the site is returned to the CERCLIS inventory if more sustentative assessment and/or any cleanup work is necessary under the Federal Superfund program. An archive decision does not necessarily mean that there is no hazard associated with a given site; it means only that based upon available information, the location is not judged to be a potential NPL site. Sites are archived as historical records so EPA does not needlessly repeat the investigations in the future. The States will coordinate with EPA to determine if any sites should be returned to CERCLIS because of newly identified contamination problems at the site. It is important to note the sites on CERCLIS and the archived list will change as the sites are being investigated or if new information becomes available.

Database: *Comprehensive Environmental Response, Compensation, and Liability Information System*
Map Class: *Release*
Contact Number:
Web Page: *http://www.epa.gov/superfund/sites/siteinfo.htm*
Date of Database: *2008-06-01T00:00:00*

The Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list contains information on hazardous waste sites, potentially hazardous waste sites and remedial activities. CERCLIS is a database used by the U.S. Environmental Protection Agency (EPA) to track activities conducted under its Superfund program. Specific information is tracked for each individual site. The database includes sites that are on the National Priorities List (NPL) or being considered for the NPL. The CERCLIS Database displays site information for NPL sites (i.e., sites proposed to the NPL, currently on the final NPL or deleted from the final NPL. NPL Sites are listed separately on the

NPL data set. Once a site is added to CERCLIS, the next step in evaluating the potential problem is the completion of a preliminary assessment (PA). The purpose of the PA is to determine whether the site warrants further Superfund investigation. The PA is typically an information gathering phase for which sampling does not take place. A PA is usually completed within one year of a site being listed in CERCLIS. Based on the conclusions of the PA, a site could be recommended for a) no further action under the EPA Superfund program; b) a sampling site investigation to collect data for further evaluation and possible nomination to the NPL; or c) an emergency or time-critical removal (short-term cleanup). Active CERCLIS sites are sites at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted under the Superfund program. CERCLIS excludes sites which EPA has assessed and designated "No Further Remedial Action Planned", or archive, sites. EPA is aware that the CERCLIS inventory is often used as a resource in assessing property. People conducting such assessments should not misinterpret the meaning of a site being contained in CERCLIS. Such sites are not necessarily contaminated, and sites not in CERCLIS are not necessarily contaminant-free.

Database: *Confirmed and Suspected Contaminated Sites List No Further Action*

Map Class: *Release*

Contact Number:

Web Page: *http://www.ecy.wa.gov/programs/tcp/sites/SiteLists.htm*

Date of Database: *2008-08-19T00:00:00*

No Further Action Site List This data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list (above) 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. The NFA code lists the basis for the NFA determination.

Database: *Confirmed and Suspected Contaminated Sites List*

Map Class: *Release*

Contact Number:

Web Page: *http://www.ecy.wa.gov/programs/tcp/sites/SiteLists.htm*

Date of Database: *2008-08-19T00:00:00*

The data set contains information about sites that are undergoing cleanup and sites that are awaiting further investigation and/or cleanup by the Department of Ecology Toxics Cleanup Program. Sites on the Hazardous Sites List (i.e., those that have been ranked using the Washington Ranking Model) are included in this data set. Within 90 days of learning of a potentially contaminated site, the Department of Ecology conducts an initial investigation of each site. If the initial investigation shows that further action is needed, the site will appear in the Confirmed & Suspected Contaminated Sites (CSCS) Report. Once remedial action has been completed, the Toxics Cleanup Program's management determines the removal of a site from the CSCS Report. The Hazardous Sites List is a subset of the CSCS Report. It contains those sites that have been ranked using the Washington Ranking Method. Site owners and operators do not necessarily agree with Ecology's determination of site status.

Database: *Confirmed and Suspected Contaminated Sites List Hazardous Site List*

Map Class: *Release*

Contact Number:

Web Page: *http://www.ecy.wa.gov/programs/tcp/sites/SiteLists.htm*
Date of Database: *2008-08-19T00:00:00*

The Hazardous Sites List (HSL) is required by law 173-340-330 WAC. It includes all sites which have been assessed and ranked using the Washington Ranking Method (WARM). Also listed are National Priorities List (NPL) sites. The categories of evaluation are linear and include several steps. The Initial Investigation (II) is a brief investigation conducted within 90 days of receiving a site discovery report. The II step provides enough information to determine if the site needs further investigation, emergency cleanup, or no further action. If further action is required, early notice letters are sent to site owners, operators, etc. inviting them to work cooperatively with us to resolve any contamination problems, AND the site proceeds to the next step. The Site Hazard Assessment (SHA) is an assessment to confirm the presence of hazardous substances and to determine the relative risk the site poses to human health and the environment. (Note: Some SHAs are conducted by Ecology staff while others are conducted by local health districts / departments.) The Hazard Ranking (WARM Score) includes the results of the Site Hazard Assessment step that are used in the Washington Ranking Method (WARM) to yield a WARM score. The WARM score is a number between 1 and 5, where a score of 1 represents the highest level of risk and 5 indicates the lowest assessed risk. A zero indicates that the site is either on the federal National Priorities List (NPL) or is a sub-site or operable unit of an NPL site. NPL sites are ranked under the federal Hazard Ranking System (HRS). This WARM score is not removed at the time of a No Further Action determination as it is kept for historical purposes.

Database: *Ecology Digest 26 (Catalog of Formal Oversight Decision Documents, Orders and Decrees)*
Map Class: *Use Restriction*
Contact Number:
Web Page: *http://www.ecy.wa.gov/programs/tcp/sites/DIGEST%2026.pdf*
Date of Database: *2008-07-07T00:00:00*

The Toxics Cleanup Program maintains a list of all formal oversight decision documents under the Model Toxics Control Act that have been agreed to and signed by the Program's manager or designee. These decision documents include all Consent Decrees, Prospective Purchaser Consent Decrees, Agreed Orders, and Enforcement Orders under the Model Toxics Control Act.

Database: *Emergency Response Notification System*
Map Class: *Release*
Contact Number:
Web Page: *http://www.nrc.uscg.mil/wdbcgi/wdbcgi.exe/WWWUSER/WEBDB.foia_query.show_parms*
Date of Database: *2008-04-01T00:00:00*

The Emergency Response Notification System (ERNS) is a national computer data base used to store information on releases of oil and hazardous substances. ERNS supports the Emergency Response and the Title III program. The ERNS program is a cooperative effort among EPA Headquarters, the Department of Transportation (DOT), National Transportation Systems Center (NTSC), the ten EPA Regions, the U.S. Coast Guard (USCG), and the National Response Center (NRC). ERNS provides the most comprehensive data compiled on release notifications of oil and hazardous substances in the United States. When a release report is submitted to Federal authorities (e.g., NRC or Regional offices), the individual reporting is asked a series of questions regarding the release (e.g., type, location, volume). Information concerning all releases originally reported to the NRC or EPA Regional offices is entered into local

computers and transmitted electronically from the NRC or EPA Regional office to the NTSC, where it becomes part of the ERNS national data base. The procedures for maintaining the initial reports differs between the NRC and the EPA Regions. The NRC maintains electronic copies of all spill reports as they were initially received and does not make any changes to spill reports once they have been entered into the system. Reports received by the NRC contain information that may be valuable to the on-scene coordinators, as well as to enforcement personnel. The information received by the NRC is sent to the Regional offices through the Volpe National Transportation Systems Center (VNTSC). Since these reports may be used in enforcement actions, it is necessary to maintain a copy of the spill report as it was originally reported. Each EPA Region maintains its own Region-specific data base, which is a subset of the national data base. Initial spill reports made directly to an EPA Region are maintained as hard copies and kept in the individual Regional office. When additional information on a release notification is obtained, it is also entered at the Regional level and electronically transmitted to the national system. An initial and modified copy of each report is maintained at VNTSC to preserve data integrity.

Database: *Hazardous Materials Information Reporting System*
Map Class: *Release*
Contact Number:
Web Page: *http://hazmat.dot.gov/pubs/inc/hmisframe.htm*
Date of Database: *2008-07-14T00:00:00*

The Hazardous Materials Incident Reporting System (HMIRS) contains data on spills, releases, or other incidents involving hazardous materials during the course of transportation. All modes of transportation are included except pipeline and bulk marine transportation. The data set contains the Incident Report Form 5800.1 data submitted under the requirements of Title 49 CFR 171.15 and 171.16. HMIRS of the Pipeline and Hazardous Materials Safety Administration (PHMSA) was established in 1971 to fulfill the requirements of the federal hazardous materials transportation law. Part 171 of Title 49, Code of Federal Regulations (49 CFR) contains the incident reporting requirements of carriers of hazardous materials. An unintentional release of hazardous materials meeting the criteria set forth in Section 171.16, 49 CFR must be reported on U.S. Department of Transportation (DOT) Form 5800.1, and data from the reports received are subsequently entered in the HMIRS database. All spills meeting the following criteria to be reported to PHMSA: 1) As a direct result of hazardous materials a person is killed or receives injuries requiring hospitalization, estimated property damage exceeds $50,000, an evacuation of the general public lasts for one or more hours, a major transportation artery or facility is closed for one or more hours, or the operational flight pattern or routing of an aircraft is altered, 2) Fire, breakage, spillage, or suspected contamination occurs involving shipment of radioactive materials or infectious substances, 3) There has been a release of a marine pollutant exceeding 450 L or 400 kg, or 4) Any hazardous material is unintentionally released from a package or any quantity of hazardous waste is discharged during transportation.

Database: *Institutional and Engineering Controls*
Map Class: *Use Restriction*
Contact Number:
Web Page: *http://www.epa.gov/superfund/index.htm*
Date of Database: *2008-06-01T00:00:00*

This data set identifies RCRA and NPL sites with institutional and/or engineering controls in place.

Database: *Institutional and Engineering Controls*
Map Class: *Use Restriction*
Contact Number:

Web Page: *http://www.ecy.wa.gov/programs/tcp/sites/SiteLists.htm*
Date of Database: *2008-08-19T00:00:00*

This data set is a subset of CSCSL and identifies sites where a remedial action was conducted, residual contamination was left on site and on-going institutional controls required.

Database: *Leaking Underground Storage Tanks*
Map Class: *Release*
Contact Number:
Web Page: *http://www.ecy.wa.gov/programs/tcp/sites/SiteLists.htm*
Date of Database: *2008-08-19T00:00:00*

The LUST data file contains information on UST Cleanup sites and cleanup history. Sites that have been cleaned up and sites currently being cleaned up are included in the data set. Sites are categorized based on the activities taken. Awaiting Cleanup means the site has been discovered or reported release, yet no active cleanup measures taken or Site check (identified the source) begun or completed, yet no active cleanup measures taken or site characterization begun or completed, yet no active cleanup measures taken. Cleanup Started means responsible party has initiated physical, biological, or chemical management of release, e.g. soil excavated, groundwater pumped, vapors extracted, free product removed, oxygen added, etc., site investigations and emergency responses (e.g. venting explosive vapors, providing bottled water) do not qualify as activities under cleanup started. Monitoring means groundwater monitoring is the only activity occurring at the site or site has been characterized, only low levels of soil and/or groundwater contamination remain, and natural attenuation is the chosen cleanup method or conformational monitoring following active cleanup measures. Reported Cleaned Up means owner or consultant reports that contamination has been cleaned up and/or some soil contamination may remain under existing structures or in otherwise inaccessible areas if groundwater is not threatened and there has been no migration of contamination into the structure and cleanup report has not been formally reviewed by Ecology. A formal review could determine that the site has not been cleaned up to MTCA standards. No Further Action means the cleanup report has been formally reviewed by Ecology under the fee-based Voluntary Cleanup Program and resulted in a No Further Action status and Institutional controls may have been required due to soil contamination that may remain under existing structures or in otherwise inaccessible areas.

Database: *National Priority List*
Map Class: *Release*
Contact Number:
Web Page: *http://www.epa.gov/superfund/index.htm*
Date of Database: *2008-06-01T00:00:00*

The National Priorities List (NPL) is an information and management tool that is a part of the Superfund cleanup process. The NPL serves primarily informational purposes, identifying for the States and the public those sites or other releases that appear to warrant remedial actions. The identification of a site for the NPL is intended primarily to guide the U.S. Environmental Protection Agency (EPA) in: determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with a site; identifying what Comprehensive Environmental Response Compensation and Liability Act (CERCLA)-financed remedial actions may be appropriate; notifying the public of sites EPA believes warrant further investigation; and serving notice to potentially responsible parties that EPA may initiate CERCLA-financed remedial action. Inclusion of a site on the NPL does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the Hazard Ranking System (HRS) be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the

United States. The NPL list is also known as Appendix B of the National Contingency Plan. The Federal Register (FR) Notices for NPL Updates page provides a list of FR Notices for proposed and final NPL Updates. The Superfund cleanup process begins with site discovery or notification to EPA of possible releases of hazardous substances. Sites are discovered by various parties, including citizens, State agencies, and EPA Regional offices. Once discovered, sites are entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), EPA's computerized inventory of potential hazardous substance release sites (view Superfund Site Information). EPA then evaluates the potential for a release of hazardous substances from the site through these steps in the Superfund cleanup process. Superfund was created in 1980 when Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to clean up the nation's uncontrolled hazardous waste sites. Under the Superfund program, abandoned, accidentally spilled, or illegally dumped hazardous wastes that pose a current or future threat to human health or the environment are cleaned up. EPA works closely with communities, potentially responsible parties, scientists, researchers, contractors, and state, local, tribal, and federal authorities on site cleanup. Together with these groups, EPA identifies hazardous waste sites, tests the conditions of the sites, develops cleanup plans, and cleans up the sites. The site areas depicted in this polygon data set have been developed by EPA solely for the purpose of a modeling exercise being conducted for the Superfund Workload Assessment Project. These data are not intended for and should not be used or refrenced for any other purpose.

Database: *RCRA Conditionally Exempt Small Quantity Generator*
Map Class: *Use*
Contact Number:
Web Page: *http://www.epa.gov/epaoswer/osw/gen_trans/generate.htm#pagecontents*
Date of Database: *2008-07-21T00:00:00*

Conditionally Exempt Small Quantity Generators (CESQG) generate 100 kilograms or less per month of hazardous waste, or 1 kilogram or less per month of acutely hazardous waste. Requirements for CESQG's include (see also 40 CFR 261.5). CESQG's must identify all the hazardous waste generated. CESQG's may not accumulate more than 1,000 kilograms of hazardous waste at any time. CESQG's must ensure that hazardous waste is delivered to a person or facility who is authorized to manage it.

Database: *RCRA Corrective Action Report*
Map Class: *Release*
Contact Number:
Web Page: *http://www.epa.gov/epaoswer/hazwaste/ca/index.htm*
Date of Database: *2008-07-21T00:00:00*

The Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS) list is a summary of those facilities where corrective action is occurring. The RCRA Corrective Action Program, run by EPA and 41 authorized states and territories, compels responsible parties to address the investigation and cleanup of hazardous releases themselves. RCRA Corrective Action differs from Superfund in that Corrective Action sites generally have viable operators and on-going operations. RCRA grants EPA and authorized states the authority to regulate hazardous waste management facilities that treat, store, or dispose of hazardous waste. Although EPA guidelines are designed to prevent toxic releases at RCRA facilities, accidents or other activities have sometimes released pollutants into soil, ground water, surface water and air. By the year 2020, EPA and the authorized states plan to have largely completed the work of implementing final remedies at all facilities requiring Corrective Action. (See Goal 3 of the Office of Solid Waste's 2020 Vision for more details.) While working toward the 2020 goal, EPA decided to ensure that sites presenting the greatest risk to human health and the environment are dealt with first. Accordingly, the Corrective Action Program has pledged to select a final remedy at 30% and put a final remedy in place at 20% of 1,968 highest-priority sites by 2008.

Database: *RCRA Large Quantity Generator*

Map Class: *Use*

Contact Number:

Web Page: *http://www.epa.gov/epaoswer/osw/gen_trans/generate.htm#pagecontents*

Date of Database: *2008-07-21T00:00:00*

Large Quantity Generators (LQG) generate 1,000 kilograms per month or more of hazardous waste, or more than 1 kilogram per month of acutely hazardous waste. LQG's may only accumulate waste on site for 90 days, but certain exceptions apply. LQG's do not have a limit on the amount of hazardous waste accumulated on site. There must always be at least one employee available to respond to an emergency. This employee is the emergency coordinator responsible for coordinating all emergency response measures. LQG's must have detailed, written contingency plans for handling emergencies. LQG's must submit a biennial hazardous waste report.

Database: *RCRA No Designation*

Map Class: *Use*

Contact Number:

Web Page: *http://www.epa.gov/epaoswer/osw/gen_trans/generate.htm#pagecontents*

Date of Database: *2008-07-21T00:00:00*

RCRA sites that are identified as having a RCRA generator identified number but that are not identified as a large quantity generator, small quantity generator, conditionally exempt small quantity generator, treatment storage or disposal (TSD) facility, or RCRA corrective action sites.

Database: *RCRA Non Corracts TSD*

Map Class: *Use*

Contact Number:

Web Page: *http://www.epa.gov/epaoswer/osw/tsds.htm*

Date of Database: *2008-07-21T00:00:00*

Through the Resource Conservation and Recovery Act (RCRA), Congress directed EPA to create regulations to manage hazardous waste from "the cradle to the grave." Under this mandate, EPA developed strict requirements for all aspects of hazardous waste management including the treatment, storage, and disposal (TSD) of hazardous waste. TSDS include those facilities that treat, store, and/or dispose hazardous waste. TSDS are the last link in the cradle to the grave waste management system. The requirements for TSDS are found in 40 CFR Parts 264 and 265 and are more extensive than those that apply to hazardous waste generators or transporters.

Database: *RCRA Small Quantity Generator*

Map Class: *Use*

Contact Number:

Web Page: *http://www.epa.gov/epaoswer/osw/gen_trans/generate.htm#pagecontents*

Date of Database: *2008-07-21T00:00:00*

Small Quantity Generators (SQG) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month. SQG's may accumulate hazardous waste on site for 180 days without a permit (or 270 days if shipping a distance greater than 200 miles). The quantity of hazardous on site waste must never exceed 6,000 kilograms. There must always be at least one employee available to respond to an emergency. This employee is the emergency coordinator responsible for coordinating all emergency response measures. SQG's are not required to have detailed, written contingency plans.

Database: *Solid Waste Facility Database*

Map Class: *Release*

Contact Number:

Web Page: *http://www.ecy.wa.gov/biblio/0407019.html*

Date of Database: *2007-01-01T00:00:00*

The solid waste facility database contains disposal information for landfills, incinerators, and transfer facilities. The types of facilities included are those that are permitted under chapter 173-350 WAC, Minimum Functional Standards for Solid Waste Handling and chapter 173-351 WAC, Criteria for Municipal Solid Waste Landfills. Information in the solid waste facility database is obtained through annual reporting forms sent to all landfill types (municipal, inert/demolition, limited purpose/special use, and wood waste landfills) and to waste-to-energy/incinerators.

Database: *Toxic Chemical Release Inventory*

Map Class: *Release*

Contact Number:

Web Page: *http://www.epa.gov/tri/index.htm*

Date of Database: *2008-01-01T00:00:00*

The Toxics Release Inventory (TRI) contains information on releases of nearly 650 chemicals and chemical categories from industries including manufacturing, metal and coal mining, electric utilities, and commercial hazardous waste treatment, among others. The Emergency Planning and Community Right-to-Know Act (EPCRA) primary purpose is to inform communities and citizens of chemical hazards in their areas. Sections 311 and 312 of EPCRA require businesses to report the locations and quantities of chemicals stored on-site to state and local governments in order to help communities prepare to respond to chemical spills and similar emergencies. EPCRA Section 313 requires EPA and the States to annually collect data on releases and transfers of certain toxic chemicals from industrial facilities, and make the data available to the public in the Toxics Release Inventory (TRI). In 1990 Congress passed the Pollution Prevention Act which required that additional data on waste management and source reduction activities be reported under TRI. The goal of TRI is to empower citizens, through information, to hold companies and local governments accountable in terms of how toxic chemicals are managed. EPA compiles the TRI data each year and makes it available. The TRI program has expanded significantly since its inception in 1987. The Agency has issued rules to roughly double the number of chemicals included in the TRI to approximately 650. Seven new industry sectors have been added to expand coverage significantly beyond the original covered industries, i.e. manufacturing industries. Most recently, the Agency has reduced the reporting thresholds for certain persistent, bioaccumulative, and toxic (PBT) chemicals in order to be able to provide additional information to the public on these chemicals.

Database: *Tribal Leaking Underground Storage Tanks Active*

Map Class: Release
Contact Number:
Web Page: http://www.epa.gov/oust/directiv/od961015.htm
Date of Database: 2006-11-01T00:00:00

The list contains information about "active" leaking underground storage tanks (LUST) sites on federally recognized Native American tribal lands. The sites are considered active because they are still subject to future investigation and/or remediation by the U.S. Environmental Protection Agency. The tribes are sovereign entities subject to federal laws. Underground storage tanks located on tribal lands generally are not subject to state laws. As a result, unless a state acts as a tribe's agent pursuant to a formal agreement with a tribe, EPA and the tribe are responsible for implementing and enforcing the UST program on tribal lands.

Database: Tribal Leaking Underground Storage Tanks Inactive
Map Class: Release
Contact Number:
Web Page: http://www.epa.gov/OUST/directiv/d961015a.htm
Date of Database: 2006-11-01T00:00:00

The list contains information about "inactive" leaking underground storage tanks (LUST) sites on federally recognized Native American tribal lands. The sites are considered inactive because they have been investigated and/or remediated and the U.S. Environmental Protection Agency has concurred with the inactive status. The tribes are sovereign entities subject to federal laws. Underground storage tanks located on tribal lands generally are not subject to state laws. As a result, unless a state acts as a tribe's agent pursuant to a formal agreement with a tribe, EPA and the tribe are responsible for implementing and enforcing the UST program on tribal lands.

Database: Underground Storage Tanks
Map Class: Use
Contact Number:
Web Page: http://www.ecy.wa.gov/programs/tcp/sites/SiteLists.htm
Date of Database: 2008-08-19T00:00:00

The UST list contains information for UST sites and tanks in Washington. Both operational and closed USTs are on the list. USTs that are excluded from the list include those that have not been registered with the Washington Department of Ecology. Non-registered tanks generally include farm or residential tanks of 1,100 gallons or less capacity storing motor fuel for noncommercial purposes; tanks storing heating oil for use on the premises where stored; Septic tanks; Pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws; Surface impoundments, pits, ponds, or lagoons; Storm water or waste water collection systems; Flow-through process tanks; Liquid traps or associated gathering lines directly related to oil or gas production and gathering operations; Tanks on or above the floor of underground areas, such as basements or tunnels; Tanks with a capacity of 110 gallons or less. The substances covered under the notification requirements apply to USTs.

Database: Washington Unauthorized Tire Piles
Map Class: Release

Government Record Tracking

Contact Number:

Web Page: *http://www.ecy.wa.gov/biblio/0507043.html*

Date of Database: *2005-11-15T00:00:00*

The Washington Department of Ecology (Ecology) conducted a study of unauthorized tire piles in Washington. The legislature required this study to be completed and submitted by Ecology to the appropriate standing committees of the legislature by November 15, 2005. The report and appendices present a detailed discussion of how this information was collected and assembled. This study identified 54 sites statewide with unauthorized accumulations of scrap tires. Site mapping was completed and the number of scrap tires was estimated. One site (Goldendale-Tire Shredders) accounts for more than two-thirds of the calculated scrap tires and more than half of the total estimated cleanup costs. Of the 54 sites, only five require more than 10 estimated on-site days to complete the individual cleanups.

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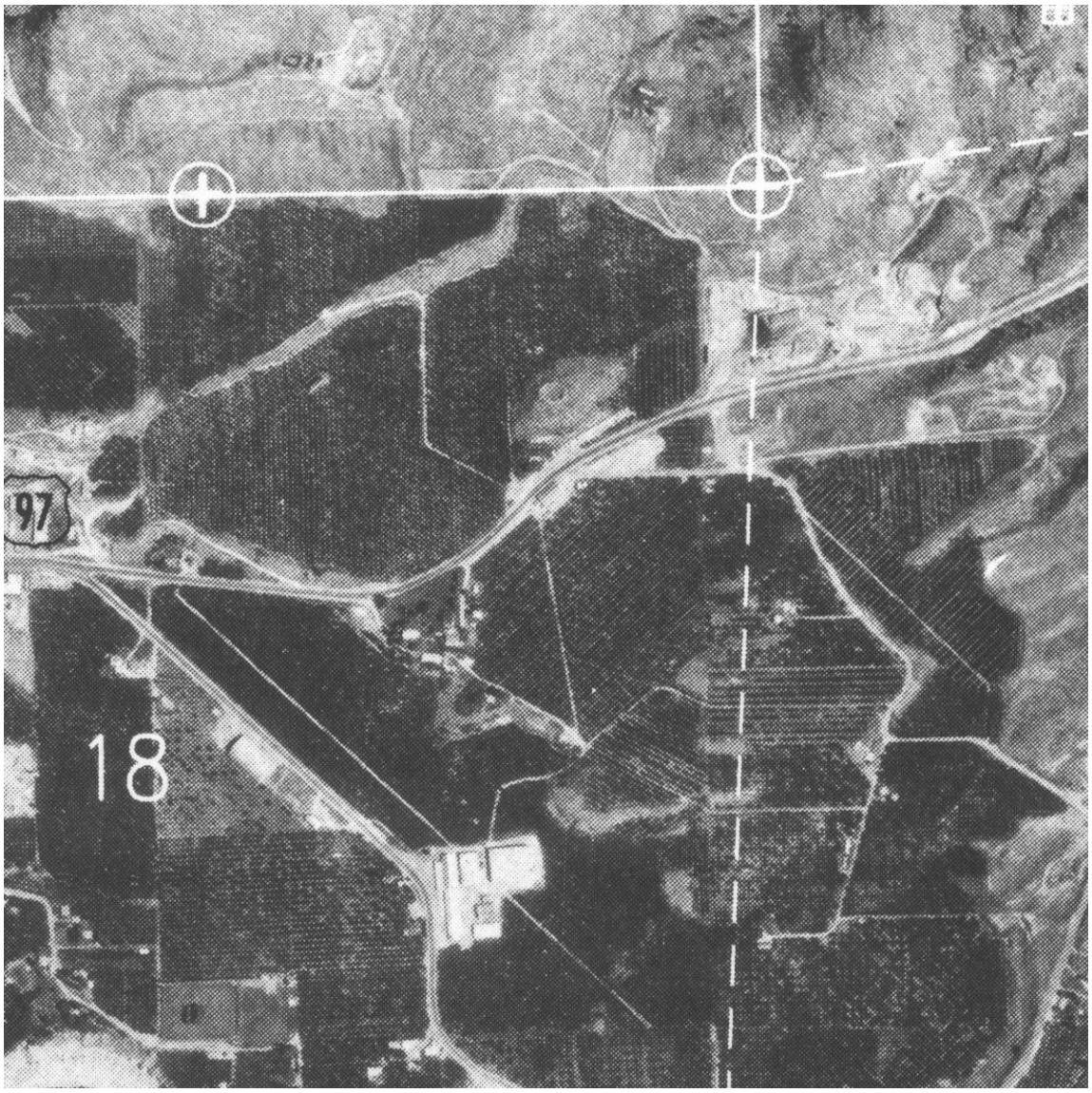
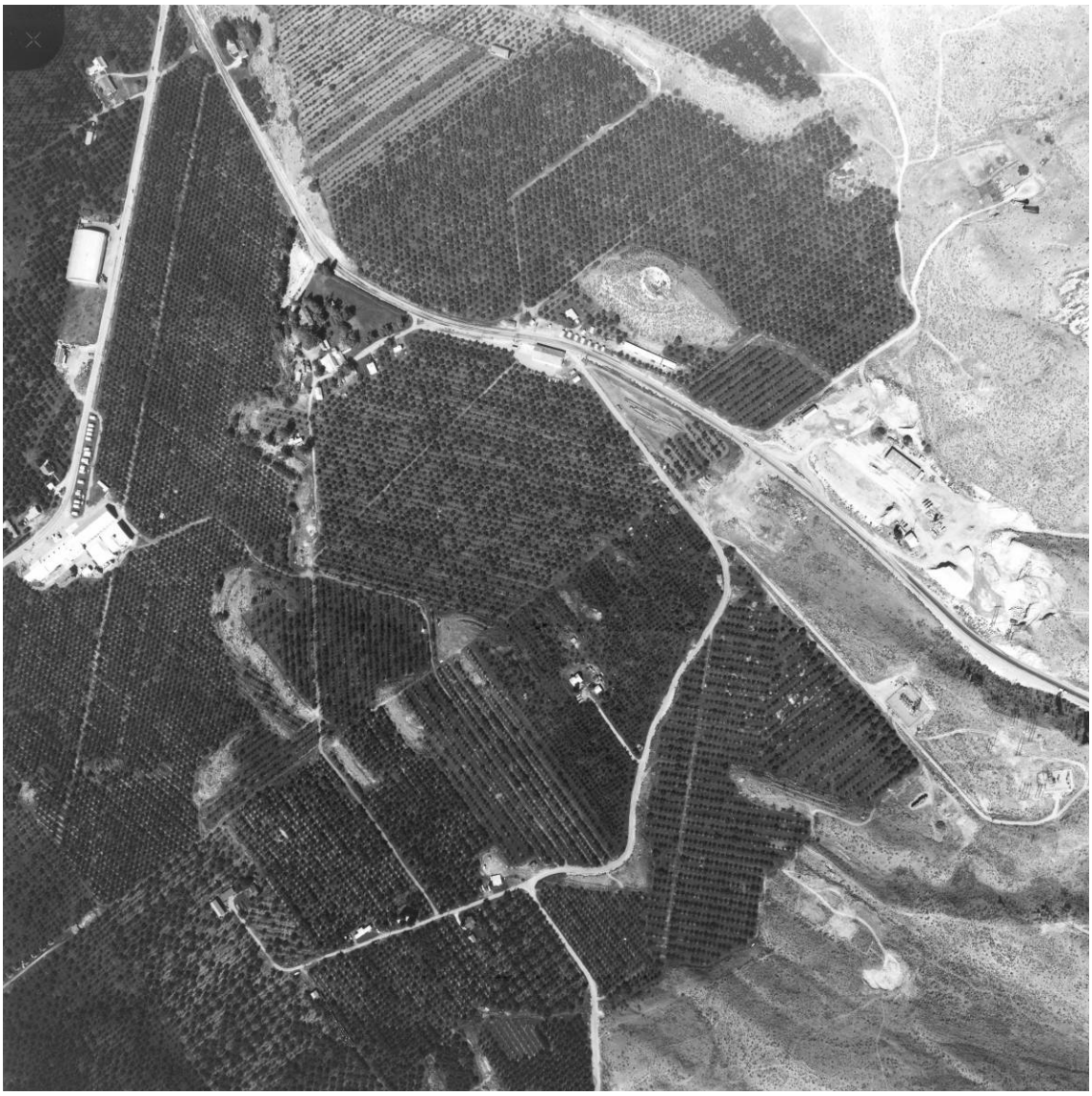
APPENDIX C
SELECTED HISTORICAL RESEARCH DOCUMENTS

1998

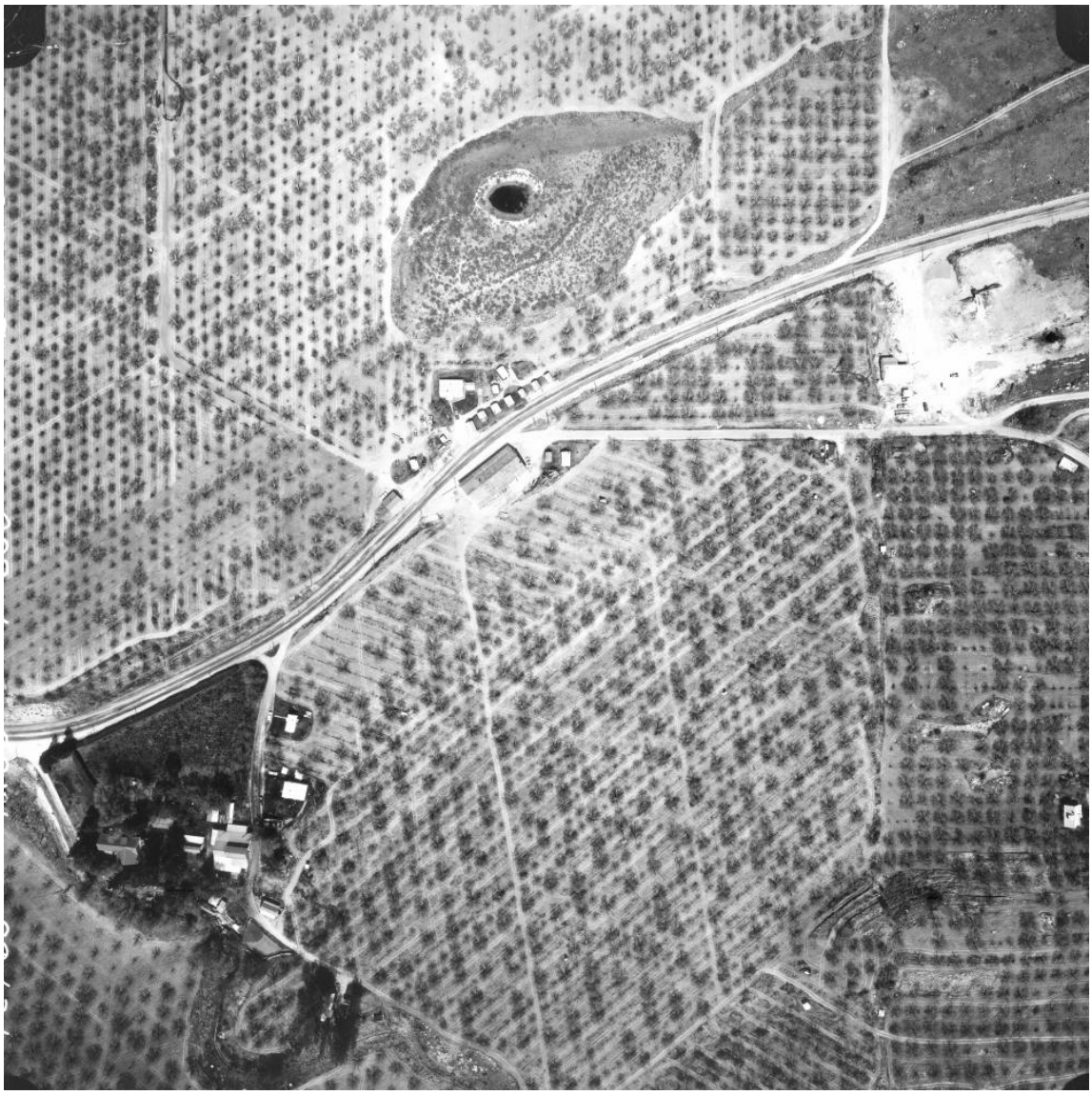
1987



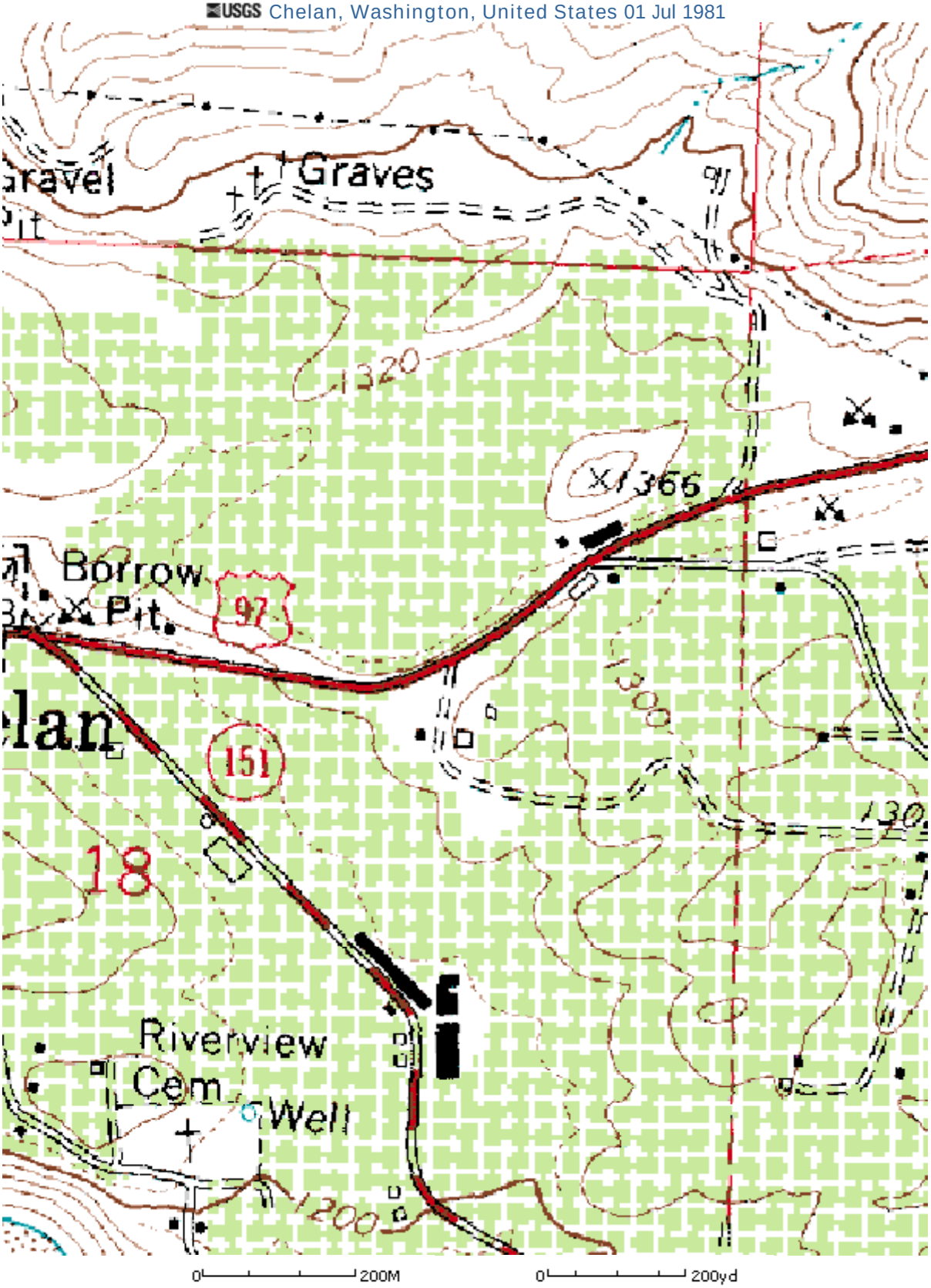
1978



1965



USGS Chelan, Washington, United States 01 Jul 1981



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APPENDIX D
ENVIRONMENTAL REPORTS, RESTRICTIVE COVENANT AND NFA FOR WALMART

Prepared for:
PACLAND
1144 Eastlake Avenue East, Suite 601
Seattle, Washington 98109-4450

Phase I Environmental Site Assessment
Proposed Commercial Site
Former Isenhart Orchards Property
N.E. of S.R. 97A and Isenhart Road
Chelan, Washington

Prepared by:

Ted W. Sykes
Project Manager

Reviewed by:

Kevin G. Lakey, PE, LHG
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Kleinfelder Project No.: 47755

August 27, 2004

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 PURPOSE

Kleinfelder conducted a Phase I Environmental Site Assessment (ESA) of the *Proposed Commercial Site* located northeast of the intersection of State Route 97A and Isenhart Road in Chelan, Washington (as shown in Figure 1). In this report, this property will be referred to as "the site", "subject site", "subject property", or "proposed commercial site".

Kleinfelder understands the information contained in this report will be used by PACLAND and its client (The Client) to better understand environmental conditions associated with the site's past and current use. Kleinfelder performed this ESA in general accordance with The Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*. Additionally, this ESA was performed in accordance with our July 20, 2004 Phase I ESA proposal (No. 47184), and in general accordance with the scope and limitations of the ASTM Standard Practice for *Phase I Environmental Site Assessments: Environmental Site Assessment Process* E 1527-00.

The purpose of this assessment is to assist PACLAND and The Client in recognizing "environmental conditions" at the site. A recognized environmental condition is defined by the ASTM standard as "the presence or likely presence of *hazardous substances or petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a material threat of a release of *hazardous substances or petroleum products* into structures on the *property* or into the ground, groundwater or surface water of the *property*. The term includes *hazardous substances or petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions*."

This Phase I Environmental Site Assessment was conducted by Ted W. Sykes of Kleinfelder, a professional experienced with environmental site assessments. Mr. Sykes' resume is presented in Appendix A of this report.

A reconnaissance of the subject site and surrounding properties was performed by Kleinfelder on August 9, 2004. Information obtained during the site reconnaissance, as well as information obtained at public agencies reviewed by Kleinfelder, was used to complete the Phase I ESA investigation.

1.2 SCOPE-OF-SERVICES

The following sections describe Kleinfelder's scope of services:

- Section 1, **Introduction**, includes a discussion of the purpose/reason for performing the Phase I ESA; additional services requested by the client (e.g. an evaluation of business environmental risk factors associated with the property); significant assumptions (e.g. property boundaries if not marked in the field); limitations, exceptions, and special terms and conditions (e.g. contractual); and user reliance parameters.

- Section 2, **Site Setting**, is a compilation of information concerning the site's location, legal description (if available), current and proposed use of the site, a description of structures and improvements on site at the time of Kleinfelder's assessment, and current uses of adjoining properties.

- Section 3, **Records Review**, is a compilation of Kleinfelder's review of several databases available from federal, state, and local regulatory agencies regarding hazardous substance use, storage, or disposal at the site; and for off-site facilities up to a mile radius from the site. Environmental liens or activity and use limitations are included in this chapter. A copy of the regulatory agency database report is included as Appendix B.

- Section 4, **History of the Site**, summarizes the history of the site and adjoining properties. This history is based on various sources which may include a review of: aerial photographs, Sanborn Fire Insurance Maps, city or suburban directories, historical topographic maps, previous assessments, and a chain-of-title/a preliminary title report (if provided by the client).

- Section 5, **Business Environmental Risk Considerations**, includes the results of Kleinfelder's limited evaluation of wetlands, polychlorinated biphenyls (PCBs), radon, high voltage power lines, chlorofluorocarbons (CFCs), indoor air quality, health and safety, lead in drinking water, industrial hygiene, regulatory compliance, ecological resources, wildlife sanctuaries, endangered species, and cultural, historical and archeological resources.

- Section 6, **Evaluation**, is a presentation of our findings and opinions regarding the information in Sections 2 through 5; and presents our conclusion regarding the presence of environmental conditions of concern at the site.

- Section 7, **References**, is a summary of the resources used to compile this report.

1.3 ADDITIONAL SERVICES

In accordance with the Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*, a limited evaluation of the following select Business Environmental Risk Considerations (BERCs) associated with the site were included in Kleinfelder's scope of services:

- Wetlands
- Cultural, historical and archeological resources
- Ecological Resources, wildlife sanctuaries, and endangered species
- Polychlorinated biphenyls (PCBs)
- Radon
- High voltage power lines
- Chlorofluorocarbons (CFCs)
- Indoor air quality and industrial hygiene
- Regulatory compliance
- Health and safety
- Lead in drinking water

Kleinfelder's scope of services included evaluating the presence, location, and condition of suspect PCB-containing equipment (i.e. electrical transformers and light fixture ballasts) and suspect CFC-containing equipment (i.e. refrigerators) by visually inspecting external labels indicating PCB or CFC content. Collecting samples of dielectric fluids for PCB content analysis and refrigerant fluids for CFC content analysis was not considered part of the scope of services during this assessment.

Kleinfelder's evaluation for the presence of wetlands, cultural, historical and archeological resources, ecological resources, wildlife sanctuaries, radon, high voltage power lines, indoor air quality, industrial hygiene, health and safety, regulatory compliance, and lead in drinking water at the subject site was limited to reviewing information on-file with the Chelan County Building

and Planning Departments and reviewing maps obtained from public databases such as Environmental Data Resources.

In accordance with PACLAND's request, an evaluation for the presence of asbestos-containing materials (ACMs) and lead-based paints (LBPs) within the buildings occupying the site was not included in this assessment, since the current property owner (Naumes Properties, LLC) retained a separate firm to perform this investigation.

This assessment did not incorporate any other BERCs not mentioned above.

1.4 LIMITATIONS AND EXCEPTIONS

In accordance with PACLAND's request, this assessment did not include contacting or reviewing information on-file with public agencies associated with the City of Chelan (i.e. City of Chelan Building/Planning Department, Fire Department, etc.).

Phase I ESAs are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. The attached report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help you understand and better manage your risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service, which will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss this issue of risk further.

Kleinfelder performed this ESA in general accordance with the Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*. Additionally, this ESA was performed in general accordance with the scope and limitations of the ASTM Standard Practice for *Phase I Environmental Site Assessments: Environmental Site Assessment Process* E 1527-00. No warranty, either express or implied is made. Environmental issues not specifically addressed in the report were beyond the scope of our work and not included in our evaluation.

Land use, site conditions (both on-site and off-site) and other factors will change over time. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings and opinions can be considered valid only as of the date of the site visit. This report should not be relied upon after 180 days from the date of its issuance (ASTM Standard E-1527, Section 4.6).

1.5 USER RELIANCE

Provided Kleinfelder's report is still reliable (as determined by Kleinfelder), Kleinfelder may issue a third-party reliance letter to a party, other than PACLAND and its client (The Client), identifying in writing under the following conditions: that the third party, including PACLAND and The Client's successors and assigns, by such reliance, agree in writing to be bound by Terms and Conditions of the contract between PACLAND and Kleinfelder, Inc. Please see the "Third Party Reliance Letter" form in Appendix H.

Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by PACLAND, The Client, or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

2.0 SITE SETTING

The site setting was evaluated for the potential of on- and off-site contaminant migration, if present. The site location is shown on Figure 1. The site plan is presented on Figure 2. Tables 1 through 3 provide the physical characteristics of the site and bordering properties. Selected photographs of the site area are presented in Appendix C.

2.1 LOCATION AND LEGAL DESCRIPTION

The information presented in Table 1 describes the physical location and legal description of the site. This information was obtained from observations made during the site reconnaissance and information obtained from maps, Chelan County public agency records, and interviews.

TABLE 1
LOCATION AND LEGAL DESCRIPTION

SITE ADDRESSES	428 State Route 97A.
LOCATION	Northeast of the intersection of State Route 97A and Isenhart Road in the City of Chelan, Chelan County, State of Washington.
NUMBER OF SITE PARCELS	One.
ASSESSOR'S PARCEL NUMBER (APN)	27-23-18-627-010.
IDENTIFICATION OF PARCEL	East Quarter Section of Parcel Number 27-23-18-627-010.
TOWNSHIP & RANGE	Township 27 North, Range 23 East, Section 18.
ACREAGE	Approximately 18 acres of land total.
ZONING USE	Commercial and Light Industrial use.

2.2 GENERAL SITE SETTING

The subject site is located northeast of the intersection between State Route 97A and Isenhart Road in Chelan, Washington (Figure 1). The site is located approximately one mile east of downtown Chelan. According to officials at the Chelan County Building and Planning Department, the site is located within Chelan City limits.

The subject site consists of one irregular shaped lot comprising a total of approximately 18-acres of land area (Figure 2). The site is currently part of a 274-acre parcel that (in addition to the subject site) also encompasses neighboring land areas located immediately west, south and southwest of the site. The 18-acre site is located at the northeast corner of the 274-acre parcel

and is identified by the Chelan County Building and Planning Department as the former "Isenhart Orchards Property".

The site's approximate elevation ranges between 1,300 and 1,360 feet above mean sea level. A steep hill located along the southern end of the property extends approximately 80 to 100 feet above the site's surrounding terrain. The site's overall terrain appeared to be flat to rolling and slopes downward towards the south and southeast.

The majority of the subject site is currently undeveloped and thickly vegetated with wild grasses, weeds, shrubs, and remnants of an apple tree orchard that formerly existed on the property prior to 2000. Other areas of the site are improved with two vacant apartment buildings located along the southeast end of the site, an occupied residential home located at the southwest corner of the site, four vacant studio cabins located immediately north and east of the occupied residence, and a small outhouse located immediately northeast of the hill (see Figure 2). One of the studio cabins located east of the occupied residence appears to have been converted into a garage.

The on-site residence contains an address of 428 State Route 97A and provides approximately 1,400 square feet of living space. The two vacant apartment buildings are divided into nine separate studio apartment units and were observed to be in a dilapidated condition during the site reconnaissance. The cabins surrounding the residence are currently being used by the leasing occupants of the residence to store automotive parts, furniture, and household trash. Reportedly, the apartment units and cabins were formerly used as temporary housing for migrant workers associated with the former use of the site as an apple orchard.

Small amounts of refuse including plastic bags, used appliances, furniture, empty liquor bottles/cans, and other discarded trash was observed deposited along the south and southeast ends of the site (see photographs in Appendix C). Additionally, a pile of irrigation pipes and two irrigation water source taps (formerly associated with the apple orchard) were observed within the center portion of the site.

No indication of hazardous materials, underground or aboveground fuel storage tanks, surface staining, chemical odors, or stressed vegetation was noted by Kleinfelder during the site reconnaissance. No documented evidence of historical use of hazardous materials on-site (i.e. underground fuel storage tanks) was found on-file with the agencies reviewed by Kleinfelder. The site is currently not a recorded source of soil and/or groundwater contamination.
Based upon information obtained from interviewing a site owner representative (Mr. Kile Peer of Naumes Properties, LLC) and review of historical documentation, the site has been used as a

"Red Delicious" apple orchard from at least the early 1900s until 1999. Naumes Properties, LLC (Naumes) purchased the site in 1980. Reportedly, apple orchard activities ceased between 1999-2000 when Naumes had the apple trees removed from the site. According to Mr. Peer, organophosphate pesticides, as well as the possible use of pesticides containing lead and arsenic, were used at the apple orchard throughout the past several decades of its existence. Since 2000, the subject property has been in its current use.

Site area groundwater information is presented in Table 2 (see below).

TABLE 2
REGIONAL GROUNDWATER INFORMATION

DEPTH TO REGIONAL GROUNDWATER AND DIRECTION OF ANTICIPATED FLOW (Source: Kleinfelder, Inc.)	According to information obtained from Kleinfelder's Geotechnical Investigation of the site (performed simultaneously with this assessment), depth to the groundwater is greater than 30 feet below ground surface. The general groundwater depth may be influenced by local pumping, rainfall, and irrigation patterns. The estimated direction of groundwater flow at the site is towards the south and southeast.
REGIONAL GROUNDWATER QUALITY PROBLEMS (Source: Washington Department of Ecology, Chelan County Building/Planning, Environmental Health, and Public Works Departments)	Regional groundwater quality problems were not revealed during Kleinfelder's assessment.

2.3 CURRENT/PROPOSED USE OF THE PROPERTY

According to Mr. Peer and officials at the Chelan County Building and Planning Department, Naumes Properties, LLC is the current site owner. Mr. William Isenhart formerly owned and operated the site as part of the Isenhart Orchards organization beginning during the early 1900s. Naumes purchased the site in 1980 and discontinued apple orchard activities in 1999. Reportedly Naumes removed the apple trees from the orchard between 1999-2000 in preparation for selling the property for redevelopment.

Currently, most of the site consists of an undeveloped grass field. Young apple tree sprouts were observed growing throughout the central and northern portions of the site where the apple orchard trees were removed from the site between 1999-2000. According to Mr. Peer, many of the apple tree roots extended very deep underground and separated from the tree trunks as the trees were being pulled from the ground.

The southern end of the site included temporary living facilities (temporary laborer apartment buildings and cabins) formerly used by migrant workers associated with apple orchard activities.

The apartment buildings and cabins are currently unoccupied and are in varying stages of disrepair. According to historical records, the residence located at the southwest corner of the site lot may possibly have been occupied by Mr. William Isenhart and/or members of his family during the time when Mr. Isenhart owned the property. The residence is currently being used for rental housing.

The proposed development of the site will consist of a commercial building and associated parking lot areas. Current and proposed uses are described in Table 3 below.

TABLE 3
CURRENT/PROPOSED USES

CURRENT USE	Undeveloped land along with an occupied residential home, two vacant temporary laborer apartment buildings, four vacant temporary laborer cabins, and one small outhouse.
PROPOSED USE	Commercial building and associated parking lot areas.

2.4 DESCRIPTION OF STRUCTURES/IMPROVEMENTS

Structures and/or improvements observed on site at the time of Kleinfelder's site reconnaissance are described in Table 4 (see next page).

TABLE 4
STRUCTURES/IMPROVEMENTS

	GENERAL OBSERVATIONS
STRUCTURES	The residence occupying the southwest corner of the subject site is a one-story, wood framed structure constructed on a raised foundation. The exterior walls of the residence consist of wood siding. The interior walls consist of wood paneling and sheetrock. The wood floors within the residence are finished with either sheet vinyl flooring material, vinyl floor tiles, or carpet. The plywood roof is covered with asphalt shingles and is supported by wood joists. The residential home was constructed prior to 1965 and provides roughly 1,400 square feet of living space. The temporary laborer apartment buildings are both one-story, concrete block structures constructed on slab-on-grade concrete foundations. The buildings are divided into nine studio apartment units, each including a living room/bedroom, kitchenette, and adjoining bathroom. Interior finish materials consist of sheetrock or wood paneling walls and the concrete floors are covered with sheet vinyl flooring material, vinyl floor tiles, or carpeting. The plywood roofs of the buildings are covered with asphalt sheeting. The buildings are currently vacant and were constructed during the 1970s. The temporary laborer cabins are all one-story, wood framed structures constructed on raised foundations. The exterior walls of the cabins consist of wood siding. The interior walls consist of plywood or sheetrock. The wood floors within the cabins are either finished with carpet or left bare. Each cabin is approximately 300 square feet in size. The cabins are currently being used by the leasing tenants occupying the on-site residence for storage.
IMPROVEMENTS	The residential home, apartment buildings, and cabins occupying the site can be accessed by a gravel driveway originating from State Route 97A. An un-maintained dirt road was observed traversing the center of the site from west to east. A pile of irrigation pipes, an outhouse, and two irrigation water source taps were observed at the center of the property (north of the hill).

2.5 CURRENT USES OF ADJOINING PROPERTIES

Kleinfelder conducted a drive-by survey of the parcels adjoining the site on the same day as the site reconnaissance. A summary of the surrounding properties is presented on Table 5 (see next page).

TABLE 5
SURROUNDING PROPERTIES

North	Single-family residential homes, an apple tree orchard associated with Deer Mountain Ranch, and undeveloped land areas.
South	Across State Route 97A: Two small vacant cabins, a large warehouse equipped with two aboveground fuel storage tanks and approximately three 55-gallon drums and miscellaneous containers storing motor oil and other mechanical lubricants, undeveloped land areas, and the North Chelan County Recycling Center property (southeast of the site).
East	Chelan Concrete property.
West	A vacant cabin, abandoned well pump shack, and undeveloped land areas.

The surrounding land use north of the subject property consists of approximately six residential homes, an apple tree orchard associated with "Deer Mountain Ranch", and undeveloped land areas. A vacant cabin, an abandoned well pump shack, and undeveloped land areas are located west of the site. According to agency records none of the adjacent properties located north and west of the site are listed as having impacted soil and groundwater with hazardous materials.

The surrounding land use south of the subject property (across State Route 97A) consists of a warehouse, two small vacant cabins, and a pile of empty fruit picking bins. During the site reconnaissance, two 1,000-gallon aboveground tanks storing diesel and gasoline were observed to be located approximately 50 to 60 feet south of the warehouse structure. In addition, approximately three 55-gallon steel drums storing motor oil and approximately four 5-gallon plastic containers storing lube oil are located immediately west of the warehouse. No leaks or stains were noted around the bases of the tanks, drums, and containers. The adjacent property located south of the subject site is not listed as having impacted soil and groundwater with hazardous materials.

The surrounding property southeast of the subject property, North Chelan County Recycling Center (NCCRC), is a solid waste transfer facility that accepts aluminum cans, scrap metal, glass, paper, and other solid waste items for recycling purposes. Officials at the NCCRC indicated that they do not accept waste petroleum products (i.e. waste oil) or other hazardous materials. Records reviewed at Washington Department of Ecology (Ecology) indicated that NCCRC is a permitted solid waste transfer station. There were no available records on-file with Ecology indicating that NCCRC had impacted soil and/or groundwater with hazardous materials.

The adjacent property east of the site appeared to be occupied by a gravel mine owned by Chelan Concrete. According to records reviewed at Ecology, two underground diesel fuel storage tanks and associated diesel impacted soil was removed from the Chelan Concrete site during

November 1991. Analytical results of confirmation soil samples collected within the UST excavations were reportedly below Ecology's Model Toxics Cleanup Act (MTCA) Method A soil cleanup levels. Subsequently, Ecology prepared a LUST File Review memo (dated April 27, 2000) indicating that the Chelan Concrete's LUST status was to be changed to "Reported Clean" and included a note to "flag missing information on the final disposition of the contaminated soil stockpile". Since the Chelan Concrete site is located cross- to downgradient with respect to the subject site, and that there were no records on-file with Ecology indicating that the Chelan Concrete site had impacted groundwater, the potential for the Chelan Concrete site to impact the subject site is considered low.

3.0 RECORDS REVIEW

3.1 STANDARD ENVIRONMENTAL RECORD SOURCES

The purpose of the records review is to identify recognized environmental conditions of potential concern in connection with the subject site and surrounding properties.

Federal, state, and local regulatory agencies publish databases or "lists" of businesses and properties that handle hazardous materials or hazardous waste, or are the known location of a release of hazardous substances to soil and/or groundwater. These databases are available for review and/or purchase at the regulatory agencies, or the information may be obtained through a commercial database service. Kleinfelder retained a commercial database service, Environmental Data Resources, Inc. (EDR), to review the regulatory agency lists for references to the subject site and other off-site listings within the appropriate ASTM minimum search distances. The EDR database search results for the subject site and for other nearby facilities are contained in the EDR Radius Map with Geo-Check Report included in Appendix B, Regulatory Agency Database Report. The federal and state databases reviewed along with the number of sites plotted in each database category are summarized in Table 6 (see next page).

The EDR report identified several unmappable sites in the site area that are listed as "orphan sites" and are not plotted on EDR maps. Wherever possible, Kleinfelder attempted to identify locations of orphan sites and include them in the discussion, as appropriate.

TABLE 6
RECORDS REVIEW-SEARCH DISTANCE-FINDINGS

FEDERAL		Total Number of Facilities Listed	Number of Upgradient or Adjacent Facilities Listed	Site Listed
NPL (National Priority List)	Site & 1 Mile	0	0	No
CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Act Information System)	Site & 0.5 Mile	0	0	No
CERCLIS NFRAP (No Further Remedial Action Planned)	Site & 0.25 Mile	0	0	No
RCRA (Resource Conservation and Recovery Act) **CORRACTS** (Corrective Actions Sites)	Site & 1 Mile	0	0	No
RCRA non-CORRACTS TSD (Transfer Storage and Disposal Sites)	Site & 0.5 Mile	0	0	No
RCRA GENERATORS	Site & 0.25 Mile	0	0	No
ERNS (Emergency Response Notification System Listings)	Site	0	0	No
STATE				
CSCSL (Confirmed and Suspected Contaminated Sites List)	Site & 1 Mile	0	0	No
State Landfill Sites	Site & 0.5 Mile	0	0	No
LUST (Leaking Underground Storage Tank Sites)	Site & 0.5 Mile	0	0	No
WA ICR (Washington State Independent Cleanup Reports)	Site & 0.5 Mile	0	0	No
UST (Registered Underground Storage Tank Sites)	Site & 0.25 Mile	0	0	No

3.1.1 Subject Site

The site was not recorded on the regulatory databases listed in Table 6 above.

3.1.2 Off-Site Facilities

According to EDR's database report, there were no recorded off-site facilities located within the specified search radius (see Table 6 above). The North Chelan County Recycling Center, located southeast of the subject property, is recorded in EDR's "Orphan Sites Summary" as a solid waste

facility. However, there were no records available at Ecology indicated that the North Chelan County Recycling Center had impacted soil and groundwater with hazardous materials (see Section 2.5 for details). Additionally, the aboveground fuel storage tanks, oil drums and containers associated with the warehouse facility located south of the site were not on record as having impacted soil and groundwater with petroleum products or hazardous materials.

The Chelan Concrete site, located immediately east of the subject property, was not recorded on EDR's database. However, records reviewed at Ecology indicated that two diesel USTs and an unknown quantity of diesel impacted soil was removed at the Chelan Concrete site during November 1991. Reportedly, groundwater was not impacted and the probability that the Chelan Concrete site impacted the subject property is considered low. See Section 2.5 for details.

Other facilities listed on EDR's Orphan Summary of unplottable facilities were not located within the corresponding ASTM search distances from the subject property.

3.2 ADDITIONAL AGENCY ENVIRONMENTAL RECORDS

Local regulatory agencies were contacted for reasonably ascertainable and practically reviewable documentation regarding recognized environmental conditions present at the site and surrounding properties. Table 7 below summarizes the agencies contacted for documentation:

TABLE 7
AGENCY RECORDS SUMMARY

	AGENCY	DATE	CONTACT NAME	PHONE	TYPE OF INFORMATION
County	Chelan County Building and Planning Department	Aug. 10, 2004	Angel Hallman	(509) 667-6225	Permit and Parcel Map Information, Flood Zone Information, Hazardous Materials Records, Critical Areas Records, and Historical Site Use Information.
County	Chelan County Assessor's Office	Aug. 10, 2004	Russell Griffith	(509) 667-6367	Building and Parcel Map Information, Critical Areas Records, and Recorded Leans.
County	Chelan County Environmental Health Department	Aug. 10, 2004	Scott Reynolds	(509) 886-6450	Septic Tank and Groundwater Well Records
County	Chelan County Public Works Department	Aug. 10, 2004	Service Desk	(509) 667-6225	Building and Parcel Map Information, Critical Areas Records, and Septic Tank Records.
County	Chelan County Board of Fire Prevention	Aug. 10, 2004	Rod Lasher	(509) 664-5221	UST and Hazardous Materials Records.
State	Washington State Department of Ecology	Aug. 11, 2004	Roger Johnson Rachel Caron	(509) 454-7658	Groundwater Well Records, Hazardous Materials Records, Off-Site Release Records, & Underground Storage Tank Records.

Chelan County Building and Planning Department (CCBPD):

Records on-file with the CCBPD indicated that the subject site is part of a 274-acre lot (Parcel No. 27-23-18-627-010) identified as the former "Isenhart Orchards" property. The 18-acre subject site includes the northeast quarter section of the former Isenhart Orchards property. Officials at the CCBPD indicated that the subject site is not located within a designated flood zone or within a designated aquifer recharge area. The CCBPD did not have historical permit records, zoning information, groundwater well installation records, hazardous materials

use/storage records, or underground fuel storage tank records for the subject site. Additionally, the CCBPD did not have records pertaining to wetlands, endangered plant and animal species, culturally sensitive areas, or other critical areas issues that may be associated with the subject property.

Chelan County Assessor's Office (CCAO):

Records reviewed at the CCAO also revealed that the subject site is part of a 274-acre lot identified as the former "Isenhart Orchards" property. The current owner of the site was recorded as Naumes Properties, LLC. The address of the 274-acre Isenhart Orchards lot was recorded as "Willmorth Road, Chelan". Officials at the CCAO indicated that the subject property is located within Chelan City limits and they do not have zoning information about the site. Additionally, the CCAO did not have historical development records, building permits, environmental issues, critical areas information, hazardous materials records, or environmental related leans associated with the subject site.

Chelan County Environmental Health Department (CCEHD):

Sewage system records on-file with the CCEHD indicated that Naumes was granted a permit to re-use an existing septic tank located at the site on May 12, 1983. The location of the septic tank was not specified in the records, however, did indicate that it had a capacity to serve approximately 20 employees. The CCEHD did not have records pertaining to the possibility that a domestic water well may have existed on the property.

Mr. Peer provided Kleinfelder with a field sketch displaying the locations of known, as well as suspected, septic tank locations at the subject site. See Section 4.6 for details.

Chelan County Public Works Department (CCPWD):

Officials at the CCPWD indicated that they have records pertaining to the installation and servicing of Chelan County roadways and do not have property records.

Chelan County Board of Fire Prevention (CCBFP):

The CCBFP was contacted regarding records pertaining to current/former aboveground and underground storage tanks, hazardous materials, and recorded violations involving the subject site. According to Mr. Rod Lasher, Fire Marshal with the CCBFD, they do not have records pertaining to these issues for the subject site.

Washington State Department of Ecology (Ecology):

No records pertaining to underground or aboveground storage tanks currently or formerly existing at the subject site, on-site hazardous materials use/releases, violations, or hazardous

waste storage records were on-file with Ecology. Ecology has several domestic water well installation records for the City of Chelan area, however, none of these records indicated that a well was ever installed at the subject property.

3.3 PHYSICAL SETTING SOURCE(S)

Table 8 (see next page) presents information about the physical setting of the site. This information was obtained from published maps and public records.

TABLE 8
PHYSICAL SETTING

USGS TOPOGRAPHIC QUADRANGLE	Chelan Falls Quadrangle, USGS 7.5-minute series, dated 1968.	The site is located at an approximate surface elevation ranging between 1,300 feet to 1,360 feet above mean sea level. A steep hill located along the southern end of the property rises approximately 80 to 100 feet above the site's surrounding terrain. The site's terrain slopes downward towards the south and southeast.
NEAREST SURFACE WATER	Chelan Falls Quadrangle, USGS 7.5-minute series, dated 1968.	The Chelan River and the Columbia River are located approximately one mile southwest and east of the site, respectively.
FLOOD ZONE (FEMA)	EDR Site Overview Map Report, dated July 30, 2004.	The site is located outside the designated 100-year and 500-year flood plain areas, as defined by FEMA.
REGIONAL GEOLOGY	Kleinfelder's Geotechnical Investigation performed at the site and information obtained from Ecology's groundwater well installation logs completed for nearby properties surrounding the subject site.	The subject property is underlain loess deposits consisting of very soft to medium stiff silt with varying amounts of sand, gravel, and cobbles to a depth of approximately 10 feet below the ground surface (bgs). Colluvium deposits underly the loess material to a depth of at least 30 feet bgs (the maximum depth explored by Kleinfelder during the geotechnical assessment). The colluvium material consists of medium dense to very dense silty gravel and gravel with silt and sand. One to two foot diameter cobbles and boulders were also encountered. Groundwater was not encountered in soil borings and test pits excavated throughout the subject site during Kleinfelder's geotechnical investigation of the property.

4.0 HISTORICAL USE OF THE PROPERTY AND ADJOINUNG

The history of the site was researched to identify obvious uses of the site from the present to first developed use, or back to 1940; whichever is earlier, from readily available resources. Kleinfelder, Inc. retrieved the historical information of the subject property from all available resources. The earliest historical record available covering the site area was an aerial photograph, dated 1965. Other historical records provided site coverage following 1965. Historical records covering the site area prior to 1965 were unavailable. Table 9 (below) summarizes the availability of information reviewed during this assessment.

TABLE 9
HISTORICAL SOURCES

	Year(s) Available	Source
AERIAL PHOTOGRAPHS	1965, 1973, 1976, 1977, 1980, 1985, 1989, 1993, 1999, 2000, and 2002.	University of Washington, Seattle - Suzzallo Library U.S. Army Corps of Engineers, Seattle District Office
SANBORN FIRE INSURANCE MAPS	No coverage available for site area.	EDR – Sanborn Map Report
CITY DIRECTORIES	1933-2002.	Chelan Main Public Library Wenatchee Main Public Library
TOPOGRAPHIC MAPS	1968	City of Renton Library
CHAIN-OF-TITLE REPORT		Not provided
INTERVIEW WITH SITE OWNER REPRESENTATIVE		Mr. Kile Peer (Manager with Naumes Properties, LLC)
PREVIOUS ASSESSMENTS	August 11, 2000 August 23, 2000 August 28, 2000	Pacific International Engineering's Sensitive Areas Study report for the Naumes Corporation Property, Chelan, WA. Archaeological & Historical Services Department's Cultural Resources Survey report of the Naumes Property, Chelan, WA. Mitchell Nelson Group's Environmental Checklist for the Naumes Property, Chelan, WA.

4.1 AERIAL PHOTOGRAPHY

Historical aerial photographs were reviewed to evaluate past land use at the site and in the surrounding area. Aerial photographs providing coverage for 1965 and 1973 were available for

review within the Map Collections Room of University of Washington's (Seattle Campus) Suzzallo Library. Aerial photographs providing coverage for 1976 through 2002 were available for review at the U.S. Army Corps of Engineer's Seattle District Office. Aerial photographs of the site area providing coverage prior to 1965 were unavailable for review. The aerial photographs reviewed for this assessment are listed in Table 10 below.

TABLE 10
AERIAL PHOTOGRAPHS REVIEWED

Year	Scale	Type	Quality
1965	Unknown	Black and White	Good
1973	Unknown	Black and White	Fair
1976	1" = 2,000'	Black and White	Fair
1977	1" = 2,000'	Black and White	Fair
1980	1" = 2,000'	Black and White	Good
1985	1" = 2,000'	Color	Good
1989	1" = 2,000'	Color	Good
1993	1" = 2,000'	Color	Good
1999	1" = 2,000'	Color	Good
2000	1" = 2,000'	Color	Good
2002	1" = 2,000'	Color	Good

A summary of the aerial photograph review is presented, as follows:

4.1.1 Project Site

- Aerial photographs reviewed from 1965 through 1977 depicted a mature apple tree orchard covering approximately 80 percent of the site's grounds. Furthermore, approximately 10 small structures resembling temporary laborer cabins and the current on-site residence are observed occupying the southwest corner of the subject site. The steep hill, located along the southern end of the site, is also visible. A shallow depression on top of the hill appears to have been filled with water. The temporary laborer

apartment buildings currently occupying the southeast end of the site had not been constructed and consists of apple trees.

- An aerial photograph reviewed from 1980 revealed seven of the ten small cabin structures observed in aerial photographs reviewed from 1965 through 1977 had been demolished. The present-day temporary laborer apartment buildings were present along the southeast end of the site. The remaining areas of the site (excluding the hill) were covered with apple trees. Similar site observations were noted in subsequent aerial photographs reviewed from 1985 through 2000.

- An aerial photograph reviewed from 2002 depicted the site in its current configuration. All of the apple trees had been removed from the site. The current structures occupying the site appear as they do presently.

4.1.2 Surrounding Areas

- The surrounding properties north, south, and west of the site were depicted as an apple tree orchard in aerial photographs reviewed from 1965 through 2000. The present-day warehouse structure, cabins, and water well pump house were observed occupying the adjacent property south and west of the site, respectively. The present-day single-family residences were also observed occupying the adjacent property north of the site. The adjacent properties east and southeast of the site appeared to be occupied by the present-day gravel pit owned by Chelan Concrete and the North Chelan County Recycling Center, respectively.

- An aerial photograph reviewed from 2002 revealed that the apple trees had been removed from the surrounding properties located south and west of the site. Apple trees continued to occupy the neighboring property north of the site. Other areas surrounding the site appeared essentially as they do today.

Note: Aerial photographs only provide information on indications of land use and no conclusions can be drawn from photographs alone. However, Kleinfelder's review of available aerial photographs did not reveal obvious signs of dumping, spilling, leaking, storage or disposal of hazardous materials or wastes on-site.

4.2 SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance Maps provide historical land use information for some metropolitan and small, established towns. Kleinfelder, Inc. retained EDR-Sanborn, Inc. to perform a search of the

nation's largest and most complete collection of Sanborn maps. According to EDR, there were no Sanborn maps identified that included the site area (see Appendix B).

4.3 CITY DIRECTORIES

City directories from 1963 through 1979 covering Chelan were available at the City of Chelan Main Public Library. Additionally, city directories from 1933 through 2002 were available at the City of Wenatchee Main Public Library. However, none of the city directories provided coverage of the subject site as well as neighboring properties located outside downtown Chelan, along State Route 97A.

4.4 HISTORICAL TOPOGRAPHIC MAP REVIEW

A 1968 historical topographic map of the site area (Chelan Falls Quadrangle) was reviewed by Kleinfelder at the City of Renton Main Public Library. Historic topographic maps covering the site were not available for review at the City of Chelan Public Library nor the City of Wenatchee Main Public Library.

According to the topographic map, the subject site is depicted as being apart of a large orchard. The present-day residence is depicted along the southwest corner of the site, as well as the former laborer cabins observed in aerial photographs reviewed from 1965 through 1977. The present-day apartment buildings were not depicted on the topographic map. A designated grave site is depicted on the topographic map as being approximately one-third of a mile northwest of the subject property (see Section 4.7 for details).

4.5 CHAIN-OF-TITLE REPORT

A Chain-of-Title report was not provided to Kleinfelder for review prior to production of this report. These documents may provide information about land use, including ownership and other interests in the site, easements, and liens. Not all liens, defects, and encumbrances affecting title to the site may be included on the title report.

4.6 INTERVIEW WITH SITE OWNER REPRESENTATIVE

As part of the site assessment process, Kleinfelder interviewed Mr. Kile Peer (Manager with Naumes) in order to obtain further information about the site's current and historical use. Information obtained from interviewing Mr. Peer is summarized below:

- According to Mr. Peer, the subject site has been a Red Delicious apple orchard from at least the early 1900s until 1999. Reportedly, Naumes purchased the site in 1980 and

removed the apple trees from the site between 1999 and 2000. Since 2000, the property has remained essentially unchanged.

- According to Mr. Peer, the subject site is currently zoned for commercial and light industrial use.

- Mr. Peer stated that the irrigation water source for the site is from the City of Chelan's main water supply line buried along State Route 97A. Reportedly, the irrigation water supply taps observed by Kleinfelder during the site reconnaissance are connected to the City of Chelan's main water supply line. Mr. Peer was unaware of domestic wells currently (or formerly) existing at the site.

- Mr. Peer stated that organophosphate pesticides, as well as the possible use of pesticides containing lead and arsenic, were used on the apple orchard throughout the several decades of its existence at the property.

- According to Mr. Peer, the above ground diesel and gasoline fuel tanks located south of the subject site (next to the warehouse) are currently being used to fuel tractors and other equipment. The warehouse is currently used for equipment storage. Mr. Peer stated that the tanks were installed next to the warehouse approximately 20 years ago and that he is not aware of fuel leaks.

- Besides the historical use of pesticides at the site, Mr. Peer was unaware of other environmental issues associated with the site.

- Mr. Peer was also unaware of current or historical usage of hazardous materials, underground fuel storage tanks, aboveground fuel storage tanks, or environmental related leans associated with the site.

- Mr. Peer provided Kleinfelder with a field sketch displaying the approximate locations of two septic tanks confirmed (by him) to be located in the gravel driveway immediately south of the apartment buildings. Mr. Peer's field sketch also displayed the locations of two more suspected septic tanks located immediately west of the occupied residence and immediately southeast of a studio cabin (converted into a garage) located east of the occupied residence. Mr. Peer was unaware of additional septic tanks located on the property. A copy of Mr. Peer's field sketch is included in Appendix G.

4.7 PREVIOUS ASSESSMENTS

PACLAND provided Kleinfelder with copies of three previous reports concerning the subject property. The reports included a Sensitive Areas Study, a Cultural Resources Survey, and an Environmental Checklist of the subject site (as well as the rest of the former Isenhart Orchards property currently owned by Naumes). The reports (itemized below) were completed in preparation for redeveloping the subject site (as well as the rest of Naumes' 274-acre property) into commercial and light industrial uses. A summary of the previous reports is presented in Section 4.7.1.

- *Sensitive Areas Study for the Naumes Corporation Property, Chelan, Washington.* Completed by Pacific International Engineering, PLLC, dated August 11, 2000.
- *A Cultural Resources Survey of the Naumes Property, Chelan County, Washington.* Completed by Ms. Pamela Kay McKenney of the Archaeological and Historical Services Department of Eastern Washington University, dated August 23, 2000.
- Environmental Checklist for the Naumes Property, Chelan County, Washington. Completed by Mitchell Nelson Group, Inc., dated August 28, 2000.

4.7.1 Summary of Previous Reports

According to the August 11, 2000 Sensitive Areas Study (SAS) report, the subject site was part of a larger apple orchard during the time Pacific International Engineering PLLC (PIE) completed the SAS study. The SAS study included inspecting the site for the possible presence of wetland areas and threatened, endangered, or sensitive animal and plant species that may possibly have existed within or near the site. The SAS study also included reviewing information sources on-file with public agencies. Reportedly, these information sources included reviewing National Wetlands Inventory maps, the Washington Department of Fish and Wildlife Priority Habitats and Species database, the Chelan Area Soil Survey, and the City of Chelan Generalized Sensitive Areas reference maps.

According to PIE's SAS report, the majority of Naumes' property consisted of an orchard which produced Red Delicious, Gala, and Golden Delicious apples over the past several decades. The orchard areas were observed by PIE to provide limited habitat areas for birds, various small mammals, and an occasional deer. Bunchgrasses, Sagebrush, Antelope-Brush, Great Mullein, Milkweed, and a host of other native and non-native grass species reportedly made up the bulk of the vegetative community occupying the site. PIE's report indicated that none of the animal and plant species identified at the site were considered to be threatened or endangered. Additionally,

PIE indicated that there was no recorded evidence pertaining to the potential presence of endangered or threatened plant and animal species occupying Naumes' property.

PIE's site inspection and research also did not identify potential wetland areas occupying the site. PIE's SAS report concluded that there were no identified wetland areas, significant habitat features, and no threatened, endangered, or sensitive animal or plant species identified within Naumes' property. There were no recommendations in the SAS report indicating that further assessment was warranted. A copy of PIE's SAS report is included in Appendix D of this report.

According to the August 23, 2000 Cultural Resources Survey (CRS) report completed for the Naumes property by Ms. Pamela Kay McKenney from the Archaeological and Historical Services Department of Eastern Washington University, no prehistoric cultural sites or other potential archaeological sites were observed occupying Naumes' property. Additionally, the CRS report indicated that there was no recorded evidence on-file with the historic agencies reviewed (i.e. Lake Chelan Historical Society) suggesting that a prehistoric cultural site or other archaeological site may be present on Naumes' property. The CRS report, however, indicated that a potential pioneer cemetery may have formerly existed north of Naumes' property (roughly one-third of a mile northwest of the subject site), but was reportedly relocated to the Chelan Fraternal Order Cemetery (located north of the City of Chelan) sometime before the apple orchard was developed. The CRS report indicated that locals interviewed during the course of the investigation stated that exhumation of the pioneer cemetery may not have been thorough, and therefore, the CRS report raises the concern that this area should be evaluated further.

Four other sensitive archaeological sites identified in the CRS report, including two historic-era debris scatters, an old gravel quarry, and the Native American cemetery are located nearly a mile southwest and southeast of the subject site.
Conclusions contained in the CRS report indicated that the Naumes property has a "low potential [to contain] buried archaeology". The CRS report, however, recommended the following actions:

1. The orchard structures occupying Naumes' property (which includes the structures occupying the subject site) should be evaluated for their eligibility for listing in the National Register of Historic Places.

2. Develop a plan to evaluate the presence/absence of graves remaining in the vicinity of the former pioneer cemetery located north of Naumes' property.

3. A copy of the CRS report should be submitted to the Washington Office of Archaeology and Historic Preservation (and other interested parties) for comment prior to the initiation of land altering activities.

A copy of the CRS report is included in Appendix E.

The August 28, 2000 Environmental Checklist (EC) prepared for the Naumes property by Mitchell Nelson Group, Inc. summarized the findings contained in the August 2000 SAS and CRS reports, as well as other potential issues that may arise during redevelopment of the site. According to Mr. Peer and information contained within the EC, Naumes plans to sub-divide and sell their property to developers interested in redeveloping the site into either commercial or light industrial use. The EC indicated that the City of Chelan would need to approve a zoning change for the property and that all buildings occupying the property would be demolished to accommodate the redevelopment. Additionally, the EC contained details on preventative measures limiting environmental issues such as soil erosion, air emissions, surface water runoff, etc. during redevelopment activities. A copy of the EC is included in Appendix F.

5.0 BUSINESS ENVIRONMENTAL RISK CONSIDERATIONS

5.1 WETLANDS

Kleinfelder contacted the Chelan County Building and Planning Department and the Chelan County Public Works Department regarding the possibility of designated wetland areas being identified on-site. None of these agencies had records pertaining to wetland areas being on-site. Additionally, according to Mr. John Altmann of Altmann Oliver Associates, LLC (a company recently retained by PACLAND to perform a wetlands investigation of the site), no wetland areas were identified within the site boundaries.

The August 11, 2000 SAS report completed for Naumes' property also did not identify the presence of wetlands occupying the subject site. See Section 4.7.1 for details.

5.2 CULTURAL, HISTORICAL AND ARCHEOLOGICAL RESOURCES

Records reviewed at the Chelan County Building/Planning and Assessor's Departments did not indicate the presence of cultural, historical, and/or archeological resources at the subject property. Additionally, the August 23, 2000 Cultural Resources Survey report completed for Naumes' property did not indicate the presence of cultural, historical, and archeological resources at the subject site. See Section 4.7.1 for details.

5.3 ECOLOGICAL RESOURCES, WILDLIFE SANCTUARIES, AND ENDANGERED SPECIES

Records reviewed at the Chelan County Building/Planning and Assessor's Departments, as well information contained in the August 11, 2000 SAS report did not reveal the presence of endangered/threatened species or wildlife sanctuaries associated with the subject site.

5.4 POLYCHLORINATED BIPHENYLS (PCBS)

Three electrical transformers were observed mounted near the top of a City of Chelan owned utility pole located within the center of the subject property. The transformers are suspected to contain PCB dielectric fluids since none of them contained markings/labels indicating that they do not contain PCBs. The transformers appeared intact and there were no signs of dielectric fluid leakage from the transformers' casings.

No suspect PCB-containing fluorescent light fixture ballasts or suspect mercury vapor fluorescent light bulbs were observed within the on-site structures. There were no records of PCB-containing equipment or PCB use on-site at the agencies reviewed by Kleinfelder.

5.5 RADON

Radon-222 (radon) is a naturally occurring radioactive gas formed by the decay of Uranium-238 which can be found in small concentrations in nearly all geologic materials. The primary human health effect associated with exposure to elevated levels of radon is an increase risk of lung cancer. The U.S. Environmental Protection Agency (EPA) and the U.S. Center for Disease Control are concerned about the increased risk of lung cancer for individuals exposed to above-average levels of radon in their homes or offices. In order to address that concern, the EPA conducted a national radon survey in 1990.

EPA's map of Radon Zones assigns each of the 3,141 counties in the United States to one of three zones. The zone designations were developed by assessing the following five factors believed to be important indicators of adverse radon potential: Indoor radon measurements, local geologic conditions, aerial radioactivity surveys, local soil characteristics, and the type of structure foundation.

This region of Washington, and the subject site, are underlain by glacial material which contain very low concentrations of radon-forming minerals. In 1993, the Washington Department of Health published a listing of radon measurements indicating a state-wide average of 1.0 pico-curies per liter (pCi/l). Based on this information, it is considered unlikely that radon levels on the site exceed EPA's 4.0 pCi/l action level.

5.6 HIGH VOLTAGE POWER LINES

High voltage power lines were not observed at the subject site during the reconnaissance.

5.7 CHLOROFLUOROCARBONS (CFCS)

Three household refrigerators were observed within some of the temporary laborer apartment units and one household refrigerator was observed within the occupied residence at the site. None of the refrigerators contained labels indicating whether (or not) they contain CFCs. There were no visual signs of fluid leakage from the refrigerators. There were no records of CFC use at the site on-file with the agencies reviewed by Kleinfelder.

5.8 INDOOR AIR QUALITY AND INDUSTRIAL HYGIENE

Records reviewed at the Chelan County Building/Planning and Assessor's Departments did not indicate indoor air quality and/or industrial hygiene issues to be associated with the subject site.

5.9 REGULATORY COMPLIANCE

Records reviewed at Ecology and at the Chelan County Building/Planning and Assessor's Departments did not indicate the presence of regulatory compliance issues to be associated with the subject site.

5.10 HEALTH AND SAFETY

Records reviewed at the Chelan County Building/Planning and Assessor's Departments did not indicate the presence of health and safety issues to be associated with the subject site.

5.11 LEAD IN DRINKING WATER

According to officials at the Chelan County Isenhart Irrigation District (CCIID), there have never been elevated levels of lead in the City of Chelan municipal drinking water source. The latest drinking water quality report on-file with the CCIID (dated 2002) indicated that lead was reported to be 2.6 micrograms per liter (µg/l), less than the federal lead drinking water standard of 15 µg/l. Based on this information, the site's current domestic water supply meets federal regulatory drinking water standards as they pertain to lead. According to officials at the CCIID, the next drinking water quality testing is scheduled to take place sometime during 2005.

6.0 EVALUATION

Kleinfelder performed this Phase I ESA in general accordance with The Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*. Additionally, this ESA was performed in accordance with our July 20, 2004 Phase I ESA proposal (No. 47184), and in general accordance with the scope and limitations of ASTM Practice E 1527-00.

In summary, Kleinfelder's assessment revealed the following information about the site.

6.1 FINDINGS AND OPINIONS

The following sections describe Kleinfelder's findings and provide a general background information about the site. Findings include recognized environmental conditions and historically recognized environmental conditions, as applicable to the site.

6.1.1 Background Information

Kleinfelder's historical review and information obtained from interviewing Mr. Kile Peer, has provided information on site usage back to 1965. According to historic sources, the subject site has been used as a "Red Delicious" apple orchard from at least the early 1900 until 1999. Reportedly, Mr. William Isenhart formerly owned and operated the site as part of the Isenhart Orchards organization until the current site owner, Naumes Properties LLC, purchased the site in 1980. The temporary laborer apartment buildings and studio cabins presently located on-site were formerly occupied by migrant workers associated with orchard activities. The residential home currently located at the southwest corner of the property may possibly have been occupied by Mr. Isenhart and/or members of his family when he owned the site. Apparently, organophosphate pesticides, as well as the possible use of pesticides containing lead and arsenic, were used on the apple orchard throughout the past several decades of its existence on-site.

According to Mr. Peer, Naumes discontinued apple orchard activities in 1999 and had the apple trees removed from the site between 1999-2000 in preparation for selling the property for redevelopment. The temporary laborer apartment buildings and cabins have been unoccupied since apple orchard activities ceased at the site. The residence is currently being used as rental housing.

During the later part of 2000, Naumes retained Pacific International Engineering PLLC and Ms. Pamela McKenney of the Archaeological and Historical Services Department of Eastern Washington University to conduct a sensitive areas study and a cultural resources survey of the

subject site (as well as the rest of Naumes' 274-acre property). According to the August 11, 2000 Sensitive Areas Study report and the August 23, 2000 Cultural Resources Survey report, no wetlands, significant habitat features, endangered/threatened species, or sensitive cultural/archeological areas are present on-site. The Sensitive Areas Study report did not recommend further investigation. However, the Cultural Resources Survey report recommended further evaluation (see Section 4.7.1 for details).

6.1.2 Onsite Findings

The subject site consists of one irregular shaped lot comprising a total of approximately 18-acres of land area. The site is currently part of a 274-acre parcel that (in addition to the subject site) also encompasses neighboring land areas located immediately west, south and southwest of the site. The 18-acre site is located at the northeast corner of the 274-acre parcel and is identified by the Chelan County Building and Planning Department as the former "Isenhart Orchards Property".

The site's approximate elevation ranges between 1,300 and 1,360 feet above mean sea level. A steep hill located along the southern end of the property extends approximately 80 to 100 feet above the site's surrounding terrain. The site's overall terrain appeared to be flat to rolling and slopes downward towards the south and southeast.

The majority of the subject site is currently undeveloped and thickly vegetated with wild grasses, weeds, shrubs, and remnants of an apple orchard that formerly existed on the property prior to 2000. Remaining areas of the site are improved with two vacant apartment buildings located along the southeast end of the site, an occupied residential home located at the southwest corner of the site, four vacant studio cabins located immediately north and east of the occupied residence, and a small outhouse located immediately northeast of the hill. One of the studio cabins located east of the occupied residence appears to have been converted into a garage.

The on-site residence has an address of 428 State Route 97A and provides approximately 1,400 square feet of living space. The two vacant apartment buildings are divided into nine separate studio apartment units and were observed to be in a dilapidated condition during the site reconnaissance. The cabins surrounding the residence are currently being used by the leasing occupants of the residence to store automotive parts, furniture, and household trash. Reportedly, the apartment units and cabins were formerly used as temporary housing for migrant workers associated with the former use of the site as an apple orchard.

Small amounts of refuse including plastic bags, used appliances, furniture, empty liquor bottles/cans, and other discarded trash was observed deposited along the south and southeast

ends of the site. Additionally, a pile of irrigation pipes and two irrigation water source taps (formerly associated with apple orchard) were observed within the center portion of the site.

No indication of hazardous materials, underground or aboveground fuel storage tanks, surface staining, chemical odors, or stressed vegetation was noted by Kleinfelder during the site reconnaissance. No documented evidence of historical use of hazardous materials on-site (i.e. underground fuel storage tanks) was found on-file with the agencies reviewed by Kleinfelder. The site is currently not a recorded source of soil and/or groundwater contamination.

In regards to critical areas, there were no records on-file with the agencies reviewed by Kleinfelder indicating the presence of wetland areas, endangered/threatened species, wildlife sanctuaries, regulatory compliance, radon, health and safety issues, lead in drinking water, indoor air quality/industrial hygiene issues, and cultural, historical and archeological resources at the subject site. Additionally, a wetlands investigation of the site was recently performed by John Altmann of Altmann Oliver Associates, LLC (retained by PACLAND). According to Mr. Altmann, no wetland areas were identified at the site.

Three pole-mounted electrical transformers located at the center of the property are suspected to contain PCB-containing dielectric fluids since they did not contain markings and/or labels indicating that they do not contain PCBs. Nevertheless, the transformers appeared intact and there were no visual signs of dielectric fluid leakage from the transformers' casings.

6.1.3 Off-Site Findings

The surrounding land use north of the subject property consists of approximately six residential homes, an apple tree orchard associated with "Deer Mountain Ranch", and undeveloped land areas. A vacant cabin, an abandoned well pump shack, and undeveloped land areas are located west of the site. According to agency records none of the adjacent properties located north and west of the site are listed as having impacted soil and groundwater with hazardous materials.

The surrounding land use south of the subject property (across State Route 97A) consists of a warehouse, two small vacant cabins and a pile of empty fruit picking bins. During the site reconnaissance, two 1,000-gallon (approximate) aboveground tanks storing diesel and gasoline were observed to be located approximately 50 to 60 feet south of the warehouse structure. Additionally, approximately three 55-gallon steel drums storing motor oil and approximately four 5-gallon plastic containers storing lube oil are located immediately west of the warehouse. No leaks or stains were noted around the bases of the tanks, drums, and containers. The adjacent

Based on this issue (as well as other issues identified in this report), Kleinfelder makes the following recommendations:

1. Perform a limited Phase II Environmental Site Assessment (ESA) by collecting up to 12 shallow soil samples throughout the site. The purpose of this limited Phase II ESA will be to screen the site's soil for the potential presence of organophosphate pesticides, lead, and arsenic prior to redevelopment activities. Analytical results generated during this limited investigation would be evaluated as to whether (or not) a more extensive subsurface investigation (i.e. deeper soil samples and/or the collection of groundwater samples) should be performed at the site.

2. PACLAND should consider discussing the recommendations contained in the August 23, 2000 Cultural Resources Survey report (see Section 4.7.1) with the Washington Office of Archaeology and Historic Preservation and the City of Chelan Building and Planning Departments (after submitting the Cultural Resources Survey report to them for review) in order to determine whether (or not) some or all of these recommendations would be applicable towards the subject site.

3. The two existing septic tanks located immediately south of the apartment buildings (see Mr. Peer's field sketch in Appendix G) should be cleaned out by a septic tank service contractor and removed from the site prior to redevelopment activities. Additionally, the locations of two more suspect septic tanks located west of the occupied residence and southeast of the studio cabin (located east of the occupied residence) should be investigated further to determine their presence.

4. The household refrigerators, discarded appliances, and other trash items observed scattered on the property should be removed and properly disposed of. Additionally, the current site owner should have all stored items removed from the cabins.

5. Should underground storage tanks and/or groundwater wells be encountered on the property during site development, they should be decommissioned in accordance with Federal, State, and local requirements. Additionally, if buried hazardous materials, visibly impacted soil areas, and/or septic tanks are encountered during site redevelopment, they should be removed and properly disposed of.

7.0 REFERENCES

1. American Society for testing and materials, 2000, Standard practice for environmental site assessments: Phase I Environmental Site Assessment Process.
2. Phase I Environmental Site Assessment and Report Requirements, dated May 17, 2004.
3. Supplement to Phase I Guidelines (When Buildings Are Present), dated May 22, 2000.
4. EDR Radius Map with GeoCheck, Environmental Data Resources, Isenhart Orchards, Report ID: 01241139.1r, dated July 30, 2004.
5. Sanborn Map Report, Environmental Data Resources, Isenhart Orchards, Report ID: 1241139.2s, dated August 2, 2004.
6. USGS Topographic Map, 7.5-Minute Series, Chelan Falls Quadrangle, dated 1968.
7. Draft Geotechnical Report for the Proposed Chelan Retail Center, State Highway 97A, Chelan, Washington. Completed by Kleinfelder, Inc., dated August 27, 2004.
8. Mr. Kile Peer, Manager with Naumes Properties, LLC.
9. Sensitive Areas Study for the Naumes Corporation Property, Chelan County, Washington. Completed by Pacific International Engineering, PLLC, dated August 11, 2000.
10. A Cultural Resources Survey of the Naumes Property, Chelan County, Washington. Completed by Ms. Pamela McKenney of the Archaeological and Historical Services Department of Eastern Washington University, dated August 23, 2000.
11. Environmental Checklist for the Naumes Property, Chelan County, Washington. Completed by Mitchell Nelson Group, Inc., dated August 28, 2000.
12. Aerial photographs of the site area on-file with the University of Washington, Seattle, Suzallo Library. Photographs dated 1968 and 1973.

13. Aerial photographs of the site area on-file with the U.S. Army Corps of Engineers, Seattle District Office. Photographs dated 1976, 1977, 1980, 1985, 1989, 1993, 1999, 2000, and 2002.

14. 1933 – 2002 Chelan County City Directories on-file with the Chelan and Wenatchee main public libraries.

15. Chelan County Building and Planning Department, Wenatchee, Washington.

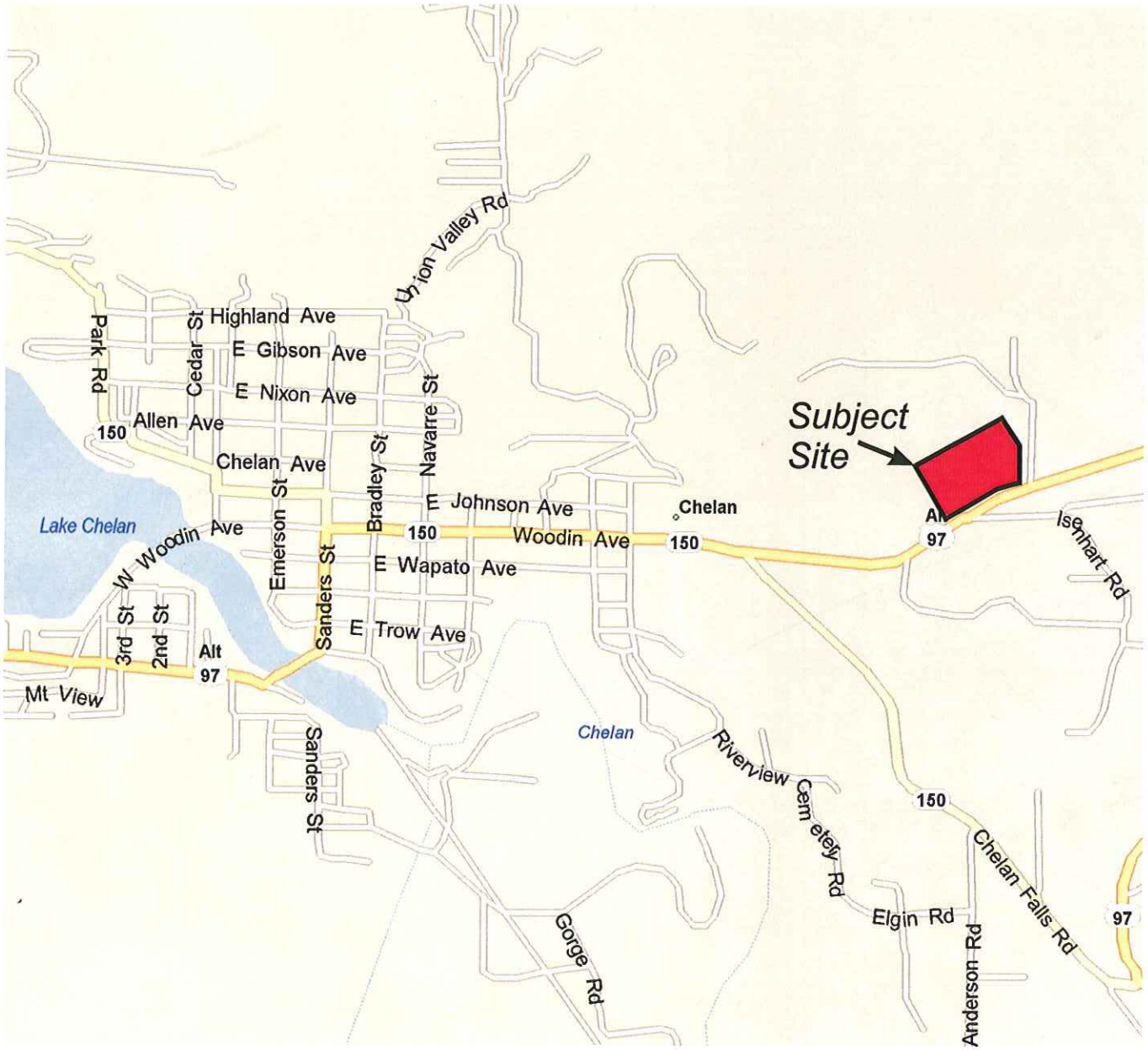
16. Chelan County Assessor's Office, Wenatchee, Washington.

17. Chelan County Environmental Health Department, Wenatchee, Washington.

18. Chelan County Public Works Department, Wenatchee, Washington.

19. Chelan County Board of Fire Prevention, Wenatchee, Washington.

20. Washington State Department of Ecology, Central Washington Region, Yakima, Washington.



N

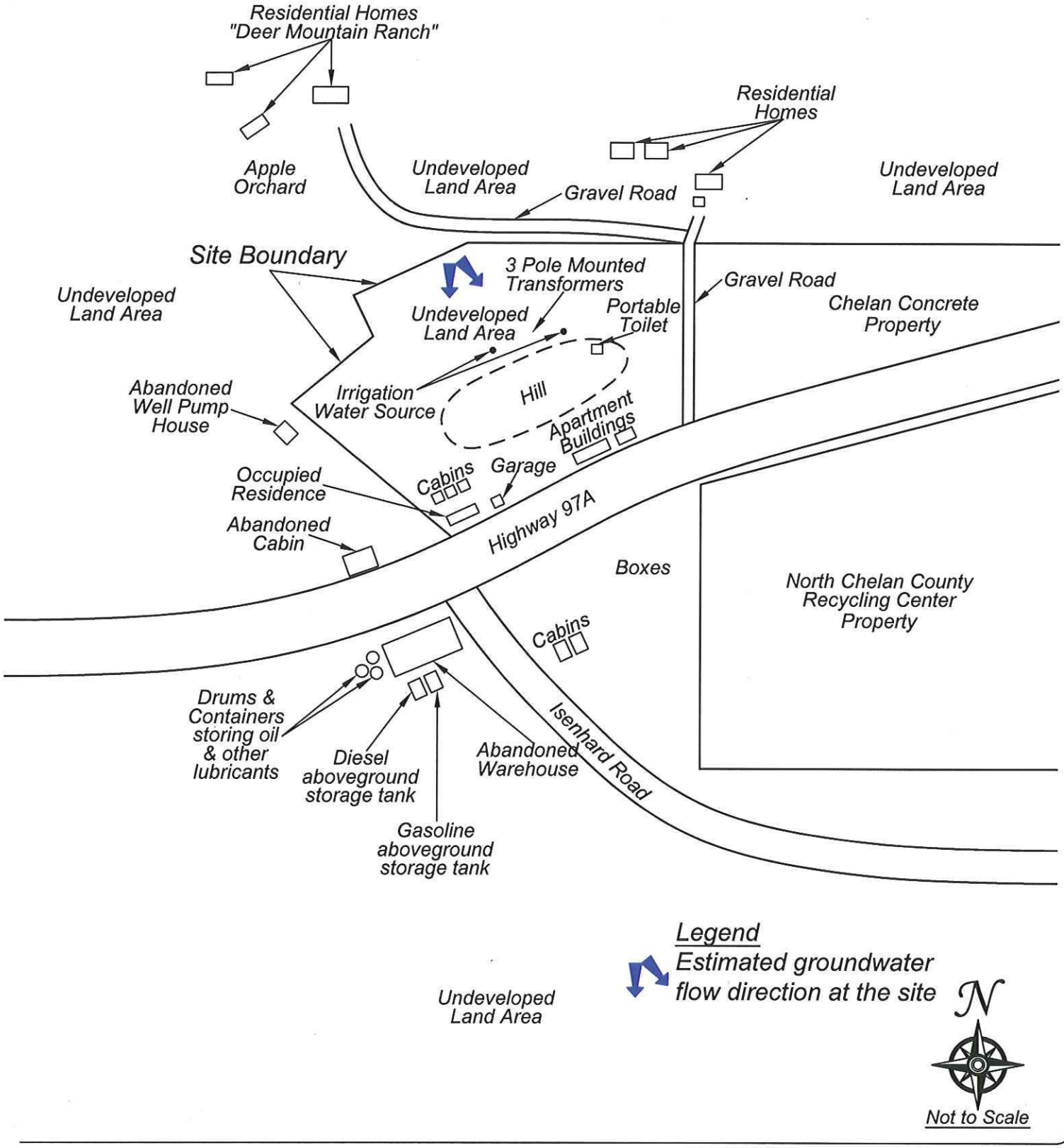
Not to Scale

KLEINFELDER

PROJECT NO. 47755 August 2004

Vicinity Map
Isenhart Orchards Property
North of State Highway 97A
Chelan, Washington

FIGURE 1



KLEINFELDER

Isenhart Orchards Property
North of State Highway 97A
Chelan, Washington

Project: 47755 August 2004

Site Plan &
Surrounding Areas

FIGURE
2

Prepared for:
PACLAND
1144 Eastlake Avenue East, Suite 601
Seattle, Washington 98109-4450

Phase I Environmental Site Assessment
Proposed Commercial Site
Former Isenhart Orchards Property
N.E. of S.R. 97A and Isenhart Road
Chelan, Washington

Prepared by:

Ted W. Sykes
Project Manager

Reviewed by:

Kevin G. Lakey, PE, LHG
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Kleinfelder Project No.: 47755

August 27, 2004

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 PURPOSE

Kleinfelder conducted a Phase I Environmental Site Assessment (ESA) of the *Proposed Commercial Site* located northeast of the intersection of State Route 97A and Isenhart Road in Chelan, Washington (as shown in Figure 1). In this report, this property will be referred to as "the site", "subject site", "subject property", or "proposed commercial site".

Kleinfelder understands the information contained in this report will be used by PACLAND and its client (The Client) to better understand environmental conditions associated with the site's past and current use. Kleinfelder performed this ESA in general accordance with The Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*. Additionally, this ESA was performed in accordance with our July 20, 2004 Phase I ESA proposal (No. 47184), and in general accordance with the scope and limitations of the ASTM Standard Practice for *Phase I Environmental Site Assessments: Environmental Site Assessment Process* E 1527-00.

The purpose of this assessment is to assist PACLAND and The Client in recognizing "environmental conditions" at the site. A recognized environmental condition is defined by the ASTM standard as "the presence or likely presence of *hazardous substances or petroleum products* on a *property* under conditions that indicate an existing release, a past release, or a material threat of a release of *hazardous substances or petroleum products* into structures on the *property* or into the ground, groundwater or surface water of the *property*. The term includes *hazardous substances or petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions*."

This Phase I Environmental Site Assessment was conducted by Ted W. Sykes of Kleinfelder, a professional experienced with environmental site assessments. Mr. Sykes' resume is presented in Appendix A of this report.

A reconnaissance of the subject site and surrounding properties was performed by Kleinfelder on August 9, 2004. Information obtained during the site reconnaissance, as well as information obtained at public agencies reviewed by Kleinfelder, was used to complete the Phase I ESA investigation.

1.2 SCOPE-OF-SERVICES

The following sections describe Kleinfelder's scope of services:

- Section 1, **Introduction**, includes a discussion of the purpose/reason for performing the Phase I ESA; additional services requested by the client (e.g. an evaluation of business environmental risk factors associated with the property); significant assumptions (e.g. property boundaries if not marked in the field); limitations, exceptions, and special terms and conditions (e.g. contractual); and user reliance parameters.

- Section 2, **Site Setting**, is a compilation of information concerning the site's location, legal description (if available), current and proposed use of the site, a description of structures and improvements on site at the time of Kleinfelder's assessment, and current uses of adjoining properties.

- Section 3, **Records Review**, is a compilation of Kleinfelder's review of several databases available from federal, state, and local regulatory agencies regarding hazardous substance use, storage, or disposal at the site; and for off-site facilities up to a mile radius from the site. Environmental liens or activity and use limitations are included in this chapter. A copy of the regulatory agency database report is included as Appendix B.

- Section 4, **History of the Site**, summarizes the history of the site and adjoining properties. This history is based on various sources which may include a review of: aerial photographs, Sanborn Fire Insurance Maps, city or suburban directories, historical topographic maps, previous assessments, and a chain-of-title/a preliminary title report (if provided by the client).

- Section 5, **Business Environmental Risk Considerations**, includes the results of Kleinfelder's limited evaluation of wetlands, polychlorinated biphenyls (PCBs), radon, high voltage power lines, chlorofluorocarbons (CFCs), indoor air quality, health and safety, lead in drinking water, industrial hygiene, regulatory compliance, ecological resources, wildlife sanctuaries, endangered species, and cultural, historical and archeological resources.

- Section 6, **Evaluation**, is a presentation of our findings and opinions regarding the information in Sections 2 through 5; and presents our conclusion regarding the presence of environmental conditions of concern at the site.

- Section 7, **References**, is a summary of the resources used to compile this report.

1.3 ADDITIONAL SERVICES

In accordance with the Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*, a limited evaluation of the following select Business Environmental Risk Considerations (BERCs) associated with the site were included in Kleinfelder's scope of services:

- Wetlands
- Cultural, historical and archeological resources
- Ecological Resources, wildlife sanctuaries, and endangered species
- Polychlorinated biphenyls (PCBs)
- Radon
- High voltage power lines
- Chlorofluorocarbons (CFCs)
- Indoor air quality and industrial hygiene
- Regulatory compliance
- Health and safety
- Lead in drinking water

Kleinfelder's scope of services included evaluating the presence, location, and condition of suspect PCB-containing equipment (i.e. electrical transformers and light fixture ballasts) and suspect CFC-containing equipment (i.e. refrigerators) by visually inspecting external labels indicating PCB or CFC content. Collecting samples of dielectric fluids for PCB content analysis and refrigerant fluids for CFC content analysis was not considered part of the scope of services during this assessment.

Kleinfelder's evaluation for the presence of wetlands, cultural, historical and archeological resources, ecological resources, wildlife sanctuaries, radon, high voltage power lines, indoor air quality, industrial hygiene, health and safety, regulatory compliance, and lead in drinking water at the subject site was limited to reviewing information on-file with the Chelan County Building

and Planning Departments and reviewing maps obtained from public databases such as Environmental Data Resources.

In accordance with PACLAND's request, an evaluation for the presence of asbestos-containing materials (ACMs) and lead-based paints (LBPs) within the buildings occupying the site was not included in this assessment, since the current property owner (Naumes Properties, LLC) retained a separate firm to perform this investigation.

This assessment did not incorporate any other BERCs not mentioned above.

1.4 LIMITATIONS AND EXCEPTIONS

In accordance with PACLAND's request, this assessment did not include contacting or reviewing information on-file with public agencies associated with the City of Chelan (i.e. City of Chelan Building/Planning Department, Fire Department, etc.).

Phase I ESAs are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. The attached report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help you understand and better manage your risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service, which will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss this issue of risk further.

Kleinfelder performed this ESA in general accordance with the Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*. Additionally, this ESA was performed in general accordance with the scope and limitations of the ASTM Standard Practice for *Phase I Environmental Site Assessments: Environmental Site Assessment Process* E 1527-00. No warranty, either express or implied is made. Environmental issues not specifically addressed in the report were beyond the scope of our work and not included in our evaluation.

Land use, site conditions (both on-site and off-site) and other factors will change over time. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings and opinions can be considered valid only as of the date of the site visit. This report should not be relied upon after 180 days from the date of its issuance (ASTM Standard E-1527, Section 4.6).

1.5 USER RELIANCE

Provided Kleinfelder's report is still reliable (as determined by Kleinfelder), Kleinfelder may issue a third-party reliance letter to a party, other than PACLAND and its client (The Client), identifying in writing under the following conditions: that the third party, including PACLAND and The Client's successors and assigns, by such reliance, agree in writing to be bound by Terms and Conditions of the contract between PACLAND and Kleinfelder, Inc. Please see the "Third Party Reliance Letter" form in Appendix H.

Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by PACLAND, The Client, or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

2.0 SITE SETTING

The site setting was evaluated for the potential of on- and off-site contaminant migration, if present. The site location is shown on Figure 1. The site plan is presented on Figure 2. Tables 1 through 3 provide the physical characteristics of the site and bordering properties. Selected photographs of the site area are presented in Appendix C.

2.1 LOCATION AND LEGAL DESCRIPTION

The information presented in Table 1 describes the physical location and legal description of the site. This information was obtained from observations made during the site reconnaissance and information obtained from maps, Chelan County public agency records, and interviews.

TABLE 1
LOCATION AND LEGAL DESCRIPTION

SITE ADDRESSES	428 State Route 97A.
LOCATION	Northeast of the intersection of State Route 97A and Isenhart Road in the City of Chelan, Chelan County, State of Washington.
NUMBER OF SITE PARCELS	One.
ASSESSOR'S PARCEL NUMBER (APN)	27-23-18-627-010.
IDENTIFICATION OF PARCEL	East Quarter Section of Parcel Number 27-23-18-627-010.
TOWNSHIP & RANGE	Township 27 North, Range 23 East, Section 18.
ACREAGE	Approximately 18 acres of land total.
ZONING USE	Commercial and Light Industrial use.

2.2 GENERAL SITE SETTING

The subject site is located northeast of the intersection between State Route 97A and Isenhart Road in Chelan, Washington (Figure 1). The site is located approximately one mile east of downtown Chelan. According to officials at the Chelan County Building and Planning Department, the site is located within Chelan City limits.

The subject site consists of one irregular shaped lot comprising a total of approximately 18-acres of land area (Figure 2). The site is currently part of a 274-acre parcel that (in addition to the subject site) also encompasses neighboring land areas located immediately west, south and southwest of the site. The 18-acre site is located at the northeast corner of the 274-acre parcel

and is identified by the Chelan County Building and Planning Department as the former "Isenhart Orchards Property".

The site's approximate elevation ranges between 1,300 and 1,360 feet above mean sea level. A steep hill located along the southern end of the property extends approximately 80 to 100 feet above the site's surrounding terrain. The site's overall terrain appeared to be flat to rolling and slopes downward towards the south and southeast.

The majority of the subject site is currently undeveloped and thickly vegetated with wild grasses, weeds, shrubs, and remnants of an apple tree orchard that formerly existed on the property prior to 2000. Other areas of the site are improved with two vacant apartment buildings located along the southeast end of the site, an occupied residential home located at the southwest corner of the site, four vacant studio cabins located immediately north and east of the occupied residence, and a small outhouse located immediately northeast of the hill (see Figure 2). One of the studio cabins located east of the occupied residence appears to have been converted into a garage.

The on-site residence contains an address of 428 State Route 97A and provides approximately 1,400 square feet of living space. The two vacant apartment buildings are divided into nine separate studio apartment units and were observed to be in a dilapidated condition during the site reconnaissance. The cabins surrounding the residence are currently being used by the leasing occupants of the residence to store automotive parts, furniture, and household trash. Reportedly, the apartment units and cabins were formerly used as temporary housing for migrant workers associated with the former use of the site as an apple orchard.

Small amounts of refuse including plastic bags, used appliances, furniture, empty liquor bottles/cans, and other discarded trash was observed deposited along the south and southeast ends of the site (see photographs in Appendix C). Additionally, a pile of irrigation pipes and two irrigation water source taps (formerly associated with the apple orchard) were observed within the center portion of the site.

No indication of hazardous materials, underground or aboveground fuel storage tanks, surface staining, chemical odors, or stressed vegetation was noted by Kleinfelder during the site reconnaissance. No documented evidence of historical use of hazardous materials on-site (i.e. underground fuel storage tanks) was found on-file with the agencies reviewed by Kleinfelder. The site is currently not a recorded source of soil and/or groundwater contamination.
Based upon information obtained from interviewing a site owner representative (Mr. Kile Peer of Naumes Properties, LLC) and review of historical documentation, the site has been used as a

"Red Delicious" apple orchard from at least the early 1900s until 1999. Naumes Properties, LLC (Naumes) purchased the site in 1980. Reportedly, apple orchard activities ceased between 1999-2000 when Naumes had the apple trees removed from the site. According to Mr. Peer, organophosphate pesticides, as well as the possible use of pesticides containing lead and arsenic, were used at the apple orchard throughout the past several decades of its existence. Since 2000, the subject property has been in its current use.

Site area groundwater information is presented in Table 2 (see below).

TABLE 2
REGIONAL GROUNDWATER INFORMATION

DEPTH TO REGIONAL GROUNDWATER AND DIRECTION OF ANTICIPATED FLOW (Source: Kleinfelder, Inc.)	According to information obtained from Kleinfelder's Geotechnical Investigation of the site (performed simultaneously with this assessment), depth to the groundwater is greater than 30 feet below ground surface. The general groundwater depth may be influenced by local pumping, rainfall, and irrigation patterns. The estimated direction of groundwater flow at the site is towards the south and southeast.
REGIONAL GROUNDWATER QUALITY PROBLEMS (Source: Washington Department of Ecology, Chelan County Building/Planning, Environmental Health, and Public Works Departments)	Regional groundwater quality problems were not revealed during Kleinfelder's assessment.

2.3 CURRENT/PROPOSED USE OF THE PROPERTY

According to Mr. Peer and officials at the Chelan County Building and Planning Department, Naumes Properties, LLC is the current site owner. Mr. William Isenhart formerly owned and operated the site as part of the Isenhart Orchards organization beginning during the early 1900s. Naumes purchased the site in 1980 and discontinued apple orchard activities in 1999. Reportedly Naumes removed the apple trees from the orchard between 1999-2000 in preparation for selling the property for redevelopment.

Currently, most of the site consists of an undeveloped grass field. Young apple tree sprouts were observed growing throughout the central and northern portions of the site where the apple orchard trees were removed from the site between 1999-2000. According to Mr. Peer, many of the apple tree roots extended very deep underground and separated from the tree trunks as the trees were being pulled from the ground.

The southern end of the site included temporary living facilities (temporary laborer apartment buildings and cabins) formerly used by migrant workers associated with apple orchard activities.

The apartment buildings and cabins are currently unoccupied and are in varying stages of disrepair. According to historical records, the residence located at the southwest corner of the site lot may possibly have been occupied by Mr. William Isenhart and/or members of his family during the time when Mr. Isenhart owned the property. The residence is currently being used for rental housing.

The proposed development of the site will consist of a commercial building and associated parking lot areas. Current and proposed uses are described in Table 3 below.

TABLE 3
CURRENT/PROPOSED USES

CURRENT USE	Undeveloped land along with an occupied residential home, two vacant temporary laborer apartment buildings, four vacant temporary laborer cabins, and one small outhouse.
PROPOSED USE	Commercial building and associated parking lot areas.

2.4 DESCRIPTION OF STRUCTURES/IMPROVEMENTS

Structures and/or improvements observed on site at the time of Kleinfelder's site reconnaissance are described in Table 4 (see next page).

TABLE 4
STRUCTURES/IMPROVEMENTS

	GENERAL OBSERVATIONS
STRUCTURES	The residence occupying the southwest corner of the subject site is a one-story, wood framed structure constructed on a raised foundation. The exterior walls of the residence consist of wood siding. The interior walls consist of wood paneling and sheetrock. The wood floors within the residence are finished with either sheet vinyl flooring material, vinyl floor tiles, or carpet. The plywood roof is covered with asphalt shingles and is supported by wood joists. The residential home was constructed prior to 1965 and provides roughly 1,400 square feet of living space. The temporary laborer apartment buildings are both one-story, concrete block structures constructed on slab-on-grade concrete foundations. The buildings are divided into nine studio apartment units, each including a living room/bedroom, kitchenette, and adjoining bathroom. Interior finish materials consist of sheetrock or wood paneling walls and the concrete floors are covered with sheet vinyl flooring material, vinyl floor tiles, or carpeting. The plywood roofs of the buildings are covered with asphalt sheeting. The buildings are currently vacant and were constructed during the 1970s. The temporary laborer cabins are all one-story, wood framed structures constructed on raised foundations. The exterior walls of the cabins consist of wood siding. The interior walls consist of plywood or sheetrock. The wood floors within the cabins are either finished with carpet or left bare. Each cabin is approximately 300 square feet in size. The cabins are currently being used by the leasing tenants occupying the on-site residence for storage.
IMPROVEMENTS	The residential home, apartment buildings, and cabins occupying the site can be accessed by a gravel driveway originating from State Route 97A. An un-maintained dirt road was observed traversing the center of the site from west to east. A pile of irrigation pipes, an outhouse, and two irrigation water source taps were observed at the center of the property (north of the hill).

2.5 CURRENT USES OF ADJOINING PROPERTIES

Kleinfelder conducted a drive-by survey of the parcels adjoining the site on the same day as the site reconnaissance. A summary of the surrounding properties is presented on Table 5 (see next page).

TABLE 5
SURROUNDING PROPERTIES

North	Single-family residential homes, an apple tree orchard associated with Deer Mountain Ranch, and undeveloped land areas.
South	Across State Route 97A: Two small vacant cabins, a large warehouse equipped with two aboveground fuel storage tanks and approximately three 55-gallon drums and miscellaneous containers storing motor oil and other mechanical lubricants, undeveloped land areas, and the North Chelan County Recycling Center property (southeast of the site).
East	Chelan Concrete property.
West	A vacant cabin, abandoned well pump shack, and undeveloped land areas.

The surrounding land use north of the subject property consists of approximately six residential homes, an apple tree orchard associated with "Deer Mountain Ranch", and undeveloped land areas. A vacant cabin, an abandoned well pump shack, and undeveloped land areas are located west of the site. According to agency records none of the adjacent properties located north and west of the site are listed as having impacted soil and groundwater with hazardous materials.

The surrounding land use south of the subject property (across State Route 97A) consists of a warehouse, two small vacant cabins, and a pile of empty fruit picking bins. During the site reconnaissance, two 1,000-gallon aboveground tanks storing diesel and gasoline were observed to be located approximately 50 to 60 feet south of the warehouse structure. In addition, approximately three 55-gallon steel drums storing motor oil and approximately four 5-gallon plastic containers storing lube oil are located immediately west of the warehouse. No leaks or stains were noted around the bases of the tanks, drums, and containers. The adjacent property located south of the subject site is not listed as having impacted soil and groundwater with hazardous materials.

The surrounding property southeast of the subject property, North Chelan County Recycling Center (NCCRC), is a solid waste transfer facility that accepts aluminum cans, scrap metal, glass, paper, and other solid waste items for recycling purposes. Officials at the NCCRC indicated that they do not accept waste petroleum products (i.e. waste oil) or other hazardous materials. Records reviewed at Washington Department of Ecology (Ecology) indicated that NCCRC is a permitted solid waste transfer station. There were no available records on-file with Ecology indicating that NCCRC had impacted soil and/or groundwater with hazardous materials.

The adjacent property east of the site appeared to be occupied by a gravel mine owned by Chelan Concrete. According to records reviewed at Ecology, two underground diesel fuel storage tanks and associated diesel impacted soil was removed from the Chelan Concrete site during

November 1991. Analytical results of confirmation soil samples collected within the UST excavations were reportedly below Ecology's Model Toxics Cleanup Act (MTCA) Method A soil cleanup levels. Subsequently, Ecology prepared a LUST File Review memo (dated April 27, 2000) indicating that the Chelan Concrete's LUST status was to be changed to "Reported Clean" and included a note to "flag missing information on the final disposition of the contaminated soil stockpile". Since the Chelan Concrete site is located cross- to downgradient with respect to the subject site, and that there were no records on-file with Ecology indicating that the Chelan Concrete site had impacted groundwater, the potential for the Chelan Concrete site to impact the subject site is considered low.

3.0 RECORDS REVIEW

3.1 STANDARD ENVIRONMENTAL RECORD SOURCES

The purpose of the records review is to identify recognized environmental conditions of potential concern in connection with the subject site and surrounding properties.

Federal, state, and local regulatory agencies publish databases or "lists" of businesses and properties that handle hazardous materials or hazardous waste, or are the known location of a release of hazardous substances to soil and/or groundwater. These databases are available for review and/or purchase at the regulatory agencies, or the information may be obtained through a commercial database service. Kleinfelder retained a commercial database service, Environmental Data Resources, Inc. (EDR), to review the regulatory agency lists for references to the subject site and other off-site listings within the appropriate ASTM minimum search distances. The EDR database search results for the subject site and for other nearby facilities are contained in the EDR Radius Map with Geo-Check Report included in Appendix B, Regulatory Agency Database Report. The federal and state databases reviewed along with the number of sites plotted in each database category are summarized in Table 6 (see next page).

The EDR report identified several unmappable sites in the site area that are listed as "orphan sites" and are not plotted on EDR maps. Wherever possible, Kleinfelder attempted to identify locations of orphan sites and include them in the discussion, as appropriate.

TABLE 6
RECORDS REVIEW-SEARCH DISTANCE-FINDINGS

FEDERAL		Total Number of Facilities Listed	Number of Upgradient or Adjacent Facilities Listed	Site Listed
NPL (National Priority List)	Site & 1 Mile	0	0	No
CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Act Information System)	Site & 0.5 Mile	0	0	No
CERCLIS NFRAP (No Further Remedial Action Planned)	Site & 0.25 Mile	0	0	No
RCRA (Resource Conservation and Recovery Act) **CORRACTS** (Corrective Actions Sites)	Site & 1 Mile	0	0	No
RCRA non-CORRACTS TSD (Transfer Storage and Disposal Sites)	Site & 0.5 Mile	0	0	No
RCRA GENERATORS	Site & 0.25 Mile	0	0	No
ERNS (Emergency Response Notification System Listings)	Site	0	0	No
STATE				
CSCSL (Confirmed and Suspected Contaminated Sites List)	Site & 1 Mile	0	0	No
State Landfill Sites	Site & 0.5 Mile	0	0	No
LUST (Leaking Underground Storage Tank Sites)	Site & 0.5 Mile	0	0	No
WA ICR (Washington State Independent Cleanup Reports)	Site & 0.5 Mile	0	0	No
UST (Registered Underground Storage Tank Sites)	Site & 0.25 Mile	0	0	No

3.1.1 Subject Site

The site was not recorded on the regulatory databases listed in Table 6 above.

3.1.2 Off-Site Facilities

According to EDR's database report, there were no recorded off-site facilities located within the specified search radius (see Table 6 above). The North Chelan County Recycling Center, located southeast of the subject property, is recorded in EDR's "Orphan Sites Summary" as a solid waste

facility. However, there were no records available at Ecology indicated that the North Chelan County Recycling Center had impacted soil and groundwater with hazardous materials (see Section 2.5 for details). Additionally, the aboveground fuel storage tanks, oil drums and containers associated with the warehouse facility located south of the site were not on record as having impacted soil and groundwater with petroleum products or hazardous materials.

The Chelan Concrete site, located immediately east of the subject property, was not recorded on EDR's database. However, records reviewed at Ecology indicated that two diesel USTs and an unknown quantity of diesel impacted soil was removed at the Chelan Concrete site during November 1991. Reportedly, groundwater was not impacted and the probability that the Chelan Concrete site impacted the subject property is considered low. See Section 2.5 for details.

Other facilities listed on EDR's Orphan Summary of unplottable facilities were not located within the corresponding ASTM search distances from the subject property.

3.2 ADDITIONAL AGENCY ENVIRONMENTAL RECORDS

Local regulatory agencies were contacted for reasonably ascertainable and practically reviewable documentation regarding recognized environmental conditions present at the site and surrounding properties. Table 7 below summarizes the agencies contacted for documentation:

TABLE 7
AGENCY RECORDS SUMMARY

	AGENCY	DATE	CONTACT NAME	PHONE	TYPE OF INFORMATION
County	Chelan County Building and Planning Department	Aug. 10, 2004	Angel Hallman	(509) 667-6225	Permit and Parcel Map Information, Flood Zone Information, Hazardous Materials Records, Critical Areas Records, and Historical Site Use Information.
County	Chelan County Assessor's Office	Aug. 10, 2004	Russell Griffith	(509) 667-6367	Building and Parcel Map Information, Critical Areas Records, and Recorded Leans.
County	Chelan County Environmental Health Department	Aug. 10, 2004	Scott Reynolds	(509) 886-6450	Septic Tank and Groundwater Well Records
County	Chelan County Public Works Department	Aug. 10, 2004	Service Desk	(509) 667-6225	Building and Parcel Map Information, Critical Areas Records, and Septic Tank Records.
County	Chelan County Board of Fire Prevention	Aug. 10, 2004	Rod Lasher	(509) 664-5221	UST and Hazardous Materials Records.
State	Washington State Department of Ecology	Aug. 11, 2004	Roger Johnson Rachel Caron	(509) 454-7658	Groundwater Well Records, Hazardous Materials Records, Off-Site Release Records, & Underground Storage Tank Records.

Chelan County Building and Planning Department (CCBPD):

Records on-file with the CCBPD indicated that the subject site is part of a 274-acre lot (Parcel No. 27-23-18-627-010) identified as the former "Isenhart Orchards" property. The 18-acre subject site includes the northeast quarter section of the former Isenhart Orchards property. Officials at the CCBPD indicated that the subject site is not located within a designated flood zone or within a designated aquifer recharge area. The CCBPD did not have historical permit records, zoning information, groundwater well installation records, hazardous materials

use/storage records, or underground fuel storage tank records for the subject site. Additionally, the CCBPD did not have records pertaining to wetlands, endangered plant and animal species, culturally sensitive areas, or other critical areas issues that may be associated with the subject property.

Chelan County Assessor's Office (CCAO):

Records reviewed at the CCAO also revealed that the subject site is part of a 274-acre lot identified as the former "Isenhart Orchards" property. The current owner of the site was recorded as Naumes Properties, LLC. The address of the 274-acre Isenhart Orchards lot was recorded as "Willmorth Road, Chelan". Officials at the CCAO indicated that the subject property is located within Chelan City limits and they do not have zoning information about the site. Additionally, the CCAO did not have historical development records, building permits, environmental issues, critical areas information, hazardous materials records, or environmental related leans associated with the subject site.

Chelan County Environmental Health Department (CCEHD):

Sewage system records on-file with the CCEHD indicated that Naumes was granted a permit to re-use an existing septic tank located at the site on May 12, 1983. The location of the septic tank was not specified in the records, however, did indicate that it had a capacity to serve approximately 20 employees. The CCEHD did not have records pertaining to the possibility that a domestic water well may have existed on the property.

Mr. Peer provided Kleinfelder with a field sketch displaying the locations of known, as well as suspected, septic tank locations at the subject site. See Section 4.6 for details.

Chelan County Public Works Department (CCPWD):

Officials at the CCPWD indicated that they have records pertaining to the installation and servicing of Chelan County roadways and do not have property records.

Chelan County Board of Fire Prevention (CCBFP):

The CCBFP was contacted regarding records pertaining to current/former aboveground and underground storage tanks, hazardous materials, and recorded violations involving the subject site. According to Mr. Rod Lasher, Fire Marshal with the CCBFD, they do not have records pertaining to these issues for the subject site.

Washington State Department of Ecology (Ecology):

No records pertaining to underground or aboveground storage tanks currently or formerly existing at the subject site, on-site hazardous materials use/releases, violations, or hazardous

waste storage records were on-file with Ecology. Ecology has several domestic water well installation records for the City of Chelan area, however, none of these records indicated that a well was ever installed at the subject property.

3.3 PHYSICAL SETTING SOURCE(S)

Table 8 (see next page) presents information about the physical setting of the site. This information was obtained from published maps and public records.

TABLE 8
PHYSICAL SETTING

USGS TOPOGRAPHIC QUADRANGLE	Chelan Falls Quadrangle, USGS 7.5-minute series, dated 1968.	The site is located at an approximate surface elevation ranging between 1,300 feet to 1,360 feet above mean sea level. A steep hill located along the southern end of the property rises approximately 80 to 100 feet above the site's surrounding terrain. The site's terrain slopes downward towards the south and southeast.
NEAREST SURFACE WATER	Chelan Falls Quadrangle, USGS 7.5-minute series, dated 1968.	The Chelan River and the Columbia River are located approximately one mile southwest and east of the site, respectively.
FLOOD ZONE (FEMA)	EDR Site Overview Map Report, dated July 30, 2004.	The site is located outside the designated 100-year and 500-year flood plain areas, as defined by FEMA.
REGIONAL GEOLOGY	Kleinfelder's Geotechnical Investigation performed at the site and information obtained from Ecology's groundwater well installation logs completed for nearby properties surrounding the subject site.	The subject property is underlain loess deposits consisting of very soft to medium stiff silt with varying amounts of sand, gravel, and cobbles to a depth of approximately 10 feet below the ground surface (bgs). Colluvium deposits underly the loess material to a depth of at least 30 feet bgs (the maximum depth explored by Kleinfelder during the geotechnical assessment). The colluvium material consists of medium dense to very dense silty gravel and gravel with silt and sand. One to two foot diameter cobbles and boulders were also encountered. Groundwater was not encountered in soil borings and test pits excavated throughout the subject site during Kleinfelder's geotechnical investigation of the property.

4.0 HISTORICAL USE OF THE PROPERTY AND ADJOINUNG

The history of the site was researched to identify obvious uses of the site from the present to first developed use, or back to 1940; whichever is earlier, from readily available resources. Kleinfelder, Inc. retrieved the historical information of the subject property from all available resources. The earliest historical record available covering the site area was an aerial photograph, dated 1965. Other historical records provided site coverage following 1965. Historical records covering the site area prior to 1965 were unavailable. Table 9 (below) summarizes the availability of information reviewed during this assessment.

TABLE 9
HISTORICAL SOURCES

	Year(s) Available	Source
AERIAL PHOTOGRAPHS	1965, 1973, 1976, 1977, 1980, 1985, 1989, 1993, 1999, 2000, and 2002.	University of Washington, Seattle - Suzzallo Library U.S. Army Corps of Engineers, Seattle District Office
SANBORN FIRE INSURANCE MAPS	No coverage available for site area.	EDR – Sanborn Map Report
CITY DIRECTORIES	1933-2002.	Chelan Main Public Library Wenatchee Main Public Library
TOPOGRAPHIC MAPS	1968	City of Renton Library
CHAIN-OF-TITLE REPORT		Not provided
INTERVIEW WITH SITE OWNER REPRESENTATIVE		Mr. Kile Peer (Manager with Naumes Properties, LLC)
PREVIOUS ASSESSMENTS	August 11, 2000 August 23, 2000 August 28, 2000	Pacific International Engineering's Sensitive Areas Study report for the Naumes Corporation Property, Chelan, WA. Archaeological & Historical Services Department's Cultural Resources Survey report of the Naumes Property, Chelan, WA. Mitchell Nelson Group's Environmental Checklist for the Naumes Property, Chelan, WA.

4.1 AERIAL PHOTOGRAPHY

Historical aerial photographs were reviewed to evaluate past land use at the site and in the surrounding area. Aerial photographs providing coverage for 1965 and 1973 were available for

review within the Map Collections Room of University of Washington's (Seattle Campus) Suzzallo Library. Aerial photographs providing coverage for 1976 through 2002 were available for review at the U.S. Army Corps of Engineer's Seattle District Office. Aerial photographs of the site area providing coverage prior to 1965 were unavailable for review. The aerial photographs reviewed for this assessment are listed in Table 10 below.

TABLE 10
AERIAL PHOTOGRAPHS REVIEWED

Year	Scale	Type	Quality
1965	Unknown	Black and White	Good
1973	Unknown	Black and White	Fair
1976	1" = 2,000'	Black and White	Fair
1977	1" = 2,000'	Black and White	Fair
1980	1" = 2,000'	Black and White	Good
1985	1" = 2,000'	Color	Good
1989	1" = 2,000'	Color	Good
1993	1" = 2,000'	Color	Good
1999	1" = 2,000'	Color	Good
2000	1" = 2,000'	Color	Good
2002	1" = 2,000'	Color	Good

A summary of the aerial photograph review is presented, as follows:

4.1.1 Project Site

- Aerial photographs reviewed from 1965 through 1977 depicted a mature apple tree orchard covering approximately 80 percent of the site's grounds. Furthermore, approximately 10 small structures resembling temporary laborer cabins and the current on-site residence are observed occupying the southwest corner of the subject site. The steep hill, located along the southern end of the site, is also visible. A shallow depression on top of the hill appears to have been filled with water. The temporary laborer

apartment buildings currently occupying the southeast end of the site had not been constructed and consists of apple trees.

- An aerial photograph reviewed from 1980 revealed seven of the ten small cabin structures observed in aerial photographs reviewed from 1965 through 1977 had been demolished. The present-day temporary laborer apartment buildings were present along the southeast end of the site. The remaining areas of the site (excluding the hill) were covered with apple trees. Similar site observations were noted in subsequent aerial photographs reviewed from 1985 through 2000.

- An aerial photograph reviewed from 2002 depicted the site in its current configuration. All of the apple trees had been removed from the site. The current structures occupying the site appear as they do presently.

4.1.2 Surrounding Areas

- The surrounding properties north, south, and west of the site were depicted as an apple tree orchard in aerial photographs reviewed from 1965 through 2000. The present-day warehouse structure, cabins, and water well pump house were observed occupying the adjacent property south and west of the site, respectively. The present-day single-family residences were also observed occupying the adjacent property north of the site. The adjacent properties east and southeast of the site appeared to be occupied by the present-day gravel pit owned by Chelan Concrete and the North Chelan County Recycling Center, respectively.

- An aerial photograph reviewed from 2002 revealed that the apple trees had been removed from the surrounding properties located south and west of the site. Apple trees continued to occupy the neighboring property north of the site. Other areas surrounding the site appeared essentially as they do today.

Note: Aerial photographs only provide information on indications of land use and no conclusions can be drawn from photographs alone. However, Kleinfelder's review of available aerial photographs did not reveal obvious signs of dumping, spilling, leaking, storage or disposal of hazardous materials or wastes on-site.

4.2 SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance Maps provide historical land use information for some metropolitan and small, established towns. Kleinfelder, Inc. retained EDR-Sanborn, Inc. to perform a search of the

nation's largest and most complete collection of Sanborn maps. According to EDR, there were no Sanborn maps identified that included the site area (see Appendix B).

4.3 CITY DIRECTORIES

City directories from 1963 through 1979 covering Chelan were available at the City of Chelan Main Public Library. Additionally, city directories from 1933 through 2002 were available at the City of Wenatchee Main Public Library. However, none of the city directories provided coverage of the subject site as well as neighboring properties located outside downtown Chelan, along State Route 97A.

4.4 HISTORICAL TOPOGRAPHIC MAP REVIEW

A 1968 historical topographic map of the site area (Chelan Falls Quadrangle) was reviewed by Kleinfelder at the City of Renton Main Public Library. Historic topographic maps covering the site were not available for review at the City of Chelan Public Library nor the City of Wenatchee Main Public Library.

According to the topographic map, the subject site is depicted as being apart of a large orchard. The present-day residence is depicted along the southwest corner of the site, as well as the former laborer cabins observed in aerial photographs reviewed from 1965 through 1977. The present-day apartment buildings were not depicted on the topographic map. A designated grave site is depicted on the topographic map as being approximately one-third of a mile northwest of the subject property (see Section 4.7 for details).

4.5 CHAIN-OF-TITLE REPORT

A Chain-of-Title report was not provided to Kleinfelder for review prior to production of this report. These documents may provide information about land use, including ownership and other interests in the site, easements, and liens. Not all liens, defects, and encumbrances affecting title to the site may be included on the title report.

4.6 INTERVIEW WITH SITE OWNER REPRESENTATIVE

As part of the site assessment process, Kleinfelder interviewed Mr. Kile Peer (Manager with Naumes) in order to obtain further information about the site's current and historical use. Information obtained from interviewing Mr. Peer is summarized below:

- According to Mr. Peer, the subject site has been a Red Delicious apple orchard from at least the early 1900s until 1999. Reportedly, Naumes purchased the site in 1980 and

removed the apple trees from the site between 1999 and 2000. Since 2000, the property has remained essentially unchanged.

- According to Mr. Peer, the subject site is currently zoned for commercial and light industrial use.

- Mr. Peer stated that the irrigation water source for the site is from the City of Chelan's main water supply line buried along State Route 97A. Reportedly, the irrigation water supply taps observed by Kleinfelder during the site reconnaissance are connected to the City of Chelan's main water supply line. Mr. Peer was unaware of domestic wells currently (or formerly) existing at the site.

- Mr. Peer stated that organophosphate pesticides, as well as the possible use of pesticides containing lead and arsenic, were used on the apple orchard throughout the several decades of its existence at the property.

- According to Mr. Peer, the above ground diesel and gasoline fuel tanks located south of the subject site (next to the warehouse) are currently being used to fuel tractors and other equipment. The warehouse is currently used for equipment storage. Mr. Peer stated that the tanks were installed next to the warehouse approximately 20 years ago and that he is not aware of fuel leaks.

- Besides the historical use of pesticides at the site, Mr. Peer was unaware of other environmental issues associated with the site.

- Mr. Peer was also unaware of current or historical usage of hazardous materials, underground fuel storage tanks, aboveground fuel storage tanks, or environmental related leans associated with the site.

- Mr. Peer provided Kleinfelder with a field sketch displaying the approximate locations of two septic tanks confirmed (by him) to be located in the gravel driveway immediately south of the apartment buildings. Mr. Peer's field sketch also displayed the locations of two more suspected septic tanks located immediately west of the occupied residence and immediately southeast of a studio cabin (converted into a garage) located east of the occupied residence. Mr. Peer was unaware of additional septic tanks located on the property. A copy of Mr. Peer's field sketch is included in Appendix G.

4.7 PREVIOUS ASSESSMENTS

PACLAND provided Kleinfelder with copies of three previous reports concerning the subject property. The reports included a Sensitive Areas Study, a Cultural Resources Survey, and an Environmental Checklist of the subject site (as well as the rest of the former Isenhart Orchards property currently owned by Naumes). The reports (itemized below) were completed in preparation for redeveloping the subject site (as well as the rest of Naumes' 274-acre property) into commercial and light industrial uses. A summary of the previous reports is presented in Section 4.7.1.

- *Sensitive Areas Study for the Naumes Corporation Property, Chelan, Washington.* Completed by Pacific International Engineering, PLLC, dated August 11, 2000.
- *A Cultural Resources Survey of the Naumes Property, Chelan County, Washington.* Completed by Ms. Pamela Kay McKenney of the Archaeological and Historical Services Department of Eastern Washington University, dated August 23, 2000.
- Environmental Checklist for the Naumes Property, Chelan County, Washington. Completed by Mitchell Nelson Group, Inc., dated August 28, 2000.

4.7.1 Summary of Previous Reports

According to the August 11, 2000 Sensitive Areas Study (SAS) report, the subject site was part of a larger apple orchard during the time Pacific International Engineering PLLC (PIE) completed the SAS study. The SAS study included inspecting the site for the possible presence of wetland areas and threatened, endangered, or sensitive animal and plant species that may possibly have existed within or near the site. The SAS study also included reviewing information sources on-file with public agencies. Reportedly, these information sources included reviewing National Wetlands Inventory maps, the Washington Department of Fish and Wildlife Priority Habitats and Species database, the Chelan Area Soil Survey, and the City of Chelan Generalized Sensitive Areas reference maps.

According to PIE's SAS report, the majority of Naumes' property consisted of an orchard which produced Red Delicious, Gala, and Golden Delicious apples over the past several decades. The orchard areas were observed by PIE to provide limited habitat areas for birds, various small mammals, and an occasional deer. Bunchgrasses, Sagebrush, Antelope-Brush, Great Mullein, Milkweed, and a host of other native and non-native grass species reportedly made up the bulk of the vegetative community occupying the site. PIE's report indicated that none of the animal and plant species identified at the site were considered to be threatened or endangered. Additionally,

PIE indicated that there was no recorded evidence pertaining to the potential presence of endangered or threatened plant and animal species occupying Naumes' property.

PIE's site inspection and research also did not identify potential wetland areas occupying the site. PIE's SAS report concluded that there were no identified wetland areas, significant habitat features, and no threatened, endangered, or sensitive animal or plant species identified within Naumes' property. There were no recommendations in the SAS report indicating that further assessment was warranted. A copy of PIE's SAS report is included in Appendix D of this report.

According to the August 23, 2000 Cultural Resources Survey (CRS) report completed for the Naumes property by Ms. Pamela Kay McKenney from the Archaeological and Historical Services Department of Eastern Washington University, no prehistoric cultural sites or other potential archaeological sites were observed occupying Naumes' property. Additionally, the CRS report indicated that there was no recorded evidence on-file with the historic agencies reviewed (i.e. Lake Chelan Historical Society) suggesting that a prehistoric cultural site or other archaeological site may be present on Naumes' property. The CRS report, however, indicated that a potential pioneer cemetery may have formerly existed north of Naumes' property (roughly one-third of a mile northwest of the subject site), but was reportedly relocated to the Chelan Fraternal Order Cemetery (located north of the City of Chelan) sometime before the apple orchard was developed. The CRS report indicated that locals interviewed during the course of the investigation stated that exhumation of the pioneer cemetery may not have been thorough, and therefore, the CRS report raises the concern that this area should be evaluated further.

Four other sensitive archaeological sites identified in the CRS report, including two historic-era debris scatters, an old gravel quarry, and the Native American cemetery are located nearly a mile southwest and southeast of the subject site.
Conclusions contained in the CRS report indicated that the Naumes property has a "low potential [to contain] buried archaeology". The CRS report, however, recommended the following actions:

1. The orchard structures occupying Naumes' property (which includes the structures occupying the subject site) should be evaluated for their eligibility for listing in the National Register of Historic Places.

2. Develop a plan to evaluate the presence/absence of graves remaining in the vicinity of the former pioneer cemetery located north of Naumes' property.

3. A copy of the CRS report should be submitted to the Washington Office of Archaeology and Historic Preservation (and other interested parties) for comment prior to the initiation of land altering activities.

A copy of the CRS report is included in Appendix E.

The August 28, 2000 Environmental Checklist (EC) prepared for the Naumes property by Mitchell Nelson Group, Inc. summarized the findings contained in the August 2000 SAS and CRS reports, as well as other potential issues that may arise during redevelopment of the site. According to Mr. Peer and information contained within the EC, Naumes plans to sub-divide and sell their property to developers interested in redeveloping the site into either commercial or light industrial use. The EC indicated that the City of Chelan would need to approve a zoning change for the property and that all buildings occupying the property would be demolished to accommodate the redevelopment. Additionally, the EC contained details on preventative measures limiting environmental issues such as soil erosion, air emissions, surface water runoff, etc. during redevelopment activities. A copy of the EC is included in Appendix F.

5.0 BUSINESS ENVIRONMENTAL RISK CONSIDERATIONS

5.1 WETLANDS

Kleinfelder contacted the Chelan County Building and Planning Department and the Chelan County Public Works Department regarding the possibility of designated wetland areas being identified on-site. None of these agencies had records pertaining to wetland areas being on-site. Additionally, according to Mr. John Altmann of Altmann Oliver Associates, LLC (a company recently retained by PACLAND to perform a wetlands investigation of the site), no wetland areas were identified within the site boundaries.

The August 11, 2000 SAS report completed for Naumes' property also did not identify the presence of wetlands occupying the subject site. See Section 4.7.1 for details.

5.2 CULTURAL, HISTORICAL AND ARCHEOLOGICAL RESOURCES

Records reviewed at the Chelan County Building/Planning and Assessor's Departments did not indicate the presence of cultural, historical, and/or archeological resources at the subject property. Additionally, the August 23, 2000 Cultural Resources Survey report completed for Naumes' property did not indicate the presence of cultural, historical, and archeological resources at the subject site. See Section 4.7.1 for details.

5.3 ECOLOGICAL RESOURCES, WILDLIFE SANCTUARIES, AND ENDANGERED SPECIES

Records reviewed at the Chelan County Building/Planning and Assessor's Departments, as well information contained in the August 11, 2000 SAS report did not reveal the presence of endangered/threatened species or wildlife sanctuaries associated with the subject site.

5.4 POLYCHLORINATED BIPHENYLS (PCBS)

Three electrical transformers were observed mounted near the top of a City of Chelan owned utility pole located within the center of the subject property. The transformers are suspected to contain PCB dielectric fluids since none of them contained markings/labels indicating that they do not contain PCBs. The transformers appeared intact and there were no signs of dielectric fluid leakage from the transformers' casings.

No suspect PCB-containing fluorescent light fixture ballasts or suspect mercury vapor fluorescent light bulbs were observed within the on-site structures. There were no records of PCB-containing equipment or PCB use on-site at the agencies reviewed by Kleinfelder.

5.5 RADON

Radon-222 (radon) is a naturally occurring radioactive gas formed by the decay of Uranium-238 which can be found in small concentrations in nearly all geologic materials. The primary human health effect associated with exposure to elevated levels of radon is an increase risk of lung cancer. The U.S. Environmental Protection Agency (EPA) and the U.S. Center for Disease Control are concerned about the increased risk of lung cancer for individuals exposed to above-average levels of radon in their homes or offices. In order to address that concern, the EPA conducted a national radon survey in 1990.

EPA's map of Radon Zones assigns each of the 3,141 counties in the United States to one of three zones. The zone designations were developed by assessing the following five factors believed to be important indicators of adverse radon potential: Indoor radon measurements, local geologic conditions, aerial radioactivity surveys, local soil characteristics, and the type of structure foundation.

This region of Washington, and the subject site, are underlain by glacial material which contain very low concentrations of radon-forming minerals. In 1993, the Washington Department of Health published a listing of radon measurements indicating a state-wide average of 1.0 pico-curies per liter (pCi/l). Based on this information, it is considered unlikely that radon levels on the site exceed EPA's 4.0 pCi/l action level.

5.6 HIGH VOLTAGE POWER LINES

High voltage power lines were not observed at the subject site during the reconnaissance.

5.7 CHLOROFLUOROCARBONS (CFCS)

Three household refrigerators were observed within some of the temporary laborer apartment units and one household refrigerator was observed within the occupied residence at the site. None of the refrigerators contained labels indicating whether (or not) they contain CFCs. There were no visual signs of fluid leakage from the refrigerators. There were no records of CFC use at the site on-file with the agencies reviewed by Kleinfelder.

5.8 INDOOR AIR QUALITY AND INDUSTRIAL HYGIENE

Records reviewed at the Chelan County Building/Planning and Assessor's Departments did not indicate indoor air quality and/or industrial hygiene issues to be associated with the subject site.

5.9 REGULATORY COMPLIANCE

Records reviewed at Ecology and at the Chelan County Building/Planning and Assessor's Departments did not indicate the presence of regulatory compliance issues to be associated with the subject site.

5.10 HEALTH AND SAFETY

Records reviewed at the Chelan County Building/Planning and Assessor's Departments did not indicate the presence of health and safety issues to be associated with the subject site.

5.11 LEAD IN DRINKING WATER

According to officials at the Chelan County Isenhart Irrigation District (CCIID), there have never been elevated levels of lead in the City of Chelan municipal drinking water source. The latest drinking water quality report on-file with the CCIID (dated 2002) indicated that lead was reported to be 2.6 micrograms per liter (µg/l), less than the federal lead drinking water standard of 15 µg/l. Based on this information, the site's current domestic water supply meets federal regulatory drinking water standards as they pertain to lead. According to officials at the CCIID, the next drinking water quality testing is scheduled to take place sometime during 2005.

6.0 EVALUATION

Kleinfelder performed this Phase I ESA in general accordance with The Client's May 17, 2004 *Phase I Environmental Site Assessment and Report Requirements* and May 22, 2000 *Supplement to Phase I Guidelines (When Buildings Are Present)*. Additionally, this ESA was performed in accordance with our July 20, 2004 Phase I ESA proposal (No. 47184), and in general accordance with the scope and limitations of ASTM Practice E 1527-00.

In summary, Kleinfelder's assessment revealed the following information about the site.

6.1 FINDINGS AND OPINIONS

The following sections describe Kleinfelder's findings and provide a general background information about the site. Findings include recognized environmental conditions and historically recognized environmental conditions, as applicable to the site.

6.1.1 Background Information

Kleinfelder's historical review and information obtained from interviewing Mr. Kile Peer, has provided information on site usage back to 1965. According to historic sources, the subject site has been used as a "Red Delicious" apple orchard from at least the early 1900 until 1999. Reportedly, Mr. William Isenhart formerly owned and operated the site as part of the Isenhart Orchards organization until the current site owner, Naumes Properties LLC, purchased the site in 1980. The temporary laborer apartment buildings and studio cabins presently located on-site were formerly occupied by migrant workers associated with orchard activities. The residential home currently located at the southwest corner of the property may possibly have been occupied by Mr. Isenhart and/or members of his family when he owned the site. Apparently, organophosphate pesticides, as well as the possible use of pesticides containing lead and arsenic, were used on the apple orchard throughout the past several decades of its existence on-site.

According to Mr. Peer, Naumes discontinued apple orchard activities in 1999 and had the apple trees removed from the site between 1999-2000 in preparation for selling the property for redevelopment. The temporary laborer apartment buildings and cabins have been unoccupied since apple orchard activities ceased at the site. The residence is currently being used as rental housing.

During the later part of 2000, Naumes retained Pacific International Engineering PLLC and Ms. Pamela McKenney of the Archaeological and Historical Services Department of Eastern Washington University to conduct a sensitive areas study and a cultural resources survey of the

subject site (as well as the rest of Naumes' 274-acre property). According to the August 11, 2000 Sensitive Areas Study report and the August 23, 2000 Cultural Resources Survey report, no wetlands, significant habitat features, endangered/threatened species, or sensitive cultural/archeological areas are present on-site. The Sensitive Areas Study report did not recommend further investigation. However, the Cultural Resources Survey report recommended further evaluation (see Section 4.7.1 for details).

6.1.2 Onsite Findings

The subject site consists of one irregular shaped lot comprising a total of approximately 18-acres of land area. The site is currently part of a 274-acre parcel that (in addition to the subject site) also encompasses neighboring land areas located immediately west, south and southwest of the site. The 18-acre site is located at the northeast corner of the 274-acre parcel and is identified by the Chelan County Building and Planning Department as the former "Isenhart Orchards Property".

The site's approximate elevation ranges between 1,300 and 1,360 feet above mean sea level. A steep hill located along the southern end of the property extends approximately 80 to 100 feet above the site's surrounding terrain. The site's overall terrain appeared to be flat to rolling and slopes downward towards the south and southeast.

The majority of the subject site is currently undeveloped and thickly vegetated with wild grasses, weeds, shrubs, and remnants of an apple orchard that formerly existed on the property prior to 2000. Remaining areas of the site are improved with two vacant apartment buildings located along the southeast end of the site, an occupied residential home located at the southwest corner of the site, four vacant studio cabins located immediately north and east of the occupied residence, and a small outhouse located immediately northeast of the hill. One of the studio cabins located east of the occupied residence appears to have been converted into a garage.

The on-site residence has an address of 428 State Route 97A and provides approximately 1,400 square feet of living space. The two vacant apartment buildings are divided into nine separate studio apartment units and were observed to be in a dilapidated condition during the site reconnaissance. The cabins surrounding the residence are currently being used by the leasing occupants of the residence to store automotive parts, furniture, and household trash. Reportedly, the apartment units and cabins were formerly used as temporary housing for migrant workers associated with the former use of the site as an apple orchard.

Small amounts of refuse including plastic bags, used appliances, furniture, empty liquor bottles/cans, and other discarded trash was observed deposited along the south and southeast

ends of the site. Additionally, a pile of irrigation pipes and two irrigation water source taps (formerly associated with apple orchard) were observed within the center portion of the site.

No indication of hazardous materials, underground or aboveground fuel storage tanks, surface staining, chemical odors, or stressed vegetation was noted by Kleinfelder during the site reconnaissance. No documented evidence of historical use of hazardous materials on-site (i.e. underground fuel storage tanks) was found on-file with the agencies reviewed by Kleinfelder. The site is currently not a recorded source of soil and/or groundwater contamination.

In regards to critical areas, there were no records on-file with the agencies reviewed by Kleinfelder indicating the presence of wetland areas, endangered/threatened species, wildlife sanctuaries, regulatory compliance, radon, health and safety issues, lead in drinking water, indoor air quality/industrial hygiene issues, and cultural, historical and archeological resources at the subject site. Additionally, a wetlands investigation of the site was recently performed by John Altmann of Altmann Oliver Associates, LLC (retained by PACLAND). According to Mr. Altmann, no wetland areas were identified at the site.

Three pole-mounted electrical transformers located at the center of the property are suspected to contain PCB-containing dielectric fluids since they did not contain markings and/or labels indicating that they do not contain PCBs. Nevertheless, the transformers appeared intact and there were no visual signs of dielectric fluid leakage from the transformers' casings.

6.1.3 Off-Site Findings

The surrounding land use north of the subject property consists of approximately six residential homes, an apple tree orchard associated with "Deer Mountain Ranch", and undeveloped land areas. A vacant cabin, an abandoned well pump shack, and undeveloped land areas are located west of the site. According to agency records none of the adjacent properties located north and west of the site are listed as having impacted soil and groundwater with hazardous materials.

The surrounding land use south of the subject property (across State Route 97A) consists of a warehouse, two small vacant cabins and a pile of empty fruit picking bins. During the site reconnaissance, two 1,000-gallon (approximate) aboveground tanks storing diesel and gasoline were observed to be located approximately 50 to 60 feet south of the warehouse structure. Additionally, approximately three 55-gallon steel drums storing motor oil and approximately four 5-gallon plastic containers storing lube oil are located immediately west of the warehouse. No leaks or stains were noted around the bases of the tanks, drums, and containers. The adjacent

Based on this issue (as well as other issues identified in this report), Kleinfelder makes the following recommendations:

1. Perform a limited Phase II Environmental Site Assessment (ESA) by collecting up to 12 shallow soil samples throughout the site. The purpose of this limited Phase II ESA will be to screen the site's soil for the potential presence of organophosphate pesticides, lead, and arsenic prior to redevelopment activities. Analytical results generated during this limited investigation would be evaluated as to whether (or not) a more extensive subsurface investigation (i.e. deeper soil samples and/or the collection of groundwater samples) should be performed at the site.

2. PACLAND should consider discussing the recommendations contained in the August 23, 2000 Cultural Resources Survey report (see Section 4.7.1) with the Washington Office of Archaeology and Historic Preservation and the City of Chelan Building and Planning Departments (after submitting the Cultural Resources Survey report to them for review) in order to determine whether (or not) some or all of these recommendations would be applicable towards the subject site.

3. The two existing septic tanks located immediately south of the apartment buildings (see Mr. Peer's field sketch in Appendix G) should be cleaned out by a septic tank service contractor and removed from the site prior to redevelopment activities. Additionally, the locations of two more suspect septic tanks located west of the occupied residence and southeast of the studio cabin (located east of the occupied residence) should be investigated further to determine their presence.

4. The household refrigerators, discarded appliances, and other trash items observed scattered on the property should be removed and properly disposed of. Additionally, the current site owner should have all stored items removed from the cabins.

5. Should underground storage tanks and/or groundwater wells be encountered on the property during site development, they should be decommissioned in accordance with Federal, State, and local requirements. Additionally, if buried hazardous materials, visibly impacted soil areas, and/or septic tanks are encountered during site redevelopment, they should be removed and properly disposed of.

7.0 REFERENCES

1. American Society for testing and materials, 2000, Standard practice for environmental site assessments: Phase I Environmental Site Assessment Process.
2. Phase I Environmental Site Assessment and Report Requirements, dated May 17, 2004.
3. Supplement to Phase I Guidelines (When Buildings Are Present), dated May 22, 2000.
4. EDR Radius Map with GeoCheck, Environmental Data Resources, Isenhart Orchards, Report ID: 01241139.1r, dated July 30, 2004.
5. Sanborn Map Report, Environmental Data Resources, Isenhart Orchards, Report ID: 1241139.2s, dated August 2, 2004.
6. USGS Topographic Map, 7.5-Minute Series, Chelan Falls Quadrangle, dated 1968.
7. Draft Geotechnical Report for the Proposed Chelan Retail Center, State Highway 97A, Chelan, Washington. Completed by Kleinfelder, Inc., dated August 27, 2004.
8. Mr. Kile Peer, Manager with Naumes Properties, LLC.
9. Sensitive Areas Study for the Naumes Corporation Property, Chelan County, Washington. Completed by Pacific International Engineering, PLLC, dated August 11, 2000.
10. A Cultural Resources Survey of the Naumes Property, Chelan County, Washington. Completed by Ms. Pamela McKenney of the Archaeological and Historical Services Department of Eastern Washington University, dated August 23, 2000.
11. Environmental Checklist for the Naumes Property, Chelan County, Washington. Completed by Mitchell Nelson Group, Inc., dated August 28, 2000.
12. Aerial photographs of the site area on-file with the University of Washington, Seattle, Suzallo Library. Photographs dated 1968 and 1973.

13. Aerial photographs of the site area on-file with the U.S. Army Corps of Engineers, Seattle District Office. Photographs dated 1976, 1977, 1980, 1985, 1989, 1993, 1999, 2000, and 2002.

14. 1933 – 2002 Chelan County City Directories on-file with the Chelan and Wenatchee main public libraries.

15. Chelan County Building and Planning Department, Wenatchee, Washington.

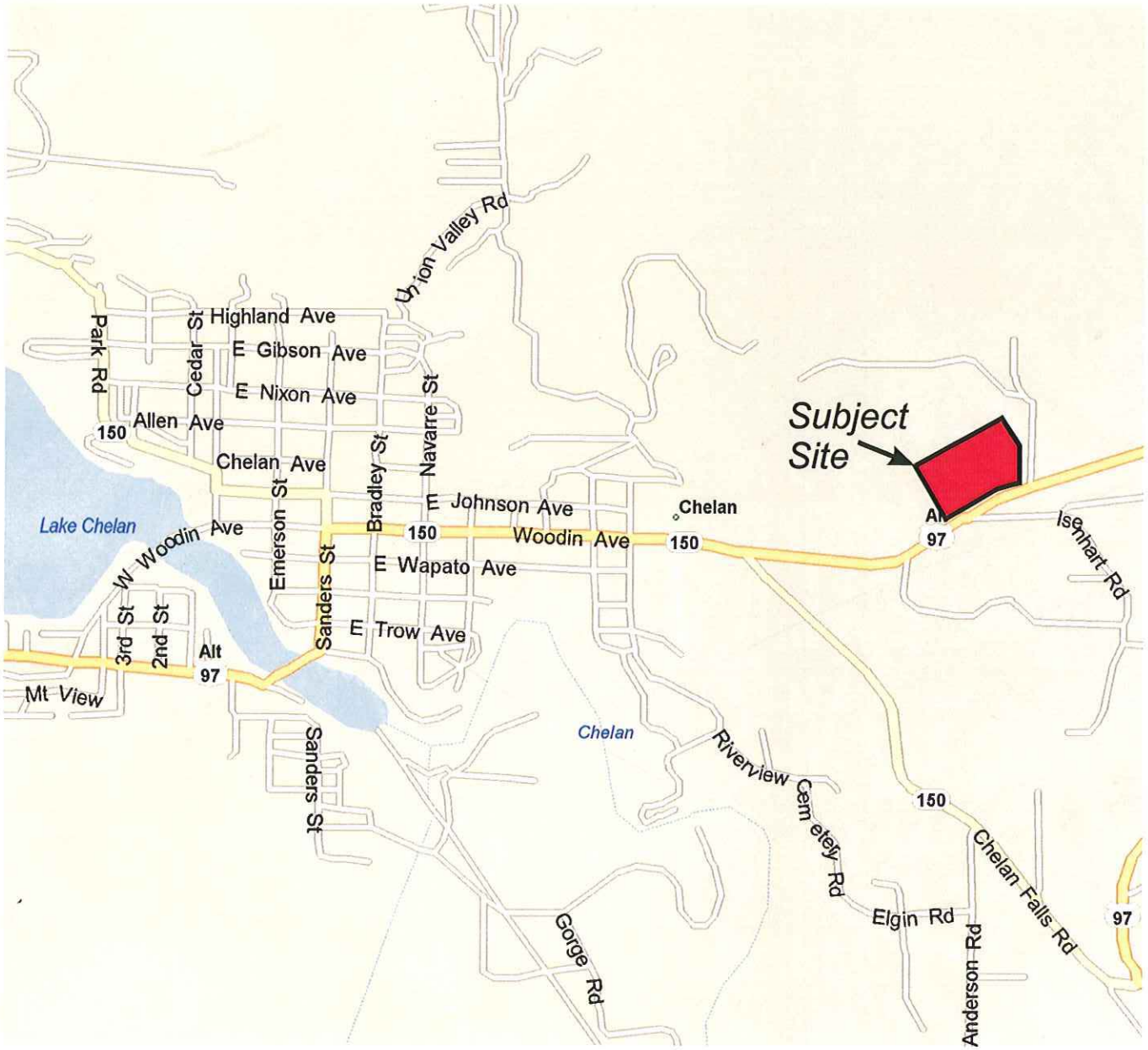
16. Chelan County Assessor's Office, Wenatchee, Washington.

17. Chelan County Environmental Health Department, Wenatchee, Washington.

18. Chelan County Public Works Department, Wenatchee, Washington.

19. Chelan County Board of Fire Prevention, Wenatchee, Washington.

20. Washington State Department of Ecology, Central Washington Region, Yakima, Washington.



N

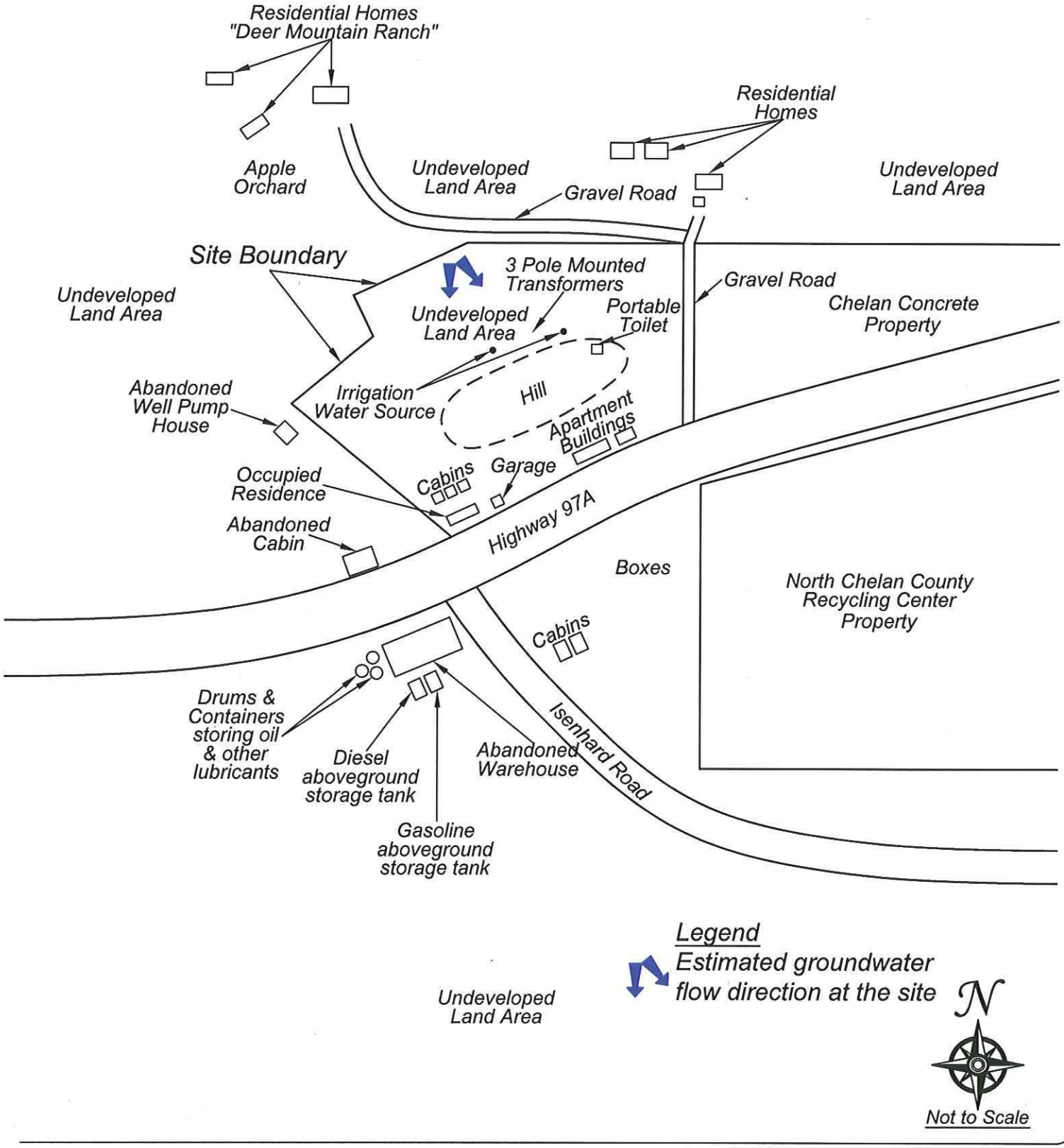
Not to Scale

KLEINFELDER

PROJECT NO. 47755 August 2004

Vicinity Map
Isenhart Orchards Property
North of State Highway 97A
Chelan, Washington

FIGURE 1



KLEINFELDER

Isenhart Orchards Property
North of State Highway 97A
Chelan, Washington

Project: 47755 August 2004

Site Plan &
Surrounding Areas

FIGURE
2

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 West Yakima Avenue, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

June 25, 2007

Mr. Ted W. Sykes
Kleinfelder West, Inc.
2405 140th Avenue NE, Suite A-101
Bellevue, Washington 98005

Re: No Further Action Determination under WAC 173-340-515(5) for the following Hazardous Waste Site:

- Name: Isenhart Orchards Property
- Address: Northeast of State Route 97A and Isenhart Road (108 Apple Blossom Drive), Chelan, Washington 98816
- F/S No.: 5630219
- VCP No.: CE0215

Dear Mr. Sykes:

Thank you for submitting your independent remedial action report for the Isenhart Orchard Property (Site) for review by the State of Washington Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding whether further remedial action is necessary at the Site to meet the substantive requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC. Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding the Site:

1. *Phase I Environmental Site Assessment, Proposed Commercial Site, Former Isenhart Orchards Property, N.E. of S.R. 97A and Isenhart Road, Chelan, Washington,* August 27, 2004, Kleinfelder, Inc.
2. *Limited Phase II Environmental Site Assessment, Proposed Commercial Site, Former*

Isenhart Orchards Property, Northeast of State Route 97A and Isenhart Road, Chelan, Washington, October 7, 2004, Kleinfelder, Inc.

3. Correspondence to Ted Sykes from Norm Hepner, email dated January 5, 2006.
4. *Environmental Contingency Plan, Wal-Mart Supercenter Development Site, 108 Apple Blossom Drive, Chelan, Washington,* September 8, 2005, Kleinfelder, Inc.
5. Restrictive Covenant, February 6, 2007, filed in Chelan County.
6. Wenatchee Landfill/Waste Management Permit #316, Permit to Dispose of Non-Hazardous Materials, May 12, 2006.
7. *Transmittal of Stockpile and Staging Area Soil Sample Analytical Results, Wal-Mart Store No. 3754-00, Isenhart Orchards, Chelan, Washington,* May 30, 2006, Krazan & Associates, Inc.
8. *Negative Exposure Assessment for Grubbing and Grading of Wal-Mart, 108 Apple Blossom Drive, Chelan, Washington,* not dated, Krazan and Associates, Inc.
9. *Transmittal of Imported Topsoil Sample Analytical Results, Wal-Mart Store No. 3754-00, Isenhart Orchards, Chelan, Washington,* October 9, 2006, Krazan & Associates, Inc.
10. Progress Report Numbers 1 through 9, *Periodic Environmental Oversight Services, Wal-Mart Supercenter Site, 108 Apple Blossom Drive, Chelan, Washington,* May 23, 2006 through January 30, 2007, Kleinfelder, Inc.
11. Site correspondence file, Ecology's Central Regional Office.

The documents listed above will be kept in the Central Files of the Central Regional Office of Ecology (CRO) for review by appointment only. Appointments can be made by calling Roger Johnson, the CRO resource contact, at (509) 454-7658.

The Site is defined by the extent of contamination caused by the following release(s):

- Lead, Arsenic, and 4,4'-DDT in Soil.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of the independent remedial action report and supporting documentation listed above, **Ecology has determined that the independent remedial action(s) conducted at the Site are sufficient to meet the substantive requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the contamination at the Site.** Therefore, pursuant to WAC 173-340-515(5), Ecology is issuing this opinion that **no further remedial action is necessary** at the Site under MTCA.

This opinion is based on the continued effectiveness of the institutional control(s) required as part of the cleanup action for the Site under WAC 173-340-440. A copy of the Restrictive Covenant(s) filed for any property as part of the cleanup action for the Site is enclosed with this

letter as Enclosure B. If any portion of any Restrictive Covenant is violated, then this opinion will automatically be rendered null and void and further remedial action may be required at the Site.

Based on this no further action determination, Ecology will update the status of the Site on its site database and remove the Site from the Confirmed and Suspected Contaminated Sites List.

This no further action determination does not apply to any other release(s) or potential release(s) of contaminant(s) that may impact any other portion of any property impacted by this Site, or any other property owned or operated by Wal-Mart Stores, Inc.

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void and further remedial action may be required at the Site.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in successfully completing cleanup under the Voluntary Cleanup Program (VCP). If you have any questions regarding this opinion, please contact me at (509) 454-7835.

Sincerely,

Brianne Harcourt

Brianne Harcourt
Site Manager
Toxics Cleanup Program - CRO

Enclosures

When Recorded Return To:

Tod A. Gold
SALTER JOYCE ZIKER, PLLC
1601 Fifth Avenue, Suite 2040
Seattle, Washington 98101-1686
(206) 957-5953 – Fax (206) 957-5961

DOCUMENT TITLE:	Restrictive Covenant
COVENANTOR:	Wal-Mart Stores, Inc., a Delaware corporation
COVENANTEE:	Washington State Department of Ecology
LEGAL DESCRIPTION:	That portion of Tract 1, Isenhart Orchard Tracts, Chelan County, Washington, as more specifically described in the attached Exhibit A
REFERENCE NUMBER:	N/A
ASSESSOR'S PROPERTY TAX PARCEL/ACCOUNT NUMBER:	272318-627-005

RESTRICTIVE COVENANT
WAL-MART STORES, INC. PROPERTY

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Wal-Mart Stores, Inc. ("Owner"), its successors and assigns, and the Washington State Department of Ecology, its successors and assigns ("Ecology").

This Restrictive Covenant is a component of containment activities to be performed at the former Isenhart Orchards Property in Chelan, Washington ("Property"). The environmental conditions and containment activities to be performed at the Property are described in the following documents, which are on file at Ecology's Central Regional Office:

1. Phase I Environmental Site Assessment dated August 27, 2004.
2. Limited Phase II Environmental Site Assessment dated October 7, 2004.
3. Phase I Environmental Site Assessment Update dated September 12, 2005.
4. Environmental Contingency Plan (ECP) dated September 8, 2005.
5. Preliminary Site Plan dated December 8, 2004.

This Restrictive Covenant is required because residual concentrations of lead, arsenic, and 4,4'-DDT at the Property exceed Model Toxics Control Act ("MTCA") Method A cleanup levels for soil established under WAC 173-340-720.

The undersigned Owner is the fee owner of real property in the County of Chelan, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described in the attached Exhibit A.

The Owner makes the following declarations as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law, and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property.

Section 1. The Property contains lead, arsenic, and 4,4'-DDT in soil that exceed the MTCA Method A Cleanup Levels established under WAC 173-340-720. The Owner shall not alter, modify, or remove the buildings and asphalt parking lot surfaces to be constructed at the Site over the contaminated soil ("containment structures") in any manner that may result in the release or exposure to the environment of the contaminated soil or create a new exposure pathway without prior written approval from Ecology.

Section 2. Any activity on the Property that may interfere with the integrity of the containment structures and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property, or creates a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the Property must give thirty (30) days' advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued maintenance of the integrity of the containment structures.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the containment

structures at the Property and to inspect records that are related to the containment structures.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

COVENANTOR

DATE: 2-6-07

DANIEL MALLORY
REGIONAL VICE PRESIDENT OF REAL ESTATE
WAL-MART STORES, INC., a Delaware corporation

Approved as to legal terms only
by
WAL-MART LEGAL DEPT.
Date: 2.6.7

STATE OF ARKANSAS)
) ss.
COUNTY OF BENTON)

I certify that I know or have satisfactory evidence that Daniel Mallory is the person who appeared before me, and said person acknowledged that he/she was authorized to execute the instrument and acknowledged it as Regional Vice President of Wal-Mart Stores, Inc. to be the free and voluntary act and deed of such party for the uses and purposes mentioned in this instrument.

SUBSCRIBED AND SWORN TO before me this 6th day of February, 2007.

(Signature of Notary)

MARY WALLACE
NOTARY PUBLIC-STATE OF ARKANSAS
BENTON COUNTY
My Commission Expires 06-03-2016
Commission # 12348149

Mary Wallace
(Print or stamp name of Notary)

NOTARY PUBLIC in and for the state of Arkansas, residing at Benton County
My Appointment Expires: 06-03-2016

KAC:arp 706362.1 1/24/2007

EXHIBIT A

EXHIBIT A

NEW LOT 1

THAT PORTION OF TRACT 1, ISENHART ORCHARD TRACTS, CHELAN COUNTY, WASHINGTON, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGES 72 AND 73 AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1, SAID CORNER ALSO BEING THE NORTHEAST CORNER OF SECTION 18, TOWNSHIP 27 NORTH, RANGE 23 EAST, W.M.;

THENCE SOUTH 01°05'00" EAST ALONG THE EAST LINE OF SAID SECTION 18 A DISTANCE OF 209.60 FEET TO THE TRUE POINT OF BEGINNING OF THE PARCEL HEREIN DESCRIBED;
THENCE CONTINUING ALONG SAID EAST LINE SOUTH 01°05'00" EAST A DISTANCE OF 734.69 FEET TO A POINT ON THE NORTHWESTERLY MARGIN OF SR-97A AS SHOWN ON STATE OF WASHINGTON DEPARTMENT OF TRANSPORTATION RIGHT OF WAY PLANS FOR SR-97A APPROVED JULY 11, 2003 SHEETS 1 THROUGH 5, SAID POINT BEING ON A NON-TANGENT CURVE CONCAVE TO THE SOUTH THE CENTERPOINT OF WHICH BEARS SOUTH 18°39'43" EAST A DISTANCE OF 5330.08 FEET;
THENCE WESTERLY ALONG THE ARC OF SAID CURVE AND SAID NORTHWESTERLY MARGIN THROUGH A CENTRAL ANGLE OF 1°04'30" A DISTANCE OF 100.00 FEET;
THENCE LEAVING SAID NORTHWESTERLY MARGIN NORTH 01°05'00" WEST A DISTANCE OF 25.35 FEET;
THENCE SOUTH 88°55'00" WEST A DISTANCE OF 840.64 FEET;
THENCE SOUTH 29°56'14" WEST A DISTANCE OF 161.54 FEET;
THENCE NORTH 57°43'18" WEST A DISTANCE OF 57.05 FEET;
THENCE NORTH 29°56'14" EAST A DISTANCE OF 117.55 FEET;
THENCE NORTH 49°33'19" WEST A DISTANCE OF 222.49 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE SOUTH AND HAVING A RADIUS OF 20.00 FEET;
THENCE WESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 79°45'08" A DISTANCE OF 27.84 FEET;
THENCE SOUTH 50°41'33" WEST A DISTANCE OF 121.07 FEET TO A POINT OF A NON-TANGENT CURVE CONCAVE TO THE NORTHEAST, THE CENTER POINT OF WHICH BEARS NORTH 51°48'15" EAST A DISTANCE OF 360.00 FEET, THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 09°07'34" A DISTANCE OF 57.34 FEET;
THENCE NORTH 50°41'33" EAST A DISTANCE OF 380.66 FEET;
THENCE NORTH 01°05'00" WEST A DISTANCE OF 273.51 FEET;
THENCE NORTH 70°38'57" EAST A DISTANCE OF 47.37 FEET;
THENCE NORTH 58°07'30" EAST A DISTANCE OF 134.06 FEET;
THENCE NORTH 86°45'21" EAST A DISTANCE OF 865.56 FEET TO THE TRUE POINT OF BEGINNING.

LOT CONTAINS 17.9855 ACRES, MORE OR LESS.

NEW LOT 2

THAT PORTION OF TRACT 1, ISENHART ORCHARD TRACTS, CHELAN COUNTY, WASHINGTON, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGES 72 AND 73 AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

EXHIBIT A
(cont...)

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1, SAID CORNER ALSO BEING THE NORTHEAST CORNER OF SECTION 18, TOWNSHIP 27 NORTH, RANGE 23 EAST, W.M.;

THENCE SOUTH 01°05'00" EAST ALONG THE EAST LINE OF SAID SECTION 18 A DISTANCE OF 944.29 FEET TO A POINT ON THE NORTHWESTERLY MARGIN OF SR-97A AS SHOWN ON STATE OF WASHINGTON DEPARTMENT OF TRANSPORTATION RIGHT OF WAY PLANS FOR SR-97A APPROVED JULY 11, 2003 SHEETS 1 THROUGH 5, SAID POINT BEING ON A NON-TANGENT CURVE CONCAVE TO THE SOUTH THE CENTERPOINT OF WHICH BEARS SOUTH 18°39'43" EAST A DISTANCE OF 5330.08 FEET;
THENCE WESTERLY ALONG THE ARC OF SAID CURVE AND SAID NORTHWESTERLY MARGIN THROUGH A CENTRAL ANGLE OF 1°04'30" A DISTANCE OF 100.00 FEET;
THENCE LEAVING SAID NORTHWESTERLY MARGIN NORTH 01°05'00" WEST A DISTANCE OF 25.35 FEET;
THENCE SOUTH 88°55'00" WEST A DISTANCE OF 840.64 FEET;
THENCE SOUTH 29°56'14" WEST A DISTANCE OF 161.54 FEET;
THENCE NORTH 57°43'18" WEST A DISTANCE OF 57.05 FEET TO THE TRUE POINT OF BEGINNING OF THE PARCEL HEREIN DESCRIBED;
THENCE CONTINUING NORTH 57°43'18" WEST A DISTANCE OF 164.77 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE NORTHEAST AND HAVING A RADIUS OF 360.00 FEET; THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 19°31'33" A DISTANCE OF 122.68 FEET;
THENCE NORTH 50°41'35" EAST A DISTANCE OF 121.07 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE TO THE SOUTH AND HAVING A RADIUS OF 20.00 FEET;
THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 79°45'08" A DISTANCE OF 27.84 FEET;
THENCE SOUTH 49°33'19" EAST A DISTANCE OF 222.49 FEET;
THENCE SOUTH 29°56'14" WEST A DISTANCE OF 117.55 FEET TO THE TRUE POINT OF BEGINNING.

LOT CONTAINS 0.8031 ACRES, MORE OR LESS.

Dunbar, Mark (ECY)

From: Dunbar, Mark (ECY)
Sent: Tuesday, April 03, 2007 12:47 PM
To: 'tsykes@kleinfelder.com'
Subject: Isenhart Orchard Property

Ted,

It appears that Frosti reopened the VCP project for you on 3/27/06. The database shows the project as "in process", so we will go with that. You are the "Applicant" on the original VCP application, and as such you must sign the "VCP Agreement" which can be found on Ecology's VCP webpage at this link:
http://www.ecy.wa.gov/programs/tcp/vcp/Vcpmain.htm
This means that you will be the person responsible for paying the VCP billing. An explanation of the new billing system can also be found on the VCP webpage.

When you submit your report with the details of the completed remedial action you must submit a "Request for Opinion" form, which can also found on the VCP webpage.

The site manager currently assiged to this site is Brianne Harcourt (509) 454-7835. She will be the person reviewing the file/report and issuing the opinion letter. After you submit the VCP Agreement form you may contact her for technical assistance. If you have any questions regarding VCP procedures or the required forms please contact me.

Mark Dunbar
Toxics Cleanup Program
Dept. of Ecology
Central Regional Office
(509) 454-7836

Area-Wide Soil Contamination Task Force Report

June 30, 2003

Submitted to:

Washington State Department of Agriculture

Washington State Department of Ecology

Washington State Department of Health

Washington State Department of Community, Trade and Economic Development

Prepared with the assistance of:

Ross & Associates Environmental Consulting, Ltd.

Landau Associates, Inc.

Hubbard Gray Consulting, Inc.

June 30, 2003

Valoria H. Loveland, Director
Washington State Department of Agriculture
P.O. Box 42560
Olympia, WA 98504-2560

Tom Fitzsimmons, Director
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Mary Selecky, Secretary
Washington State Department of Health
P.O. Box 47890
Olympia, WA 98504-7890

Martha Choe, Director
Washington State Department of Community, Trade and Economic Development
PO Box 42525
Olympia WA 98504-2525

Re: Area-Wide Soil Contamination Task Force Final Report

Dear Agency Directors:

We are pleased to present you with the final report of the Area-Wide Soil Contamination Task Force, chartered in January 2002 to offer advice about a statewide strategy to respond to low-to-moderate level arsenic and lead soil contamination (so-called area-wide soil contamination) in Washington State.

Our Task Force has worked diligently over the last 18 months to understand and consider the issues and to develop recommendations that advance a shared set of guiding principles. Task Force deliberations focused on understanding the nature and extent of area-wide soil contamination, making recommendations about effective, practical, and affordable steps individuals

Washington State Department of Ecology Contact:
Dawn A. Hooper, (360) 407-7182 / dhoo461@ecy.wa.gov

Facilitation Team Contact:
Elizabeth McManus, (206) 447-1805 / elizabeth.mcmanus@ross-assoc.com

and organizations might choose to take to reduce their potential for exposure to arsenic and lead in soil, and creating an alternative, more streamlined approach under the Model Toxics Control Act for properties affected by area-wide soil contamination. We believe that the recommendations included in the enclosed report offer you the means to respond appropriately to area-wide soil contamination and appreciate you giving the report your fullest consideration.

Thanks to you and to your staffs for providing us with outstanding support throughout our deliberations. It has been an honor to participate on this Task Force and serve the people of Washington State, and we look forward to seeing the benefits that will be brought about as a result of this work.

Respectfully,

Mr. Stephen Gerritson, Task Force Co-chair
Sierra Club

Mr. Steven D. Kelley, Task Force Co-chair
Washington Association of Realtors

Enclosure

Signature Page

We, the members of the Area-Wide Soil Contamination Task Force, submit this report to the Washington State Departments of Agriculture, Ecology, Health, and Community, Trade and Economic Development. This report contains the Task Force's findings and recommendations on a statewide strategy for addressing area-wide soil contamination.

In developing this report, Task Force members considered and took positions on a large number of complex issues. This report contains many compromises. Under the Task Force's approach to consensus, a member's signature below means that he or she is comfortable with the report as a whole; where there was disagreement on an issue, the report documents the range of views on the Task Force.

Stephen Gerritson, Task Force Co-chair
Sierra Club

Steven D. Kelley, Task Force Co-chair
Washington Association of Realtors

Katherine Bridwell
Safeco

Scott McKinnie
Far West Agribusiness Association

Marcia L. Riggers
Washington State Office of Superintendent of Public Instruction

Jon DeJong
Wenatchee School District

Laura Mrachek
Cascade Analytical, Inc.

Paul Roberts
City of Everett

Loren R. Dunn
Washington Environmental Council

Raymond L. Paolella
City of Yakima

Ken Stanton
Douglas County Board of Commissioners

(chose not to sign)

Jim Hazen
Washington State Horticultural Association

Frank Peryea, Ph.D.
Washington State University
Tree Fruit Research and Extension Center, Wenatchee

Craig Trueblood
Preston Gates & Ellis, LLP

Steve Marek
Tacoma-Pierce County Health Department

Randy Phillips
Chelan-Douglas Health District

Michael Wearne
Washington Mutual Bank

Table of Contents

List of Appendices

Executive Summary

This report transmits the findings and recommendations of the Area-Wide Soil Contamination Task Force, a 17-person panel chartered by the Washington State Departments of Agriculture, Ecology, Health, and Community, Trade and Economic Development (the Agencies) to offer advice about a statewide strategy to respond to low- to moderate-level arsenic and lead soil contamination in Washington State. The Model Toxics Control Act (MTCA) Policy Advisory Committee (PAC) recommended that the Department of Ecology (Ecology) take steps to more effectively address area-wide soil contamination, and the Task Force was formed in response to this recommendation and based on the Agencies' belief that effective, long-term solutions to area-wide soil contamination would require looking beyond traditional cleanup processes and agency boundaries.

The Task Force carried out its deliberations over a 17-month period beginning in February 2002. Deliberations took place at a series of public meetings and through conference calls and e-mail discussions. Task Force members represented a diverse array of perspectives, including environmental, agricultural, schools, business, financial, insurance, real estate, public health, and local government. Preliminary Task Force recommendations were widely publicized and made available for public review and comment; Task Force members considered these comments in finalizing their recommendations.

Task Force deliberations focused on understanding the nature and extent of area-wide soil contamination, making recommendations about effective, practical, and affordable steps individuals and organizations can take to reduce their potential for exposure to area-wide soil contamination, and on creating an alternate, more streamlined approach under MTCA for properties affected by area-wide soil contamination.

One Task Force member participated in the process but chose not to sign the final report because of concerns over recommendations dealing with funding future mapping projects and the potential economic impact of creating area-wide soil contamination zones.

What is Area-Wide Soil Contamination?

"Area-wide soil contamination" refers to low- to moderate-level soil contamination that is dispersed over a large geographic area, covering several hundred acres to many square miles. For schools, childcare centers, and residential land uses, in general, Ecology considers total arsenic concentrations of up to 100 milligrams per kilogram (mg/kg)[1] and total lead concentrations of up to 500–700 mg/kg to be within the low-to-moderate range. For properties where exposure of children is less likely or less frequent, such as commercial properties, parks, and camps, Ecology considers total arsenic concentrations of up to 200 mg/kg and total lead concentrations of up to 700–1,000 mg/kg to be within the low-to-moderate range.

[1] Milligrams per kilogram (mg/kg) is numerically equivalent to parts per million.

For comparison, the cleanup levels under MTCA for total arsenic and lead in soil are 20 mg/kg and 250 mg/kg, respectively. Arsenic occurs naturally in Washington State soils at approximately 5–9 mg/kg; lead occurs at 11–24 mg/kg.

The Task Force considered area-wide arsenic and lead soil contamination primarily from two sources: past use of lead arsenate-based pesticides, and historical emissions from metal smelters located in Everett, Northport, Tacoma, and on Harbor Island (in Seattle). Based on current information, it is estimated that 676,550 acres in Washington State may be affected by area-wide arsenic and lead soil contamination from these sources. The Task Force also considered the possibility of area-wide soil contamination from combustion of leaded gasoline, and made recommendations about gathering additional information on the potential for area-wide soil contamination from this source.

Task Force Charter

The Agencies asked the Task Force to provide findings and recommendations on four sets of questions:

- What is currently known about the nature and extent of arsenic and lead soil contamination in Washington State? What steps should be taken to improve our understanding of the location and magnitude of arsenic and lead soil contamination?
- What are technically feasible measures for addressing widespread low-to-moderate soil contamination problems? What is the full range of actions that might be considered to address widespread low-to-moderate levels of soil contamination?
- What changes are needed to eliminate barriers in addressing area-wide soil contamination problems? How can agencies facilitate cleanup of area-wide soil contamination problems under the current legal system?
- What agencies need to play a role in addressing area-wide soil contamination problems and what are possible funding sources?

The Agencies also identified three areas as beyond the scope of the Task Force process: 1) MTCA cleanup standards for arsenic and lead and the policies and technical methods upon which the cleanup standards are based, 2) ongoing site-specific cleanup actions, and 3) current agricultural practices.

Task Force Guiding Principles

In making recommendations, the Task Force was guided by six principles, which it believes should also guide the Agencies. These principles are:

- A balanced approach is needed, centered on effective, practical, and affordable solutions.
- Risks from area-wide soil contamination appear to be relatively low when compared to risks at sites with higher concentrations of contaminants.

- It is prudent to take effective, practical, and affordable steps to minimize the potential for exposure to area-wide soil contamination.
- Efforts should focus on children, because they are believed to the human population most sensitive to elevated levels of lead and arsenic in the environment.
- Responses to area-wide soil contamination should be commensurate with the level of risk associated with potential exposures and should increase as potential exposure increases.
- Decisions about area-wide soil contamination should be made locally.

From these principles, the Task Force's deliberations produced agreement on and support for numerous recommendations to the chartering Agencies.

Education is the Foundation of Task Force Recommendations

The foundation of the Task Force recommendations calls for the Agencies to initiate a broad-based health education and awareness-building campaign about low- to moderate-level arsenic and lead soil contamination, and to support and encourage actions individuals can take to reduce the likelihood that they will be exposed to arsenic and lead in soil. The Task Force recommends that the Agencies:

- Work with and through local governments, particularly local health jurisdictions, to establish a broad-based education and awareness-building campaign designed to provide individuals, organizations, and communities with a toolbox of information and materials to make knowledgeable and responsible choices about responding to area-wide soil contamination. This should include information on where area-wide soil contamination is most likely, how people can conduct individual property evaluations of the potential for area-wide soil contamination, and on effective, practical, and affordable steps people can take to reduce the likelihood that they will be exposed to arsenic and lead in soil. Education should focus on people and organizations that care for children—including parents, educators, health care providers, and childcare providers—and gardeners and other adults who frequently work in soil.
- Take a step-wise approach to education and awareness-building with statewide distribution of general information supplemented by specific outreach and support for individuals and organizations located where area-wide soil contamination is likely.
- Encourage residents in area-wide soil contamination zones to implement "individual protection measures," such as hand washing, removing shoes before entering the house, frequently washing toys and pets that go outdoors, and scrubbing fruits and vegetables before eating them. Also encourage residents in area-wide soil contamination zones to maintain good soil cover.
- Evaluate the effectiveness of these outreach and education efforts.

Land-Use Specific Recommendations to Complement Education

To complement broad-based education and awareness-building, the Task Force also recommends specific approaches in different land-use scenarios.

Child-Use Areas

For child-use areas (including schools, parks, and childcare facilities) potentially affected by area-wide soil contamination, the Task Force recommends that property owners implement individual protection measures, maintain good soil cover in areas where children play, conduct qualitative evaluations to increase their understanding of where exposure could occur, test soils where qualitative evaluations indicate the potential for exposure to contaminated soil, and implement additional protection measures such as installing a geotextile fabric barrier between contaminated soils and surfacing materials in play areas if contamination is found. The Agencies should work with local health jurisdictions, school districts, and other organizations to support, encourage, and assist with implementation of these actions. Task Force recommendations for child-use areas also call for the Agencies to:

- Encourage implementation of Consumer Product Safety Commission guidelines for maintaining children's safety at existing playgrounds in parks, schools, camps, and childcare facilities.
- Require soil testing at new public child-use area construction sites and implementation of additional protection measures if contamination is found.
- Establish, with the Department of Social and Health Services (DSHS), a voluntary certification program for family home childcares and childcare centers to indicate that they have taken steps to minimize children's potential for exposure to lead and arsenic in soil.

Residential Properties

For residential properties potentially affected by area-wide soil contamination, the Task Force recommends that the Agencies offer technical and financial assistance to support and encourage residents to implement individual protection measures, maintain good soil cover, and conduct qualitative evaluations to understand where exposure could occur. Where qualitative evaluations indicate the potential for exposure to contaminated soil, the Task Force recommends that individuals consider soil testing and implementing additional protection measures if contamination is found.

Commercial Properties

For commercial properties potentially affected by area-wide soil contamination, the Task Force recommends that where commercial areas are covered with surfaces such as buildings, parking lots, or other effective soil cover, no further response actions are necessary to address area-wide soil contamination. For mixed-use areas, Task Force recommendations for non-commercial use should also be considered. For example, if a childcare center is located in a shopping center, the Task Force recommendations for child-use areas should be considered for the childcare center.

Open Land

For open land potentially affected by area-wide soil contamination, the Task Force recommends that the Agencies:

- Amend the State Environmental Policy Act (SEPA) checklist to include a question about whether there is the potential for area-wide soil contamination on a property.
- Encourage developers to conduct qualitative evaluations of properties and, where warranted, carry out soil testing prior to construction. Also encourage developers to incorporate appropriate additional protection measures into site development and construction plans.
- Support actions to enact Washington State legislation requiring a real property transfer disclosure statement for open land.

In addition, for open land being developed, the Task Force recommends that the Agencies ensure implementation of existing U.S. Occupational Safety & Health Administration (OSHA) and Washington Industrial Safety and Health Act (WISHA) requirements governing worker protection and safety, and implementation of requirements to control windblown dust and soil erosion due to storm water runoff during construction. For open land not being developed, the Task Force recommends that land owners use practical, cost-effective measures to limit the potential for exposure to contaminated soil and windblown dust.

Application of the Model Toxics Control Act

The Task Force debated MTCA and its application to area-wide soil contamination extensively. From these discussions, the Task Force identified a number of objectives related to use of MTCA and a number of elements of MTCA that Ecology might consider in meeting these objectives. The Task Force makes six recommendations related to MTCA:

- As much as possible, use regulations instead of policies to implement Task Force recommendations related to MTCA.
- Avoid listing individual properties affected by area-wide soil contamination and instead identify and describe area-wide soil contamination zones.
- Establish in regulation a new enforcement forbearance policy available where property owners choose to implement Task Force recommendations at residential and commercial properties within area-wide soil contamination zones. To complement the policy, establish a standard checklist that can be used to document property status. Announce the new policy and checklist when area-wide soil contamination zones are first described.
- Where property owners choose not to implement Task Force recommendations, they remain under the current MTCA system that includes a policy under which, in general, Ecology chooses not to take enforcement actions at residential properties.
- Where properties are sampled and concentrations of arsenic and lead are below cleanup levels, provide a streamlined process to reflect that properties are clean.

- The traditional MTCA approach remains available to property owners who want to use it to address area-wide soil contamination and to Ecology where a property is affected by contamination other than area-wide soil contamination.

Other Recommendations

Task Force recommendations also address additional information needs and funding strategies.

With respect to additional information gathering, the Task Force recommends that the Agencies:

- Gather additional, scientifically valid information on the health of Washington residents, particularly children, who may be exposed to arsenic and lead.
- Conduct further research to characterize the location and extent of elevated levels of lead in soil from past use of leaded gasoline in Washington. Possibly focus on areas adjacent to older, more heavily used roads.
- Study the effects of area-wide soil contamination on ecological receptors, including plants and animals.

With respect to funding, the Task Force recommends that the Agencies:

- Provide financial assistance for local government efforts to address area-wide soil contamination, particularly the activities of local health jurisdictions.
- Seek funding from a broad array of Federal, State, and private sources, including the State and Local Toxics Accounts, private foundations, Federal grant programs, the Federal government and the State legislature, and any identified potentially liable parties.

1. Introduction

This report is the product of a 17-person Task Force chartered by the Washington State Departments of Agriculture, Ecology, Health, and Community, Trade and Economic Development (the Agencies). The Area-Wide Soil Contamination Task Force (Task Force) was charged with developing findings and recommendations related to large areas of low- to moderate-level arsenic and lead soil contamination (so called "area-wide soil contamination") in Washington State. The Task Force process was carried out over 18 months, from January 2002 to June 2003.

As used in this report, "area-wide soil contamination" means low- to moderate-level soil contamination that is dispersed over a large geographic area, ranging in size from several hundred acres to many square miles. Area-wide soil contamination is different from most cleanup sites, which are typically smaller and have higher levels of contamination.

Concentrations of arsenic and lead within areas affected by area-wide soil contamination are highly variable. The Task Force relied on the current views of the Department of Ecology (Ecology) about what constitutes "low-to-moderate" levels of arsenic and lead in soil. For schools, childcare centers, and residential land uses, in general, Ecology considers total arsenic concentrations of up to 100 milligrams per kilogram (mg/kg)[2] and total lead concentrations of up to 500–700 mg/kg to be within the low-to-moderate range. For properties where exposure of children is less likely or less frequent, such as commercial properties, parks, and camps, Ecology considers total arsenic concentrations of up to 200 mg/kg and total lead concentrations of up to 700–1,000 mg/kg to be within the low-to-moderate range. Ecology plans to ask the Science Advisory Board to review these values and their use in implementing the Task Force recommendations. For comparison, the State cleanup levels for total arsenic and lead in soil are 20 mg/kg and 250 mg/kg, respectively. Arsenic occurs naturally in Washington State soils at approximately 5–9 mg/kg; lead at 11–24 mg/kg.

Task Force deliberations focused on understanding and mapping the nature and extent of low- to moderate-level arsenic and lead soil contamination from two historical sources: emissions from metal smelters, and use of pesticides containing lead arsenate. The Task Force also offers recommendations about considering the potential for area-wide soil contamination from combustion of leaded gasoline. Task Force recommendations are focused on effective, practical, and affordable steps that organizations and individuals can take to reduce the potential for exposure to low-to-moderate levels of arsenic and lead soil contamination.

The foundation of the Task Force recommendations calls for the Agencies to initiate a broad-based education and awareness-building campaign about low- to moderate-level arsenic and lead soil contamination, and to support and encourage actions individuals can take to reduce the likelihood that they will be exposed to arsenic and lead in soil. To complement broad-based education and awareness-building, the Task Force also recommends specific activities for a number of land-use situations, with an emphasis on child-use areas. Finally, the Task Force

[2] Milligrams per kilogram (mg/kg) is numerically equivalent to parts per million.

recommends creation of a special process under the Model Toxics Control Act (MTCA) tailored for properties affected by area-wide soil contamination.

In making these recommendations, the Task Force was guided by six principles which are listed here and described more fully later in the report:

- A balanced approach is needed, centered on effective, practical, and affordable solutions.
- Risks from area-wide soil contamination appear to be relatively low when compared to risks at sites with higher concentrations of contaminants.
- It is prudent to take effective, practical, and affordable steps to minimize the potential for exposure to area-wide soil contamination.
- Efforts should focus on children, because they are believed to the human population most sensitive to elevated levels of lead and arsenic in the environment.
- Responses to area-wide soil contamination should be commensurate with the level of risk associated with potential exposures and should increase as potential exposure increases.
- Decisions about area-wide soil contamination should be made locally.

2. Project Background and Task Force Charge

In 1994, the Washington State Legislature established the MTCA Policy Advisory Committee (PAC) to review implementation of MTCA. In their final report, the MTCA PAC recommended that Ecology take steps to more effectively address area-wide soil contamination. In early 2000, the Agencies concluded that effective, long-term solutions to area-wide soil contamination problems would require looking beyond traditional cleanup processes and agency boundaries. The Agencies identified several interconnected challenges posed by widespread low- to moderate-level soil contamination.

- Potential for exposure: Over the past 50 years, Washington's population growth has resulted in many agricultural and forested areas and other open space being converted to residential uses. Population has also increased in areas affected by emissions from metal smelters. This growth can bring more people into contact with area-wide soil contamination.
- Scale: The geographic scale of area-wide soil contamination is significantly greater than contamination typically addressed by State and Federal cleanup programs and encompasses many individual parcels of land.
- Financial Impacts: Citizens and land developers have purchased or built homes in areas with contaminated soils. This creates the potential for financial problems that may include payment for cleanup, reduction in property values, and difficulties in financing or selling homes.
- Lack of Information and Awareness: The Agencies lack key information needed to effectively address area-wide soil contamination; for example, information on the full scope of the problem and on stakeholder views. Similarly, many residents are unaware that soil at their homes, future homes, and/or children's schools may contain low-to-moderate levels of arsenic and lead. Consequently, they fail to take steps to control exposures.

In June 2001, the Washington Legislature appropriated $1.2 million to form and support a stakeholder Task Force to consider these issues, and the Agencies initiated the process of hiring a project support contractor and identifying potential Task Force members. The Agencies chartered the Area-Wide Soil Contamination Task Force in January 2002 to consider the special challenges posed by area-wide soil contamination and recommend a statewide strategy for meeting these challenges. In particular, the Agencies asked the Task Force to provide findings and recommendations on four sets of questions:

- What is currently known about the nature and extent of arsenic and lead soil contamination in Washington State? What steps should be taken to improve our understanding of the location and magnitude of arsenic and lead soil contamination?

- What are technically feasible measures for addressing widespread low-to-moderate soil contamination problems? What is the full range of actions that might be considered to address widespread low-to-moderate levels of soil contamination?
- What changes are needed to eliminate barriers in addressing area-wide soil contamination problems? How can agencies facilitate cleanup of area-wide soil contamination problems under the current legal system?
- What agencies need to play a role in addressing area-wide soil contamination problems and what are possible funding sources?

Even though other contaminants may pose area-wide soil contamination problems, the Agencies asked the Task Force to focus on problems associated with arsenic and lead because of the potential widespread distribution of these contaminants and their persistence in the environment. The Agencies also identified three areas as beyond the scope of the Task Force process: 1) MTCA cleanup standards for arsenic and lead and the policies and technical methods upon which the cleanup standards are based, 2) ongoing site-specific cleanup actions, and 3) current agricultural practices. In this context, the Task Force began deliberations at its first meeting in February 2002.

3. Task Force Composition, Process, and Information Gathering

The Task Force was made up of 17 individuals who represent diverse interests including business, environment, agriculture, local government, and schools. The Agencies identified Task Force members based on areas of expertise, ability to represent potentially affected stakeholder groups, and a desire to ensure geographic representation across the state. Task Force members served the project as volunteers—they were not compensated for their time or expertise. Most Task Force members served for the entire process. Two Task Force members left the process relatively early because of changes in their professional circumstances. They were replaced by other representatives in their area of expertise. The Task Force met 12 times from February 2002 to June 2003. All meetings were advertised and were open to the public, and opportunities for public comment were provided at each meeting.

The Task Force began by reviewing and accepting the Task Force charter, which includes the questions posed by the Agencies and the areas identified as outside the scope of the Task Force deliberations discussed in the section above. It also accepted two co-chairs recommended by the Agencies—a representative of environmental interests from Western Washington and a representative of business interests from Eastern Washington. The Task Force co-chairs served as liaisons to the facilitation team and helped to guide and manage the Task Force process. A list of Task Force members and meeting locations and dates, as well as a copy of the Task Force charter and ground rules are included in Appendix B.

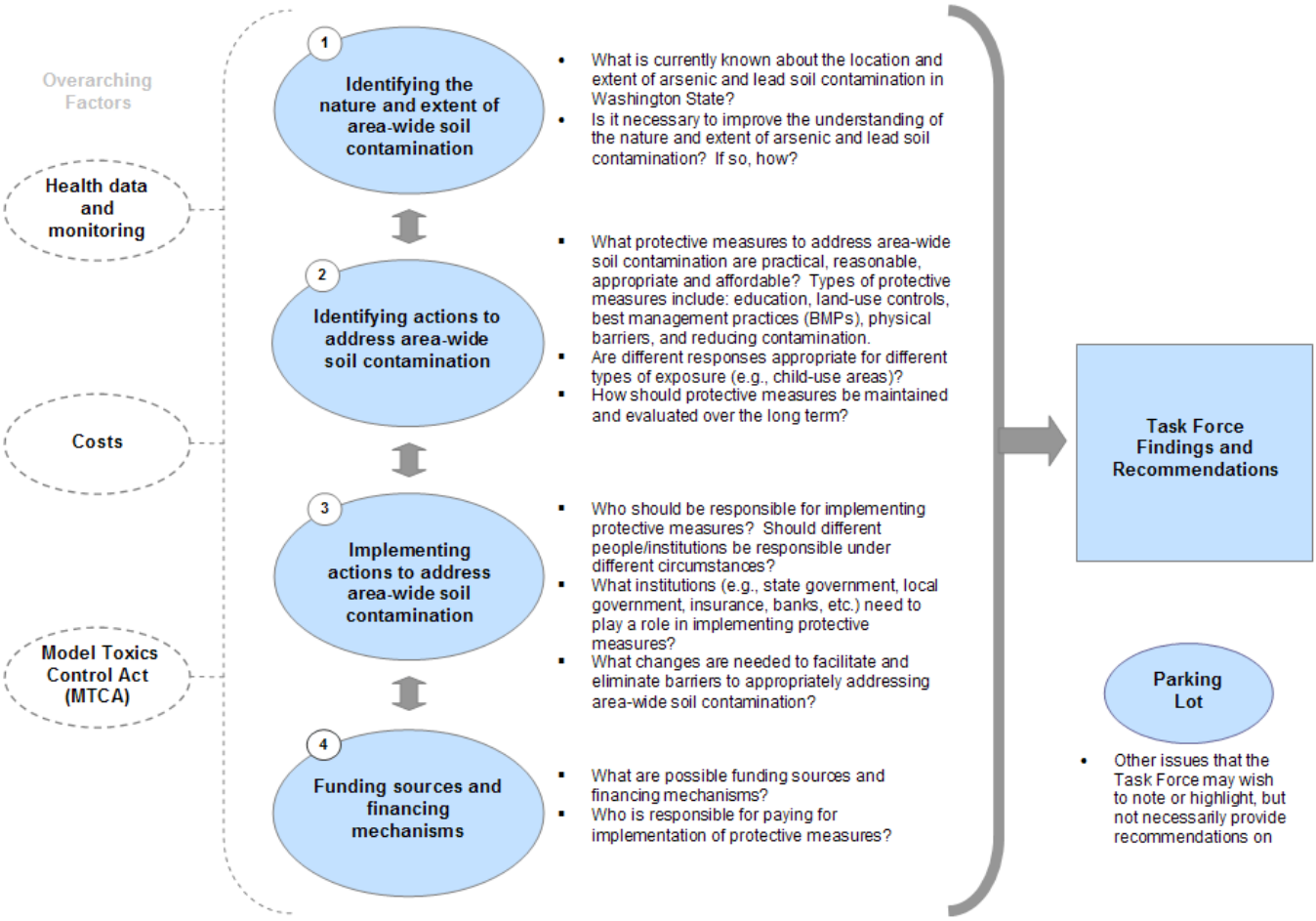
There was a wide range of views on the Task Force, and at their first meetings Task Force members worked to develop a common language and information base from which to discuss area-wide soil contamination and to understand one another's concerns and interests. At their fourth meeting, the Task Force developed a Project Map (see Figure 1 below) to organize their deliberations. The Project Map organizes Task Force deliberations into four issue areas: 1) identifying the nature and extent of area-wide soil contamination, 2) identifying actions to address area-wide soil contamination, 3) implementing actions to address area-wide soil contamination, and 4) funding sources and financing mechanisms. It lists questions that the Task Force considered under each issue area and shows the issue areas as interrelated and affected by three overarching factors: cost, health exposure data, and MTCA. Between full Task Force meetings, small groups of Task Force members met to evaluate specific issues identified on the Project Map and develop options and recommendations for the full Task Force to consider. These discussions formed the basis for the recommendations described in this report.

The Task Force completed preliminary findings and recommendations for the majority of the questions on the Project Map in April 2003. Preliminary Task Force findings and recommendations were widely publicized and made available for public review and comment in May 2003. In addition, five focus group meetings were organized. Task Force members attended the focus group meetings to hear first-hand the reactions to the preliminary findings and recommendations. The public review and comment process is summarized in Appendix C. The

Task Force then met twice in June 2003 to evaluate public comments and refine their findings and recommendations, and issued their final report at the end of June 2003.

One Task Force member participated in the process but chose not to sign the final report because of concerns over recommendations dealing with funding future mapping projects and the potential economic impact of creating area-wide soil contamination zones.

Figure 1: Area-Wide Soil Contamination Project Map



The Agencies served as *ex officio* members of the Task Force, attending both Task Force and small group meetings. They provided background information and support for Task Force deliberations and offered agency perspectives during the Task Force's development of findings and recommendations, but did not participate in final decision-making with respect to the Task Force report. In addition, the Task Force was supported by a contractor project team hired by Ecology and, early in their process, by two workgroups made up of technical experts and advisors. The workgroups carried out research and analysis to support Task Force deliberations and reviewed technical documents prepared for the project. The contractor project team carried

out research and analysis to support Task Force deliberations and facilitated the Task Force and small group meetings.

Task Force deliberations were supported by an information-gathering effort that had four primary components:

- Interviews with Task Force members and stakeholders to identify key issues and concerns.
- Survey of research to identify and learn from other approaches to area-wide soil contamination and similar challenges.
- Case studies of several relevant cleanup or land-use development projects to evaluate their legal, funding, and institutional arrangements for addressing soil contamination and responding to public concerns.
- Research on institutional systems in Washington relevant to recommendations the Task Force considered.

These information-gathering efforts are described in Appendices D–G of this report.

4. Consideration of Health Risks and Guiding Principles for Making Recommendations

What is Low-to-Moderate?

The Task Force relied on Ecology's current views about what constitutes "low-to-moderate" levels of arsenic and lead in soil. For schools, childcare centers, and residential land uses, in general, Ecology considers arsenic concentrations of up to 100 total mg/kg and lead concentrations of up to 500–700 total mg/kg to be within the low-to-moderate range. For properties where exposure of children is less likely or less frequent, such as commercial properties, parks, and camps, Ecology considers arsenic concentrations of up to 200 total mg/kg and lead concentrations of up to 700–1,000 total mg/kg to be within the low-to-moderate range.

As described earlier in this report, the Task Force charter specifically excluded evaluation of the MTCA soil cleanup standards for arsenic and lead, the risk policies underlying the cleanup standards, and the technical methods used to establish the standards. Nonetheless, to develop appropriate recommendations, the Task Force discussed the potential risks posed by arsenic and lead, reviewed some of the available information on potential health effects from exposure to low-to-moderate levels of arsenic and lead in soil, and heard presentations from experts. Information provided to the Task Force on the potential health effects of arsenic and lead is summarized in Appendix H. From this evaluation, the Task Force reached a number of conclusions:

- As described later in this report, concentrations of arsenic and lead in soil are above State soil cleanup levels in some areas of Washington State.
- The risk of developing health problems from arsenic or lead depends on the amount of exposure and the concentrations to which a person is exposed. The greater the exposure and/or the greater the concentrations, the greater the risk. Most information about the health effects of arsenic and lead comes from studies where exposures were greater than those expected from living and working in places with low-to-moderate levels of arsenic and lead in soil.
- Scientific studies to date have not found conclusive evidence that exposure to low-to-moderate levels of arsenic and lead contamination in soil has caused or is causing deleterious health effects in Washington residents. The number of pertinent studies is small, and their designs lack sufficient power to detect the presence of increased incidences of adverse health effects, if any do exist. Health monitoring and research studies have not been carried out to the extent necessary to understand and document whether exposure to low- to moderate-level soil contamination is causing or contributing to long-term health problems.
- Evaluating health effects at lower levels of exposure is difficult and expensive. It is unlikely that conclusive scientific information to determine the health risks, if any, from exposure to area-wide soil contamination will be available in the foreseeable future. In light of this uncertainty, there is disagreement among scientists about how the information that is available should be interpreted and used to assess the risks of exposure to low- to moderate-level soil contamination. Some members of the scientific

community argue that Federal and State efforts to address low- to moderate-level soil contamination are not scientifically justified because there is no information demonstrating that health problems are being caused by exposure to such contamination. Other members of the scientific community argue that arsenic and lead in soil have the potential to cause health problems at low levels of exposure—especially for people, such as young children, who are particularly sensitive to the effects of these contaminants. Task Force members mirrored this diversity of views. In recent years, the majority of scientific review committees formed to evaluate the available scientific information on arsenic and lead have concluded that there is a sufficient scientific basis to justify efforts to reduce exposure to all sources of arsenic and lead, including arsenic and lead occurring in soil.

- Arsenic and lead are both considered persistent contaminants. This means that they bind strongly to soil and usually remain in the environment without breaking down or losing their toxicity, and thus can be a source of exposure for many decades.

In light of these conclusions, the Task Force developed six guiding principles. These principles guided the Task Force's deliberations and recommendations and should guide the Agencies and other organizations' implementation of Task Force recommendations:

What Home Remedies Contain Lead?

Some home remedies or medicines contain lead and can make people, particularly young children, very sick, even though symptoms of lead poisoning might not be immediately evident. Home remedies containing lead include:

- Azarcon and Greta are bright powders used in the Hispanic community to treat intestinal illness or "empacho." They are almost 100% lead.
- Pay-loo-ah is a red powder used in the Hmong community to treat rash or fever.
- Ghasard, Bala Goli, and Kandu are Asian Indian remedies for stomachaches.
- Kohl and Surma are used in Arab communities for cosmetic and medicinal purposes.

- A balanced approach is needed: The Task Force believes that responses to area-wide soil contamination should be effective, practical and affordable.
- Lower adverse health risk: Despite the fact that concentrations of arsenic and lead in soil may be above State soil cleanup levels, the Task Force believes that the level of risk associated with exposures to low-to-moderate arsenic and lead soil contamination appears to be relatively low when compared to risks at sites where smelters operated or where lead arsenate pesticides were mixed (i.e., sites with higher concentrations of contaminants). Resources to address contaminated sites in Washington State are limited, and addressing area-wide soil contamination sites will compete for resources with addressing more traditional cleanup sites. Beyond the broad-based education and awareness-building described below, the Task Force does not recommend that additional remediation responses are needed at every individual property with low-to-moderate arsenic and lead soil contamination, unless exposure potential exists for children or the likelihood for enhanced exposure potential exists for adults through activities such as gardening.
- Focus on controlling exposure: Given the potential for exposure to arsenic and lead to cause adverse health effects in people, it is prudent to take effective, practical, and affordable steps to minimize the potential for exposure to arsenic and lead in soil.

- Focus on children: While adults are also vulnerable to adverse health effects from arsenic and lead and should not be ignored, the Task Force felt a special responsibility to address protection of children. Resources devoted to assessing and responding to area-wide soil contamination should be focused on locations where there is the highest risk of exposure and should be targeted at protecting children. The vulnerability of the population, likelihood of exposure, and the duration or frequency of exposures are the most important factors in deciding whether response actions are necessary and, where actions are needed, in selecting the specific actions selected.

Lead-Based Paint

Nationwide, the most common source of lead poisoning in children is lead-based paint. Lead was used extensively in interior and exterior paint before 1950 and may be present in any home built before 1978. Lead-based paint is most dangerous when it is peeling, chipping, chalking, or cracking. Children can be exposed to lead by eating paint chips, chewing painted surfaces, or ingesting soil or dust contaminated from lead-based paint.

- Responses increase as exposure increases: Responses to area-wide soil contamination should be commensurate with the level of risk associated with potential exposure. In general, the intensity and effectiveness of responses to area-wide soil contamination should increase as exposures become more likely (because of likelihood of extent of contact), more prevalent (because of more individuals exposed), or more intense (because of longer duration or more frequent exposures). In some situations, higher concentrations of arsenic or lead may be found in areas affected by area-wide soil contamination; in these cases, more aggressive response actions may be warranted.
- Decisions should be made locally: The Task Force recommends what it believes are effective, practical, and low-cost methods to respond to area-wide soil contamination. However, the Task Force recommendations are only guidelines. Each person or community affected by area-wide soil contamination should implement a response that meets their priorities, objectives, and tolerance for risk, even if those responses differ from those recommended by the Task Force. For example, some individuals or communities might choose not to implement Task Force recommendations. Other individuals or communities might choose to remove contaminated soil because they do not want the added complication of maintaining protection measures over time, even though less costly actions focused on individual protection measures and maintaining soil cover would also be effective.

Using these guiding principles, the Task Force considered a wide range of protection measures and developed the recommendations in the remainder of this report.

One Task Force member expressed strong and persistent concerns about the wisdom of the Task Force process, believing that it was inappropriate to exclude consideration of the MTCA cleanup standards from the Task Force charter and that the process failed to demonstrate any link between human health risk to lead and arsenic in the soil. This Task Force member asserts that a full evaluation of these issues would show that the MTCA cleanup levels for arsenic and lead in soil are set too low given current and historical human health-related data regarding this complex issue and should be revised. Although this Task Force member supports efforts to reduce

potential exposure through education and awareness building efforts, he chose not to sign the final report because of concerns over recommendations dealing with funding future mapping projects and the potential economic impact of creating area-wide soil contamination zones. He remains very concerned about possible overreaction to area-wide soil contamination that could lead to unwarranted fears by the public and media, potential damage to local and state economies, and overregulation by government in response to this issue.

5. Nature and Extent of Area-Wide Soil Contamination

The Task Force considered what is known and not known about the location and magnitude of elevated levels of arsenic and lead in soil from historical smelter emissions, use of pesticides containing arsenic and lead, and combustion of leaded gasoline. Much of the Task Force's deliberations focused on how to communicate this information in a way that would present information accurately without causing undue alarm. As discussed below, the Task Force decided that a tiered series of maps, along with accompanying information and tools, should be used to communicate information on area-wide soil contamination in a balanced and useful way. The Task Force also recommends updating the maps regularly to improve their precision and developing local maps of area-wide soil contamination where such maps do not exist (primarily for areas affected by lead arsenate pesticides). Recommendations for additional research on contamination from combustion of leaded gasoline are discussed in Section 11.

The Task Force's findings and recommendations in this section are organized according to three questions the Task Force considered:

- What is currently known about the nature and extent of arsenic and lead soil contamination in Washington State?
- How should information on the nature and extent of area-wide soil contamination be communicated?
- What steps should be taken to improve our understanding of the nature and extent of arsenic and lead soil contamination?

What is Known About the Nature and Extent of Area-Wide Arsenic and Lead Soil Contamination

What is Area-Wide Soil Contamination?

Area-wide soil contamination is low- to moderate-level contamination that is dispersed over a large geographic area, ranging in size from several hundred acres to many square miles.

Elevated levels of arsenic and lead are present in soil in some areas of Washington State from three historical sources: air emissions from metal smelters, lead arsenate pesticides, and combustion of leaded gasoline. In areas affected by off-site deposition of smelter emissions and areas where lead arsenate pesticides were applied to crops, concentrations of arsenic and lead in soil generally are higher than concentrations that occur naturally in Washington soils and higher than State soil cleanup levels established under MTCA. However, concentrations generally are lower than those found at smelter operation sites and at sites where lead arsenate pesticides were mixed in preparation for application. Low-to-moderate arsenic and lead soil contamination associated with areas affected by off-site deposition of smelter emissions, lead arsenate pesticide application, and combustion of leaded gasoline is referred to as "area-wide soil contamination" to distinguish it from the higher concentrations and smaller geographic extent of contamination at more traditional cleanup sites.

The precise boundaries of land affected by area-wide soil contamination are not known; however, certain places have a higher likelihood of arsenic and lead soil contamination based on the locations of metal smelters or the probable use of lead arsenate pesticides from approximately 1905 to 1947. To support Task Force deliberations, the contractor project team conducted a detailed study of available data on the nature and extent of area-wide soil contamination. Based on this study, areas affected by smelter emissions in King, Pierce, Snohomish, and Stevens counties have a higher likelihood of arsenic and lead soil contamination than other areas of the state due to historical emissions from metal smelters located in Tacoma, Everett, Northport, and Trail, BC, and on Harbor Island (in Seattle). Areas where apples and pears were historically grown have a higher likelihood of arsenic and lead soil contamination than other areas of the state because of past use of lead arsenate pesticides. Chelan, Spokane, Yakima, and Okanogan counties have a higher likelihood than other counties for elevated levels of lead and arsenic in soil based on the greater numbers of apple and pear trees in production there between 1905 and 1947. Combustion of leaded gasoline produces lead-enriched particulates and aerosols that are emitted from exhaust pipes and deposited onto nearby soils. The full extent of area-wide soil contamination from past use of leaded gasoline in Washington is not known; however, in general, land adjacent to any road constructed prior to 1995 and land in the center of highly populated urban areas has some likelihood of elevated levels of lead in soil from leaded gasoline. Table 1, later in this section, describes the number of acres potentially affected by area-wide arsenic and lead soil contamination based on information currently available.

What Are Other Sources of Arsenic and Lead Contamination?

Other sources of arsenic contamination include wood treated with chromated copper arsenate (often called “pressure-treated” wood), emissions from coal-fired power plants and incinerators, and other industrial processes. Other sources of lead contamination include lead-based paint, lead-soldered water pipes, home remedies or health-care products that contain lead, hobbies that use lead (e.g., stained glass or sculpturing), foods and beverages, combustion of coal or oil, waste incinerators, and mining and industrial processes (such as battery and ammunitions manufacturing). Both arsenic and lead also occur naturally in the environment at varying concentrations.

According to the study prepared to support Task Force deliberations, the range of concentrations of arsenic and lead in soil associated with area-wide soil contamination is quite broad. Total arsenic concentrations range from natural background levels (7–9 mg/kg statewide) to over 3,000 mg/kg in smelter areas. Average concentrations of total arsenic in soil at developed properties with area-wide soil contamination generally are less than 100 mg/kg. Total lead concentrations range from natural background levels (11–24 mg/kg statewide) to over 4,000 mg/kg in orchard top soils (higher concentrations are likely areas where pesticides were mixed prior to application). Average concentrations of total lead in soil at developed properties with area-wide soil contamination generally are less than 700 mg/kg. By comparison, the MTCA soil cleanup levels for unrestricted land use for total arsenic and total lead are 20 mg/kg and 250 mg/kg, respectively. Soil concentrations tend to be greater around the Tacoma smelter than in the other smelter areas, because the Tacoma smelter operated for a longer period and specialized in the processing of high-arsenic ore.

Where found, arsenic and lead soil contamination tends to be relatively shallow. In undisturbed soils, most of the arsenic and essentially all of the lead from historical smelter emissions and

historical use of lead-arsenate pesticides typically are concentrated in the upper 6 to 18 inches of soil.[3] While some downward movement of arsenic occurs in most soils, substantial downward movement has been detected on occasion and appears to be restricted to heavily leached sandy- to medium-textured soils with very uniform soil profile characteristics.[4] Currently there does not appear to be evidence of ground water contamination associated with area-wide soil contamination. The long-term consequences of the very slow downward movement of arsenic in soil require further evaluation.

Concentrations of arsenic and lead at properties affected by area-wide soil contamination are highly variable and depend on the historical use and development of the property. For example, during development of a property, surface soils are often mixed with underlying soils and redistributed; this disturbance tends to dilute the concentrations of arsenic and lead in soil and distribute them in unpredictable patterns. Contaminant concentrations on one property cannot reliably be used to predict concentrations on neighboring properties.

Information on the nature and extent of arsenic and lead soil contamination provided the basis for Task Force deliberations on what actions should be taken to respond to area-wide soil contamination in important ways. For example, the knowledge that most added arsenic and almost all added lead remains in surface and near-surface soils, coupled with lack of evidence for ground water contamination, suggests that ground water contamination is not likely an issue for properties with area-wide soil contamination. Similarly, the understanding that arsenic and lead contamination tends to be highest in undisturbed soils, with other considerations, led to the Task Force's recommendations on additional steps that should be taken when converting open land into developed properties.

Recommendations on How Information on the Nature and Extent of Area-Wide Soil Contamination Should be Communicated

The Task Force recommends that information on the nature and extent of area-wide soil contamination be communicated using a combination of maps and accompanying narrative information that emphasize the need for individual property evaluations to determine with certainty whether area-wide soil contamination is present.

Maps can be a highly effective way to communicate available information about potential locations of area-wide soil contamination to the public. In addition to communicating information about potential locations of area-wide soil contamination to the public, the maps recommended by the Task Force serve a variety of purposes, including helping the Agencies to identify areas where an alternate approach under MTCA might apply (see Section 10 below) and helping the Agencies and local jurisdictions prioritize and focus efforts where area-wide soil contamination is more likely. For the Tacoma and Everett smelters, Ecology, several local jurisdictions, and other organizations have collected and continue to collect data on where

[3] Landau Associates, *Preliminary Estimates Report, Area-Wide Soil Contamination Strategy, Washington State,* prepared for the Washington State Department of Ecology, Olympia, WA, 2003 (pending).
[4] Peryea, F.J., and T.L. Creger, "Vertical Distribution of Lead and Arsenic in Lead Arsenate-Contaminated Soils." *Water, Air and Soil Pollution* 78 (1994): 297-306.

arsenic and lead soil contamination is likely to be present based on emissions, wind deposition, and results of a number of soil sampling events, and have developed maps to communicate this information. These maps were an important factor in the Task Force deliberations. Task Force recommendations related to maps are discussed later in this section.

Maps also have significant limitations. As discussed earlier in this report, the precise boundaries of area-wide soil contamination are not, and likely will not be, identified and therefore cannot be mapped. Even where area-wide soil contamination is likely, the actual distribution and concentrations of arsenic and lead in soil vary greatly over short distances. Because of this limitation, the Task Force emphasizes that maps can be used only to communicate where elevated levels of arsenic and lead in soil are more likely to be present relative to other areas in Washington State. Maps do not show where elevated levels of arsenic and lead have actually been found, and many properties within identified area-wide soil contamination locations may, if sampled, be shown to have concentrations of arsenic and lead that are below MTCA cleanup levels.

Table 1: Preliminary Estimates of Area-Wide Soil Contamination in Washington

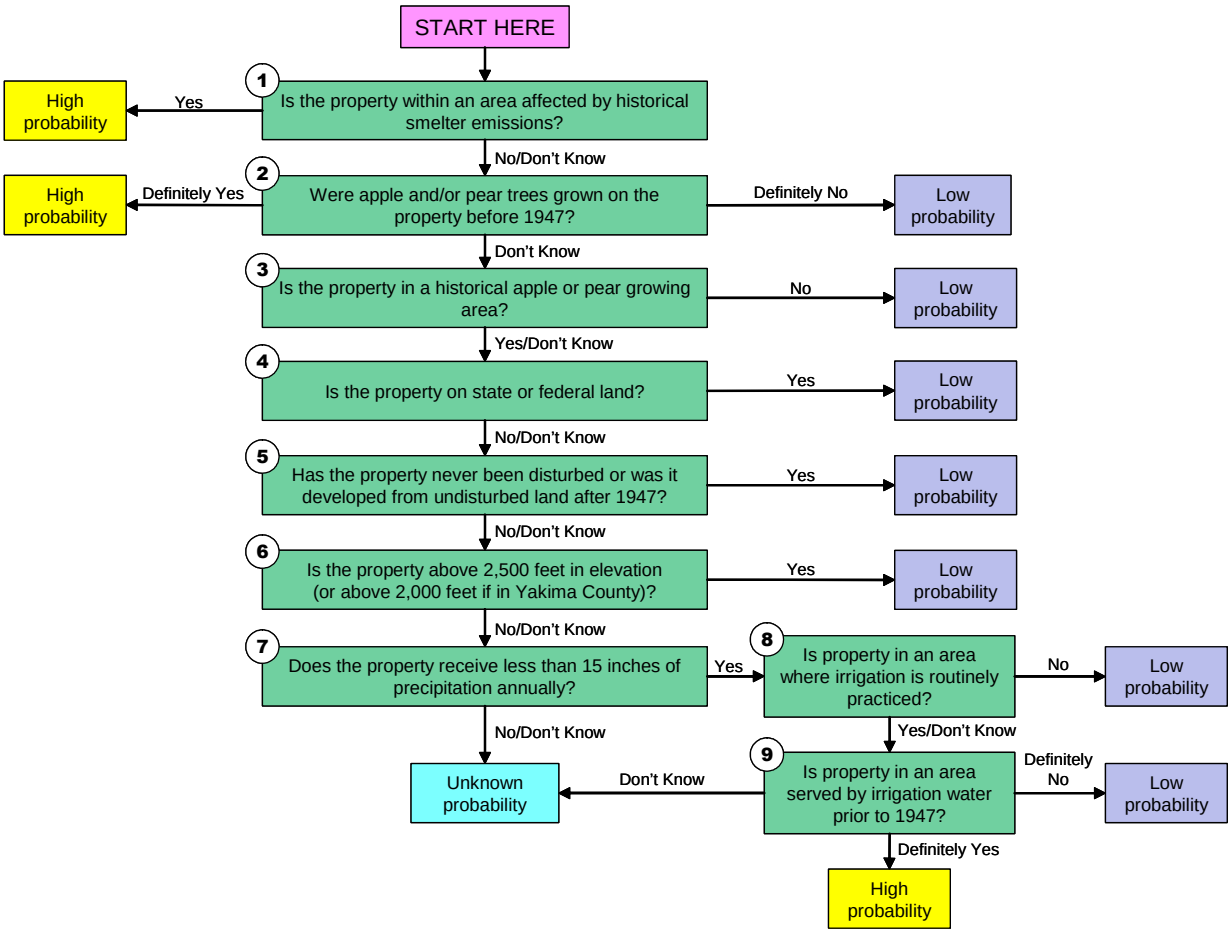
Area-Wide Contamination Source	Estimated Land Area Affected [3]
Smelters	
Tacoma	329,600 acres [1]
Everett	8,320 acres [1] [2]
Harbor Island	640 acres [1]
Northport and Trail	150,400 acres [1] [2]
Orchard Land	187,590 acres [1]
Leaded Gasoline	Unknown at present
All Area-Wide Sources	676,550 acres

[1] Extent of affected area has not been fully characterized.
[2] Based on air modeling for the Everett smelter and maps of sulfur dioxide injury to vegetation for the Northport and Trail smelters.
[3] The total area of land in Washington is 66,544 square miles, or about 42.6 million acres.

Individual Property Evaluations

Because of the limitations of maps, an individual property assessment is the only way to know with certainty whether a property is affected by area-wide soil contamination. The Task Force believes that individual property evaluations are an important step for people to understand the potential for area-wide soil contamination where they live or work. These assessments are more important than locating a property on one of the maps discussed later in this report, because of the variability in the distribution of arsenic and lead and other limitations of mapping. To support individual property evaluations, the Task Force has created the following flowchart. Individuals who follow the flowchart and determine that there is a high probability of area-wide soil contamination at their property should implement individual protection measures and maintain good soil cover, and may want to consider soil testing, particularly if there is a high potential for exposure.

Figure 2: Individual Property Evaluation Flowchart



Maps of Potential Area-Wide Soil Contamination

To supplement individual property evaluations, the Task Force recommends use of maps. The Task Force discussed maps at length and considered many different individual maps and mapping options. From these deliberations a number of themes emerged:

- The locations of area-wide soil contamination cannot be precisely mapped. Individual property evaluations are the only way to know with certainty whether a property is affected by area-wide soil contamination.
- Maps are a useful communication device, and are an effective way to show where area-wide soil contamination is more or less probable so that individuals can make knowledgeable choices about whether to carry out individual property evaluations. However, care should be taken to avoid misinterpretation of maps.
- Because of the limitations of maps, the Task Force believes strongly that maps should always be accompanied by information that describes what the maps show and the limitations of data on which the maps were based.

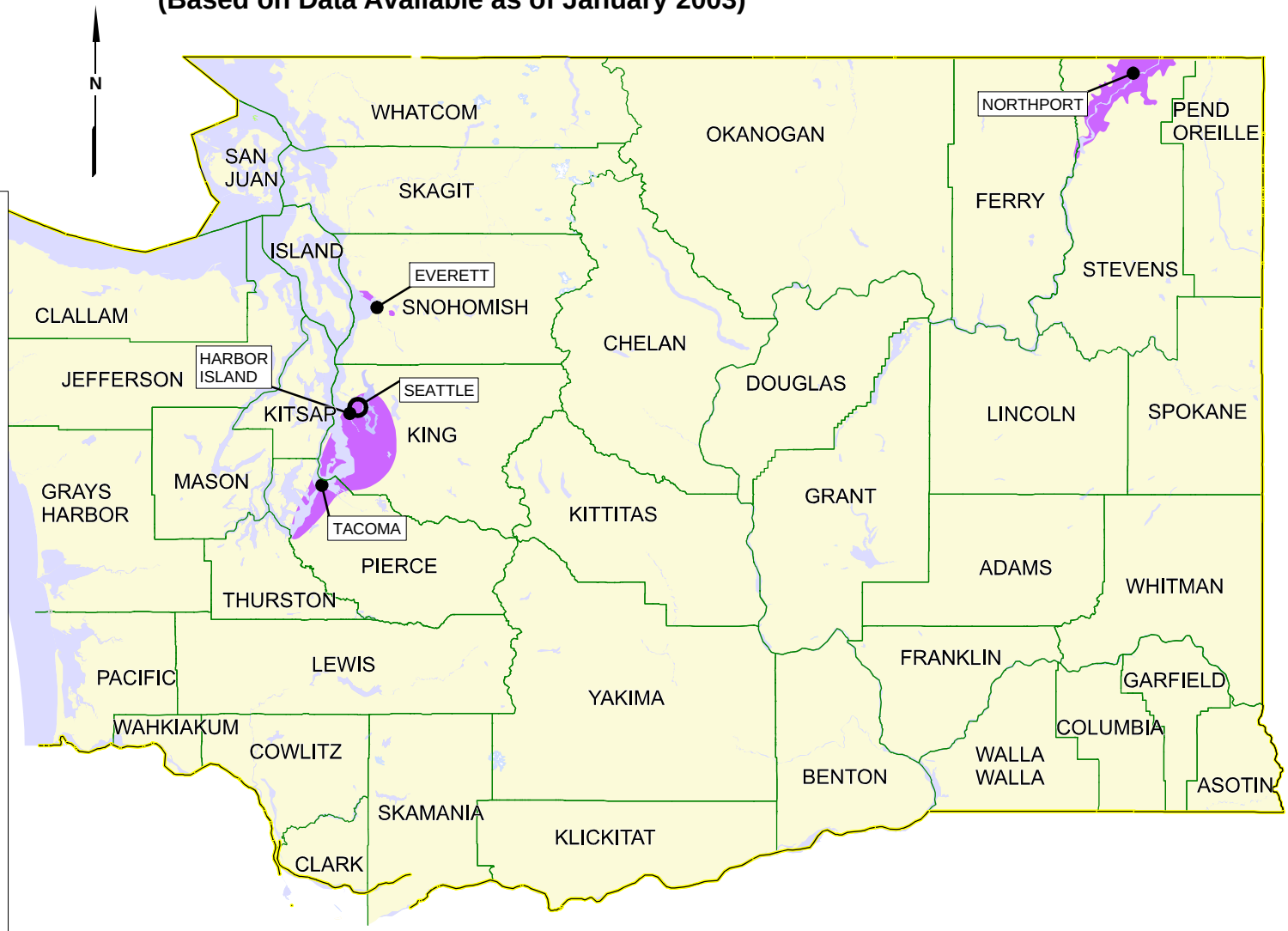
The Task Force recommends two tiers of maps and accompanying information for smelter emissions and historical uses of lead arsenate pesticides:

- Tier 1: The first tier of maps and accompanying information should identify the general areas in the state where elevated levels of arsenic and lead soil contamination are more likely to be present based on historical smelter emissions and historical use of lead arsenate pesticides. Information accompanying Tier 1 maps should emphasize that maps do not show areas that have been found to be contaminated, but simply show where contamination is more likely relative to other places. Tier 1 information should be designed to raise general awareness about area-wide soil contamination in the widest possible audience and to help users decide whether to look at the second tier of more detailed maps and informational tools for more information.
- Tier 2: The second tier of maps and accompanying information should identify where area-wide soil contamination is likely to be present on more detailed, smaller scale maps of smelter plumes and historical orchard areas, where these areas are known. Information accompanying Tier 2 maps should include flowcharts and/or other informational tools to help individuals determine whether arsenic and lead soil contamination is likely to be present based on the location and land-use history of individual properties and whether to implement individual protection measures or other responses, including soil sampling.

Examples of Tier 1 maps are included below (see Figures 3 and 4); examples of smaller scale Tier 2 maps are included in Appendix I. The Task Force emphasizes that the maps included in this report are only examples prepared to support Task Force deliberations. The example smelter emission maps are based largely upon ongoing mapping and sampling efforts associated with the Tacoma, Everett, and Harbor Island smelter cleanup actions. The smelter emission map for the Northport and Trail, BC smelters is based upon a historical study of the observed effects of sulfur dioxide emissions (another smelter emission contaminant released along with arsenic and lead) on vegetation. The example lead arsenate pesticide maps show estimates of the areas potentially affected by the use of lead arsenate pesticides based upon three different types of data sources: 1) the peak historical acreage in apple and pear tree production by county during 1905-47 (Figure 4), 2) a county-wide application of the land-use information in the individual property evaluation flowchart, and 3) locations of historical orchards identified based on aerial photographs from 1947.

It is important to reiterate that while maps show a greater or lesser probability of encountering elevated levels of arsenic and lead soil contamination based on proximity to historical sources, individual property evaluations are needed to confirm if elevated levels of arsenic and lead are actually present. Due to the variability of the nature and distribution of area-wide soil contamination, properties outside of areas identified on maps may contain elevated levels of arsenic and lead, while properties inside areas identified on maps may not, in fact, have elevated levels of arsenic and lead. The maps in this report include disclaimers to explain these limitations so that individuals are not given a false sense of assurance or concern about whether their property likely is affected by area-wide soil contamination.

Figure 3: Estimate of Areas Potentially Affected by Historical Smelter Emissions (Based on Data Available as of January 2003)



Legend

Area potentially affected by smelter emissions

Smelter locations

Disclaimer

This map should not substitute for a site-specific assessment. Not all of the areas identified on the map will actually have elevated levels of arsenic and lead in soil. Some properties outside of the identified areas may have elevated levels of arsenic and lead in soil.

This map was developed in 2003 to support the Area-Wide Soil Contamination Task Force. It is based on information available at that time and is intended to provide a general indication of where elevated levels of arsenic and lead in soil may be present due to historical smelter emissions, so individuals and communities can assess whether to look in to additional information on area-wide soil contamination. The areas potentially affected by smelter emissions in these maps were derived from actual soil sampling results for the Tacoma and Harbor Island smelters, sampling and air modeling for the Everett smelter, and maps of sulfur dioxide injury to vegetation from the Northport and Trail, BC smelters. The areas indicated as potentially affected by smelter emissions do not necessarily include all affected areas, because the complete extent of effects has not been determined.

Figure 4: County Acreage Potentially Affected by Historical Use of Lead Arsenate Pesticide on Apple and Pear Orchards

Legend

1,948 Number of total acres in the county potentially affected by past use of lead arsenate pesticide on apple and pear orchards

Disclaimer

This map was developed in 2003 to support the Area-Wide Soil Contamination Task Force. It is based on information available at that time and is intended to provide a general indication of where elevated levels of arsenic and lead in soil may be present due to historical use of lead arsenate pesticides, so individuals and communities can assess whether to look in to additional information on area-wide soil contamination.

Recommendations for Improving Our Understanding of the Nature and Extent of Area-Wide Soil Contamination in Washington

The Task Force has two types of recommendations for improving understanding of the nature and extent of area-wide soil contamination: 1) recommendations that address developing and updating maps; and 2) recommendations for additional study of roadside lead contamination (discussed in Section 11).

Developing and Updating Maps

The Task Force has four recommendations for developing and updating maps of area-wide soil contamination areas:

- The maps produced to support Task Force deliberations (many of which were based on pre-existing maps developed to support ongoing cleanup efforts associated with the Tacoma and Everett smelters) represent an important investment and should be used as the starting point for further mapping efforts, including any use of maps to describe area-wide soil contamination zones, as discussed in Section 10 of this report. They are examples of the types of maps that the Task Force believes are needed to communicate information about potential locations of area-wide soil contamination.
- The Agencies should use their statewide GIS capability to maintain state maps of area-wide soil contamination areas and to update the maps based on newly available data from sampling on public properties, including public schools and parks, and other public data sources.
- The Agencies should encourage, support, and provide financial assistance to local governments that want to identify historical orchard locations and, if appropriate, develop smaller scale maps of areas potentially affected by lead arsenate pesticide contamination. Depending on available data sources and local needs, these smaller scale maps may show areas potentially affected by lead arsenate based on land-use information and/or may more specifically show historical orchard locations. The Task Force believes that accurate, smaller-scale maps of areas potentially affected by lead arsenate pesticide contamination would be useful, but that decisions about whether to undertake this mapping should remain with local governments.
- The Agencies should coordinate with local governments to maintain and update smaller-scale maps of areas potentially affected by historical smelter emissions and areas potentially affected by lead arsenate pesticides. These maps should be updated on a reasonable timetable based on newly available information from sampling on public properties, including public schools and parks, and other public data sources. Data from sampling on private properties may also be used to update maps, provided that the Agencies ensure that data from sampling at residences is not recorded at the level of individual properties, except in certain circumstances (see Section 8b).

Because the areas potentially affected by historical smelter emissions are already relatively well defined, the highest priority for funding efforts to refine understanding of the nature and extent of area-wide soil contamination should be to encourage, support, and provide financial assistance

to local governments to identify historical orchard locations. In order to use financial resources most effectively, the Agencies should consider first providing "seed" money to local jurisdictions to research available data sources to determine the most appropriate means of identifying and mapping areas potentially affected by lead arsenate pesticide before providing full funding for map development. Financial resources should be made uniformly available to local governments that choose to develop maps.

One Task Force member questioned the benefit of updating maps of area-wide soil contamination in the future. This Task Force member thought than limited funds would be better used to help defray the cost of soil testing for private landowners. After participating in the process, this Task Force member chose not to sign the Task Force report because of concerns over funding future mapping projects and the potential economic impact of creating area-wide soil contamination zones.

6. Range of Protection Measures Considered and Evaluation of Protection Measures

Part of the charge to the Task Force was to consider the full range of protection measures that might be used to respond to area-wide soil contamination and to make recommendations about the most appropriate responses. To organize their discussions, the Task Force identified six categories of protection measures:

Protection Measures Considered

Education Programs: Public Meetings, Brochures and Newsletters, School-Based Programs, Posting No Trespassing Signs
Public Health Programs: Health Monitoring and Home Visits or One-on-One Intervention
Individual Protection Measures: Personal Hygiene Practices, Washing Garden Vegetables and Fruit, Reducing Dirt and Dust Inside the Home
Land Use Controls: Permits and Licenses, Deed and Plat Notices, Real Estate Disclosure Forms and Practices
Physical Barriers: Fencing, Vegetative Cover, Wood Chip Cover, Clean Soil Cover, Pavement
Contamination Reduction: Soil Blending/Tilling, Soil Removal and Replacement, Phytoremediation

- **Education programs** refer to broad-based, community-wide efforts to inform individuals and businesses of the presence of contamination and changes in behavior that can be made to limit or reduce exposure to the contamination. Such programs use a wide range of techniques to distribute information and increase public awareness.
- **Public health programs** involve activities designed to identify and focus protection measures to prevent or reduce certain disease outcomes or exposure risks for communities. Targeted populations within a community considered to be at high risk often receive additional public health assistance. This often includes health monitoring activities (e.g., blood lead testing or urinary arsenic screening), one-on-one education on steps to reduce exposure, and intervention activities to reduce sources contributing to elevated exposures.
- **Individual protection measures** are simple, day-to-day things that individuals can do to limit or reduce exposure to soil contaminants. Examples include washing hands with soap and water frequently, removing shoes before entering homes, using gloves while gardening, scrubbing fruits and vegetables before eating them, wet mopping to clean surfaces indoors, and frequently bathing pets and washing toddler toys.
- **Land-use controls** are actions by government or private agreements that provide information on the presence of contamination on a property and/or that limit or prohibit activities that could result in exposure to contaminants. Examples include zoning, permits and licenses, covenants, easements, deed and plat notices, and real-estate disclosures.
- **Physical barriers** prevent or limit exposure to contaminated soil or unauthorized access to a property. Examples include fences, grass cover, wood chips, clean soil cover, geotextile fabric barriers (used under wood chips or clean soil cover), and pavement. Contaminated soil might be consolidated into a smaller area of a property and then covered with a physical barrier such as a parking lot, building, or landscape berm.

- **Contamination reduction** involves reducing the concentration of contaminants in soil through activities such as soil blending or tilling or phytoremediation, or removing contaminated soil for disposal at another location.

The Task Force identified four criteria for evaluation of protection measures: effectiveness at limiting human exposure, effectiveness at limiting exposure of ecological receptors (plants, wildlife), cost, and practicality. To support Task Force deliberations, the contractor project team researched specific protection measures within each category and rated each protection measure according to the Task Force's criteria. Each protection measure considered was rated for three land-use scenarios: a 0.2-acre residential property, a 2-acre residential property, and a 20-acre undeveloped property. The results of this evaluation are summarized in Appendix J.

7. Broad-Based Education and Awareness-Building

The Task Force believes that in most cases decisions about responses to area-wide soil contamination should be made by the individuals who may be exposed to the contamination or, in the case of children, by parents or other caretakers. Broad-based education and awareness-building will give residents the information they need to make responsible choices about managing their potential exposure to arsenic and lead. These recommendations support and underlie the recommendations on responses in specific land-use scenarios discussed later in this report.

Recommendations

The Task Force has four recommendations with respect to broad-based education and awareness-building:

- The Agencies should work with and through local governments, particularly local health jurisdictions, to increase knowledge of area-wide soil contamination through a broad-based education and awareness-building campaign. The goal of broad-based education and awareness-building should be to provide individuals, organizations, and communities with the information and materials they need to make knowledgeable and responsible choices about responding to area-wide soil contamination.
- Education and awareness-building materials and activities should be carefully balanced to provide accurate information while at the same time avoiding creation of unnecessary concerns or other unintended consequences. To meet various needs and to target resources, a toolbox of information and materials is needed, and a step-wise approach to outreach should be taken.
- Education and awareness-building should focus on risks associated with exposure of children and of adults who have frequent contact with soil. The most important audiences for education and awareness-building are people and organizations that care for children, including parents, educators, health care providers and childcare providers, and gardeners and other adults who frequently work in soil.
- The Agencies should monitor and evaluate the success of education and awareness-building efforts.

The Task Force believes that broad-based education and awareness-building is an appropriate foundation recommendation for a number of reasons. First, this approach will give individuals the information necessary for them to make prudent and informed choices about the use of their property and what measures they might take to understand and respond to the potential for area-wide soil contamination. Second, an information-based approach creates the possibility for Ecology to use less intrusive methods for promoting protection of human health. Given the limited State resources that could be devoted in the short- and mid-term to more expensive, resource-intensive approaches to addressing area-wide soil contamination, the Task Force concluded that it may be more feasible for Ecology to focus now on promoting voluntary efforts

by property owners. The Task Force believes that the effectiveness of the education programs and individual protection measures will be enhanced by the step-wise approach recommended, so that education programs combined with programs encouraging practice of individual protection measures and maintenance of good soil cover are likely to be more effective than either program would be on its own. Finally, the Task Force emphasizes that, as recognized by the Agencies in initiating this project, currently there is no systematic statewide effort to address area-wide soil contamination, the majority of potentially affected properties are not being addressed, and there is no comprehensive plan to address them. In this context, any approach that systematically encourages individuals to understand area-wide soil contamination problems and provides them with the support and information necessary to make responsible choices about limiting exposure to arsenic and lead in soil is an improvement over the current situation.

A "Toolbox" of Information is Needed

The Agencies should develop a toolbox of information and materials to help individuals (e.g., parents) and organizations (e.g., schools) understand the potential for arsenic and lead contamination at specific properties and identify actions they can use to reduce their potential for exposure to arsenic and lead. At a minimum, this toolbox should include the following:

- Maps showing where area-wide soil contamination is most likely to be found. The Task Force recommends a specific approach to mapping, discussed in detail in Section 5 of this report.
- Materials that provide context for the maps and describe the variability of the nature and extent of area-wide soil contamination, so that individuals outside of areas identified on maps are not given a false sense of assurance that they cannot encounter elevated levels of arsenic and lead in soil and individuals inside areas identified on maps are not given a false sense of concern.
- Materials, including flow charts and checklists that describe how residents can use easily observable features of a property and readily available factual information to evaluate whether elevated levels of arsenic and lead in soil are likely to be present and whether exposure to soil is likely (see Figure 2 above and Table 2 below). This process is referred to as a "qualitative evaluation" and is discussed further in the child-use areas section of this report, which includes a specific qualitative evaluation checklist.
- Materials providing guidance on how to collect and analyze soil samples at typical types of properties (e.g., a residential yard) to determine if elevated levels of arsenic and lead in soil are present. Note that the Task Force does not assume or recommend that soil testing is necessary at each property potentially affected by area-wide soil contamination.
- Information on the health risks associated with exposure to low- to moderate-level arsenic and lead soil contamination, particularly the health risks associated with exposures of children and information on how parents can obtain blood lead level tests for their children.
- Materials, such as those developed by Public Health-Seattle & King County and the Tacoma-Pierce County Health Department, that encourage good personal hygiene practices and other individual protection measures, such as frequent hand washing with soap and water to reduce exposure to arsenic and lead in soil.

- Materials, such as those developed by the Washington State University Cooperative Extension, that describe individual protection measures for gardening in soil that has elevated levels of arsenic and lead, such as thorough washing of vegetables to remove dirt particles before eating.
- Materials, such as those developed by the Snohomish Health District, that describe individual protection measures such as wearing gloves and not eating or drinking in contaminated areas for utility and other workers who may frequently come into contact with contaminated soil through their work.

Individual Protection Measures to Minimize Potential Exposure to Arsenic and Lead in Soil
(Based on Guidelines Developed by the Public Health– Seattle & King County, Tacoma-Pierce County Health Department, and Snohomish Health District)

Inside Your Home:
- Take off your shoes before entering your home.
- Wash hands and face thoroughly after working or playing in the soil, especially before eating or preparing food. Use water and soap to wash—avoid "waterless" soaps.
- Wash your hands after handling your pet, and bathe pets frequently.
- Wash toddler toys and pacifiers often.
- Wash clothes dirtied by contaminated soil separately from other clothes.
- Clean surfaces by wet mopping, spraying with water, or vacuuming with a HEPA filter. Don't sweep or blow the surface.
- Change air filters regularly and properly maintain your heating, ventilation, and air conditioning system.
- Maintain painted surfaces in homes. Homes built before 1978 may contain lead-based paint. When older paint flakes, it may become a source of lead.
- Minimize children's exposure to hobbies that use lead (e.g., in lead solder or paint).
- Eat a balanced diet. Iron and calcium help keep lead from becoming a problem in the body.

Outside Your Home:
- Keep children from playing in contaminated dirt.
- Do not eat or drink while working or playing in contaminated areas.
- Keep pets off of exposed dirt so they don't track it into the house.
- Fill any holes where dogs may be digging as soon they are noticed.

Special Considerations for Gardeners:
- Dampen dusty soils before gardening in soil.
- Wear gardening gloves.
- Keep vegetable gardens away from old painted structures and treated wood.
- Do not plant food crops under the roof overhang of your home.
- Scrub vegetables and fruits with soap and water before eating them.

Special Considerations for Adults Doing Construction or Yard Work:
- Avoid all unnecessary exposure to soil or dust.
- Dampen dusty soils before and during the work project.
- Wear clean, full body protective clothing (coveralls or long sleeve shirt and pants), shoes, and gloves. For maximum protection, wear a dust mask or other respiratory protection.

- Materials describing the range of additional protection measures that might be taken to respond to area-wide soil contamination to complement use of individual protection

measures, in particular materials that describe actions that can be taken to maintain good soil cover. This information should include guidance on how individuals or organizations may locate clean soil for use in gardens.

- Materials that identify organizations—such as local health jurisdictions, land-use planning offices, the National Lead Information Center, and regional offices of the Department of Ecology, the U.S. Department of Housing and Urban Development (HUD), and the Environmental Protection Agency (EPA)—and individuals that are available to answer questions and provide additional help in understanding and responding to area-wide soil contamination.

What are Additional Protection Measures?

Additional protection measures are actions that individuals or organizations can take to physically alter properties in a way that reduces the potential for people to come into contact with contaminated soil. Additional protection measures might include:

- Contain contaminated soil under paved surfaces, structures, or in landscaping berms.
- Remove and replace small amounts of contaminated soil, especially in children's play areas and gardens.
- Till or blend soils to reduce surface concentrations of arsenic and lead.

The Task Force has developed a toolbox on area-wide soil contamination for the Agencies to consider. This is attached as Appendix K.

Targeted Audiences for Education and Outreach

Targeted materials should be developed for the following specific audiences:

- Parents of young children
- Childcare providers and preschool operators
- School officials and operations, maintenance and grounds keeping staff
- Park officials and operations, maintenance and grounds keeping staff
- Gardeners
- Real estate and financial professionals
- Construction, utility, and other workers who have routine contact with soil
- Health care providers
- Homebuilders associations
- Local planning and zoning officials
- Agricultural workers and landlords with farm

In addition to materials for general use, targeted materials should be developed for individuals who care for children (e.g., parents, teachers, and child and health care providers), for adults who have a higher potential to come into contact with contaminated soil (e.g., gardeners and construction and utility workers), and for others who may play a role in implementing the Task Force's recommendations (e.g., real estate professionals). In particular, targeted materials for people who care for children should explain the health risks associated with exposures of children to arsenic and lead, how to use qualitative evaluations to determine the potential for children to be exposed to arsenic and lead in soil at a specific property, and, if potential exposures exist, how to mitigate exposures through good personal hygiene practices, other individual protection measures, and maintenance of good soil cover. Parents and others should be encouraged to consider not only the potential for exposure on their properties, but also the potential for exposure in other places where children play, including open land, and at construction and work sites in area-wide soil contamination areas. Materials developed for adults who work in soil—including utility, construction, and farm workers—

should incorporate existing requirements for protecting the health and safety of workers and their families.

The Task Force emphasizes that it is important for education and outreach materials to be written in a way that is balanced and makes the information easily understandable for people who may not be accustomed to evaluating issues associated with exposure to hazardous substances in soil. Materials should be made available in appropriate languages for the range of potentially affected communities. To be effective, materials must be targeted for specific audiences and must be accompanied by outreach and follow-up. Ongoing outreach is particularly important because it is likely that elevated levels of arsenic and lead in soil will remain at many properties for many years. Outreach will encourage people to remain attentive to area-wide soil contamination issues over time, and remind them to continue their practice of individual protection measures and maintaining good soil cover.

A Step-Wise Approach is Appropriate

To use resources effectively, the Agencies should take a step-wise approach to providing information about area-wide soil contamination, as follows:

Step 1: The Agencies should make basic, overview educational materials about area-wide soil contamination available to all Washington State residents. At a minimum, materials should be made available using the following means:

- Development and maintenance of an area-wide soil contamination website.
- Distribution to libraries and other public information repositories.
- Distribution to Ecology regional and field offices, local health departments, and to other locations where residents may go to seek information on environmental and health conditions.

Step 2: Where area-wide soil contamination is likely, the Agencies should supplement educational materials with outreach. Outreach should include routine briefings, trainings, and workshops for local health jurisdictions, planning and zoning agencies, operators of child-use areas, and other appropriate organizations to facilitate informed distribution of educational materials and ensure a solid understanding of health risks and exposure reduction measures. The Agencies should work with local governments and other organizations such as parent-teacher associations to develop strategies designed to ensure that educational materials reach target audiences. For example, a county planning department could distribute a fact sheet on minimizing exposure to arsenic and lead in soil as part of the building permitting process.

Where is Area-Wide Soil Contamination Likely?

Based on available data, area-wide soil contamination is likely to be found in portions of counties potentially affected by off-site smelter emissions, such as portions of King, Pierce, Snohomish, and Stevens counties, and areas where apple and pear trees historically were grown, such as portions of Chelan, Okanogan, Spokane, and Yakima counties.

Step 3: Where area-wide soil contamination is known to exist because of soil testing, the Agencies should provide additional outreach, education, and resources as described below in the discussions of specific land-use scenarios.

Monitoring and Evaluating Effectiveness

Finally, the Agencies should monitor and evaluate whether the area-wide soil contamination education program effectively changes behavior and encourages greater adoption of individual protection measures and other measures recommended by the Task Force to reduce the potential for exposure to arsenic and lead in soil. Information gathered during this monitoring and evaluation should be used to improve and update education and awareness-building materials and activities. Recent efforts to evaluate the effectiveness of area-wide soil contamination education programs in Pierce and King Counties have focused primarily on improving the content and format of educational materials such as posters and brochures, based on feedback from focus groups and written surveys. These studies have also gathered data on the extent to which residents report that they implement or would implement specific individual protection measures, such as taking off shoes before entering one's home. The Agencies should consider the lessons learned from these and other evaluation efforts as they design a statewide evaluation and develop the toolbox and other broad-based and targeted educational materials about area-wide soil contamination.

8. Recommendations for Specific Land-Use Scenarios

This section contains Task Force recommendations for actions that should be taken in specific land-use scenarios in places where area-wide soil contamination is likely. Additional actions are recommended in situations where the Task Force was particularly concerned about a specific population, such as children, or to take advantage of opportunities to leverage ongoing activities to implement more aggressive measures to reduce the potential for exposure to arsenic and lead in soil. The Task Force emphasizes that these activities are meant to build upon and complement—not replace—broad-based education and awareness-building.

8a. Child-Use Areas

The Task Force is particularly concerned about exposure of young children to arsenic and lead in soil. Children tend to have greater exposure than adults to soil and dust because they often play on the ground and tend to put things—such as hands, pacifiers, and toys—that may have soil on them into their mouths. Children are at greater risk than adults from lead because, when exposed, they absorb more lead than adults, and their rapidly developing nervous systems are more sensitive to lead damage. Parents already may be aware of the need to protect children from lead poisoning as a result of long-standing programs established to prevent children's exposure to residues from lead-based paint. Actions in other states or countries to address widespread soil contamination, as well as ongoing efforts to address area-wide soil contamination in Washington State, tend to prioritize activities that protect children. The Task Force felt a special responsibility to recommend actions that address the potential for children to be exposed to arsenic and lead in soil and spent much of its time considering recommendations for child-use areas.

What are Current Approaches for Child-Use Areas?

There are a number of ongoing projects to address area-wide soil contamination at child-use areas across Washington State, including projects associated with the cleanups of the Tacoma and Everett smelter sites and other affected properties, and projects at a number of schools and parks built on properties affected by past use of lead arsenate pesticides, including schools in Chelan and Okanogan counties and parks in Yakima. Current approaches often involve outreach to school officials to provide information and support for implementation of individual protection measures and maintenance of good soil cover, and systematic soil sampling at child-use areas, followed by selection and implementation of additional protection measures. The Agencies typically provide both technical and financial assistance for responses at child-use areas.

Types of Child-Use Areas and Prioritizing Activities at Publicly Maintained Areas

The Task Force considered a number of types of child-use areas: primary schools and their associated playgrounds and playfields; public playgrounds and playfields (such as those at parks); childcare facilities, including preschools and family home childcare facilities; and camps. The Task Force also distinguished between publicly maintained child-use areas, such as public schools and parks, and privately maintained areas, such as private schools, playgrounds, and childcare facilities.

In general, the Task Force believes that the same responses are appropriate at both public and private child-use areas and that over time potential exposure should be addressed at all child-use areas where area-wide soil contamination is likely. However, the Task Force also recognizes that it may not be practical to address all child-use areas immediately. Accordingly, the Task Force recommends that publicly maintained child-use areas should be prioritized and responses in these areas should set the standard for protection of children.

Recommendations

In addition to the education and awareness-building discussed earlier in this report, the Task Force recommends five responses for child-use areas where area-wide soil contamination is likely:

- Individual protection measures and maintenance of good soil cover in areas where children play to reduce the potential for children to be exposed to contaminated soil.
- Qualitative evaluations to increase understanding of where exposure could occur and to focus implementation of soil testing and additional protection measures.
- Soil testing where qualitative evaluations indicate the potential for exposure to contaminated soil and implementation of additional protection measures if contamination is found.
- Mandatory soil testing at new public child-use area construction sites and implementation of additional protection measures if contamination is found.
- Special approaches, including targeted outreach and a voluntary certification program, for family home childcare facilities and childcare centers.

Individual Protection Measures and Good Soil Cover

The first step to minimize the potential for children to be exposed to elevated levels of arsenic and lead in soil should be implementation of individual protection measures and maintenance of good soil cover in areas where children play. The Task Force emphasizes that it is not necessary to confirm that elevated levels of arsenic and lead are present in soil before implementing individual protection measures and providing for good soil cover. Rather, where area-wide soil contamination is likely, the Task Force strongly recommends that these measures be instituted immediately unless 1) qualitative property evaluations indicate that elevated soil levels of arsenic

What Does It Mean for the Agencies to Provide Support, Encouragement, and Assistance to Local Jurisdictions?

Local governments, such as health districts and school districts, often will play a key part in implementing Task Force recommendations. In many places in this report the Task Force advises the Agencies to provide "support, encouragement, and assistance" to local jurisdictions. Besides financial support—the need for which the Task Force expects will be widespread—the Task Force has not attempted to precisely define what "support, encouragement, and assistance" might involve. The Task Force emphasizes that the first step is for the Agencies to reach out to local jurisdictions in areas where area-wide soil contamination is likely to provide information on the issue and the Task Force recommendations, and to ask what types of assistance and support the local jurisdiction might need.

and lead are not likely or it is unlikely that children could be exposed to soil, or 2) quantitative soil testing shows that elevated levels of arsenic and lead in soil are not present.

The Task Force believes this is a reasonable approach primarily for two reasons. First, as discussed above, children are the population most vulnerable to adverse health effects from soil contamination, particularly from exposure to lead. Second, implementing individual protection measures and providing for good soil cover in play areas are, to a great extent, consistent with the types of personal hygiene practices and routine maintenance activities that should already be in place at schools, parks, childcare facilities, and other child-use areas.

The Task Force recommends that the Agencies work with local health jurisdictions to support, encourage, and assist with implementation of individual protection measures. This may include providing training, briefings, or other assistance or materials to local health jurisdictions. In addition, the Agencies should work with local jurisdictions and other organizations, such as the Washington Association of Maintenance and Operations Administrators, to support, encourage, and assist with activities that maintain good soil cover and to integrate these activities into ongoing landscaping and maintenance practices. This may include providing training or information on the relative effectiveness of various soil covers and methods to maintain effective soil cover. Grass, for example, may not be an effective cover for contaminated soil on an athletic field or other child-use area if it is not properly maintained.

Qualitative Evaluations of Potential Exposure

The Task Force strongly encourages property owners/managers of other child-use areas to carry out qualitative evaluations of the potential for exposure to arsenic and lead in soil in places routinely used by children. Qualitative evaluations should use easily identifiable factors (such as elevation at properties potentially affected by historical use of lead arsenate pesticides) to determine if elevated levels of arsenic and lead in soil are likely, and easily observable features (such as the presence or absence of bare dirt) to identify situations when there is the greatest potential for exposure. Qualitative evaluations should help identify situations where there is or could be direct, frequent contact with contaminated soil over a period of months. The Task Force recommends that the following checklist be used to carry out qualitative evaluations.

Table 2: Qualitative Evaluation Checklist for Understanding Potential Exposures to Arsenic and Lead in Soil

Please visit and walk around the site, preferably during daylight hours, before answering these questions.	
Q1. ***Is the property near a historical smelter location in Pierce, King, Snohomish, or Stevens counties?***	If YES or UNSURE, go to Q4. If NO, go to Q2.
Q2. ***Were lead arsenate pesticides used on the property historically (e.g., on apple or pear trees)?***	If YES or LIKELY, go to Q4. If NO, go to Q3.
Q3. ***Are portions of the property within 25 feet of a road built before 1995?***	If YES or UNSURE, go to Q4. If NO, elevated levels of arsenic and lead are not likely to be present in soil.

Table 2: Qualitative Evaluation Checklist for Understanding Potential Exposures to Arsenic and Lead in Soil	
Q4. ***Do children routinely play in this area?***	If YES or UNSURE, go to Q7. If NO, go to Q5.
Q5: ***Do people spend a lot of time in this area (e.g., while gardening)?***	If YES or UNSURE, go to Q7. If NO, go to Q6.
Q6: ***Are there frequently used, unpaved paths or trails through this area?***	If YES or UNSURE, go to Q7. If NO, potential exposure to elevated levels of lead and arsenic in soil is less likely.
Q7: ***Is there any exposed dirt in play and high-use/traffic areas (e.g., swing sets, gardens, sports fields, lawns, and paths)?*** Note: Asphalt, wood chips, grass cover, or other natural/synthetic barriers may help limit potential exposure to contaminated soil. The Consumer Product Safety Commission recommends that surfaces around playground equipment have at least 5-12 inches of wood chips, mulch, sand, or pea gravel, or are covered with mats made of safety-tested rubber or rubber-like materials.	If YES or UNSURE, there may be a higher potential for exposure to contaminated soils. Use individual protection measures to minimize potential exposure and determine whether to test soils. If NO, go to Q8.
Q8: *Would you expect soils to be exposed at any time during the year (e.g., due to seasonal sports or other activities)?*	If YES, there may be a higher potential for exposure to contaminated soils. Use individual protection measures to minimize potential exposure and determine whether to test soils. If UNSURE, check with the landowner or organization responsible for maintaining the property to see whether a maintenance program is in place to ensure that play and high-use/traffic areas remain thoroughly covered year round. If NO, the potential for exposure to contaminated soils is less likely.

Soil Testing and Implementation of Additional Protection Measures

Where qualitative evaluations indicate that children may be routinely exposed to contaminated soil, the Task Force recommends that property owners/managers of child-use areas conduct soil sampling to determine if elevated levels of arsenic and lead are actually present. Guidance on how to carry out soil sampling is part of the toolbox of information discussed in Section 7 of this report and included in Appendix K.

Where soil sampling results indicate that elevated levels of arsenic or lead are present, property owners/managers of child-use areas should implement additional protection measures to reduce the potential for children to come into contact with contaminated soil. Additional protection measures to reduce potential exposure could include: installing protective barriers such as geotextile fabric between contaminated soil and the overlying protective cover; removing and replacing small amounts of contaminated soil; or consolidating and containing contaminated soil under buildings, paved surfaces, or landscaping berms. The Agencies should assist local jurisdictions, other organizations, and individuals to select and implement additional appropriate protection measures where soil contamination is found.

In addition, the Agencies should work with school districts, park agencies, and other appropriate organizations to facilitate understanding of area-wide soil contamination and to prioritize response actions at schools, parks, and other child-use areas. In particular, parents of young children should be kept informed during all stages of assessment and cleanup processes through Parent-Teacher Association meetings, school newsletters, community events, and other appropriate means. As with the broad-based education and awareness-building materials described earlier in this report, outreach activities should balance the need for accurate and complete information with the need to avoid unnecessarily frightening parents and other audiences, or creating unintended consequences or overreactions.

Finally, the Agencies should work with local jurisdictions to continue collection of soil data at public child-use areas where area-wide soil contamination is likely, to better understand the extent of area-wide soil contamination and the potential for children to be exposed.

Special Considerations for Playgrounds and Playfields

The Task Force believes children have a high potential to come into contact with contaminated soil at playgrounds and playfields. By the nature of their use, playgrounds and playfields often have areas of bare dirt to which children could be exposed. Because these areas are typically publicly owned and operated, the Task Force believes there is a special responsibility to ensure that children who use these areas are protected.

The *Handbook for Public Playground Safety* published by the U.S. Consumer Product Safety Commission (CPSC) contains guidelines for maintaining children's safety in public playgrounds. It recommends that wood chips, mulch, sand, gravel, or shredded tires be installed and maintained to a depth of at least 5-12 inches (depending on the surfacing material selected) under playground equipment. The *Health and Safety Guide for K-12 Schools in Washington*, published by the Office of Superintendent of Public Instruction (OSPI) and the Department of Health, recommends that all playground equipment at primary and secondary schools in Washington conform to CPSC's playground safety standards.

The Task Force recommends that the CPSC surface material guidelines be fully implemented at existing playgrounds at parks, schools, private camps, and childcare facilities. In areas where area-wide soil contamination is likely, the Task Force recommends that a geotextile fabric barrier (such as landscaping fabric or weed block) be incorporated below the surfacing material under play equipment to further limit the potential for contact with soil. For other play areas, such as sports fields, the Task Force recommends that efforts be made to minimize the potential for children to come into contact with contaminated soil, by maintaining good year-round grass cover and ensuring clean soil in areas of bare dirt, such as baseball field baselines. Sports fields primarily used by adults and older children may not need the same types of actions to reduce exposure because, in general, exposure is expected to decrease with age.

Soil Testing and Additional Protection Measures at New Child-Use Areas

Construction of new child-use areas, such as schools and playgrounds commonly involves earth-moving activities. These activities create important opportunities to address area-wide soil contamination. Incorporating soil sampling into the site selection and design process for new construction allows officials to modify construction plans to incorporate cost-effective, practical,

and effective measures to reduce the potential for exposure of children, and this may be more efficient than retrofitting existing child-use areas.

Where area-wide soil contamination is likely, the Task Force recommends that officials (e.g., school district superintendents or park managers) be required to test soils at proposed child-use sites during the site selection and design process. This is especially relevant at publicly funded child-use areas. Where soil sampling shows that elevated soil levels of arsenic and lead are present, officials should incorporate protection measures into construction plans and budgets. Protection measures might include installing a geotextile fabric barrier and surfacing material such as wood chips, mulch, or grass cover in play areas; removing and replacing small amounts of contaminated soil; consolidating and containing contaminated soil under buildings, paved surfaces, or landscaping berms; or other activities.

At school sites, the Agencies should work with local health jurisdictions and with OSPI to assist school officials to interpret sampling results and to select appropriate protection measures. Local health inspectors should confirm during regular site visits that appropriate responses have been implemented. The Agencies should assist local health jurisdictions with these inspections.

Targeted Outreach and Voluntary Certification Programs for Childcare Providers

Many children spend significant amounts of time in commercial or family home childcare settings. This is particularly true for children who have not yet reached school age and who may be particularly vulnerable to exposures to arsenic and lead. Where area-wide soil contamination is likely, the Agencies should collaborate with DSHS and local health districts to work with childcare providers to give them information about area-wide soil contamination and encourage them to take actions to reduce the potential for children to be exposed to arsenic and lead. The Agencies should also collaborate with DSHS to establish a voluntary certification process that childcare providers can use to communicate that they have taken precautions to reduce the potential for children to be exposed to area-wide soil contamination or have verified through sampling that elevated soil levels of arsenic and lead are not present.

The Task Force recommends that targeted outreach to childcare centers and family homes should be integrated into and build upon existing processes that provide for the health and safety of children, including regular inspections of childcare facilities by DSHS and local health jurisdictions and the DSHS licensing process. In particular, the Task Force recommends that training on how to identify and minimize potential exposure to area-wide soil contamination using individual protection measures, good soil cover, and other protection measures be incorporated into the existing State Training and Registry System (STARS) childcare training program and/or other annual training requirements for childcare providers.

The goals of the voluntary childcare certification program should be to: 1) create a mechanism to raise awareness of area-wide soil contamination issues among childcare providers, 2) provide parents and other caretakers with information about how individual businesses have chosen to address area-wide soil contamination issues, and 3) assist parents to make informed choices about in which childcare facility to place their children. The Task Force recommends a three-step education and certification process:

- Step 1: Childcare operators receive and review information prepared by the Agencies and/or complete training (through the existing STARS childcare training program and/or other annual training) on how to identify and minimize potential exposure using individual protection measures, good soil cover, and other protection measures.
- Step 2: Childcare operators conduct qualitative assessments and/or contact local health districts to help them identify and take steps to minimize children's potential exposure to arsenic and lead in soil.
- Step 3: Childcare operators certify that soils have been tested using approved soil sampling protocols and have been found not to contain elevated levels of arsenic and lead or that the recommended protection measures have been implemented.

Upon completion of Step 3, the childcare operator can request that DSHS issue a letter recognizing that the childcare operator has certified the steps that have been taken at the facility to minimize children's potential exposure to lead and arsenic. To encourage further adoption (and maintenance) of the actions and measures the Task Force is recommending, DSHS childcare inspectors and local health jurisdictions should review information about which childcare facilities have self-certified in order to tailor outreach, education, and other discussions during regular facility inspections. DSHS should also function as a clearinghouse for information on which childcare facilities have participated in the voluntary certification program and should make this information publicly available.

The Task Force emphasizes that education and the opportunity for voluntary certification should be made available to all childcare providers, not just those who are covered by current licensing requirements. To minimize disruption at licensed facilities, certifications should be timed to renew and expire in conjunction with the childcare licensing cycle (i.e., every three years). If the soil at a childcare facility has been tested and found not to contain elevated levels of arsenic and lead, the certification should be permanent and not need to be renewed.

The Task Force acknowledges that many childcare facilities, particularly those not covered by current licensing requirements, may have significant resource limitations and may be difficult to locate and reach. One potential benefit of broad-based education and awareness-building is that it can create momentum for evaluating and responding to area-wide soil contamination issues within the childcare market, by creating increased demand on the part of parents for childcare facilities that have taken steps to understand and, when necessary, respond to area-wide soil contamination. The Agencies should consider the differences between types of childcare facilities in collaborating with DSHS and local health jurisdictions to develop education and outreach strategies, and should make financial resources available to childcare providers to support responses to area-wide soil contamination.

8b. Residential Properties

The Task Force is concerned about the number of properties potentially affected by area-wide soil contamination and the practicality and cost of implementing protection measures at residential properties. At the same time, the Task Force recognizes that most residential properties are, essentially, child-use areas and that both children and adults are most likely to

come into regular contact with soil at home, through play, gardening, and other activities. However, the Task Force also recognizes that residents can choose whether and how to implement protection measures at their properties to address low-to-moderate levels of soil contamination. Therefore, the Task Force emphasizes that the Agencies should focus on helping residents to understand the potential for elevated levels of arsenic and lead in soil at individual properties and take appropriate response actions. With these considerations in mind, the Task Force decided that responses to area-wide soil contamination at residential properties should be similar to, and no more stringent than, the approaches described above for child-use areas and that particular attention should be paid to three populations: children, gardeners, and other adults who frequently work in soil.

Recommendations

In addition to broad-based education and awareness-building to increase residents' knowledge about area-wide soil contamination, the Task Force recommends that the Agencies:

- Offer both technical and financial assistance to support and encourage residents potentially affected by area-wide soil contamination to:
  - Implement individual protection measures and maintain good soil cover in areas where children play to reduce the potential for exposure to contaminated soil.
  - Conduct qualitative evaluations to increase understanding of where exposure could occur and to focus implementation of soil testing and additional protection measures.
  - Conduct soil testing where qualitative evaluations indicate there is potential for exposure to contaminated soil and implement additional protection measures if contamination is found.
- Provide information on where and how to dispose of contaminated soil that individuals choose to remove from their properties and help residents locate sources of soil that meets the MTCA cleanup standards for arsenic and lead.

The Task Force emphasizes that these are not recommendations for creating new regulatory requirements for residential properties or residents. The Agencies should focus on providing incentives for residents to implement Task Force recommendations and supporting residents who choose to implement recommended activities through education, outreach, and financial assistance.

Individual Protection Measures and Good Soil Cover

As with child-use areas, at residential properties the first step in taking action to minimize the potential for children and adults to come into contact with contaminated soil is to practice individual protection measures and to maintain good soil cover. It is not necessary to confirm that elevated levels of arsenic and lead are present in soil before taking these actions. Rather, where area-wide soil contamination is likely, the Task Force recommends that all residents follow individual protection measures and maintain good soil cover unless 1) qualitative property evaluations indicate that elevated soil levels of lead and arsenic are not likely or exposure to soil

is not likely, or 2) quantitative soil testing shows that elevated soil levels of arsenic and lead are not present.

Qualitative Evaluations

Residents of properties affected by area-wide soil contamination should carry out qualitative evaluations to determine the potential for their property to have elevated levels of arsenic and lead in soil and the potential for exposure to contaminated soil. Qualitative evaluations should use easily identifiable features (such as property elevation in areas potentially affected by historical use of lead arsenate pesticides) to determine if elevated soil levels of arsenic and lead are likely and easily observable features (such as the presence or absence of bare dirt) to determine if exposure to contaminated soil is likely. A qualitative evaluation checklist is included in Section 8a, above.

Soil Testing and Additional Protection Measures

Where qualitative evaluations show that elevated levels of arsenic and lead in soil and/or exposures to contaminated soil are likely, residents should consider soil sampling. Soil sampling will provide a basis for residents' decisions about what steps, if any, beyond implementation of individual protection measures and maintenance of good soil cover should be taken to reduce potential exposures. It may also help confirm the absence of elevated levels of arsenic and lead, thereby obviating the need for other responses. Guidance on how to carry out soil sampling is included in the toolbox of information discussed in Section 7 of this report and included in Appendix K.

The Agencies should provide incentives and opportunities for individuals who choose to sample soils on their properties. Specifically, the Agencies should work with local health jurisdictions to provide do-it-yourself sampling kits to residents upon request. These kits should include instructions on how to collect soil samples, tools for collecting samples, clear explanations of why the sampling procedures should be followed, and instructions on how to have soil samples analyzed. Furthermore, the Agencies should establish a mechanism to subsidize the costs of sampling at residential properties in area-wide soil contamination areas so that residents only need to pay, at most, nominal fees for soil analysis. Fees should be comparable to the costs to residents of other environmental monitoring programs, such as water quality testing. The Agencies could, for example, make X-ray fluorescence (XRF) machines available routinely throughout the year at easily accessible locations and charge residents only minimal fees for the on-site soil analysis. As an alternative, or to supplement use of XRF machines, the Agencies could provide vouchers to residents for reduced or low-cost analysis of soil samples at independent laboratories.

Finally, the Agencies should work with local health jurisdictions to assist property owners to interpret soil testing results and select any appropriate protection measures. The Agencies should provide the appropriate context for sampling results so that residents understand the potential health risks from exposure to contaminated soils without becoming unduly alarmed.

Confidentiality and Reporting of Sampling Results

To protect the privacy of residents who choose to take advantage of soil sampling opportunities, data from soil testing conducted by individuals for their own use should be kept confidential and

should not be associated with specific property locations in Agencies' records (i.e., residents' names and addresses should not be recorded in writing), unless 1) individuals volunteer to have the data used to update maps of area-wide soil contamination, 2) they request a No Further Action letter for the property from Ecology, or 3) the sampling results reflect concentrations that are not associated with area-wide soil contamination (i.e., that are not low-to-moderate). The Agencies' assistance with the interpretation of sampling results should be provided in ways that prevent property-specific data from becoming public. This is not the case for public and public-use properties such as public child-use areas, where the Agencies have the responsibility to educate parents and others about any contamination that is present.

Real Estate Disclosure Requirements

Regardless of how the Agencies track and record sampling data, individual property owners who have information about the presence of elevated levels of arsenic, lead, or other contaminants on a property are required under existing real estate disclosure laws to disclose this information to buyers during real estate transactions.

If it is necessary for the Agencies to include information on sampling results from private residences in their records to provide financial and technical assistance, or as a way to provide for information that might be used to make maps of locations of potential area-wide soil contamination more precise, these data should be recorded only at the section, township, and range level. This level of detail should allow the Agencies to update area-wide soil contamination maps and help further target outreach activities and financial resources, while protecting the privacy of residents who choose to test soil on their properties.

Support for Additional Protection Measures Individuals Choose to Implement

Where soil sampling results indicate that elevated levels of arsenic or lead are present, residents should be encouraged to consider implementing additional protection measures to further reduce the potential for exposure to contaminated soil. In some instances, individuals may choose to take additional actions to further contain or remove contaminated soil. Additional protection measures might include installing protective barriers such as geotextile fabric (e.g., weed cloth) between soil and landscaping materials, particularly in areas where children play. Alternatively, additional protection measures might include replacing contaminated soil with clean soil in gardening areas or filling raised garden beds with clean soil.

The Agencies should support individuals who choose to implement additional protection measures by providing guidance on affordable, effective, and practical solutions for covering contaminated soils, removing and replacing small quantities of soil, and other appropriate activities. The Agencies should also provide information on where and how to dispose of contaminated soil that individuals choose to remove from their properties.

To support individuals who choose to replace small quantities of contaminated soil with clean soil, the Agencies should look for ways to help residents locate sources of soil that meet the MTCA cleanup standards for arsenic and lead by identifying soil suppliers or other means. Residents may also choose to test fill soils to determine whether it is suitable for its intended use.

8c. Commercial Areas

As discussed above, the Task Force is most concerned about exposure of children to arsenic and lead in soil. In general, commercial areas are not frequently used for play by children and tend to be covered with impervious surfaces such as buildings, parking lots, or other man-made and maintained cover, such as landscaping bark or gravel.

Recommendations

For commercial areas affected by area-wide soil contamination, the Task Force recommends:

- Where commercial areas are covered with surfaces such as buildings, parking lots, or other effective soil cover, the Task Force recommends that no further response actions are necessary to address area-wide soil contamination.
- For mixed-use areas, such as a childcare facility located in a shopping center, the Task Force recommendations for non-commercial use should be considered for the non-commercial operation. In other words, in this example, the child-use area recommendations should be considered for a childcare facility located in a largely commercial area.

8d. Open Land

Open land includes undeveloped properties, agricultural land that is no longer in production, and other developed properties that are currently vacant or abandoned. Agricultural land that is intended to be returned to active production within regular growing cycles (e.g., fallow land in dry-land wheat growing areas) is not considered open land and is not addressed by these recommendations. The Task Force considered two categories of open land: open land that is being developed and open land that is not proposed for development. Although there is the potential for both human health and ecological impacts from area-wide soil contamination at open land, this section only addresses risks from human exposure. Ecological concerns are discussed in Section 11 below.

Recommendations

In addition to broad-based education and awareness-building, the Task Force recommends that the Agencies support and encourage the following activities for open land in areas where area-wide soil contamination is likely.

- Amending the State Environmental Policy Act (SEPA) checklist to include a question designed to prompt consideration of the potential for area-wide soil contamination during new development.
- For open land being developed, qualitative evaluations to increase understanding of whether area-wide soil contamination is likely, soil testing before construction where

area-wide soil contamination is likely, and implementing additional protection measures if contamination is found.

- Use of plat or other notices to record information on property status.
- For open land being developed, implementation of existing requirements and policies governing worker protection and safety, and control of dust, erosion, and surface water runoff during construction.
- For open land not being developed that is in or near residential areas, use of practical, cost-effective measures to limit trespassing, the potential for exposure to contaminated soil, and windblown dust.

Open Land Being Developed into Other Land Uses

In general, the Task Force believes that responses to area-wide soil contamination at open land being developed should be consistent with the responses the Task Force recommends for the end land use, since the end land use most affects the potential for exposure. For example, the recommended responses described in Section 8a above for child-use areas are appropriate to consider when open land is being developed into schools, parks, childcare facilities, or other child-use areas. Because development activities generally include manipulation of the soil and grade at a site, new development also may offer opportunities to implement certain protection measures more easily and for less cost than at developed properties. Additional precautions are also warranted to prevent or reduce exposure of people who live near or work at construction sites and may be exposed to contaminated soil (including windblown dust) during construction activities.

The Task Force believes that the most appropriate way to address potential exposures during and after development is to integrate responses to area-wide soil contamination into the land-use review and development process. The Task Force recommendations include a series of actions that developers, construction workers, and property owners should take to reduce potential exposure and recommendations for how to work with existing land-use planning and permitting processes to encourage implementation of the recommendations.

Recommended Activities for Developers, Construction Workers, and Property Owners

The Task Force recommends that developers conduct qualitative evaluations of properties and, where warranted, carry out soil testing prior to construction. Depending on the results of these evaluations, developers should incorporate appropriate additional protection measures into site development and construction plans to reduce the potential for exposure to area-wide soil contamination after properties are developed. Developers, for example, could take advantage of the opportunities construction activities provide to contain and cap contaminated soil under roads, structures, or landscaping berms. Other options that might be considered include tilling or blending soils to reduce surface concentrations of arsenic and lead, installing protective barriers and good soil cover, and removing and replacing small quantities of soil, all of which are more cost effective if implemented during rather than after properties have been developed. In general, as indicated in the Task Force's principles, the level of effectiveness and permanence of the responses should be greatest for proposed land uses where there is the greatest potential for

exposure of children, gardeners, and other adults who have frequent contact with soil. The Agencies should set an example for private developers by adopting these practices for their construction projects.

During construction, the Task Force recommends that construction workers implement individual protection measures to reduce their potential for exposure to contaminated soil, consistent with U.S. Occupational Safety & Health Administration (OSHA) and Washington Industrial Safety and Health Act (WISHA) requirements. Moreover, as a precautionary measure, the heightened awareness and safety precautions required for construction at properties where hazardous substances are known to be present should also be applied at properties where area-wide soil contamination is likely, unless soil sampling shows that elevated levels of contaminants are not present. Finally, the Agencies should work with State and local air and other authorities to ensure that regulations to control dust, erosion, and run-off during construction are implemented and enforced to minimize potential exposure at and near construction sites.

Large Construction Sites

The Task Force received a number of comments from individuals concerned about proper transportation and disposal of contaminated soil during construction projects and the potential for windblown dust during construction, particularly at large construction sites. The Task Force is sympathetic to these concerns and believes that existing regulations should be fully implemented and enforced to ensure safe management of soil with elevated levels of arsenic and lead and to control windblown dust.

Encouraging Implementation of the Task Force Recommendations for New Development

To encourage implementation of the Task Force recommendations, the Task Force recommends that the Agencies educate people who work on SEPA issues in local government, as well as other local planning and permitting officials, about area-wide soil contamination and how to respond appropriately to it. The Task Force believes that local land-use planning and permitting processes represent an important opportunity to educate developers about the Task Force recommendations and assist developers with implementation of recommended activities. Local planning and permitting officials should be provided with educational materials to distribute to developers, property owners, and others early in the site development process. Materials should provide guidance on qualitative evaluations, soil sampling, and how to select and implement protection measures.

Furthermore, the Task Force recommends that the SEPA checklist, which is used to determine whether government actions require an environmental impact statement, be modified to incorporate a question about whether the property is likely affected by area-wide soil contamination. For construction activities that are exempt from SEPA requirements, such as the construction of fewer than four single-family homes, the Agencies should work with local governments to leverage appropriate land-use or building processes to reach these development activities. The Task Force also encourages local jurisdictions to use plat or other notices to record information on the status of properties where area-wide soil contamination is likely, as part of the land-use approval and development process. Notices should, for example, record whether contamination is likely to be present, whether a property has been sampled, and/or whether protection measures are in place.

Specific Protocols for Addressing Area-Wide Soil Contamination

During the focus group meetings about the preliminary Task Force recommendations, a number of officials from local building and planning departments emphasized their need for clear, standard protocols for addressing area-wide soil contamination. The officials agreed that they were often in the best position to work with land developers and builders to address area-wide soil contamination, but explained that they were not, and were not likely to become, experts on qualitative evaluations, soil testing, or protective measures. Officials mentioned general permits under the Clean Water Act as an example of a successful standard protocol. Standard protocols (guidance) for qualitative evaluations and soil testing are included in the Task Force's recommended "toolbox." The Task Force supports standard protocols, but recognizes that in many cases it will be difficult to standardize selection and implementation of protective measures, due to the site-specific nature of these decisions. The Task Force recommends that Ecology work with local building and planning departments to continue to explore the concept of standard protocols, with a view toward providing as much certainty and predictability as possible to local planning officials, builders, and developers.

Open Land Not Proposed for Development

At open land not proposed for development that is *not* in or near residential areas, the potential for exposure to area-wide soil contamination is generally low, because these areas are not likely to be frequented by children or other sensitive populations. The Task Force believes that broad-based education and awareness-building activities should be sufficient to address potential health risks from human exposure to area-wide soil contamination in these areas.

For open land not proposed for development that *is* in or near residential areas, children could be exposed to area-wide soil contamination if they play or trespass on this land. The Task Force recommends that the Agencies encourage property owners to take practical steps to limit trespassing on their properties, such as posting signs at open lots in residential areas. Concerned parents should take steps to ensure that their children do not trespass on open lands. Where appropriate, property owners might also consider taking practical, cost-effective steps to limit the potential for soil exposure and windblown dust, such as keeping open land covered with grass, hay, or other vegetation.

8e. Root Vegetables

Some root vegetables have the potential to take up lead from the soil. Lead concentrations exceeding the U.S. Food and Drug Administration's in-house level of concern for lead in processed foods were found in a shipment of Washington root vegetables in 1998. That shipment was traced back to one commercial crop of carrots that had been grown on a former orchard site. The Northwest Food Processors Association (NWFPA) developed an internal task force to review and assess the scientific data and develop recommendations to address any possible future sources of contamination for root vegetables. Nearly all commercial food processors in Washington are associated with this organization. The Food and Drug Administration, through its Market Basket program, also continues to test foods marketed locally and nationally.

The NWFPA published Interim Recommendations (since finalized) on February 17, 1999 to inform commercial growers and processors about the possibility of risk from lead uptake when root vegetables are planted on old orchard sites. A copy of this advisory bulletin is included in Appendix L. The Task Force considered this voluntary, privately initiated effort and views it as a potential model for using private-sector efforts to prevent possible human exposure problems from arising. However, the Task Force did not have further information on the results of the voluntary action or additional Market Basket testing results. Accordingly, the Task Force recommends a survey to determine the effectiveness of the NWFPA advisory program, with an eye toward possibly using it as a model for similar programs in the future. The Task Force recommends that the Washington State Department of Agriculture (WSDA) request from NWFPA an analysis of the NWFPA voluntary program regarding its effectiveness in preventing human exposure to heavy metals in root crops.

The NWFPA bulletin, however, was distributed only to commercial processors. It is unlikely, due to the membership of the NWFPA, to have been distributed to home gardeners or local farmer's market growers whose properties may have become affected by area-wide soil contamination. The Task Force believes that home gardeners and local farmer's market growers may want to take precautions to avoid similar uptake problems. Information about protective measures—which may include testing soil, replacing soil, growing crops on raised beds with clean soil, using compost or manure to dilute concentrations, and other actions—should be developed and distributed to growers to help prevent consumption of root crops with elevated concentrations of lead and arsenic. Such information already is available from the Washington State University Extension Service, WSDA, or other agencies, and distribution of such information should be coordinated, wherever possible, with the other information distribution programs administered by Ecology, the Department of Health, and local health officials.

9. Real Estate Disclosure Recommendations

Over the course of its deliberations, the Task Force discussed Washington State real estate disclosure practices related to lead-based paint (in part as a response to the Residential Lead-Based Paint Reduction Act of 1992-Title X) as well as similar types of environmental disclosure forms used elsewhere around the country. Current Washington State disclosure practices are centered around the mandatory use of the Real Property Transfer Disclosure Statement (WAR Form D-5 and NWMLS Form 17) for one to four single-family properties and the Disclosure of Information on Lead-Based Paint and Lead-Based Paint Hazards for homes built prior to 1978. The Real Property Transfer Disclosure Statement requires sellers to disclosure any knowledge of the presence of hazardous substances (including soils with concentrations of hazardous substances above cleanup levels). Although it is not typical for sellers and real estate professionals to use the Lead-Based Paint and Lead-Based Paint Hazards booklet to address elevated levels of lead in soil, the definition of "lead-based paint hazard" in the Residential Lead based Paint Reduction Act of 1992–Title X includes "any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, and lead-contaminated paint that is deteriorated or present in accessible surfaces. . .that would result in adverse human health effects as established by the appropriate Federal agency."

Recommendations

Real estate transactions create another important opportunity to educate Washington State residents about low-to-moderate arsenic and lead soil contamination and ways to protect themselves, their families, and others from potential exposure to such contamination. The Task Force supports the use of real estate disclosure practices to raise Washington State residents' awareness of potential lead and arsenic contamination on properties. To help enact these practices, the Task Force recommends that the Agencies take the following specific steps:

- Encourage the Washington Association of Realtors to work with interested legislators to enact legislation requiring a real property transfer disclosure statement for open land (in addition to the existing requirements for residential properties) and encourage the voluntary use of the existing seller's property condition report for open land until such legislation is adopted. For example, in Chelan County, a voluntary environmental disclaimer form is used during real estate transactions to inform sellers and buyers of potential local environmental conditions including orchards, mold, and radon.
- Work with and through the Washington Association of Realtors to strongly encourage real estate agents to use the lead-based paint disclosure form and the EPA lead pamphlet for all transactions (not simply sales of homes built before 1978) or use similar disclosure documentation for the potential presence of contaminated soils where area-wide soil contamination is likely.
- Support the Washington Association of Realtors to create an education course for real estate agents about area-wide soil contamination or to incorporate relevant Task Force findings and recommendations (such as those contained in the Area-Wide Soil Contamination Toolbox [Appendix K]) into realtors' existing course materials.

- Encourage the Washington Association of Realtors to draft an article highlighting the Task Force's findings and recommendations, including key elements of individual protection measures, for the *Washington Realtor*.

10. Application of the Model Toxics Control Act

The Area-Wide Soil Contamination Task Force was chartered, in part, to recommend alternatives to traditional ways of addressing soil contaminated with low-to-moderate levels of arsenic and lead under MTCA. The Task Force debated MTCA and its application to area-wide soil contamination extensively, and over the course of discussions raised many questions as to how the Task Force's recommendations could be reconciled with the MTCA statute and Ecology's current MTCA regulations and policies. In an effort to find agreement, the Task Force identified a number of objectives to guide the MTCA discussions. The group then agreed to address the objectives collectively; that is, to accept and attempt to meet all of them, even if as individuals they did not value each objective equally. The objectives the Task Force worked to meet are:

- Areas characterized as having area-wide soil contamination are neither "MTCA-free zones" nor "MTCA-everywhere zones"; a viable alternate approach is needed consistent with the current MTCA statute;
- Predictability/certainty about what is expected of property owners where area-wide soil contamination is present;
- Predictability/certainty about what Ecology will do where area-wide soil contamination is present;
- Minimal financial impacts on innocent property owners affected by area-wide soil contamination;
- Minimal adverse impacts on property transactions;
- Providing a streamlined way for property owners to get as much certainty about their property's status as they desire; and
- Providing incentives for property owners to implement Task Force recommendations.

The Task Force also identified a number of elements of the current MTCA regulations and policies, as well as other mechanisms, which might be used to meet these objectives. These elements are:

- Zones or regulatory definitions of area-wide soil contamination instead of property-specific listings;
- Rulemaking to revise the MTCA regulations and other administrative action to revise MTCA policies;
- Conditional No Further Action letters or other "comfort" letters or documents from Ecology;
- Model actions or standard protocols for protection measures and/or sampling;
- Enforcement forbearance policies;
- Independent cleanup models;
- Self-certification models;

- Delivery of services recommended by the Task Force, such as technical assistance and sampling assistance (e.g., with an XRF machine); and
- Real estate disclosure and other market-based models to distribute information.

Recommendations

From their discussions of these objectives and elements, the Task Force makes six recommendations relative to MTCA.

- Ecology should provide as much predictability and certainty as possible in how MTCA will be applied to properties affected by area-wide soil contamination. In general, this will mean using regulations instead of policies to implement Task Force recommendations on MTCA.
- Avoid listing individual properties affected by area-wide soil contamination and instead identify and describe area-wide soil contamination zones.
- Establish in regulation a new enforcement forbearance policy available where property owners choose to implement Task Force recommendations at residential and commercial properties within area-wide soil contamination zones. To complement this policy, establish a standard checklist that can be used to document property status and the applicability of enforcement forbearance. Announce the new regulations and checklist when area-wide soil contamination zones are first described.
- Where property owners choose not to implement Task Force recommendations, they would remain under the current MTCA system, which includes a policy under which Ecology in general forbears from taking enforcement actions at residential properties.
- Where properties are sampled and concentrations of arsenic and lead are below cleanup levels, provide a streamlined process to reflect that properties are clean.
- The traditional MTCA approach remains available to property owners who want to use it to address area-wide soil contamination and to Ecology where property is affected by other than area-wide soil contamination.

Use Regulations to Provide Predictability

The Task Force believes that predictability and certainty with respect to what is expected of property owners and how Ecology will apply MTCA at properties affected by area-wide soil contamination are very important. In implementing Task Force recommendations relative to MTCA, Ecology should choose methods that provide the most predictability and certainty possible given the circumstances. In general, the Task Force believes that this will be achieved by Ecology using regulations rather than policies to implement Task Force recommendations relative to MTCA. Regulations provide a greater degree of certainty than policies because they cannot be changed as easily. In addition, the formal administrative process associated with enacting regulations will provide the benefit of opportunities for public review and comment on Ecology's approaches to implementing Task Force recommendations relative to MTCA and on any subsequent modifications to these approaches that Ecology might propose.

Avoid Listing Individual Properties

Ecology should avoid individual property listings for properties affected by area-wide soil contamination. Instead, Ecology should use an area-wide soil contamination zone approach. The process of identifying area-wide soil contamination zones could involve mapping areas using community or regional boundary lines, shaded geographic area designations, and/or property category descriptions to locate areas likely to have elevated levels of lead or arsenic, or could involve using narrative descriptions (or regulatory definitions) of area-wide soil contamination. Given the differences in the types of data available on area-wide soil contamination, it might be appropriate to use different approaches in different areas. For example, where there have already been mapping efforts to identify area-wide soil contamination, such as the mapping efforts associated with the Tacoma and Everett smelter plumes, maps may be the most appropriate way to identify area-wide soil contamination zones. Where less mapping has been undertaken, or where it is more difficult to map potentially affected areas, such as in historical apple and pear growing areas, a narrative description or regulatory definition of area-wide soil contamination, potentially based on the Task Force property evaluation flowchart, may be most appropriate.

The Task Force reiterates that one of the key elements of responding to area-wide soil contamination is to give individuals the information and technical and financial support they need to understand the potential risks associated with area-wide soil contamination and take steps to address it consistent with their own lifestyles, property uses, and values. Consistent with this approach, the Task Force recommends that the Agencies' efforts to conduct broad-based education and awareness-building activities and to support individuals who choose to take action to address the potential for elevated levels of arsenic and lead in soil at their properties be focused within area-wide soil contamination zones. These activities are discussed in detail earlier in this report and include:

- Targeted outreach and informational materials for parents, educators, and others who care for children; for home gardeners; and for adults who have frequent contact with soil because of their work (e.g., construction and underground utility workers).
- Support for qualitative evaluations and, where appropriate, support for soil testing to help individuals make decisions about when and how to protect people from exposure to arsenic and lead in soil.
- Support for implementation of individual protection measures, such as frequently washing hands with soap and water and removing soil from home-grown fruits and vegetables, to minimize the potential for ingestion or inhalation of contaminated soil.
- Assistance with identification and implementation of additional protection measures, such as covering bare soil, particularly in areas where children routinely play.

The Task Force emphasizes that regardless of the method used to identify and describe area-wide soil contamination zones, care should be taken in identifying and describing area-wide soil contamination zones to avoid misinterpretation of the zones and other unintended consequences. For example, if maps are used, Ecology should make clear that because of the variability in the distribution of area-wide soil contamination, zones will not precisely distinguish contaminated

from uncontaminated areas. Many properties within mapped zones may, if sampled, be shown to have concentrations of arsenic and lead that are below MTCA cleanup levels.

Enforcement Forbearance

Within area-wide soil contamination zones, property owners who choose to take actions consistent with Task Force recommendations should receive the benefits of enforcement forbearance specific to area-wide soil contamination. Enforcement forbearance should be established in regulation rather than merely in a policy document, and it should make clear that Ecology will, in the exercise of its enforcement discretion, generally not pursue enforcement actions against landowners and tenants who maintain their property in a way that is consistent with the Task Force recommendations. As precedent, Ecology should consider the current residential forbearance policy and the former "plume policy" (now codified in the MTCA statute), which described Ecology's enforcement discretion relative to owners of properties affected by contaminated ground water from other sources.

To assist property owners in obtaining the benefits of enforcement forbearance, Ecology should create a checklist that property owners can use to track their implementation of Task Force recommendations. This checklist should be based on the Task Force's qualitative property evaluation checklist, and should list the Task Force recommendations by property type. The Task Force believes that use of these checklists will complement existing real estate disclosure requirements and, over time, may prompt market action to encourage property owners to maintain their properties in ways that are consistent with Task Force recommendations. To facilitate this market action, and to encourage buyers and sellers to rely on completed checklists, Ecology should require that landowners who choose to use the checklist complete it truthfully and accurately.

The Task Force does not recommend that property owners be required to submit completed checklists to Ecology or any other agency. As with the implementation of the Task Force recommendations at specific properties in general, use of the checklist should remain strictly voluntary on the part of the property owner. Both the new enforcement forbearance rule and the checklist should be made available electronically and should be incorporated into the broad-based education and awareness-building activities described earlier in this report. In particular, education and outreach should target financial institutions and real estate professionals who may encounter these documents during property transactions. The Task Force emphasizes that to reduce the potential for unintended, adverse reactions to identifying and describing area-wide soil contamination zones, the new enforcement forbearance policy and checklist should be made available and announced when zones are first described. It is critical to provide property owners who may be affected by area-wide soil contamination with information about effective, practical, and affordable steps they can take (i.e., solutions) and about what to expect from Ecology when they receive information describing the area-wide soil contamination problem.

Property Owners Who Choose Not to Implement Task Force Recommendations

Property owners who choose not to implement Task Force recommendations will continue to be covered by the current MTCA regulations and existing Ecology policies and practices related to enforcement forbearance, such as current policies describing Ecology's intention to, in general, forbear from taking enforcement action against residential homeowners and, in certain

circumstances, other property owners. The Task Force notes that many of its recommendations are consistent with the types of practices already followed by many property owners. This is particularly the case for commercial properties, where the Task Force recommends maintaining good soil cover through buildings, parking lots, and other structures. The Task Force expects that most commercial property owners are already taking actions consistent with Task Force recommendations and, therefore, will likely be covered by the additional enforcement forbearance recommended in this report.

Streamlined System to Reflect Where Properties are Clean

Ecology should create a streamlined system to recognize property owners who choose to sample their properties and discover that concentrations of arsenic and lead in soil are below MTCA cleanup levels. It is recommended that this system be made available electronically and through other means. Guidance on sampling is included in the toolbox of materials recommended by the Task Force.

Traditional MTCA Process Remains Available

Finally, the Task Force recognizes that there will be some circumstances in which the traditional MTCA approach is appropriate, either because a property owner wants to use the traditional MTCA process or because Ecology determines that site-specific conditions warrant use of the traditional MTCA process. These situations may include:

- Properties where contaminants other than arsenic and lead are found.
- Properties where there is ground water contamination.
- Properties where arsenic or lead are found at high levels.
- Properties where the owner has implemented what would traditionally be considered a final remedy under MTCA and therefore desires a settlement or other traditional MTCA liability assurance.

Ecology should monitor, in an informal way, circumstances within area-wide soil contamination zones where the traditional MTCA approach is used. This information should be used to refine application of MTCA within area-wide soil contamination zones over time. For example, Ecology might consider establishing a model remedy under MTCA if owners of commercial properties are routinely adding institutional controls to implementation of the Task Force recommendations, thereby creating a remedy that would likely be considered a final remedy under MTCA that deserves formal recognition.

11. Recommendations for Additional Information Needed

Monitoring of Arsenic and Lead Exposure

To develop recommendations for responding to area-wide soil contamination, the Task Force had repeated discussions about the implications that elevated levels of arsenic and lead in soil may have for the health of Washington State residents. Based on these discussions, the Task Force understands there is only limited information available on the actual health of Washington residents who, because of where they live, work, or go to school, may be exposed to elevated levels of arsenic and lead in soil. The Task Force is concerned about this lack of health data for Washington residents, particularly with respect to children, who may be at greatest risk.

The Task Force encourages the Washington Department of Health, in partnership with other agencies as appropriate, to expand its use of blood-lead testing, fluoroscopy, or any other appropriate techniques to gather additional information on the health of Washington residents, particularly children, who may be exposed to arsenic and lead. The Task Force believes it is important for the Department of Health to look at both arsenic and lead, even though the test methods for arsenic have limitations. Furthermore, any studies should not be directed only at voluntary subpopulations, but should be representative of all Washington residents who might be exposed to lead or arsenic in the soil. Appropriate use of random testing and finding ways to eliminate or minimize the effects of confounding factors, such as smoking and home remedies, are also needed to give a better picture of how the health of Washington residents might be affected by lead and arsenic in the soil.

The Task Force felt so strongly that additional information on the health of Washington residents who may be exposed to elevated levels of arsenic and lead in soil is needed that it offered this recommendation to the Department of Health approximately mid-way through the Task Force process. The Task Force acknowledges and appreciates the Department of Health's concern about the practicality of implementing this recommendation and about the need to apply the precautionary principle to potentially exposed populations. Nonetheless, the Task Force continues to feel strongly that gathering additional information on the health of Washington residents is important to better understand the effects of area-wide soil contamination and thereby focus response actions over time.

Research on Roadside Lead Contamination

According to the study prepared by the contractor project team to support Task Force deliberations, little is known about the distribution of contamination from combustion of leaded gasoline in Washington or the concentrations of lead that are likely to be present in roadside soils. Analogous circumstances in other states and countries suggest that roadside lead contamination may be extensive and may occur in many areas routinely used by people, such as adjacent to driveways and residential streets. The Task Force recommends that the Agencies conduct further research to characterize the location and extent of elevated levels of lead in soil from past use of leaded gasoline in Washington. Research should be focused in areas where

there is the greatest potential for exposure of children and where concentrations are likely to be the greatest, such as areas adjacent to older, more heavily used roads. If the results of this research warrant such action, the Agencies should extend implementation of the Task Force's recommendations to areas that are most likely to be affected by combustion of leaded gasoline.

Research on Ecological Risks

There is a significant body of scientific information demonstrating that high levels of arsenic and lead in soils can adversely affect plants and animals. However, the ecological risks associated with the range of concentrations associated with area-wide soil contamination are less well understood. In general, low-to-moderate arsenic and lead soil contamination has been found to adversely impact several plant species in laboratory and field studies. At the same time, other field studies have documented healthy and thriving plant communities in areas with soil arsenic and lead concentrations of similar magnitudes. Ecological receptors such as plants and animals exhibit differing sensitivities and tolerances to soil arsenic and lead, which may over long periods of time effect some changes in the distribution and thriftiness of the ecological community relative to an uncontaminated site.

Assessments of and responses to ecological risks are further complicated by site-specific circumstances. In general, ecological concerns at developed commercial and residential properties do not trigger response actions beyond those actions that would be necessary to protect human health. Cleanups of larger properties, such as open land, however, raise more complicated concerns. The Task Force recommendations for response actions for open land not proposed for development focus on reducing the potential for human exposure to arsenic and lead in soil through education and awareness-building, but do not address protection of ecological receptors. Given the lack of definitive evidence of substantive impacts on ecological systems and the complexity of these issues, the Task Force recommends that Ecology conduct or support studies that evaluate the potential ecological impacts associated with low- to moderate-level arsenic and lead soil contamination. The results of these studies might suggest circumstances where measures beyond those recommended by the Task Force to limit human exposure are needed to protect plants and animals.

12. Costs and Funding Recommendations

The Task Force was asked by the Agencies to recommend possible funding sources for agency activities to address area-wide soil contamination. A central theme in these discussions was that the State government, and in particular the Agencies, should provide financial assistance for local government efforts to address area-wide soil contamination to avoid establishing unfunded mandates. Moreover, individual residents, childcare providers, and others who choose to take actions to address area-wide soil contamination should not bear the full burden of the costs to conduct property evaluations, implement individual protection measures, maintain good soil cover, and implement any other appropriate protection measures. The Task Force recognizes that State agencies do not have limitless resources and that there are competing demands for the use of available resources. This creates a need to target available resources effectively and seek additional funding from a broad array of potential sources.

To provide information for the Task Force's deliberations on possible funding sources and funding strategies, the project support contractor developed rough estimates of the costs to implement the Task Force's recommendations and researched potential funding sources for those recommendations. Cost estimates are included in Appendix L. Note that the Task Force did not attempt to align funding sources with cost estimates for individual activities. Although the Task Force recommends that the Agencies provide financial support to individuals who choose to take action to address area-wide soil contamination, it also recognizes that in many cases the costs of responding to area-wide soil contamination will be borne by residents, not government agencies. This recognition was one of the reasons the Task Force focused on identifying responses to area-wide soil contamination that are practical and affordable, as well as effective.

Recommendations

In developing funding recommendations, the Task Force was motivated by several guiding principles:

- Wherever possible, individuals and institutions should minimize costs by integrating responses to area-wide soil contamination into existing processes and activities to leverage resources.
- State and local government agencies should provide information, technical assistance, financial support, and other incentives to residents and property owners to evaluate the potential for exposure to arsenic and lead in soil and to take effective, practical, and affordable steps to minimize exposure.
- State and Federal agencies should provide local agencies with the financial resources needed to implement any new obligations, in order to avoid establishing unfunded mandates.
- Resources to address area-wide soil contamination should be fairly allocated across the state.

The Task Force recognizes that MTCA is based on the "polluter pays" model for financing cleanup of contamination, and that Ecology has a statutory obligation to seek to recover its costs in administering the MTCA program from potentially liable parties. The Task Force believes that Ecology should discharge its legal duties wherever possible; at the same time, the Task Force recognizes that Ecology may face unusual challenges in trying to recover its costs for addressing area-wide soil contamination, and that, in some instances, it may not be feasible to recover some or all costs. Because of these potentially difficult circumstances, the Task Force also recommends that Ecology seek funding from a broad array of Federal, State, and private sources:

- Where possible, the Agencies should use the State and Local Toxics Accounts to implement the Task Force recommendations. These accounts, which were established under MTCA, receive revenue primarily from taxes on hazardous substances. The State Toxics Account supports State agency efforts, including the hazardous sites cleanup program, while the Local Toxics Account provides funding to local governments and non-profit organizations for public education and outreach, individual property evaluations, cleanup actions, and other activities.
- The Agencies should work with OSPI to continue its efforts to identify and address contamination during new school construction and to explore opportunities to use school construction funds to address area-wide soil contamination. The Task Force also encourages the Agencies to look for other opportunities to use existing funding programs to support local efforts to implement the Task Force recommendations.
- The Agencies should seek supplementary funding from private foundations, Federal grant programs, and other Federal, State, and private sources. Examples of potential funding sources include Federal grant programs, such as EPA Environmental Education Grants and the HUD Community Development Block Grants, and grants from private sources such as the Bullitt Foundation and the DuPont *Lead-Safe…for Kids' Sake* grant program. (See Appendix M for a more complete summary of applicable grant programs and other potential funding sources.) Many of these grant programs are available to local jurisdictions, non-profit organizations, and other entities.
- The Task Force recognizes that it will be difficult to obtain significant amounts of money from many of these sources, including the competitive and formula-based grant programs. Thus, it may also be necessary for the Agencies to seek additional funding directly from the Federal government and the State legislature.

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APPENDIX E
MODEL ENVIRONMENTAL COVENANT

Model Restrictive (Environmental) Covenant

After Recording Return to:

_____

Department of Ecology
[fill in regional address]

Environmental Covenant

Grantor: **[land owner]**
Grantee: State of Washington, Department of Ecology
Legal: **[fill in brief legal description]**
Tax Parcel Nos.: **[fill in]**
Cross Reference: **[if amendment, recording number of original covenant]**

Grantor, **[land owner]**, hereby binds Grantor, its successors and assigns to the land use restrictions identified herein and grants such other rights under this environmental covenant (hereafter "Covenant") made this day of _____, 200__ in favor of the State of Washington Department of Ecology (Ecology). Ecology shall have full right of enforcement of the rights conveyed under this Covenant pursuant to the Model Toxics Control Act, RCW 70.105D.030(1)(g), and the Uniform Environmental Covenants Act, 2007 Wash. Laws ch. 104, sec. 12.

This Declaration of Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by [NAME OF PROPERTY OWNER], its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Covenant. The Remedial Action conducted at the property is described in the following document[s]:

[INSERT THE DATE AND TITLE FOR CLEANUP ACTION PLAN and other documents as applicable].

These documents are on file at Ecology's [Insert Office Location] Office.

+++++++Select the appropriate scenario for the property+++++++

SCENARIO 1:

This Covenant is required because the Remedial Action resulted in residual concentrations of [SPECIFICALLY LIST SUBSTANCE(S)] which exceed the Model Toxics Control Act Method [LIST APPLICABLE METHOD] Cleanup Level(s) for [SOIL, GROUNDWATER, ETC.] established under WAC 173-340-____.

++++and/or++++

SCENARIO 2:

This Restrictive Covenant is required because a conditional point of compliance has been established for [SOIL, GROUNDWATER, ETC.].SCENARIO 3:

If the Remedial Action does not fit within Scenarios 1 and/or 2 and you believe that the property still needs a Restrictive Covenant, contact the AG's office.

++

The undersigned, [NAME OF PROPERTY OWNER], is the fee owner of real property (hereafter "Property") in the County of [NAME OF COUNTY], State of Washington, that is subject to this Covenant. The Property is legally described [AS FOLLOWS: (insert legal description language)] -or- [IN ATTACHMENT A OF THIS COVENANT AND MADE A PART HEREOF BY REFERENCE (attach document containing legal description)].

[NAME OF PROPERTY OWNER] makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1. (This Section must describe with particularity the restrictions to be placed on the property.)

1. If the property was remediated to industrial soil cleanup standards, then use the following sentence: "The Property shall be used only for traditional industrial uses, as described in RCW 70.105D.020(23) and defined in and allowed under the [CITY -or- COUNTY] of [_____'s] zoning regulations codified in the [OFFICIAL NAME OF ZONING REGULATION] as of the date of this Restrictive Covenant."

2. If the groundwater contains hazardous substances above cleanup levels, then use the following sentence: "No groundwater may be taken for [LIST THE PROHIBITED USES, E.G., DOMESTIC, AGRICULTURAL, OR ANY USE] from the Property."

3. If the soil contains hazardous substances above cleanup levels, then describe prohibited activities as follows:

a. For contaminated soil under a structure use the following sentence: "A portion of the Property contains [SPECIFICALLY LIST SUBSTANCE(S)] contaminated soil located [SPECIFICALLY DESCRIBE WHERE THE SOIL IS LOCATED, I.E., UNDER THE SOUTHEAST PORTION OF BUILDING 10]. The Owner shall not alter, modify, or remove the existing structure[s] in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology."

b. Example language for contaminated soil under a cap: "Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork."

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

[NAME OF GRANTOR]

_____

[Name of Signatory]
[Title]

Dated: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

_____

[Name of Person Acknowledging Receipt]
[Title]

Dated: _____

[INDIVIDUAL ACKNOWLEDGMENT]

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, and acknowledged that **he/she** is the individual described herein and who executed the within and foregoing instrument and signed the same at **his/her** free and voluntary act and deed for the uses and purposes therein mentioned.

_____
Notary Public in and for the State of Washington, residing at _____.
My appointment expires_____.

[CORPORATE ACKNOWLEDGMENT]

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

_____
Notary Public in and for the State of Washington, residing at
_____.
My appointment expires_____.

[REPRESENTATIVE ACKNOWLEDGEMENT]

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ _____ personally appeared before me, acknowledged that **he/she** signed this instrument, on oath stated that **he/she** was authorized to execute this instrument, and acknowledged it as the

_____ [type of authority] of _____ [name of party being represented] to be the free and voluntary act and deed of such party for the uses and purposes mentioned in the instrument.

_____
Notary Public in and for the State of Washington, residing at _____.
My appointment expires _____.

Exhibit A
Legal Description

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APPENDIX F
FIELD PROCEDURES

APPENDIX F
FIELD PROCEDURES

SOIL SAMPLING

Subsurface conditions at the site were evaluated by completing 12 shallow test pit explorations (ETP-1 through ETP-12) using equipment owned and operated by Allen Construction of Manson, Washington. An additional surface soil sample was collected using hand tools (SHED SOIL). A representative from our staff selected the exploration locations and observed and classified the soil encountered. Soil in the explorations was visually classified in general accordance with ASTM D 2488-94; soil classifications are described in the report and in our field notes.

The test pit explorations were completed to depths of approximately 1 to 3 feet bgs. The sampling equipment was decontaminated before each sampling attempt with a Liqui-Nox® solution wash and a distilled water rinse. Soil samples were obtained from each observed soil horizon (1- to 0.5-foot depth intervals) for field screening.

Soil samples obtained from the test pits were collected directly from beneath exposed soil in the test pit sidewall with a stainless steel knife or new gloves. A portion of each sample was placed in a laboratory-prepared sample jar for possible chemical analysis. The sample containers were completely filled to minimize headspace. The remaining portion of each sample was used for field screening. The sampling equipment was decontaminated prior to each use with a Liqui-Nox® soap solution, a tap water initial rinse and a distilled water final rinse.

Samples were collected and analyzed in general accordance with Washington State Department of Ecology (Ecology) publication #06-09-098, "Soil Sampling Guidance for Large Properties where Children Play,". At least one sample from each boring was selected for chemical analysis, based on field screening results and/or the sample location relative to potential sources of contamination including the depth of the sample in relation to the previous orchard surface (between 0.5 and 2 feet below existing ground surface). Samples submitted for chemical analysis are denoted by "CA" on the logs. The soil samples were placed in a cooler with ice for transport to the laboratory. Standard chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

FIELD SCREENING OF SOIL SAMPLES

Soil samples obtained from the borings were screened in the field for evidence of contamination using 1) visual examination; 2) sheen screening; and/or 3) or photo-ionization detector (PID). The results of headspace and sheen screening are included in Table 1 for soil samples tested by chemical analysis.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines.

Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly.
Moderate Sheen (MS)	Light to heavy sheen, may have some color/iridescence; spread is irregular to flowing; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in ppm (parts per million) and is calibrated to isobutylene. The PID is designed to quantify combustible gas and organic vapor concentrations up to 2,500 ppm. Field screening results are site-specific and vary with soil type, soil moisture content, temperature and type of contaminant.

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APPENDIX G
CHEMICAL ANALYTICAL PROGRAM

APPENDIX G
CHEMICAL ANALYTICAL PROGRAM

ANALYTICAL METHODS

Chain-of-custody procedures were followed during the transport of the field samples to the analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality control (QC) records are included in this appendix. The analytical results are also summarized in the text and tables of this report.

ANALYTICAL DATA REVIEW

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the validity of the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report. Data quality exceptions documented by the accredited laboratory were reviewed by GeoEngineers and are addressed in the data quality exception section of this appendix.

ANALYTICAL DATA REVIEW SUMMARY

Data quality exceptions were not noted in the laboratory report and during our review. Based on our data quality review, it is our opinion that the remaining analytical data are of acceptable quality for their intended use.

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

January 30, 2009

Jessica Robertson
GeoEngineers, Inc.
1550 Woodridge Drive SE
Port Orchard, WA 98366

Re: Analytical Data for Project 18155-001-00
Laboratory Reference No. 0901-121

Dear Jessica:

Enclosed are the analytical results and associated quality control data for samples submitted on January 21, 2009.

Please note that the subcontracted data will follow in the final report.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

Case Narrative

Samples were collected on January 20, 2009 and received by the laboratory on January 21, 2009. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
TP-1-1.5	01-121-01	Soil	1-20-09	1-21-09	
TP-2-3.0	01-121-04	Soil	1-20-09	1-21-09	
TP-3-0.5	01-121-05	Soil	1-20-09	1-21-09	
TP-4-1.0	01-121-08	Soil	1-20-09	1-21-09	
TP-5-0.5	01-121-09	Soil	1-20-09	1-21-09	
TP-6-0.5	01-121-11	Soil	1-20-09	1-21-09	
TP-7-0.5	01-121-13	Soil	1-20-09	1-21-09	
TP-8-1.0	01-121-16	Soil	1-20-09	1-21-09	
TP-9-0.5	01-121-17	Soil	1-20-09	1-21-09	
TP-10-0.5	01-121-19	Soil	1-20-09	1-21-09	
TP-11-0.5	01-121-21	Soil	1-20-09	1-21-09	
TP-12-0.5	01-121-23	Soil	1-20-09	1-21-09	
SHED-SOIL	01-121-25	Soil	1-20-09	1-21-09	

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

NWTPH-HCID

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Identification	PQL	Date Prepared	Date Analyzed	Flags
Lab ID:	01-121-25				
Client ID:	**SHED-SOIL**				
Gasoline Range	**ND**	23	1-22-09	1-22-09	
Diesel Range	**ND**	57	1-22-09	1-22-09	
Lube Oil Range	**ND**	110	1-22-09	1-22-09	
Surrogate: o-terphenyl	101%	50-150			

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

NWTPH-HCID
METHOD BLANK QUALITY CONTROL

Date Extracted:	1-22-09
Date Analyzed:	1-22-09
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0122S1
Gasoline:	**ND**
PQL:	20
Diesel Fuel:	**ND**
PQL:	50
Lube Oil:	**ND**
PQL:	100
Surrogate Recovery:	
o-Terphenyl	102%

Flags

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-1-1.5**					
Laboratory ID:	01-121-01					
alpha-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	53	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*66*	*40-109*				
DCB	*73*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-2-3.0**					
Laboratory ID:	01-121-04					
alpha-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**53**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**25**	12	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	12	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	12	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	58	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*62*	*40-109*				
DCB	*66*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-3-0.5**					
Laboratory ID:	01-121-05					
alpha-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**880**	110	EPA 8081	1-23-09	1-26-09	
Endosulfan I	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**19**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**1500**	110	EPA 8081	1-23-09	1-26-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	57	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*60*	*40-109*				
DCB	*65*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-4-1.0**					
Laboratory ID:	01-121-08					
alpha-BHC	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**180**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.5	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**280**	11	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	55	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*64*	*40-109*				
DCB	*68*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-5-0.5**					
Laboratory ID:	01-121-09					
alpha-BHC	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**85**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.9	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**190**	12	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	12	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	12	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	59	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*66*	*40-109*				
DCB	*71*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-6-0.5**					
Laboratory ID:	01-121-11					
alpha-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**320**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**200**	11	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	57	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*66*	*40-109*				
DCB	*69*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-7-0.5**					
Laboratory ID:	01-121-13					
alpha-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**320**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**670**	110	EPA 8081	1-23-09	1-26-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	57	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*61*	*40-109*				
DCB	*68*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-8-1.0**					
Laboratory ID:	01-121-16					
alpha-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**20**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.3	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**15**	11	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	53	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*70*	*40-109*				
DCB	*76*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-9-0.5**					
Laboratory ID:	01-121-17					
alpha-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**110**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.8	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**280**	12	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	12	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	12	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	58	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*65*	*40-109*				
DCB	*69*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-10-0.5**					
Laboratory ID:	01-121-19					
alpha-BHC	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**750**	120	EPA 8081	1-23-09	1-26-09	
Endosulfan I	**ND**	6.1	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**39**	12	EPA 8081	1-23-09	1-23-09	P
Endosulfan II	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**2000**	120	EPA 8081	1-23-09	1-26-09	
Endrin Aldehyde	**ND**	12	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	12	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	61	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*57*	*40-109*				
DCB	*60*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-11-0.5**					
Laboratory ID:	01-121-21					
alpha-BHC	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.6	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**3000**	110	EPA 8081	1-23-09	1-26-09	
Endosulfan I	**ND**	22	EPA 8081	1-23-09	1-23-09	U1
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**61**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**1500**	110	EPA 8081	1-23-09	1-26-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	56	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*63*	*40-109*				
DCB	*70*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TP-12-0.5**					
Laboratory ID:	01-121-23					
alpha-BHC	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**800**	120	EPA 8081	1-23-09	1-26-09	
Endosulfan I	**ND**	6.0	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**47**	12	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	12	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**2100**	120	EPA 8081	1-23-09	1-26-09	
Endrin Aldehyde	**ND**	12	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	12	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	12	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	60	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*60*	*40-109*				
DCB	*63*	*30-112*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SHED-SOIL**					
Laboratory ID:	01-121-25					
alpha-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.7	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	11	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**29**	11	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	11	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	11	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	11	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	57	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*60*	*40-109*				

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

ORGANOCHLORINE PESTICIDES by EPA 8081A QUALITY CONTROL

Matrix: Soil
Units: ug/Kg (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0123S1					
alpha-BHC	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
gamma-BHC	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
beta-BHC	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
delta-BHC	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
Heptachlor	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
Aldrin	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
Heptachlor Epoxide	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
gamma-Chlordane	**ND**	10	EPA 8081	1-23-09	1-23-09	
alpha-Chlordane	**ND**	10	EPA 8081	1-23-09	1-23-09	
4,4'-DDE	**ND**	10	EPA 8081	1-23-09	1-23-09	
Endosulfan I	**ND**	5.0	EPA 8081	1-23-09	1-23-09	
Dieldrin	**ND**	10	EPA 8081	1-23-09	1-23-09	
Endrin	**ND**	10	EPA 8081	1-23-09	1-23-09	
4,4'-DDD	**ND**	10	EPA 8081	1-23-09	1-23-09	
Endosulfan II	**ND**	10	EPA 8081	1-23-09	1-23-09	
4,4'-DDT	**ND**	10	EPA 8081	1-23-09	1-23-09	
Endrin Aldehyde	**ND**	10	EPA 8081	1-23-09	1-23-09	
Methoxychlor	**ND**	10	EPA 8081	1-23-09	1-23-09	
Endsulfan Sulfate	**ND**	10	EPA 8081	1-23-09	1-23-09	
Endrin Ketone	**ND**	10	EPA 8081	1-23-09	1-23-09	
Toxaphene	**ND**	50	EPA 8081	1-23-09	1-23-09	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*69*	*40-109*				
DCB	*78*	*30-112*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	01-121-11										
	MS	MSD	MS	MSD		MS	MSD				
gamma-BHC	**25.8**	**28.1**	50.0	50.0	ND	**52**	**56**	48-94	9	10	
Heptachlor	**24.7**	**26.8**	50.0	50.0	ND	**49**	**54**	39-103	8	9	
Aldrin	**23.9**	**26.0**	50.0	50.0	ND	**48**	**52**	39-93	8	8	
Dieldrin	**64.6**	**70.6**	125	125	ND	**52**	**56**	44-101	9	9	
Endrin	**50.1**	**55.3**	125	125	ND	**40**	**44**	28-105	10	12	
4,4'-DDT	**219**	**236**	125	125	171	**38**	**52**	20-120	7	34	
Surrogate:											
TCMX						*58*	*60*	*40-109*			
DCB						*63*	*64*	*30-112*			

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-121-01					
Client ID:	**TP-1-1.5**					
Arsenic	**ND**	11	6010B	1-26-09	1-26-09	
Lead	**ND**	5.3	6010B	1-26-09	1-26-09	
Lab ID:	01-121-04					
Client ID:	**TP-2-3.0**					
Arsenic	**66**	12	6010B	1-26-09	1-26-09	
Lead	**19**	5.8	6010B	1-26-09	1-26-09	
Lab ID:	01-121-05					
Client ID:	**TP-3-0.5**					
Arsenic	**150**	11	6010B	1-26-09	1-26-09	
Lead	**780**	5.7	6010B	1-26-09	1-26-09	
Lab ID:	01-121-08					
Client ID:	**TP-4-1.0**					
Arsenic	**43**	11	6010B	1-26-09	1-26-09	
Lead	**110**	5.5	6010B	1-26-09	1-26-09	
Lab ID:	01-121-09					
Client ID:	**TP-5-0.5**					
Arsenic	**55**	12	6010B	1-26-09	1-26-09	
Lead	**26**	5.9	6010B	1-26-09	1-26-09	
Lab ID:	01-121-11					
Client ID:	**TP-6-0.5**					
Arsenic	**110**	11	6010B	1-26-09	1-26-09	
Lead	**680**	5.7	6010B	1-26-09	1-26-09	

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-121-13					
Client ID:	**TP-7-0.5**					
Arsenic	**140**	11	6010B	1-26-09	1-26-09	
Lead	**600**	5.7	6010B	1-26-09	1-26-09	
Lab ID:	01-121-16					
Client ID:	**TP-8-1.0**					
Arsenic	**54**	11	6010B	1-26-09	1-26-09	
Lead	**5.9**	5.3	6010B	1-26-09	1-26-09	
Lab ID:	01-121-17					
Client ID:	**TP-9-0.5**					
Arsenic	**180**	12	6010B	1-26-09	1-26-09	
Lead	**770**	5.8	6010B	1-26-09	1-26-09	
Lab ID:	01-121-19					
Client ID:	**TP-10-0.5**					
Arsenic	**120**	12	6010B	1-26-09	1-26-09	
Lead	**1500**	6.1	6010B	1-26-09	1-26-09	
Lab ID:	01-121-21					
Client ID:	**TP-11-0.5**					
Arsenic	**94**	11	6010B	1-26-09	1-26-09	
Lead	**540**	5.6	6010B	1-26-09	1-26-09	
Lab ID:	01-121-23					
Client ID:	**TP-12-0.5**					
Arsenic	**360**	12	6010B	1-26-09	1-26-09	
Lead	**2200**	6.0	6010B	1-26-09	1-26-09	

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

TOTAL METALS
EPA 6010B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	01-121-25					
Client ID:	**SHED-SOIL**					
Arsenic	**12**	11	6010B	1-26-09	1-26-09	
Lead	**190**	5.7	6010B	1-26-09	1-26-09	

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL

Date Extracted:	1-26-09
Date Analyzed:	1-26-09
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0126S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Lead	6010B	**ND**	5.0

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL

Date Extracted: 1-26-09
Date Analyzed: 1-26-09

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 01-138-07

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	5.0	

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

TOTAL METALS
EPA 6010B
MS/MSD QUALITY CONTROL

Date Extracted: 1-26-09
Date Analyzed: 1-26-09

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 01-138-07

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**95.9**	96	**96.8**	97	1	
Lead	250	**245**	98	**243**	97	1	

Date of Report: January 30, 2009
Samples Submitted: January 21, 2009
Laboratory Reference: 0901-121
Project: 18155-001-00

% MOISTURE

Date Analyzed: 1-22&23-09

Client ID	Lab ID	% Moisture
TP-1-1.5	01-121-01	6
TP-2-3.0	01-121-04	14
TP-3-0.5	01-121-05	12
TP-4-1.0	01-121-08	9
TP-5-0.5	01-121-09	15
TP-6-0.5	01-121-11	13
TP-7-0.5	01-121-13	13
TP-8-1.0	01-121-16	6
TP-9-0.5	01-121-17	14
TP-10-0.5	01-121-19	18
TP-11-0.5	01-121-21	11
TP-12-0.5	01-121-23	16
SHED-SOIL	01-121-25	12

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: ~~OnSite~~ GEI
Project Number: 18155-001-00
Project Name: Chelan Community hospital phase II
Project Manager: Jessica Robertson
Sampled by: Abhijit Joshi

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Day ☐ 3 Day
☐ Standard (7 working days)
(TPH analysis 5 working days)
☐ _____ (other)

Laboratory Number: 01-121

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A OC	Herbicides by 8151A	Total ~~RCRA~~ Metals (8) As, Pb	TCLP Metals	HEM by 1664	OP Pesticides				HOLD	% Moisture
1	~~EX~~ TP-1-1.5	01/20/09	0855	S	2									⊗		⊗			⊗				X	⊗
2	~~EX~~ TP-1-3.0		0900																				HOLD	
3	TP-2-0.5		0920																					
4	TP-2-3.0		0925											⊗		⊗								⊗
5	TP-3-0.5		1015											⊗		⊗			⊗					⊗
6	TP-3-1.0		1020																					
7	TP-4-0.5		0955																					
8	TP-4-1.0		1000											⊗		⊗			⊗					⊗
9	TP-5-0.5		1030											⊗		⊗								⊗
10	TP-5-1.0	↓	1035	↓	↓																		↓	

	Signature	Company	Date	Time
Relinquished by		GEI	01/21/09	
Received by		CORE	1/21/09	1030
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:
⊗ Added 1/22/09. DB

Reviewed by/Date
Reviewed by/Date
Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: GEI
Project Number: 18155-001-00
Project Name: Chelan Community hospital phase II
Project Manager: Jessica Robertson
Sampled by: Abhijit Joshi

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☐ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 01-121

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A O-C	Herbicides by 8151A	Total RCRA Metals for As, Pb	TCLP Metals	HEM by 1664	O-P Pesticides					HOLD	% Moisture
11	TP-6-0.5	01/20/09	1050	S	2									⊗		⊗			⊗					X	⊗
12	TP-6-1.0		1055																						
13	TP-7-0.5		1150											⊗		⊗									⊗
14	TP-7-1.0		1155																						
15	TP-8-0.5		1130																						
16	TP-8-1.0		1135											⊗		⊗									⊗
17	TP-9-0.5		1110											⊗		⊗			⊗						⊗
18	TP-9-1.0		1115																						
19	TP-10-0.5		1255											⊗		⊗			⊗						⊗
20	TP-10-1.0	↓	1300	↓	↓																			+	

	Signature	Company	Date	Time
Relinquished by		GEI	01/21/09	
Received by		GEI	1/21/09	1030
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

⊗ Added 1/22/09. DB

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Chain of Custody

OnSite Environmental Inc.
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: GEI
Project Number: 18155-001-00
Project Name: Chelan Community hospital Phase II
Project Manager: Jessica Robertson
Sampled by: Abhijit Joshi

Turnaround Request (in working days)

(Check One)

- ☐ Same Day ☐ 1 Day
- ☐ 2 Day ☐ 3 Day
- ☐ Standard (7 working days)
  (TPH analysis 5 working days)
- ☐ _____ (other)

Laboratory Number: 01-121

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270D	PAHs by 8270D / SIM	PCBs by 8082	Pesticides by 8081A O-C	Herbicides by 8151A	Total RCRA Metals As, Pb	TCLP Metals	HEM by 1664		OP-Pesticides				HOLD	% Moisture
21	TP-11-0.5	01/20/09	1240	S	2									⊗		⊗								X	⊗
22	TP-11-1.0		1245																						
23	TP-12-0.5		1220											⊗		⊗				⊗					⊗
24	TP-12-1.0		1225																						
25	SHED-SOIL		1400			⊗								⊗		⊗									⊗

	Signature	Company	Date	Time
Relinquished by		GEI	01/21/09	
Received by		CORE	1/21/09	1030
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

⊗ Added 1/22/09. DB.

Chromatograms with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Analytical Resources, Incorporated
Analytical Chemists and Consultants

3 February 2009

David Baumeister
OnSite Environmental, Inc.
14648 NE 95th
Redmond, WA 98052

RE: Client Project: 18155-001-00
ARI Job No: OJ43

Dear David:

Please find enclosed the original chain-of-custody (COC) record and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted seven soil samples in good condition on January 23, 2009. The samples were analyzed for OP pesticides as requested.

A matrix spike (MS) and a matrix spike duplicate (MSD) were extracted and analyzed in conjunction with sample TP-1-1.5. The percent recoveries for several compounds were not within control limits following the initial analysis of the MS and the MSD. Since the percent recoveries for all compounds were within established QC limits for the corresponding LCS/LCSD, it was concluded that the sample matrix was the cause of the poor MS/MSD recoveries. No corrective actions were taken.

The remaining analyses proceeded without incident of note.

An electronic copy of these reports will remain on file at ARI. Should you have any questions, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file OJ43

MDH/mdh

0J43

OnSite Environmental Inc.

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Laboratory Reference #: 01-121

Subcontract Laboratory: Analytical Resources, Inc.

Turnaround Request:

Project Manager: David Baumeister

Attention: Mark Harris

1 Day 2 Day 3 Day

email: dbaumeister@onsite-env.com

4611 S 134th Pl, Ste. 100 Tukwila, WA 98168

Standard

Project Number: 18155-001-00

Phone Number: (206) 695-6200

Other:

Project Name:

Date/Time:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analysis
	TP-1-1.5	1/20/09	0855	S	1	O-P-PESTICIDES
	TP-3-0.5		1015			
	TP-4-1.0		1000			
	TP-6-0.5		1050			
	TP-9-0.5		1110			
	TP-10-0.5		1255			
	TP-12-0.5		1220			

Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	OSE	1/22/09	2:45pm	
Received by:	ARI	1/23/09	1130	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

ARI Data Reporting Qualifiers

Effective 11/22/04

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
NR	Spiked compound recovery is not reported due to chromatographic interference
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte reporting limit is raised due to a positive chromatographic interference. The compound is not detected above the raised limit but may be present at or below the limit
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: MB-012909**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-012909
LIMS ID: 09-2445
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 19:17
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	4.0	< 4.0 U
2921-88-2	Chlorpyrifos	4.0	< 4.0 U
60-51-5	Dimethoate	20	< 20 U
2104-64-5	EPN	20	< 20 U
121-75-5	Malathion	20	< 20 U
6923-22-4	Monocrotophos	50	< 50 U
56-38-2	Ethyl Parathion	20	< 20 U
3689-24-5	Sulfotepp	20	< 20 U
86-50-0	Guthion	50	< 50 U
35400-43-2	Bolstar	20	< 20 U
56-72-4	Coumaphos	20	< 20 U
126-75-0	Demeton-S	20	< 20 U
DCLV_NLD	Dichlorvos/Naled	8.0	< 8.0 U
298-04-4	Disulfoton	4.0	< 4.0 U
13194-48-4	Ethoprop	20	< 20 U
115-90-2	Fensulfothion	50	< 50 U
55-38-9	Fenthion	20	< 20 U
MERPHOSOX	Merphos Oxone	50	< 50 U
298-00-0	Methyl Parathion	20	< 20 U
7786-34-7	Mevinphos	4.0	< 4.0 U
298-02-2	Phorate	4.0	< 4.0 U
299-84-3	Fenchlorphos	20	< 20 U
961-11-5	Tetrachlorvinphos	20	< 20 U
34643-46-4	Tokuthion	20	< 20 U
327-98-0	Trichloronate	4.0	< 4.0 U
141-66-2	Dicrotophos	20	< 20 U
470-90-6	Chlorfenvinphos	20	< 20 U
7700-17-6	Crotoxyphos	20	< 20 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	81.6%
Triphenyl Phosphate	80.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-1-1.5**
Page 1 of 1 SAMPLE

Lab Sample ID: OJ43A
LIMS ID: 09-2445
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 20:42
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 5.2%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	3.8	< 3.8 U
2921-88-2	Chlorpyrifos	3.8	< 3.8 U
60-51-5	Dimethoate	19	< 19 U
2104-64-5	EPN	19	< 19 U
121-75-5	Malathion	19	< 19 U
6923-22-4	Monocrotophos	48	< 48 U
56-38-2	Ethyl Parathion	19	< 19 U
3689-24-5	Sulfotepp	19	< 19 U
86-50-0	Guthion	48	< 48 U
35400-43-2	Bolstar	19	< 19 U
56-72-4	Coumaphos	19	< 19 U
126-75-0	Demeton-S	19	< 19 U
DCLV_NLD	Dichlorvos/Naled	7.6	< 7.6 U
298-04-4	Disulfoton	3.8	< 3.8 U
13194-48-4	Ethoprop	19	< 19 U
115-90-2	Fensulfothion	48	< 48 U
55-38-9	Fenthion	19	< 19 U
MERPHOSOX	Merphos Oxone	48	< 48 U
298-00-0	Methyl Parathion	19	< 19 U
7786-34-7	Mevinphos	3.8	< 3.8 U
298-02-2	Phorate	3.8	< 3.8 U
299-84-3	Fenchlorphos	19	< 19 U
961-11-5	Tetrachlorvinphos	19	< 19 U
34643-46-4	Tokuthion	19	< 19 U
327-98-0	Trichloronate	3.8	< 3.8 U
141-66-2	Dicrotophos	19	< 19 U
470-90-6	Chlorfenvinphos	19	< 19 U
7700-17-6	Crotoxyphos	19	< 19 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	68.0%
Triphenyl Phosphate	68.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-1-1.5**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: OJ43A
LIMS ID: 09-2445
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 21:10
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 5.2%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	3.8	---
2921-88-2	Chlorpyrifos	3.8	---
60-51-5	Dimethoate	19	---
2104-64-5	EPN	19	---
121-75-5	Malathion	19	---
6923-22-4	Monocrotophos	48	---
56-38-2	Ethyl Parathion	19	---
3689-24-5	Sulfotepp	19	---
86-50-0	Guthion	48	---
35400-43-2	Bolstar	19	---
56-72-4	Coumaphos	19	---
126-75-0	Demeton-S	19	---
DCLV_NLD	Dichlorvos/Naled	7.7	---
298-04-4	Disulfoton	3.8	---
13194-48-4	Ethoprop	19	---
115-90-2	Fensulfothion	48	---
55-38-9	Fenthion	19	---
MERPHOSOX	Merphos Oxone	48	---
298-00-0	Methyl Parathion	19	---
7786-34-7	Mevinphos	3.8	---
298-02-2	Phorate	3.8	---
299-84-3	Fenchlorphos	19	---
961-11-5	Tetrachlorvinphos	19	---
34643-46-4	Tokuthion	19	---
327-98-0	Trichloronate	3.8	---
141-66-2	Dicrotophos	19	---
470-90-6	Chlorfenvinphos	19	---
7700-17-6	Crotoxyphos	19	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	72.0%
Triphenyl Phosphate	72.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-1-1.5**
Page 1 of 1 **MATRIX SPIKE DUPLICATE**

Lab Sample ID: OJ43A
LIMS ID: 09-2445
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 21:38
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 5.2%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	3.8	---
2921-88-2	Chlorpyrifos	3.8	---
60-51-5	Dimethoate	19	---
2104-64-5	EPN	19	---
121-75-5	Malathion	19	---
6923-22-4	Monocrotophos	48	---
56-38-2	Ethyl Parathion	19	---
3689-24-5	Sulfotepp	19	---
86-50-0	Guthion	48	---
35400-43-2	Bolstar	19	---
56-72-4	Coumaphos	19	---
126-75-0	Demeton-S	19	---
DCLV_NLD	Dichlorvos/Naled	7.6	---
298-04-4	Disulfoton	3.8	---
13194-48-4	Ethoprop	19	---
115-90-2	Fensulfothion	48	---
55-38-9	Fenthion	19	---
MERPHOSOX	Merphos Oxone	48	---
298-00-0	Methyl Parathion	19	---
7786-34-7	Mevinphos	3.8	---
298-02-2	Phorate	3.8	---
299-84-3	Fenchlorphos	19	---
961-11-5	Tetrachlorvinphos	19	---
34643-46-4	Tokuthion	19	---
327-98-0	Trichloronate	3.8	---
141-66-2	Dicrotophos	19	---
470-90-6	Chlorfenvinphos	19	---
7700-17-6	Crotoxyphos	19	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	78.4%
Triphenyl Phosphate	77.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-1-1.5**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: OJ43A
LIMS ID: 09-2445
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted MS/MSD: 01/29/09

Date Analyzed MS: 02/02/09 21:10
MSD: 02/02/09 21:38
Instrument/Analyst MS: NT8/PK
MSD: NT8/PK

Sample Amount MS: 10.4 g-dry-wt
MSD: 10.5 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diazinon	< 3.8 U	161	240	67.1%	169	238	71.0%	4.8%
Chlorpyrifos	< 3.8 U	167	240	69.6%	172	238	72.3%	2.9%
Dimethoate	< 19.0 U	138	240	57.5%	166	238	69.7%	18.4%
EPN	< 19.0 U	139	240	57.9%	152	238	63.9%	8.9%
Malathion	< 19.0 U	162	240	67.5%	165	238	69.3%	1.8%
Monocrotophos	< 47.6 U	< 48.1 U	240	NA	68.0	238	28.6%	NA
Ethyl Parathion	< 19.0 U	163	240	67.9%	175	238	73.5%	7.1%
Sulfotepp	< 19.0 U	167	240	69.6%	169	238	71.0%	1.2%
Guthion	< 47.6 U	< 48.1 U	240	NA	116	238	48.7%	NA
Bolstar	< 19.0 U	159	240	66.2%	171	238	71.8%	7.3%
Coumaphos	< 19.0 U	99.1	240	41.3%	151	238	63.4%	41.5%
Demeton-S	< 19.0 U	94.1	240	39.2%	130	238	54.6%	32.0%
Dichlorvos/Naled	< 7.6 U	357	481	74.2%	388	476	81.5%	8.3%
Disulfoton	< 3.8 U	155	240	64.6%	157	238	66.0%	1.3%
Ethoprop	< 19.0 U	175	240	72.9%	180	238	75.6%	2.8%
Fensulfothion	< 47.6 U	< 48.1 U	240	NA	121	238	50.8%	NA
Fenthion	< 19.0 U	154	240	64.2%	153	238	64.3%	0.7%
Merphos Oxone	< 47.6 U	817	240	340%	795	238	334%	2.7%
Methyl Parathion	< 19.0 U	163	240	67.9%	168	238	70.6%	3.0%
Mevinphos	< 3.8 U	128	240	53.3%	145	238	60.9%	12.5%
Phorate	< 3.8 U	152	240	63.3%	161	238	67.6%	5.8%
Fenchlorphos	< 19.0 U	163	240	67.9%	165	238	69.3%	1.2%
Tetrachlorvinphos	< 19.0 U	153	240	63.8%	188	238	79.0%	20.5%
Tokuthion	< 19.0 U	201	240	83.8%	208	238	87.4%	3.4%
Trichloronate	< 3.8 U	186	240	77.5%	181	238	76.1%	2.7%
Dicrotophos	< 19.0 U	< 19.2 U	240	NA	78.4	238	32.9%	NA
Chlorfenvinphos	< 19.0 U	131	240	54.6%	146	238	61.3%	10.8%
Crotoxyphos	< 19.0 U	22.1	240	9.2%	123	238	51.7%	139%

Reported in µg/kg (ppb)

NA-No recovery due to high concentration of analyte in original sample, calculated negative recovery, or undetected spike.
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-3-0.5**
Page 1 of 1 SAMPLE

Lab Sample ID: OJ43B
LIMS ID: 09-2446
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 22:07
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 13.5%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	3.8	< 3.8 U
2921-88-2	Chlorpyrifos	3.8	< 3.8 U
60-51-5	Dimethoate	19	< 19 U
2104-64-5	EPN	19	< 19 U
121-75-5	Malathion	19	< 19 U
6923-22-4	Monocrotophos	48	< 48 U
56-38-2	Ethyl Parathion	19	< 19 U
3689-24-5	Sulfotepp	19	< 19 U
86-50-0	Guthion	48	< 48 U
35400-43-2	Bolstar	19	< 19 U
56-72-4	Coumaphos	19	< 19 U
126-75-0	Demeton-S	19	< 19 U
DCLV_NLD	Dichlorvos/Naled	7.7	< 7.7 U
298-04-4	Disulfoton	3.8	< 3.8 U
13194-48-4	Ethoprop	19	< 19 U
115-90-2	Fensulfothion	48	< 48 U
55-38-9	Fenthion	19	< 19 U
MERPHOSOX	Merphos Oxone	48	< 48 U
298-00-0	Methyl Parathion	19	< 19 U
7786-34-7	Mevinphos	3.8	< 3.8 U
298-02-2	Phorate	3.8	< 3.8 U
299-84-3	Fenchlorphos	19	< 19 U
961-11-5	Tetrachlorvinphos	19	< 19 U
34643-46-4	Tokuthion	19	< 19 U
327-98-0	Trichloronate	3.8	< 3.8 U
141-66-2	Dicrotophos	19	< 19 U
470-90-6	Chlorfenvinphos	19	< 19 U
7700-17-6	Crotoxyphos	19	< 19 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	81.2%
Triphenyl Phosphate	80.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-4-1.0**
Page 1 of 1 **SAMPLE**

Lab Sample ID: OJ43C
LIMS ID: 09-2447
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 22:35
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 8.4%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	4.0	< 4.0 U
2921-88-2	Chlorpyrifos	4.0	< 4.0 U
60-51-5	Dimethoate	20	< 20 U
2104-64-5	EPN	20	< 20 U
121-75-5	Malathion	20	< 20 U
6923-22-4	Monocrotophos	50	< 50 U
56-38-2	Ethyl Parathion	20	< 20 U
3689-24-5	Sulfotepp	20	< 20 U
86-50-0	Guthion	50	< 50 U
35400-43-2	Bolstar	20	< 20 U
56-72-4	Coumaphos	20	< 20 U
126-75-0	Demeton-S	20	< 20 U
DCLV_NLD	Dichlorvos/Naled	7.9	< 7.9 U
298-04-4	Disulfoton	4.0	< 4.0 U
13194-48-4	Ethoprop	20	< 20 U
115-90-2	Fensulfothion	50	< 50 U
55-38-9	Fenthion	20	< 20 U
MERPHOSOX	Merphos Oxone	50	< 50 U
298-00-0	Methyl Parathion	20	< 20 U
7786-34-7	Mevinphos	4.0	< 4.0 U
298-02-2	Phorate	4.0	< 4.0 U
299-84-3	Fenchlorphos	20	< 20 U
961-11-5	Tetrachlorvinphos	20	< 20 U
34643-46-4	Tokuthion	20	< 20 U
327-98-0	Trichloronate	4.0	< 4.0 U
141-66-2	Dicrotophos	20	< 20 U
470-90-6	Chlorfenvinphos	20	< 20 U
7700-17-6	Crotoxyphos	20	< 20 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	83.6%
Triphenyl Phosphate	85.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample ID: TP-6-0.5
SAMPLE

Lab Sample ID: OJ43D
LIMS ID: 09-2448
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 23:03
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.5 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 12.4%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	3.8	< 3.8 U
2921-88-2	Chlorpyrifos	3.8	< 3.8 U
60-51-5	Dimethoate	19	< 19 U
2104-64-5	EPN	19	< 19 U
121-75-5	Malathion	19	< 19 U
6923-22-4	Monocrotophos	48	< 48 U
56-38-2	Ethyl Parathion	19	< 19 U
3689-24-5	Sulfotepp	19	< 19 U
86-50-0	Guthion	48	< 48 U
35400-43-2	Bolstar	19	< 19 U
56-72-4	Coumaphos	19	< 19 U
126-75-0	Demeton-S	19	< 19 U
DCLV_NLD	Dichlorvos/Naled	7.6	< 7.6 U
298-04-4	Disulfoton	3.8	< 3.8 U
13194-48-4	Ethoprop	19	< 19 U
115-90-2	Fensulfothion	48	< 48 U
55-38-9	Fenthion	19	< 19 U
MERPHOSOX	Merphos Oxone	48	< 48 U
298-00-0	Methyl Parathion	19	< 19 U
7786-34-7	Mevinphos	3.8	< 3.8 U
298-02-2	Phorate	3.8	< 3.8 U
299-84-3	Fenchlorphos	19	< 19 U
961-11-5	Tetrachlorvinphos	19	< 19 U
34643-46-4	Tokuthion	19	< 19 U
327-98-0	Trichloronate	3.8	< 3.8 U
141-66-2	Dicrotophos	19	< 19 U
470-90-6	Chlorfenvinphos	19	< 19 U
7700-17-6	Crotoxyphos	19	< 19 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	64.8%
Triphenyl Phosphate	64.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS
Page 1 of 1

Sample ID: TP-9-0.5
SAMPLE

Lab Sample ID: OJ43E
LIMS ID: 09-2449
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/02/09 23:31
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.6 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 12.0%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	3.8	< 3.8 U
2921-88-2	Chlorpyrifos	3.8	< 3.8 U
60-51-5	Dimethoate	19	< 19 U
2104-64-5	EPN	19	< 19 U
121-75-5	Malathion	19	< 19 U
6923-22-4	Monocrotophos	47	< 47 U
56-38-2	Ethyl Parathion	19	< 19 U
3689-24-5	Sulfotepp	19	< 19 U
86-50-0	Guthion	47	< 47 U
35400-43-2	Bolstar	19	< 19 U
56-72-4	Coumaphos	19	< 19 U
126-75-0	Demeton-S	19	< 19 U
DCLV_NLD	Dichlorvos/Naled	7.6	< 7.6 U
298-04-4	Disulfoton	3.8	< 3.8 U
13194-48-4	Ethoprop	19	< 19 U
115-90-2	Fensulfothion	47	< 47 U
55-38-9	Fenthion	19	< 19 U
MERPHOSOX	Merphos Oxone	47	< 47 U
298-00-0	Methyl Parathion	19	< 19 U
7786-34-7	Mevinphos	3.8	< 3.8 U
298-02-2	Phorate	3.8	< 3.8 U
299-84-3	Fenchlorphos	19	< 19 U
961-11-5	Tetrachlorvinphos	19	< 19 U
34643-46-4	Tokuthion	19	< 19 U
327-98-0	Trichloronate	3.8	< 3.8 U
141-66-2	Dicrotophos	19	< 19 U
470-90-6	Chlorfenvinphos	19	< 19 U
7700-17-6	Crotoxyphos	19	< 19 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	72.4%
Triphenyl Phosphate	68.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-10-0.5**
Page 1 of 1 **SAMPLE**

Lab Sample ID: OJ43F
LIMS ID: 09-2450
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/03/09 00:00
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 16.7%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	4.0	< 4.0 U
2921-88-2	Chlorpyrifos	4.0	< 4.0 U
60-51-5	Dimethoate	20	< 20 U
2104-64-5	EPN	20	< 20 U
121-75-5	Malathion	20	< 20 U
6923-22-4	Monocrotophos	50	< 50 U
56-38-2	Ethyl Parathion	20	< 20 U
3689-24-5	Sulfotepp	20	< 20 U
86-50-0	Guthion	50	< 50 U
35400-43-2	Bolstar	20	< 20 U
56-72-4	Coumaphos	20	< 20 U
126-75-0	Demeton-S	20	< 20 U
DCLV_NLD	Dichlorvos/Naled	8.0	< 8.0 U
298-04-4	Disulfoton	4.0	< 4.0 U
13194-48-4	Ethoprop	20	< 20 U
115-90-2	Fensulfothion	50	< 50 U
55-38-9	Fenthion	20	< 20 U
MERPHOSOX	Merphos Oxone	50	< 50 U
298-00-0	Methyl Parathion	20	< 20 U
7786-34-7	Mevinphos	4.0	< 4.0 U
298-02-2	Phorate	4.0	< 4.0 U
299-84-3	Fenchlorphos	20	< 20 U
961-11-5	Tetrachlorvinphos	20	< 20 U
34643-46-4	Tokuthion	20	< 20 U
327-98-0	Trichloronate	4.0	< 4.0 U
141-66-2	Dicrotophos	20	< 20 U
470-90-6	Chlorfenvinphos	20	< 20 U
7700-17-6	Crotoxyphos	20	< 20 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	79.2%
Triphenyl Phosphate	80.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS **Sample ID: TP-12-0.5**
Page 1 of 1 SAMPLE

Lab Sample ID: OJ43G
LIMS ID: 09-2451
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: 01/20/09
Date Received: 01/23/09

Date Extracted: 01/29/09
Date Analyzed: 02/03/09 00:28
Instrument/Analyst: NT8/PK
GPC Cleanup: No
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 16.5%

CAS Number	Analyte	RL	Result
333-41-5	Diazinon	4.0	< 4.0 U
2921-88-2	Chlorpyrifos	4.0	< 4.0 U
60-51-5	Dimethoate	20	< 20 U
2104-64-5	EPN	20	< 20 U
121-75-5	Malathion	20	< 20 U
6923-22-4	Monocrotophos	50	< 50 U
56-38-2	Ethyl Parathion	20	< 20 U
3689-24-5	Sulfotepp	20	< 20 U
86-50-0	Guthion	50	< 50 U
35400-43-2	Bolstar	20	< 20 U
56-72-4	Coumaphos	20	< 20 U
126-75-0	Demeton-S	20	< 20 U
DCLV_NLD	Dichlorvos/Naled	8.0	< 8.0 U
298-04-4	Disulfoton	4.0	< 4.0 U
13194-48-4	Ethoprop	20	< 20 U
115-90-2	Fensulfothion	50	< 50 U
55-38-9	Fenthion	20	< 20 U
MERPHOSOX	Merphos Oxone	50	< 50 U
298-00-0	Methyl Parathion	20	< 20 U
7786-34-7	Mevinphos	4.0	< 4.0 U
298-02-2	Phorate	4.0	< 4.0 U
299-84-3	Fenchlorphos	20	< 20 U
961-11-5	Tetrachlorvinphos	20	< 20 U
34643-46-4	Tokuthion	20	< 20 U
327-98-0	Trichloronate	4.0	< 4.0 U
141-66-2	Dicrotophos	20	< 20 U
470-90-6	Chlorfenvinphos	20	< 20 U
7700-17-6	Crotoxyphos	20	< 20 U

Naled (CAS #300-76-5) breaks down to Dichlorvos (CAS # 62-73-7) during analysis so the relative concentration of either analyte is unknown.

Merphos (CAS # 150-50-5) oxidizes to Merphos Oxone (CAS # Unknown) during analysis.

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

Tributyl Phosphate	82.4%
Triphenyl Phosphate	76.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS

Sample ID: LCS-012909
LAB CONTROL SAMPLE

Lab Sample ID: LCS-012909
LIMS ID: 09-2445
Matrix: Soil
Data Release Authorized:
Reported: 02/03/09

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA
Date Sampled: NA
Date Received: NA

Date Extracted: 01/29/09

Date Analyzed LCS: 02/02/09 19:45
LCSD: 02/02/09 20:13
Instrument/Analyst LCS: NT8/PK
LCSD: NT8/PK

Sample Amount LCS: 10.0 g-dry-wt
LCSD: 10.0 g-dry-wt
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diazinon	208	250	83.2%	195	250	78.0%	6.5%
Chlorpyrifos	217	250	86.8%	197	250	78.8%	9.7%
Dimethoate	217	250	86.8%	195	250	78.0%	10.7%
EPN	201	250	80.4%	181	250	72.4%	10.5%
Malathion	204	250	81.6%	194	250	77.6%	5.0%
Monocrotophos	103	250	41.2%	94.6	250	37.8%	8.5%
Ethyl Parathion	212	250	84.8%	192	250	76.8%	9.9%
Sulfotepp	207	250	82.8%	192	250	76.8%	7.5%
Guthion	176	250	70.4%	155	250	62.0%	12.7%
Bolstar	222	250	88.8%	194	250	77.6%	13.5%
Coumaphos	209	250	83.6%	189	250	75.6%	10.1%
Demeton-S	169	250	67.6%	148	250	59.2%	13.2%
Dichlorvos/Naled	426	500	85.2%	416	500	83.2%	2.4%
Disulfoton	192	250	76.8%	163	250	65.2%	16.3%
Ethoprop	225	250	90.0%	207	250	82.8%	8.3%
Fensulfothion	167	250	66.8%	145	250	58.0%	14.1%
Fenthion	188	250	75.2%	180	250	72.0%	4.3%
Merphos Oxone	1050	250	420%	958	250	383%	9.2%
Methyl Parathion	208	250	83.2%	196	250	78.4%	5.9%
Mevinphos	184	250	73.6%	176	250	70.4%	4.4%
Phorate	191	250	76.4%	172	250	68.8%	10.5%
Fenchlorphos	192	250	76.8%	183	250	73.2%	4.8%
Tetrachlorvinphos	262	250	105%	234	250	93.6%	11.3%
Tokuthion	256	250	102%	229	250	91.6%	11.1%
Trichloronate	218	250	87.2%	210	250	84.0%	3.7%
Dicrotophos	126	250	50.4%	105	250	42.0%	18.2%
Chlorfenvinphos	198	250	79.2%	173	250	69.2%	13.5%
Crotoxyphos	190	250	76.0%	160	250	64.0%	17.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
OP Pest by Selected Ion Monitoring GC/MS

Sample ID: LCS-012909
LAB CONTROL SAMPLE

Lab Sample ID: LCS-012909
LIMS ID: 09-2445
Matrix: Soil

QC Report No: OJ43-OnSite Environmental, Inc.
Project: 18155-001-00
Event: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
Tributyl Phosphate	87.2%	86.8%
Triphenyl Phosphate	89.2%	85.6%

GeoEngineers

APPENDIX H
REPORT LIMITATIONS AND GUIDELINES FOR USE

APPENDIX H
REPORT LIMITATIONS AND GUIDELINES FOR USE[2]

This appendix provides information to help you manage your risks with respect to the use of this report.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

GeoEngineers has performed this Phase I and II ESA of the property consisting of the proposed hospital property located at Apple Blossom Drive, Lots 20 through 26 and Open Space Tract, in Chelan, Washington in general accordance with the scope and limitations of our proposal dated November 11, 2008, ASTM E 1527-05, Standard Practice for Phase I ESAs, and EPA's Federal Standard 40 CFR Part 312 "Standards and Practices for All Appropriate Inquiries (AAI)." This report has been prepared for the exclusive use of Lake Chelan Community Hospital. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures our services to meet the specific needs of our Lake Chelan Community Hospital. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific Lake Chelan Community Hospital and project property. No one except the Lake Chelan Community Hospital should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report has been prepared for the proposed hospital property located at Apple Blossom Drive, Lots 20 through 26 and Open Space Tract, in Chelan, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific property explored, or
- completed before important project changes were made.

If important changes are made to the project or subject property after the date of this report, GeoEngineers

[2] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

should be retained to review our interpretations and recommendations and to provide written modifications or confirmation, as appropriate.

RELIANCE CONDITIONS FOR THIRD PARTIES

Our report was prepared for the exclusive use of our client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the client and generally accepted environmental practices in this area at the time this report was prepared.

HISTORICAL INFORMATION PROVIDED BY OTHERS

GeoEngineers makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others. The information presented in this report is based on the above-described research and a single recent site visit. GeoEngineers has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data do not provide definitive information with regard to all past uses, operations or incidents at the subject property or adjacent properties.

UNCERTAINTY REMAINS EVEN AFTER THIS ESA STUDY IS COMPLETED

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions (RECs) in connection with a property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a property. There is always a potential that areas with contamination that were not identified during this Phase I ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

PROPERTY CONDITIONS CAN CHANGE

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, a Phase I ESA report is typically applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report so that GeoEngineers may evaluate reliability of the report to changed conditions.

SOIL AND GROUNDWATER END USE

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-Site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the Site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject Site or reuse of the affected media on Site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject Site to another location or its reuse on Site in instances that we were not aware of or could not control.

BIOLOGICAL POLLUTANTS

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Lake Chelan Community Hospital desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

MOST ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the Site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the Site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

DO NOT REDRAW THE EXPLORATION LOGS

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

GEOTECHNICAL, GEOLOGIC AND ENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.