

PHASE I ENVIRONMENTAL AUDIT

Proposed Sunset Pointe Residential Plat
East of Intersection of 21st St SE and 19th Ave SE
Puyallup, Washington

DESERT CREEK, LLC

ENVIRONMENTAL ASSOCIATES, INC.

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January 14, 2005

JN 24420

Nick Scholten
Desert Creek, LLC
P.O. Box 731989
Puyallup, Washington 98373

Subject: **PHASE I ENVIRONMENTAL AUDIT
Proposed Sunset Pointe Residential Plat
East of Intersection of 21st St SE and 19th Ave SE
Puyallup, Washington**

Dear Mr. Scholten,

Environmental Associates, Inc., has completed a Phase I Environmental Audit of the subject property located in Puyallup, Washington. This report, prepared in accordance with the terms of our proposal dated December 29, 2004, and in a manner consistent with the intent and methodologies of ASTM E 1527-00, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", summarizes our approach to the project along with results and conclusions.

The contents of this report are confidential and are intended solely for your use and the use of your representatives. Four (4) copies of this report are being distributed to you. No other distribution or discussion of this report will take place without your prior approval in writing. Additional copies are available for a small fee.



Desert Creek, LLC
January 14, 2005

JN 24420
Page - 2

We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,
ENVIRONMENTAL ASSOCIATES, INC.



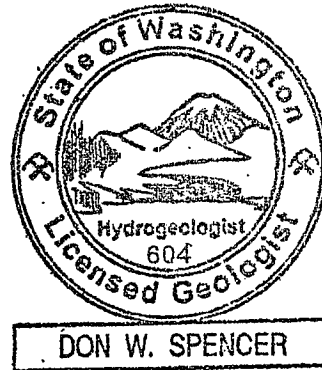
Don W. Spencer, M.Sc., P.G., R.E.A.
Principal

EPA-Certified Asbestos Inspector/Management Planner
I.D. # AM 48151

EPA/HUD Certified Lead Inspector (Licensed)

Registered Site Assessor/Licensed UST Supervisor
State Certification #0878545-U7

License: 604	(Washington)
License: 11464	(Oregon)
License: 876	(California)
License: 5195	(Illinois)
License: 0327	(Mississippi)



ENVIRONMENTAL ASSOCIATES, INC.

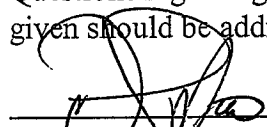
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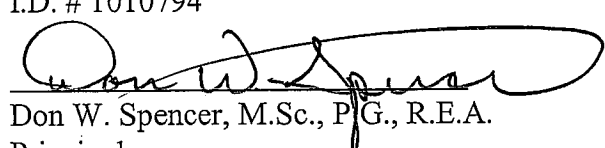
Proposed Sunset Pointe Residential Plat
East of Intersection of 21st St SE and 19th Ave SE
Puyallup, Washington

Prepared for:

Desert Creek, LLC
P.O. Box 731989
Puyallup, Washington 98373

Questions regarding this investigation, the conclusions reached and the recommendations given should be addressed to one of the following undersigned.


Derek B. Pulvino
Environmental Scientist
EPA-Certified Building Inspector
I.D. # 1010794

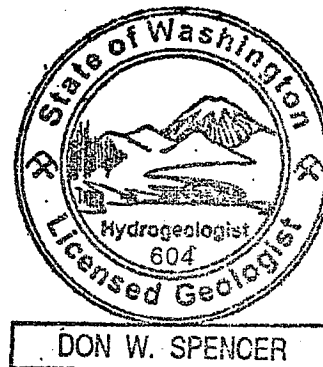

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Reference Job Number: JN 24420

January 14, 2005

ENVIRONMENTAL ASSOCIATES, INC.

TABLE OF CONTENTS

METHODOLOGY/SCOPE OF WORK	5
FINDINGS	6
General Description	6
Geologic Setting	8
Development History and Land Use	8
Property Conveyance/Ownership Data	9
Site Reconnaissance	11
Check For PCB-Containing Materials	13
Check For Asbestos-Containing Materials	14
Review For Lead-Based Paint	14
Radon Evaluation	15
Water Supply, Waste Water and Solid Waste Management	16
Review: Washington DOE Listing Of Underground Storage Tanks	16
Review: EPA & State Records Of Potentially Hazardous Sites	16
Superfund and NPL	16
CORRACTS	16
MTCA/ CSCSL	16
RCRA/FINDS/TSDs	16
ERNS	17
Review: Landfill Documents	17
CONCLUSIONS/RECOMMENDATIONS	17
LIMITATIONS	21
REFERENCES	22
PLATES	
Plate 1 - Vicinity Map	Plate 2 - Topographic Map
Plate 3 - Site Plan	Plates 4 & 5 - Site Photographs
APPENDICES	
Appendix A - Environmental Database Report	
Appendix B - AHERA Certification Documents	
Appendix C - EPA PCB Guidance Documents	
Appendix D - OSHA 3142 - Lead in Construction	
Appendix E - Analytical Information	

METHODOLOGY/SCOPE OF WORK

Our study approach consisted of completing a series of investigative tasks intended to satisfy the level of effort often referred to as "due diligence" by the "innocent purchaser" in the context of the Superfund Amendment and Reauthorization Act of 1986 (SARA), and nearly identical requirements set forth in the Model Toxics Control Act (MTCA), Chapter 70.105 D (Section 040) RCW pertaining to standards of liability. The objective of a Phase I audit is to reduce potential risk for exposure to future liability for environmental problems by demonstrating that at the time of acquisition or refinancing, the owner, buyer, or lender had no knowledge or reason to know that any hazardous substance had been released or disposed of on, in, or at the property. Moreover, in defining the purpose of the Phase I environmental site assessment process, section 1.1.1 of ASTM E-1527 advises that the goal of a Phase I is to identify "recognized environmental conditions," and defines a recognized environmental condition as "the presence or likely presence of any hazardous substances . . . on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances . . . into structures on the property or into the ground, groundwater, or surface water of the property."

In an effort to evaluate condition and previous uses of the property in a manner consistent with good commercial and customary practice and in accordance with methods outlined under ASTM E 1527-00, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", our scope of work for this study included:

- Review of chronology of ownership and site history using the resources of the Pierce County Assessor's Office, business directories from several time periods, and aerial photography from several time periods as primary resources. This included an attempt to identify possible former industries or uses presenting some potential for generating waste which may have included dangerous or hazardous substances as defined by state and federal laws and regulations.
- Acquisition and review of available reports and other documentation pertaining to the subject site or nearby sites.
- Review of Washington Department of Ecology (WDOE) and Puyallup/Pierce County Department of Public Health documents regarding current and abandoned landfills.
- Review of the current EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), the EPA National Priority List (NPL), the EPA Resource Conservation and Recovery Act (RCRA) Notifiers, RCRA Corrective Action Report (CORRACTS), and Emergency Response Notification System (ERNS) lists of sites which are potentially contaminated or which produce hazardous substances as a normal part of their commercial operation in the vicinity of the site.

- Review of the current Washington Department of Ecology (WDOE) listing of underground storage tanks (USTs) along with the WDOE's Leaking Underground Storage Tank (LUST) listing for WDOE-documented leaking USTs in the vicinity of the subject property.
- Review of the current WDOE Confirmed and Suspected Contaminated Sites (CSCS) list of potentially contaminated sites which have been the subject of hazardous waste investigation and/or cleanup activity in conjunction with the Washington Model Toxics Control Act (MTCA) Chapter 173-340 WAC.
- Review published documents from the Bonneville Power Administration (BPA) to evaluate the risk for naturally occurring radon.
- A reconnaissance of the subject property and neighboring areas to look for evidence of potential contamination in the form of soil stains, odors, asbestos, lead-based paint (LBP), vegetation stress, discarded drums, discolored water, careless manufacturing or industrial practices, etc.
- Preparation of a summary report which documents the audit process and findings.

FINDINGS

GENERAL DESCRIPTION

The subject property consists of four separate tax parcels with together comprise an irregular-shaped parcel covering approximately 890,000 square feet (20 acres) of land. Improvements to the property include multiple buildings such as residences, barns, garages, and utility sheds. The improvements on the site, as documented by the Pierce County Assessor's Office, are outlined in the table below.

Stories	Framing/ construction	Size	Date of Construction	Roof
Tax Parcel: 0420353026				
Single story residence	Wood Framed	1,104	1928	Pitched with composition shingles
Tax Parcel: 0420353027				
Single story residence	Wood-framed	912	1924	Pitched with composition shingles
Single story storage shed	Wood-pole supported	10,000	1940	Pitched, surfacing not listed

Stories	Framing/ construction	Size	Date of Construction	Roof
Tax Parcel: 0420353027(continued)				
Single story barn	Wood-pole supported	4,480	1950	Pitched, surfacing not listed
Single story storage shed	Wood-pole supported	4,000	1950	Pitched, surfacing not listed
Two-story, detached garage	Cinder block	1,092	1940	Pitched, surfacing not listed

The Pierce County Assessor's Office did not list improvements on the remaining two parcels (#'s 0420357011, 0420353009). Currently the property is utilized as a residential property, with only the western house on the property (parcel# 0420353026) occupied. According to Mr. Richard Tanner, current occupant, the structures on the eastern portion of the site are occupied. The approximate location of the site is shown on the Vicinity Map, Plate 1, appended herewith.

The property is located in a rural/residential area approximately one-mile southeast of downtown Puyallup, Washington. Photographs reflecting the character of the subject property are provided with this report as Plates 4 and 5.

A brief description of land use on nearby parcels is provided below. Plate 3, Site Plan, depicts the setting of the subject property and land use for adjacent sites.

- North:** A residential subdivision is located adjacent to the northern border of the subject property.
- South:** A residential subdivision is also located adjacent to the southern border of the subject property.
- East:** The residential subdivision located to the north of the subject property also extends to run along the eastern border of the subject property.
- West:** A residential subdivision is located to the west of the southern portion of the subject property. Land to the west of the northern edge of the subject property is also residentially developed, however with a lower development density than sites located adjacent to the rest of the property.

According to the Pierce County Assessor's Office, the subject property is zoned for residential and agricultural use.

GEOLOGIC SETTING

Physiographically, the site is situated on a gently rolling elevated plain (the Vashon Drift Plain) which was formed during the last period of continental glaciation that ended approximately 13,500 years ago.

Published geologic maps for the site vicinity (Jones, 1999) suggest that much of the material underlying the subject site may be recessional gravel, a "moderately to poorly sorted gravel and sand with small amounts of silt and clay." Typically, the recessional deposits exhibits relatively moderate to high vertical hydraulic conductivity which frequently results in formation of a "perched" water table along interstitial contacts. The "perched" water table (if present) is frequently seasonal and derives recharge primarily from infiltration of precipitation through more permeable overlying soils.

Topographically, the site is situated on a northerly facing slope ranging from approximately 240- to 380-feet above sea level. Based upon inference from topography and local drainage patterns, it appears that shallow-seated groundwater (if present) in the vicinity of the subject property may flow in a northerly direction.

Although no site specific information has been developed by our firm with respect to depth to groundwater at this site, our experience in the area suggests that "perched" groundwater (if present) beneath the site may lie at a depth of approximately 10 to 20 feet or more beneath the ground surface.

With respect to surface water resources, several small unnamed ponds are located on the subject property.

DEVELOPMENT HISTORY AND LAND USE

Sources reviewed for information on site and area development and land use included the resources of the Seattle and Tacoma Public Libraries, Pierce County Assessor's Office, and aerial photographs of the subject property and surrounding area from several time periods.

Aerial photographs of the area were reviewed for the years 1969, 1979, 1985, 1996, 2000, and 2003. The following paragraphs provide an interpretive summary of our observations in each photo. The time intervals between the various historic aerial photographs selected for this particular project are, in our opinion, entirely adequate for the intended purpose which was to permit a general assessment of overall development and land use in the vicinity of the subject property.

- 1969 All of the currently present structures are visible on the property. Four small sheds are visible approximately 75-feet northeast of the southern on-site house. The currently present pond is not visible. A gravel mining operation is visible on the adjacent property to the south of the site. Two conveyor/loading belts are visible at the mine. As indicated by an access drive/road going from this gravel

mine to the southern portion of the site, the southern onsite structures appear to be utilized by the mining operation. The land located adjacent to the west is roughly half cleared and half forested. A small area of surface grading is visible adjacent to the eastern border of the northern portion of the site. Generally, a minimal quantity of houses are visible in the area of the site.

- 1979 Small areas of surface grading are visible both near the northern onsite house and on the southeast corner of the pasture area. The area adjacent to the east of the site, formerly noted as graded, has now become a residential housing development (to east/northeast). A new pond is visible within the gravel mining property. Trees/shrub vegetation has regrown on approximately 50% of the adjacent mining site.
- 1985 The graded area is no longer visible within the pasture, however the graded area near the northern house appears to be utilized as a parking area. To the south, the operations at the gravel mining site have expanded westward. No other significant changes are visible from the previous photograph.
- 1996 Development as a residential housing sub-division has commenced on the southern adjacent gravel mine property. The pond remains within the gravel mine site. Onsite, the current pond is now visible. Within the subject property pasture, trees continue to regrow. Several of the small sheds near the southern house on the property are no longer discernable.
- 2000 The housing development has been completed to the west/southwest of the site, on the former gravel mine property. None of the small sheds are visible in the vicinity of the southern onsite house.
- 2003 The houses currently present to the west/northwest of the site are either in construction or have been constructed. In general terms, the majority of the site vicinity has now been developed with residential properties.

PROPERTY CONVEYANCE/OWNERSHIP DATA

From the file resources of the Pierce County Assessor's Office and resources of the Tacoma and Seattle Public Libraries, the following limited history of ownership has been established:

SOURCE	OWNER	DATE OF PURCHASE
tax parcel #0420353026		
Pierce County Assessor's Office	Ottinger, Sharon	Not Listed
Metsker's Atlas of Pierce County (1965, 1951)	Greeley, V	Not Listed
Metsker's Atlas of Pierce County (1941)	V.B., L.T. and A.B. Greeley	Not Listed

SOURCE	OWNER	DATE OF PURCHASE
Kroll Atlas of Pierce County (1924)	Mark Graves, Jms Williams	Not Listed
Kroll Atlas of Pierce County (1915)	Mark Graves, E.G. Griswold	Not Listed
tax parcel #0420353027		
Pierce County Assessor's Office	Greeley, Grace Ardell	Not Listed
Metsker's Atlas of Pierce County (1965, 1951)	Greeley, V	Not Listed
Metsker's Atlas of Pierce County (1941)	V.B., L.T. and A.B. Greeley	Not Listed
Kroll Atlas of Pierce County (1924)	Mark Graves, Jms Williams	Not Listed
Kroll Atlas of Pierce County (1915)	Mark Graves, E.G. Griswold	Not Listed
tax parcel #0420357011		
Pierce County Assessor's Office	Greeley, Grace	11/26/1990
Pierce County Assessor's Office	Parkwood Homes	4/20/1990
Metsker's Atlas of Pierce County (1965, 1951)	Greeley, V	Not Listed
Metsker's Atlas of Pierce County (1941)	V.B., L.T. and A.B. Greeley	Not Listed
Kroll Atlas of Pierce County (1924)	Mark Graves, Jms Williams	Not Listed
Kroll Atlas of Pierce County (1915)	Mark Graves, E.G. Griswold	Not Listed
tax parcel #042035309		
Pierce County Assessor's Office	Greeley, Grace	11/26/1990
Metsker's Atlas of Pierce County (1965, 1951)	Greeley, V	Not Listed
Metsker's Atlas of Pierce County (1941)	V.B., L.T. and A.B. Greeley	Not Listed
Kroll Atlas of Pierce County (1924)	Mark Graves, Jms Williams	Not Listed
Kroll Atlas of Pierce County (1915)	Mark Graves, E.G. Griswold	Not Listed

According to resources available at the Tacoma and Seattle Public Libraries the Pierce County Assessor's Office, and a review of aerial photographs, the subject site was developed as early as 1924 with a single-family dwelling. Subsequent development of an additional residence as well as several storage sheds and barns occurred between that time and approximately 1950. In the earliest available aerial photograph (1969), the northern portion of the property currently used for pastoral purposes had been cleared of trees and other low-standing shrubbery, while a road/driveway was observed connecting the southern margin of the property with the gravel mine operating to the south of the site. Conversations with one of the current occupants/owners of the subject property (Pat Tanner) confirmed the use of the southern onsite buildings by the adjacent gravel mining operation. The exact nature of this usage (i.e. vehicle fueling, maintenance, clerical offices, etc) was not disclosed. Sanborn Fire Insurance maps did not provide coverage in the vicinity of the subject property. Borrowing from the jargon of ASTM, no "reasonably ascertainable" or "likely to be useful" information prior to 1924 was available. The absence of such information has no material effect upon the conclusions of this report.

Historic reverse street directories and archive records documented seven (7) occupants of the property in the directories/records reviewed for the years 1953 through 2003. These occupants included:

LISTED OCCUPANT	ADDRESS OF BUSINESS	OCCUPATION OF SITE (date of Polk's Guide Listing)
ON SUBJECT SITE		
Hill Top Gravel	2102 19 th Ave SE	1953
Greeley, Vinto		1953
Greeley, Grace		1959
Ingham, Gerald	2100 19 th Ave SE	1972
Ottinger, Edw		1979, 1985
Ottinger, Sharon		1990, 1997, 2003
Frontier Museum	2301 23 rd Ave SE	1979, 1985, 1990
SOUTH/WEST OF SUBJECT SITE		
Hilltop Concrete Co	2223 23 rd Ave SE	1959
Reid Concrete Inc.		1965
South Hill Sand and Gravel		1990

SITE RECONNAISSANCE

An Environmental Scientist/EPA-certified Asbestos Building Inspector from our firm visited the property on January 5, 2005 to review on-site conditions and land use practices in the surrounding area. Mr Nick Schoelten, potential purchaser of the property, arranged for access to the site. The representative areas reviewed during our site visit included the exterior grounds, and adjacent property usages. Access to the structure interiors was not provided to EAI during the course of our site reconnaissance.

As mentioned earlier, existing improvements to the subject property include multiple 1924-1950-vintage buildings. For further information on building construction details, please refer to the General Information section within this report. A gravel drive accesses the property from the northwest. Gravel/dirt covered parking areas are located adjacent to the onsite structures. Landscaped areas are situated adjacent to the houses, with the majority of the remaining property cleared pasture land. Residents occupy one of the onsite buildings. The remainder of the buildings are not occupied on a full time basis for residential or commercial purposes. Typical building materials and/or conditions observed during our site reconnaissance included:

- Floors appeared to be wood or concrete covered with carpet, sheet vinyl, or square vinyl tile.
- Interior walls throughout the building are painted sheetrock, natural wood, or concrete.
- Ceilings are painted drywall, or "popcorn" textured materials.
- A wood-fired stove is reported to be the sole current source of heat for the two residences. Referring to Photo #3 of Plate #5, an above-ground storage tank used to store heating oil was observed adjacent to the southern wall of the northern onsite residence. According to Ms. Tanner, use of this tank was discontinued approximately 20-years ago. No staining was noted near the base of this tank.
- Multiple junked cars were observed in the area of the northern house. No leaking or odors were noted in the vicinity of these vehicles. According to Richard Tanner, one of the current residents, these cars are slated for disposal and not used for parting out or onsite repair work.
- Cultural debris such as lumber, furniture, fencing, appliances, and general household rubbish was noted in the vicinity of the buildings located on the southern portion of the site.
- A steel vertical rack containing three separate above ground tanks/drums was noted near the southern border of the subject property. Although the bottom of one of these tanks was rusted out, no odors, stained soil, or disturbed vegetation was noted in the vicinity of these tanks. According to Ms. Tanner, these tanks were used to store gasoline to refuel the gravel mining vehicles. Ms. Tanner did not report any spills or releases from these tanks.
- A small pond was noted approximately halfway between the two onsite residences, on the southern side of the driveway. A soil retention wall consisting of battery casings was noted on the northern edge of this pond, at the area where the driveway crosses the ponds drainage conduit. According to Ms. Pat Tanner, property owner, these batteries were brought on the site approximately 40-years ago after being obtained from a local battery recycler (Kiby's Battery Company). Ms. Tanner stated that prior to purchasing the battery casings, Kiby's had removed the contents and cleaned the interiors of the casings. Onsite, the empty casings were then filled with soil and stacked in their present configuration adjacent to the roadway. More recently, Mr. Scholten of Desert Creek, LLC (potential purchaser of site) informed us (EAI) that in an attempt to independently evaluate environmental conditions, his company had collected a single soil sample from inside one of these battery casings. The sample was submitted by Desert Creek to Spectra Laboratories for Lead Toxicity Characteristic Leaching Potential (TCLP) and pH analyses. Analysis indicated the leachable lead concentrations to be 0.38-parts per million (ppm). The pH analysis indicated the soils to be slightly basic (7.5 pH units). As a basis for comparison of TCLP results to total concentrations, an unofficially adopted "rule of thumb" used by some regulators and investigators is that total concentration of a given metal in soils can be roughly estimated by multiplying the TCLP results by a factor of twenty. Using this calculation, an estimated

"total" concentration of lead in the tested soil would be roughly 7.6-ppm, a concentration below the median concentration of "total" lead in soils of the Puget Sound region, as detailed by the Washington State Department of Ecology, in "Natural Background Soil Metals Concentrations in Washington State" (publication #94-115). To the extent that the results of the sampling and analysis undertaken by Desert Creek are reflective of conditions at other locations near the wall, it would then be possible to conclude that the risk of environmental impacts relating to this battery casing wall would be relatively low.

- An additional area of accumulated rubbish and household waste was noted in the vicinity of the northern house on the subject property.

According to Ms. Pat Tanner, no hazardous waste is generated on the property. In addition, she stated that there are no below-ground fuel storage tanks on the property. No obvious, visually discernable evidence to suggest the presence of any underground fuel storage tanks (i.e., vent lines, filler caps, etc.) was noted on the property. Similarly, no groundwater monitoring wells were noted on the property. At the time of our visit, no stains, odors, or unusual vegetation conditions that might otherwise indicate the potential presence of hazardous materials were observed on the subject property.

CHECK FOR PCB-CONTAINING MATERIALS

Prior to 1979, polychlorinated biphenyls (PCBs) were widely used in electrical equipment such as transformers, capacitors, switches, fluorescent lights (ballasts) and voltage regulators owing to their excellent cooling properties. In 1976, the EPA initiated regulation of PCBs through issues pursuant to the Toxic Substances Control Act (TSCA). These regulations generally control the use, manufacturing, storage, documentation, and disposal of PCBs. EPA eventually banned PCB use in 1978, and adoption of amendments to TSCA under Public Law 94-469 in 1979 prohibited any further manufacturing of PCBs in the United States.

Light Fixtures

Based upon the age of the onsite buildings (1924 through 1950-vintage), it is conceivable that some transformer ballasts containing PCB's may exist within these buildings. In the event that ballasts are later discovered which do not possess clear labeling stating "No PCB's", we have attached an EPA information pamphlet as Appendix C for information regarding the handling and disposal of such ballasts.

Main Service Electrical Transformers

Pole mounted main service electrical transformer was noted on the eastern edge of the property. No certifications or labels regarding PCBs were noted on the transformer. Careful examination of the transformer revealed no cracks, staining, or other evidence of potential leakage. Liability for this equipment ultimately lies with the utility company in any event.

CHECK FOR ASBESTOS-CONTAINING MATERIALS

During our site review, five (5) types of materials suspected to possibly contain asbestos were observed within the subject building. These materials included a ceiling/wall plaster, vinyl floor-tile, sheet-vinyl, window glazing, and popcorn ceiling. At the time of this writing we were not authorized by the client to sample or test the suspect materials to confirm or deny this presumption. A summary of the suspect materials is provided in the table below. As Eai Was not granted interior access, this list was compiled based upon materials visible from the exterior building windows, as well information supplied by the onsite residence.

MATERIAL	LOCATION	CONDITION ¹
Gypsum Wallboard	Throughout residence interiors	Good
Vinyl Floor Tile	Various locations within residences	Good
Sheet Vinyl Flooring	Various locations within residences	Good
Popcorn Ceiling	Front room of northern residence	Good
Window Glazing	Exterior of multi-pane windows	Good
Note: 1 - Material condition was evaluated borrowing criteria adopted under the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR, part 763.		

Our effort regarding identification of asbestos-containing materials within the subject building was a preliminary review and not an asbestos survey. Since no destructive sampling was authorized for this audit, materials not readily accessible such as roofing materials and/or materials obscured behind, beneath, or within walls or existing flooring materials were not reviewed.

REVIEW FOR LEAD-BASED PAINT

Lead was formerly a common additive to many paints to improve their durability and coverage. Lead-based paint presents a special hazard to small children who can ingest it by chewing on painted woodwork or eating flakes of paint. A number of studies showing the toxic effects of lead on humans, and on small children in particular, prompted the Consumer Product Safety Commission to mandate in 1977 that the amount of lead in most paints, including those for residential use, should not exceed 0.06 %.

A review of exterior painted surfaces on the subject property was conducted to assess the potential for lead-content in surface layers of paint. Representative painted surfaces (listed in the table below) were analyzed using "Lead-Check" sodium rhodizonate color reagent paint tests. These tests provide a qualitative indication as to whether lead is present in paint samples with reproducible results to a lower detection limit of 0.5 percent, a level corresponding to a threshold of concern established by HUD.

PAINTED SURFACE	RESULT
White wood trim on southern house exterior	Positive
Red wooden trim on exterior of detached garage on southern portion of site	Positive
White painted aluminum siding on exterior of southern house	Non-Detect
White painted wood on exterior of barn door, southern portion of property	Positive

As noted in the table above, three (3) of the surfaces tested using the "Lead Check" screening method showed a reddish hue response characteristic of the sodium rhodizonate method as an indication of the likely presence of lead in the painted surfaces. On that basis, we conclude that lead was likely present in the surfaces which tested positive.

RADON EVALUATION

Occurrence Radon is a naturally occurring, highly mobile, chemically inert radioactive gas created through radioactive decay of uranium and thorium. The potential for occurrence of radon varies widely and is dependent upon (1) the concentration of radioactive materials in the underlying bedrock; (2) the relative permeability of soils with respect to gases; and (3) the amount of fracturing or faulting in surficial materials (EPA, 1987).

Health Risks The concern regarding radon and its potential effects upon humans arises from the results of studies (EPA, 1987) which suggest that approximately fifteen percent of all lung cancer mortalities in the United States may be attributable to exposure to radon.

The EPA has established a concentration of radon of four (4) picocuries per liter (pCi/l) as a maximum permissible concentration "action level". Concentrations above this value would signal a potential health threat. According to some studies, an average concentration in homes across the United States is on the order of 1.4 pCi/l.

**Risk of
Potential
Exposure in
the Puyallup
Area**

The Bonneville Power Administration (BPA) recently published the results of measurements for radon made in residences throughout the region they serve which includes Washington, Oregon and Idaho. For the Puyallup area in the immediate vicinity of the subject property eleven tests have been performed. The results of their work (BPA, 1993) suggest that radon levels over 4 pCi/l were detected in two of the monitored residences in the vicinity of the subject site. Additionally, the average listed radon reading in the subject site township was 0.41 pCi/l, well below the EPA threshold of concern.

On the basis of the findings presented in the cited BPA survey, we conclude that the potential for exposure to naturally occurring radon at the subject site is very low.

WATER SUPPLY, WASTE WATER AND SOLID WASTE MANAGEMENT

Information supplied by Ms. Tanner revealed that water service is provided by onsite wells. Onsite septic systems service the current wastewater needs.

As discussed in the Site Reconnaissance section of this report, various areas of collected refuse were noted on the property.

REVIEW OF WASHINGTON DOE LISTING OF UNDERGROUND STORAGE TANKS

Review of the current Washington Department of Ecology listing of underground storage tanks (USTs) suggests that no facilities with registered USTs are located within a one-quarter mile radius of the subject property. Similarly, according to the most recent WDOE Leaking Underground Storage Tank (LUST) listing, none of the listed tank facilities located within an approximately one-half mile radius of the subject property have reported accidental releases or leakage to the WDOE in the past.

EPA & STATE RECORDS OF POTENTIALLY HAZARDOUS SITES

Superfund and NPL	Review of the current EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and National Priority List (NPL) listings revealed <u>no CERCLIS</u> and <u>no NPL</u> sites within approximately one mile of the subject property that have been designated as potentially hazardous or eligible for participation in the Superfund cleanup program.
CORRACTS	Review of the current EPA Corrective Action Report (CORRACTS) listing revealed that <u>no CORRACTS</u> sites are located within approximately one mile of the subject property that have been designated as having a potential release at the property under RCRA.
MTCA/CSCSL	The Washington Department of Ecology hazardous waste cleanup and investigation program was launched in 1989 as a part of the Model Toxics Control Act (MTCA), Chapter 173-340 WAC, in order to evaluate potential and actual hazards at sites within the state. Of the more than 1,730 sites currently on the WDOE Confirmed and Suspected Contaminated Sites (CSCS) list, none are located within a one mile radius of the subject property.

**RCRA/FINDS/
TSDs**

Review of EPA's Treatment, Storage and Disposal (TSD) facilities listing for sites that treat, store, or dispose of potentially hazardous materials revealed that no TSD sites are located within a one mile radius of the subject property.

Additionally, review of the Resource Conservation and Recovery Act (RCRA) listings, also revealed no RCRA Generators within a one-quarter mile radius of the subject property, and no RCRA Non-Regulated generators within a one-eighth mile radius of the subject property.

ERNS

Review of the EPA's Emergency Response Notification Systems (ERNS) list for the State of Washington revealed that the subject site has not reported a spill. This list has been compiled with periodic updates since October 1987.

LANDFILLS

A review of WDOE and Tacoma/Pierce County Health Department documents regarding current and abandoned landfills revealed that there are no documented landfills located within a mile radius of the subject property.

CONCLUSIONS/RECOMMENDATIONS

Consistent with the report language requirements defined under ASTM E-1527-00 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", and more specifically section 11.7 thereto, the following conclusory statements are made:

We (EAI) have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E-1527 of the Proposed Sunset Pointe Residential Plat, located to the east of the intersection of 19th Avenue SE and 21st Street SE, Puyallup, Pierce County, Washington. No exceptions to, or deletions from this practice were made. This Phase I assessment has revealed no evidence of "recognized environmental conditions" as defined by ASTM in connection with the property except for the acknowledged past storage and dispensing of motor fuel (gasoline) associated with vehicles used in commercial mining of gravel in the site vicinity. Additional discussion and guidance is provided below.

HISTORIC ABOVE-GROUND STORAGE AND DISPENSING OF GASOLINE

Referring to Photo #1 on Plate 5 and as discussed briefly in earlier sections of the report, the current occupant of the site (Tanner) disclosed that gasoline was historically stored in and dispensed from multiple above-ground tanks located on the southern part of the property in support of vehicles associated with gravel mining operations. The bottom of one of the tanks was rusted out at the time of our site visit.

In defining the purpose of the Phase 1 environmental site assessment process, section 1.1.1 of ASTM E-1527 advises that the goal of a Phase 1 is to identify "recognized environmental conditions", and defines a recognized environmental condition as:

"the presence or likely presence of any hazardous substances. . . on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances . . . into structures on the property or into the ground, groundwater, or surface water of the property".

By virtue of the materials (motor fuel in substantial volume) stored at the subject site over a potentially extended period, in the context of the ASTM definition, such gasoline storage and dispensing operations appear to qualify as a "recognized environmental condition" for this property.

A list of mitigating factors which may moderate contemporary concerns regarding this aspect of site history from a purchase or lending perspective would include the following:

- (1) No evidence was found in the public record to suggest that a release has occurred at the site;
- (2) No obvious, visually discernable evidence to suggest or confirm that a release had occurred was observed in the course of our (EAI's) visual reconnaissance of the property;
- (3) If the findings of this report were disclosed to the Washington Department of Ecology (WDOE), it is unlikely that the WDOE would impose a requirement for additional studies or other actions upon the property owner, lender(s), or other involved parties.

In summary, without benefit of factual information in the form of sampling and testing in the vicinity of the fuel storage and dispensing area, the strongest conclusion we (EAI) can offer at this time is simply that we are not aware of a specific environmental problem which has been shown to be adversely affecting the environmental integrity of the subject property.

If, for reasons of their own, the client, owner, lender, or other involved parties desire a higher degree of confidence than is afforded by the current level of knowledge, limited but statistically representative shallow subsurface sampling in areas proximal to the former fuel storage and dispensing area supported by appropriate laboratory analysis could be employed to confirm actual subsurface environmental conditions in that area. As strongly implied under section 4.5.3 of ASTM E-1527, decision-making authority in that regard clearly lies with the client and/or other involved parties, depending upon their individual risk tolerances.

NON-CERCLA CONDITIONS

Non-CERCLA conditions of potential environmental significance identified at the subject site include:

- Potential PCB-containing fluorescent light ballasts within the subject buildings.
- Presence of "suspect" asbestos-containing building materials in the form of ceiling/wall plaster, vinyl floor-tile, sheet-vinyl, window glazing, and popcorn ceiling.
- Presence of a white and red lead-containing paint on the exterior of onsite structures.

Guidance with respect to future management of the above-noted non-CERCLA conditions is provided in the following paragraphs.

PCBS

Based upon the information developed during the course of our site review, it appears that some or all of the transformer ballasts in the fluorescent lights in the subject buildings may contain polychlorinated biphenyls (PCBs).

In our opinion, there is no immediate cause for concern regarding the potential for PCB-containing light ballasts. The only likely potential for exposure to PCBs would come in the event that one of the sealed ballasts were ruptured through abusive handling or as a result of a defect in a ballast.

It may be prudent to implement a management policy providing the inspection of ballasts by maintenance personnel during routine bulb changing activities. Ballasts may be periodically checked or replaced depending upon long-term management desires. Please refer to the attached EPA pamphlet, Appendix C, regarding appropriate handling and disposal practices for such ballasts.

ASBESTOS

Borrowing evaluation criteria adopted under the Asbestos Health Emergency Response Act (AHERA, 40 CFR Part 763), the observed potentially asbestos containing materials, enumerated earlier in this report are in "good" condition. In the current use and condition, the materials pose no threat to public health or to the environment.

To reduce exposure to potential future liability, and in an effort to comply with regulations regarding the presence of asbestos in commercial and apartment buildings under Chapter 296-62-07753 WAC, it may be prudent to consider implementation of a management policy (Operations and Maintenance Program/O&M) whereby all maintenance, repair, or service personnel who may be engaged to work

on the property are formally advised (i.e., signed acknowledgment) as to the "suspected" presence of asbestos-containing materials (ACM) prior to commencement of any work associated with the ACM.

Should the owner intend to renovate, demolish, remodel, or repair any or all portions of the structure containing asbestos, please note that applicable sections of WAC 296-65 require that all projects relating to construction, demolition, repair, or maintenance where release or likely release of asbestos fibers into the air could occur must be performed by "certified asbestos workers". Additional information may be obtained through the offices of Environmental Associates, Inc., or directly from the Washington State Department of Labor and Industries, P.O. Box 207, Olympia, Washington 98504. Finally, if future representative sampling and laboratory testing of these suspect materials were to confirm that they do not contain asbestos, these recommendations may logically be disregarded.

LEAD-BASED PAINT

As discussed earlier, a positive qualitative reaction suggesting the likely presence of lead was observed during "Lead Check" testing of the painted wood exterior finishes on several of the buildings located on the southern portion of the property. On the basis of the positive indications, we conclude that lead is most likely present in these areas, and could conceivably be in other areas as well. All painted surfaces were in poor to fair condition. Additional sampling and testing would be required to quantify the concentration of lead and the extent of the lead-bearing paint.

As with asbestos, workers who may have cause to disturb suspect lead-bearing surfaces in future activities as renovation, demolition, etc., should be formally advised of these findings so that they may take appropriate precautions in terms of exposure. Special handling and disposal requirements may apply in the event that lead-bearing painted surfaces are disturbed, removed, or demolished at this facility.

Alternative management approaches to resolve lead paint issues frequently include: (1) painting over paint layers containing lead with high density quality penetrating/sealing paint; or (2) removal of the paint under controlled conditions to prevent the release of lead-bearing paint into the atmosphere. Current thinking on this issue according to U.S. EPA Region 10, is to manage the material in-place until a structure is renovated or demolished.

With the endorsement of the Lead Based Paint Hazard Reduction Act, Title 10, came the need for special care on the part of landlords, consultants, and others who may become involved with lead-bearing structures to minimize potential health hazards as well as legal liabilities. Appendix D to this report provides an informational pamphlet which may be useful in gaining familiarity with concerns and practices relating to lead in residential structures. Additional information and guidance may be obtained directly from Environmental Associates, Inc., or from EPA.

Finally, under Section 1018 of the Residential Lead Based Paint Hazard Reduction Act of 1992 (also known as Title 10), the owner may be required to provide new renters as well as tenants renewing leases with (1) the standard EPA Pamphlet "Protect Your Family from Lead in Your Home" and (2) disclosure of all known lead-based paint occurrences at the facility.

LIMITATIONS

This report has been prepared for the exclusive use of Desert Creek, LLC, along with and their several representatives for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal dated December 29, 2004. Conclusions and opinions offered here pertaining to materials and/or conditions rely solely upon results of sampling and testing conducted by others at separated sampling localities and conditions may vary between sampling localities or at other locations or depths. The environmental condition of subsurface soil and/or groundwater cannot typically be determined by visual examination of surficial conditions such as afforded by the scope of a Phase I audit such as performed here. Acknowledging that limitation, no warranty in that regard is made. No other warranty, expressed or implied, is made. If new information is developed in future site work which may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this report and to provide amendments as required.

The level of effort regarding identification of potential ACM should be considered a reconnaissance, should not be confused with an asbestos survey, and should not be used as a sole informational resource for removal, construction, or abatement bidding purposes.

REFERENCES

GENERAL

Bonneville Power Administration (BPA), January 1993, Radon Monitoring Results from BPA's Residential Conservation Program, Report No. 15, (with April 1993 Map).

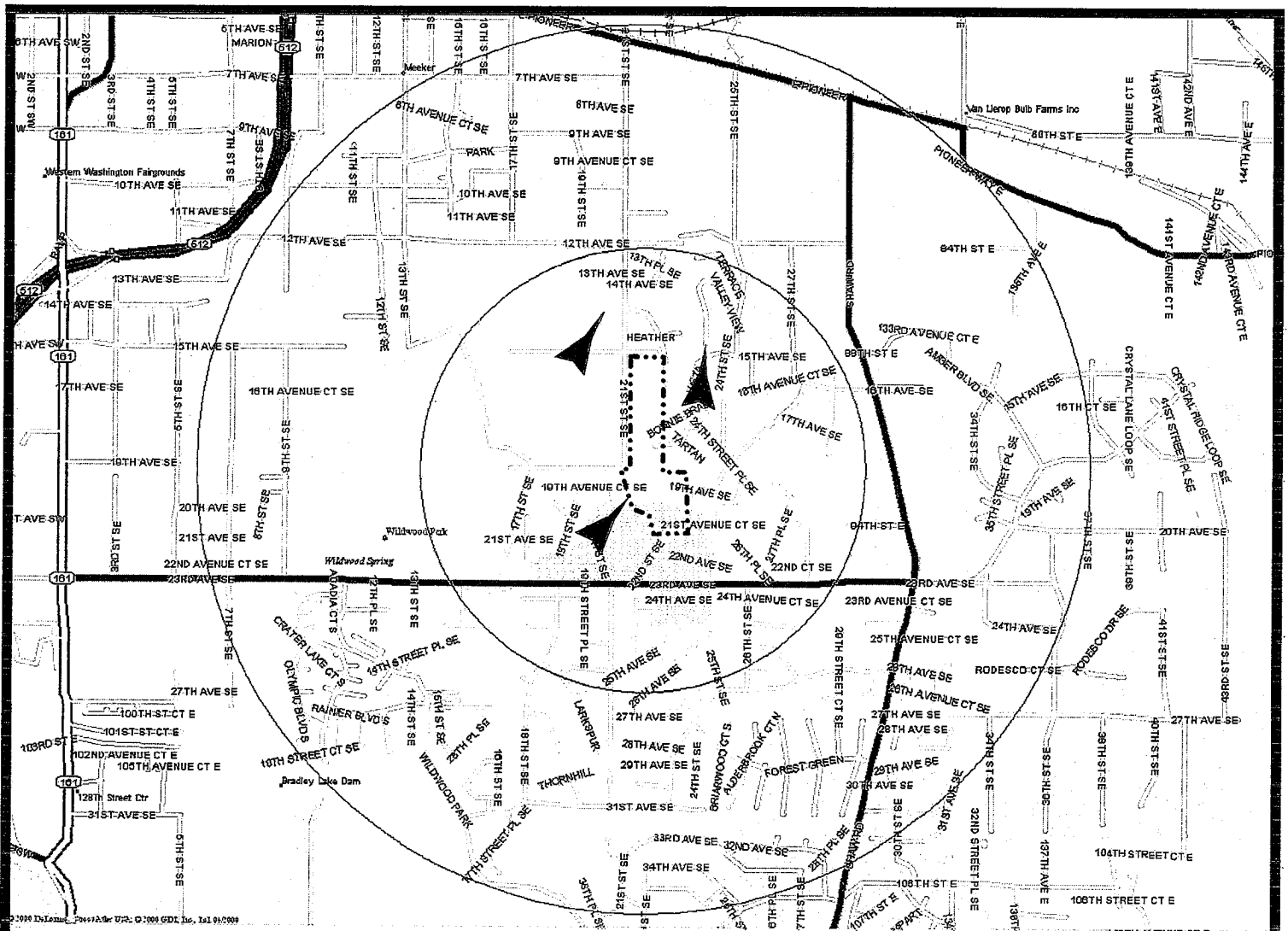
Environmental Protection Agency (EPA), September 1987, Radon Reference Manual EPA 520/1-87-20.

Jones, M.A., 1999, Geological Framework for The Puget Sound Aquifer System, Washington and British Columbia, USGS, Professional Paper 1424-C, plate 11.

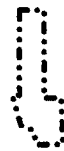
Thomas Brothers Map Co., 1995, The Thomas Guide: King/Pierce/Snohomish Counties.

U.S. EPA, April 1994. Reducing Lead Hazards When Remodeling Your Home. EPA 747-R-94-002. 20 pps.

U.S. Geological Survey, 1961, Puyallup, Washington, 1:24,000 Quadrangle. Photorevised 1981, 1 sheet.



**Inferred Direction of
Groundwater Flow**



Subject Property



Scale

0 1/2 1 mile



**ENVIRONMENTAL
ASSOCIATES, INC.**

1380 112th Avenue N.E., Ste. 300
Bellevue, Washington 98004

VICINITY MAP

**Proposed Sunset Pointe Residential Plat
East of Intersection of 19th Ave SE
and 21st St SE
Puyallup, Washington**

Job Number:

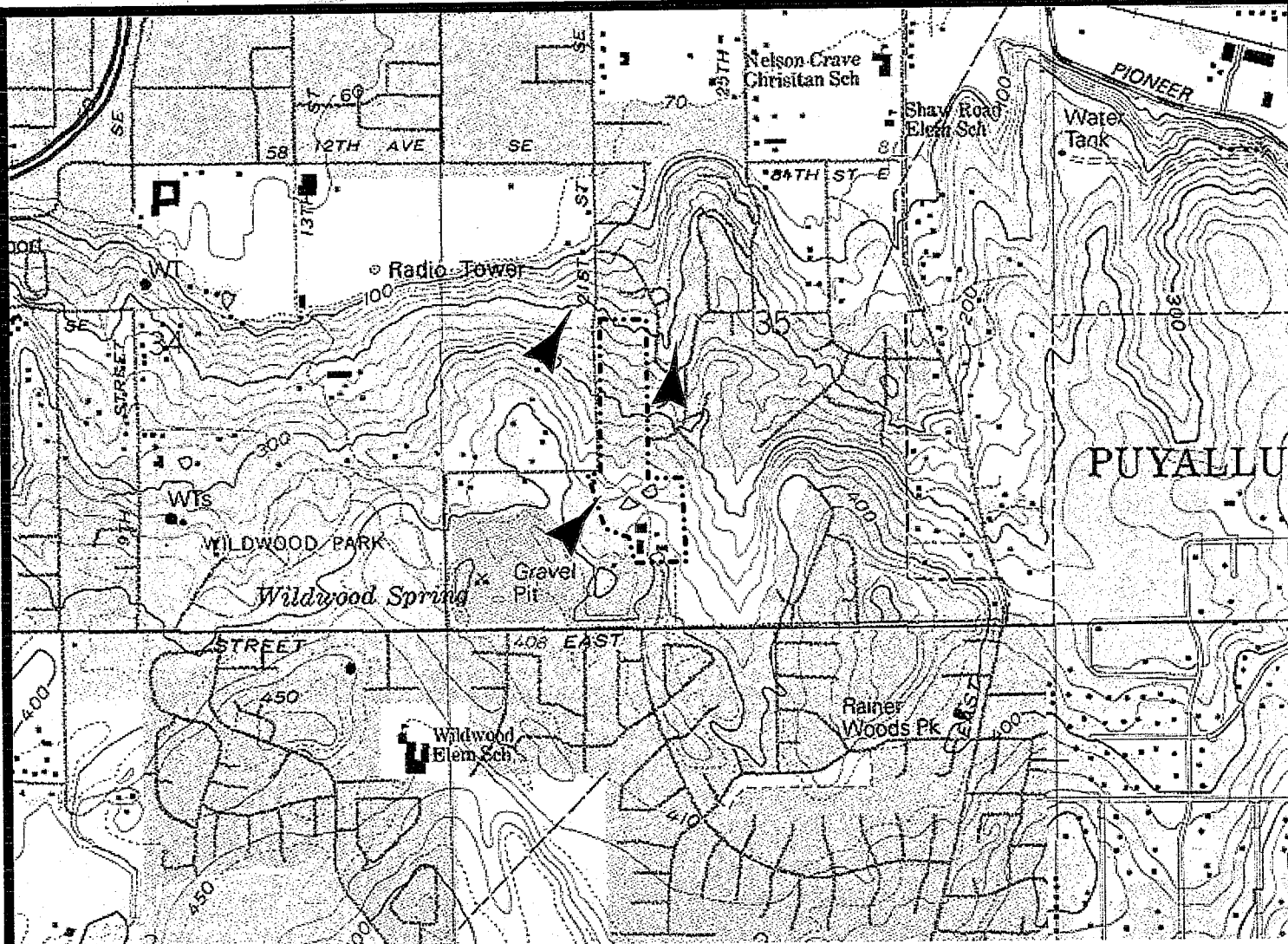
JN 24420

Date:

January 2005

Plate:

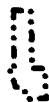
1



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Probable Direction of Regional Groundwater Flow



Subject Property



**ENVIRONMENTAL
ASSOCIATES, INC.**

1380 - 112th Avenue N.E., Ste. 300
Bellevue, Washington 98004

TOPOGRAPHIC MAP
Proposed Sunset Pointe Residential Plat
East of Intersection of 19th Ave SE
and 21st St SE
Puyallup, Washington

Job Number:
JN 24420

Date:
January 2005

Plate:
2



Subject Property

Inferred regional groundwater flow direction



**ENVIRONMENTAL
ASSOCIATES, INC.**

1380 112th Avenue N.E., Ste. 300
Bellevue, Washington 98004

SITE PLAN

**Proposed Sunset Pointe Residential Plat
East of Intersection of 19th Ave SE
and 21st St SE
Puyallup, Washington**

Job Number:

JN 24420

Date:

January 2005

Plate:

3

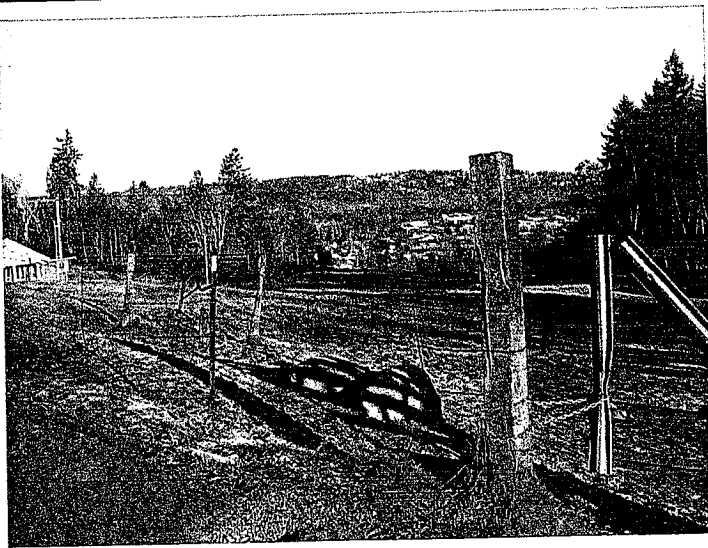


Photo 1: Pasture land on northern portion of the site, as viewed from subject property driveway.

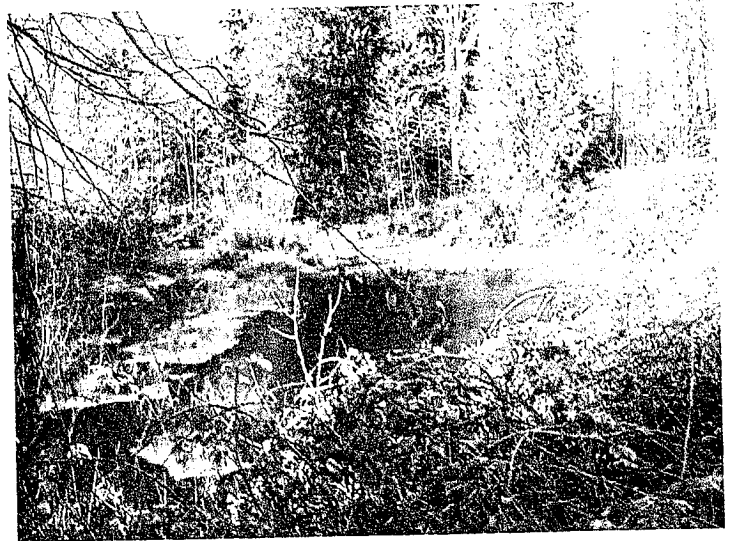


Photo 2: Pond located on southern portion of site. Retaining wall constructed with battery casings is located on northern portion of pond, near location where photo taken from.

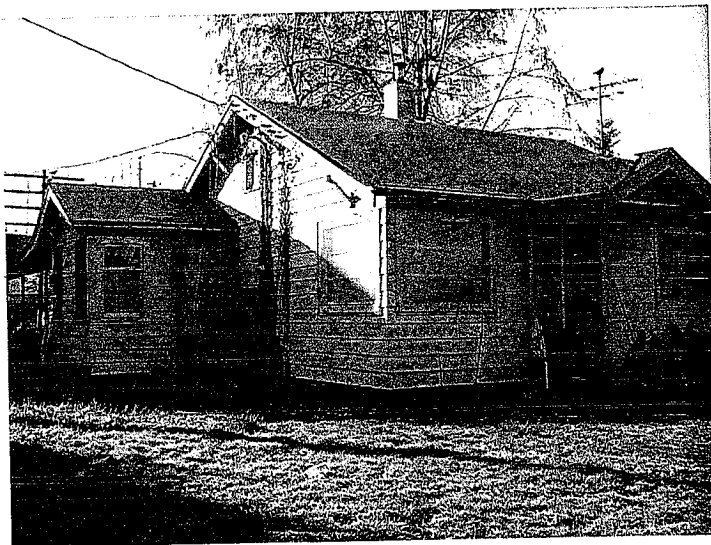


Photo 2: Southern house on subject property. Wood window, door, and other trim painted with a lead containing finish. Siding is aluminum. Lead not detected on siding finish.



Photo 4: Example of barn/storage sheds located on southern portion of site as well as types of refuse accumulated in this area.



ENVIRONMENTAL ASSOCIATES, INC.

1380 - 112th Avenue N.E., Ste. 300
Bellevue, Washington 98004

SITE PHOTOGRAPHS

Proposed Sunset Pointe Residential Plat
East of Intersection of 19th Ave SE
and 21st St SE
Puyallup, Washington

Job Number:
JN 24420

Date:
January 2005

Plate:
4

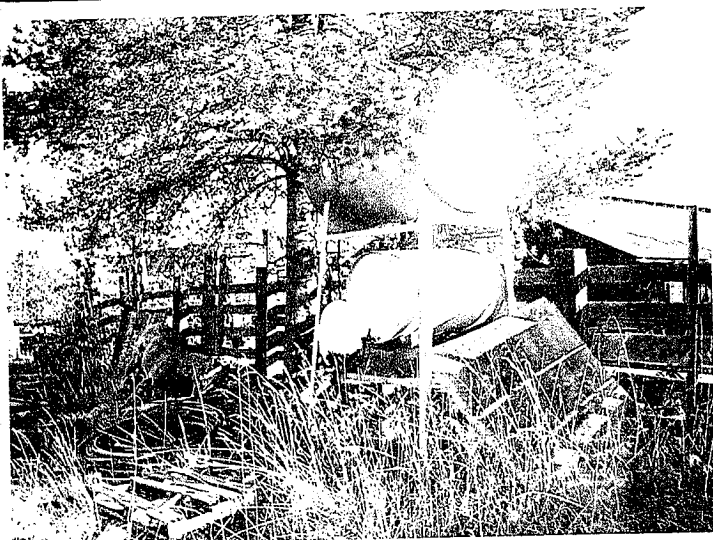


Photo 1: Steel rack containing multiple tanks/drums on southern portion of property. Bottom of lower left drum noted to be rusted out. No staining, odors, or disturbed vegetation noted under tanks.



Photo 2: Northern house observed on subject site. Siding is asphaltic shingle material.



Photo 3: Heating oil tank observed adjacent to southern wall of northern house. Tank appeared to be in good condition.



Photo 4: Household refuse noted in the vicinity of northern house on site.



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1380 - 112th Avenue N.E., Ste. 300
Bellevue, Washington 98004

SITE PHOTOGRAPHS

Proposed Sunset Pointe Residential Plat
East of Intersection of 19th Ave SE
and 21st St SE
Puyallup, Washington

Job Number:

JN 24420

Date:

January 2005

Plate:

5

APPENDIX A
Environmental Database Report

APPENDIX A

Environmental Database Report

TARGET PROPERTY:

2100 19 SE AVE

PUYALLUP WA 98372

Job Number: 24420

Environmental Associates, Inc.

1380 112th Avenue Northeast, Suite 300

Bellevue, Washington 98004

12-30-04

Search Summary Report

Target Site: 2100 19 SE AVE
PUYALLUP WA 98372

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	09-12-04	1.00	0	0	0	0	0	0	0
CERCLIS	Y	09-13-04	0.50	0	0	0	0	-	0	0
NFRAP	Y	06-23-04	0.12	0	0	-	-	-	0	0
RCRA TSD	Y	09-12-04	0.50	0	0	0	0	-	0	0
RCRA COR	Y	09-12-04	1.00	0	0	0	0	0	0	0
RCRA GEN	Y	09-12-04	0.25	0	0	0	-	-	0	0
RCRA NLR	Y	07-12-04	0.12	0	0	-	-	-	0	0
ERNS	Y	12-31-03	0.12	0	0	-	-	-	0	0
NPDES	N	10-17-04	0.12	-	-	-	-	-	-	-
FINDS	N	07-16-98	0.12	-	-	-	-	-	-	-
TRIS	N	11-08-04	0.12	-	-	-	-	-	-	-
State Sites	Y	08-05-04	1.00	0	0	0	0	0	0	0
Spills-1990	N	NA	0.12	-	-	-	-	-	-	-
Spills-1980	N	NA	0.12	-	-	-	-	-	-	-
SWL	Y	11-01-01	0.50	0	0	0	0	-	0	0
Permits	N	NA	0.12	-	-	-	-	-	-	-
Other	N	09-30-03	0.12	-	-	-	-	-	-	-
REG UST/AST	Y	08-05-04	0.25	0	0	0	-	-	0	0
Leaking UST	Y	08-05-04	0.50	0	0	0	0	-	0	0
State Wells	N	NA	0.50	-	-	-	-	-	-	-
Aquifers	N	NA	0.50	-	-	-	-	-	-	-
ACEC	N	NA	0.50	-	-	-	-	-	-	-
Wetlands	N	11-20-00	0.50	-	-	-	-	-	-	-
Floodplains	N	09-01-98	0.50	-	-	-	-	-	-	-
Nuclear Permits	N	04-30-99	0.50	-	-	-	-	-	-	-
Historic/Landmark	N	09-01-02	1.00	-	-	-	-	-	-	-
Federal Land Use	N	10-07-03	1.00	-	-	-	-	-	-	-
Federal Wells	N	05-19-03	0.50	-	-	-	-	-	-	-
Releases(Air/Water)	N	12-31-03	0.05	-	-	-	-	-	-	-
HMIRS	N	03-31-03	0.05	-	-	-	-	-	-	-
NCDB	N	08-30-04	0.12	-	-	-	-	-	-	-
PADS	N	09-14-04	0.12	-	-	-	-	-	-	-
Federal Other	N	12-31-02	0.25	-	-	-	-	-	-	-
Misc	N	NA	0.25	-	-	-	-	-	-	-
Towers	N	08-16-01	0.25	-	-	-	-	-	-	-
Soils	N	03-18-97	0.25	-	-	-	-	-	-	-
Receptors	N	01-01-95	0.50	-	-	-	-	-	-	-
- TOTALS -				0	0	0	0	0	0	0

Site Information Report

Request Date: 12-30-04
Requestor Name: Derek Pulvino
Standard: ASTM

Search Type: COORD
Job Number: 24420

TARGET ADDRESS: 2100 19 SE AVE
PUYALLUP WA 98372

Demographics

Sites: 0 **Non-Geocoded:** 0 **Population:** NA
Radon: -0.1 PCI/L

Site Location

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>		<u>UTMs</u>
Longitude:	-122.265653	-122:15:56	Easting:	555649.053
Latitude:	47.174193	47:10:27	Northing:	5224564.793
			Zone:	10

Comment

Comment:

Additional Requests/Services

Adjacent ZIP Codes: 1 Mile(s)

Services:

ZIP Code	City Name	ST	Dist/Dir	Sel
98374	PUYALLUP	WA	0.29 SW	Y

	Requested?	Date
Sanborns	No	
Aerial Photographs	No	
Topographical Maps	No	
City Directories	No	
Title Search	No	
Municipal Reports	No	
Online Topos	No	

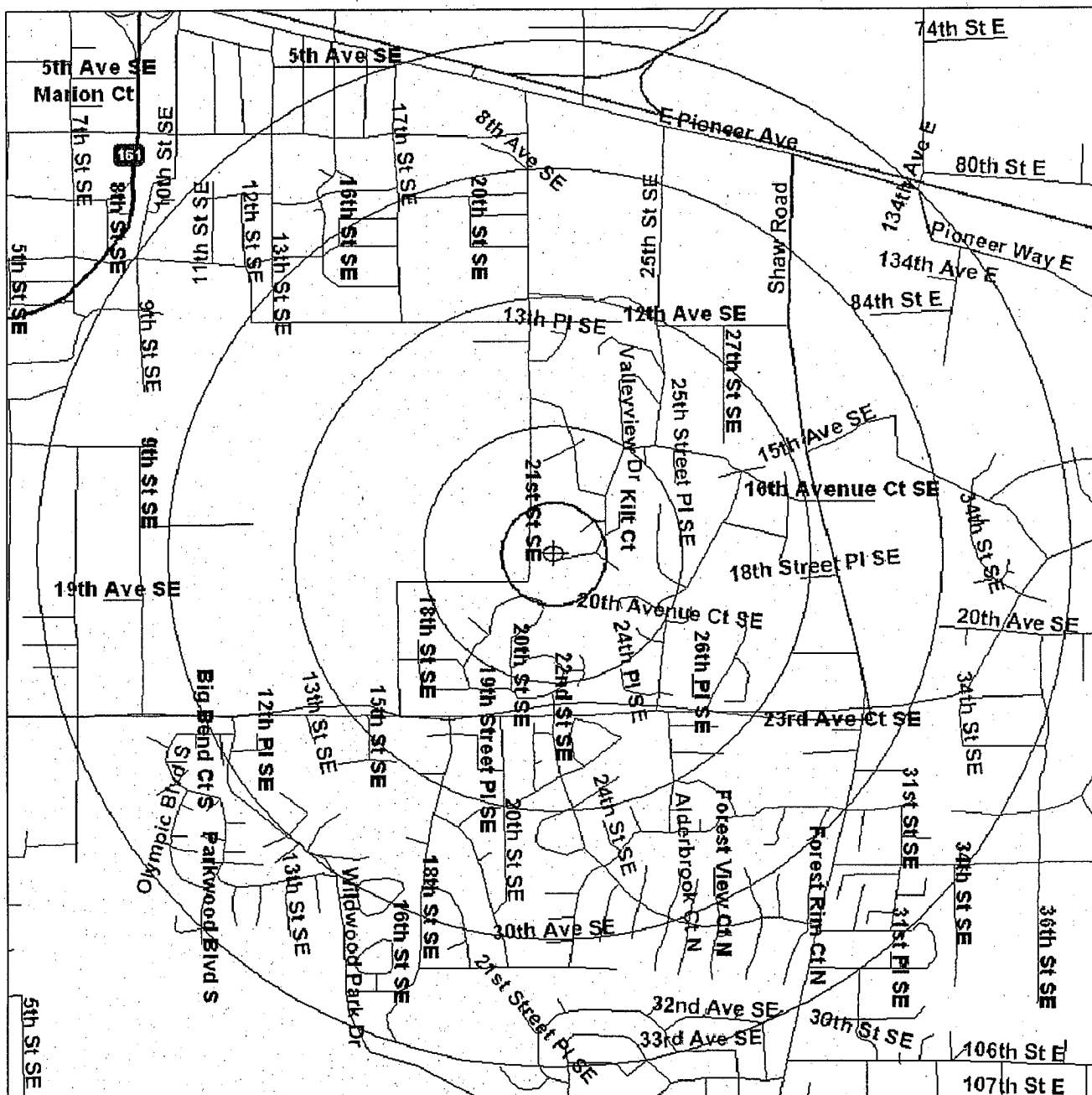
***Environmental FirstSearch
Site Detail Report***

TARGET SITE: 2100 19 SE AVE
PUYALLUP WA 98372

JOB: 24420

No sites were found!

2100 19 SE AVE, PUYALLUP WA 98372



Source: 1999 U.S. Census TIGER Files

Target Site (Latitude: 47.174193 Longitude: -122.265653)

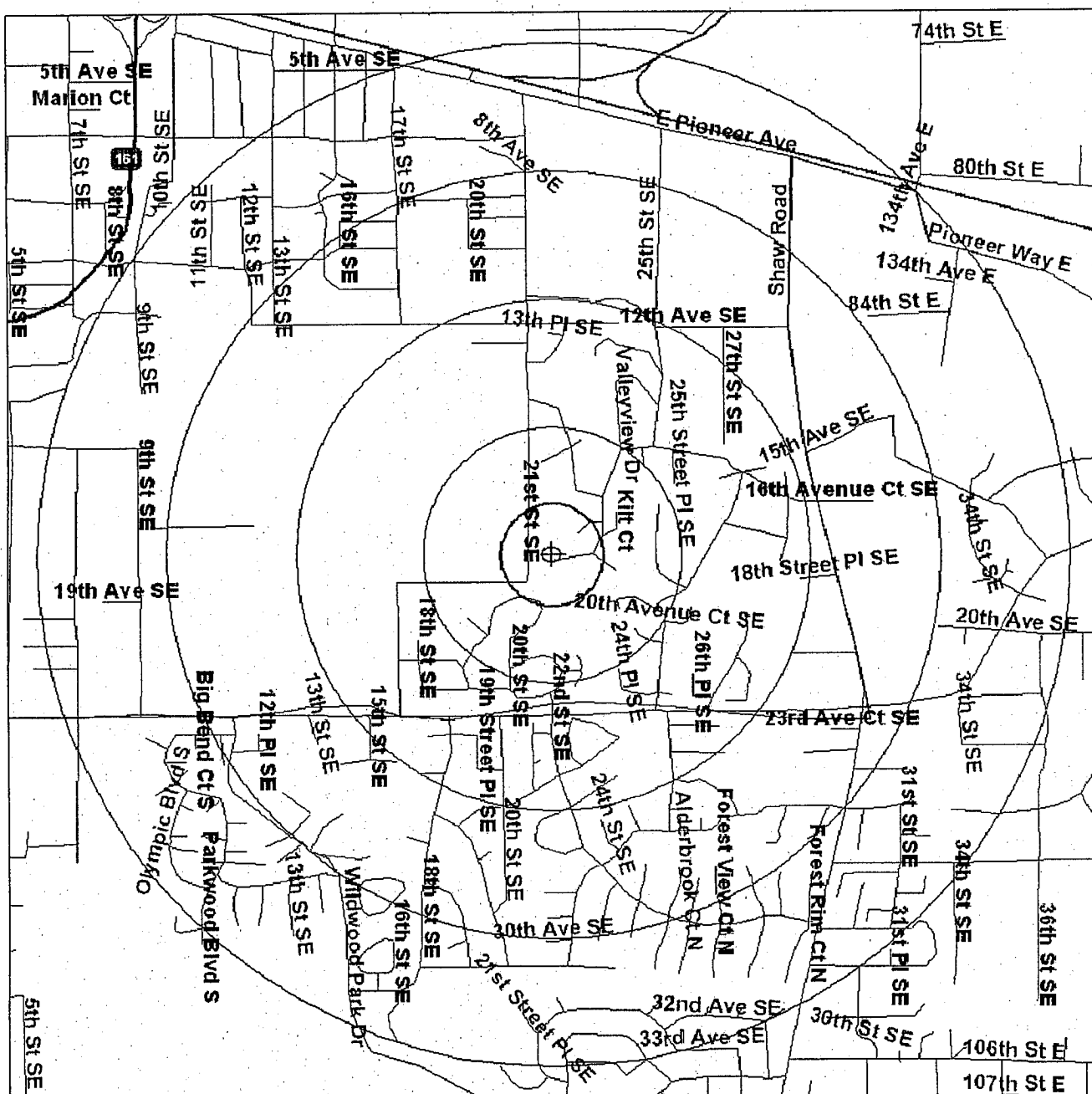
Identified Site, Multiple Sites, Receptor

NPL, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

2100 19 SE AVE, PUYALLUP WA 98372



Source: 1999 U.S. Census TIGER Files

Target Site (Latitude: 47.174193 Longitude: -122.265653)

Identified Site, Multiple Sites, Receptor

NPL, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

APPENDIX B

AHERA Certification Documents

Certificate of Training

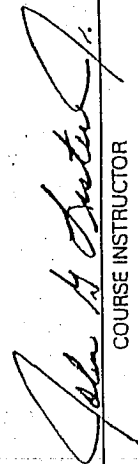
J&J Associates is pleased to certify that

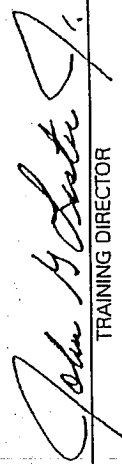
Don Spencer

has attended and successfully completed the
AHERA MANAGEMENT PLANNER REFRESHER

in accordance with
40 CFR Part 763, Subpart E, Appendix C
on this 29th day of September 2004
at Bellevue Washington

Valid through September 29, 2005


COURSE INSTRUCTOR


TRAINING DIRECTOR

J&J040929-MPR-01

ACCREDITATION NO.

J&J ASSOCIATES
550 NW Fairwood Way
Bremerton, Washington 98311
(360) 692-6925

Certificate of Training

J&J Associates is pleased to certify that

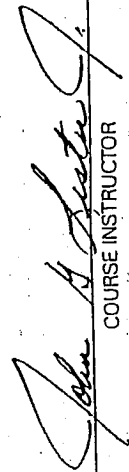
Don Spencer

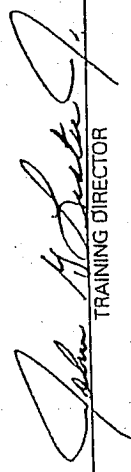
has attended and successfully completed the

AHERA BUILDING INSPECTOR REFRESHER

in accordance with
40 CFR Part 763, Subpart E, Appendix C
on this 29th day of September 2004
at Bellevue Washington

Valid through September 29, 2005


COURSE INSTRUCTOR


TRAINING DIRECTOR

J&J040929-BIR-07

ACCREDITATION NO.

J&J ASSOCIATES

550 NW Fairwood Way
Bremerton, Washington 98311
(360) 692-5925

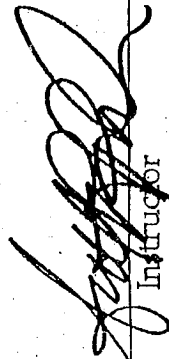
Certificate of Completion

This is to certify that
Derek B. Pulvino
has satisfactorily completed
4 hours of refresher training as an

Asbestos Building Inspector

to comply with the training requirements of
TSCA Title III / 40 CFR 763 (ABIA)

Certificate Number 1010794


Instructor

ARGUS PACIFIC
SAFETY • TRAINING • INDUSTRIAL HYGIENE

Provider Cert. Number: MO9907012

Aug 25, 2004

Date(s) of Training

Exam Score: NA

Expiration Date: Aug 25, 2005

Argus Pacific, Inc. • 1900 W. Nickerson, Suite 315 • Seattle, Washington • 98119 • (206) 285.3373 • fax (206) 285.3927

APPENDIX C
EPA PCB Guidance Document

PCB'S IN FLUORESCENT LIGHT FIXTURES

The purpose of this fact sheet is to provide some basic information on polychlorinated biphenyls (PCBs) and guidelines for handling PCBs in fluorescent light fixtures. Though the precautionary actions described in this fact sheet may seem extreme, or suggest to some that cleanup of a small PCB spill is personally hazardous, this is not generally so. For example, if you should get a small amount of PCB on your skin during cleanup, it is highly unlikely that you would be harmed. However, given the nature of PCBs and the fact that much is still unknown about the effects of minor exposure, no absolute guarantees or reassurances can be given. For that reason, EPA has chosen to describe a conservative approach which minimizes personal hazard. It is EPA's hope that this information will inform you rather than alarm you.

What are PCBs

PCBs belong to a broad family organic chemicals known as chlorinated hydrocarbons. These are produced by the combination of one or more chlorine atoms and a biphenyl molecule. PCBs range in consistency from heavy oil liquids to waxy solids. Prior to 1979, PCBs were widely used in electrical equipment such as transformers, capacitors, switches and voltage regulators for their "cooling" properties because they do not readily burn or conduct electricity, and only boil at high temperatures. Also, PCBs do not readily react with other chemicals. They were also used in mining equipment, heat transfer and hydraulic systems, carbonless copy paper, pigments and microscopy mounting media.

How Does EPA Regulate PCBs?

EPA regulates PCBs through rules issued pursuant to the Toxic Substances Control Act of 1976. These regulations generally control the use, making, storage, records and disposal of PCBs. There are millions of pieces of equipment in operation in the U.S. which were manufactured prior to these regulations and which contain PCBs.

Small Capacitors in Fluorescent Light Ballast's and Cause for Failure

Light ballast's are the primary electric components of fluorescent light fixtures and are generally located within the fixture under a metal cover plate. The ballast units are generally composed of a transformer to reduce the incoming voltage, a small capacitor (which may contain PCBs) and possibly a thermal cut-off switch and/or safety fuse. These components are surrounded by a tarlike substance that is designed to muffle the noise that is inherent in the operation of the ballast. This substance covers the small capacitor. When a ballast unit fails, excessive heat can be generated which will melt or burn the tar material, creating a characteristic foul odor.



Small Capacitors in Fluorescent Light Ballast's and Cause for Failure (continued)

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In considering causes of ballast failure, some privately conducted tests have indicated that operation of power saving lamps with a standard ballast or standard lamps with a power-saving ballast tends to significantly increase the ballast operating temperature and decrease its normal life span. It appears that ballast's will fail less frequently if standard lamps are used only with standard bulbs and power-saving lamps with power-saving ballast's. Fluorescent lamps should be changed in pairs: new lamps should not be used with old lamps.

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Does Your Fluorescent Light Ballast Contain PCBs

Before EPA banned the manufacturing of PCBs in 1978, PCBs were used in the manufacturing of fluorescent light ballast's. The use of PCBs in ballast's manufactured prior to 1978 is not regulated by EPA. All light ballast's manufactured since 1978 which do not contain PCBs should be marked by the manufacturer with the statement "No PCBs." **For those ballast's manufactures prior to 1978, or for those ballast's which contain no statement regarding PCB content, you should assume that they do contain PCBs.**

If the ballast does contain PCBs, they are located inside the small capacitor. These would be approximately 1 to 1 1/2 ounces of PCB fluid in the capacitor itself. If the ballast fails, the capacitor may break open, allowing the PCB oil to drip out of the fixture. The capacitor does not always leak when the ballast fails, but when it does happen, measures should be taken to limit or avoid personal exposure.

What Should I Do if My Light Ballast Leaks

EPA has these recommendations for anyone with fluorescent light ballast leaking PCBs:

1. Vacate the room or area immediately and open any windows to ventilate the room to the outside. If the incident occurred in a room which cannot be vented, the person replacing the failed ballast and cleaning up can reduce exposure by wearing a chemical cartridge respirator equipped with an organic vapor cartridge.
2. Turn off the light fixture at the switch and disconnect electricity at the fuse or breaker box. Let the ballast cool for 20-30 minutes before proceeding.

If the room is fully ventilated, the amount of PCB contaminated particulate matter in the air should decrease significantly enough to make negligible and risk from breathing.

3. Wear rubber gloves that will not absorb PCBs (e.g. neoprene, butyl, or nitrile). Further, if you will be working directly under the fixture, consider using additional protective gear such as goggles (or a face shield) and rubber apron to help guard against possible exposure from further leaking or cleanup activities. Exercise caution to avoid personal contamination's (e.g. from touching your face with a contaminated glove).

During the cleanup or removal period, smoking should be prohibited in the area because smoking increases the inhalation rate of contaminated air. In addition, you may be using a flammable solvent in the cleanup.

4. Remove the fluorescent lamp.

5. Recheck that the power is off at the fuse or breaker box. Remove the metal cover over the wiring and ballast unit, loosen the ballast unit by taking out the metal screws which hold it to the end of the fixture; cut the electrical wires going to the ballast and remove the ballast. Note: Wire connectors can be used when installing new ballast.
6. Proceed to clean up leaks using the following guidelines:

PCBs that leak onto nonabsorbent surfaces such as table tops and uncarpeted floors should first be cleaned up by wiping with a rag or paper towel or by scraping with a putty knife if hardened. Avoid smearing the PCB around. This would only contaminate a larger area. Surfaces should then be thoroughly cleaned twice using an appropriate solvent or detergent. Only certain solvents are effective in cleaning up spilled PCBs. These include mineral spirits, deodorized kerosene, turpentine and rubbing alcohol. Certain detergents containing trisodium phosphate (such as "Soilex" or "Spic 'n Span") may be used. However, they should be used only at full strength and applied with a damp rag rather than diluted in a bucket. That solution would become contaminated and cannot be legally disposed of in the sewer system. Some of the other effective detergent products (which are commercially available) include "Triton X-100" (Rohm-Hass), "Sterox" (Monsanto), and "Power Cleaner 155" (Penetone Corp.). EPA does not endorse these particular products. Other effective products may also be available.

For leaks onto absorbent material such as drapes and carpets, there is no reliable way to clean and decontaminate the material. In the case of rugs and fabrics, the material should be cut away in a six-inch radius around the contaminated point(s). In areas where foot traffic has spread contamination the entire carpet should be disposed of. Proper disposal procedures for all such materials are described in the following section. Associated surfaces, such as flooring under contaminated carpeting, should be thoroughly cleaned with a solvent or detergent as previously described.

7. Contaminated materials (ballast's, rags, contaminated clothing, gloves, drapes, carpets, etc) should be packed into crumpled newspapers or other sorbent materials (sawdust, kitty litter, vermiculite, soil, etc.) and placed in a double thickness plastic bag. After containing the PCBs, a disposal facility should be contacted for pickup, manifesting and shipment. The PCB materials will be packed in a drum approved for PCBs by the Department of Transportation and finally disposed of at an EPA approved site.

(One might consider discarding the entire light fixture instead of decontaminating the unit. This would eliminate the chance of skin coming into direct contact with the PCBs while cleaning inside the light fixture.)

When you are completely through with the cleanup process, and contaminated materials and protective clothing have been packed for disposal, you should wash your hands thoroughly with detergent. Continue to ventilate the room for 24 hours before reuse.

How to Get Rid of Your PCBs

Arrangements must be made with a facility for the pick-up, manifesting and shipment of ballast's, PCB-soiled items or fluorescent fixtures containing PCBs, to an EPA approved chemical waste processing site. These firms will also perform minor PCB spill cleanups and arrange for the removal of PCB capacitors. If you don't find a nearby facility, please check the telephone yellow pages under waste disposal. If you have further questions, please call EPA's regional office in Chicago at 312/886-6832, Toxic Program Section.

Non-leaking small PCB capacitors (lighting ballast's) are not required to be incinerated. They should be placed in a U.S. DOT approved drum with adequate absorbent, and disposal of in an approved landfill unless regulated under N.R.E.P.A. 451 PA 1994: Part 111 (hazardous waste regulations). NOTE: PCB's are not regulated as hazardous waste, however there may be other components in the ballast which would cause it to test out as a hazardous waste.

* this fact sheet has been duplicated and updated from a prior EPA publication

(doc/y/PCBs.doc/1/20/97/EAB)

APPENDIX D

OSHA 3142 - Lead In Construction

Lead in Construction

This informational booklet provides a general overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the Courts for additional guidance on OSHA compliance requirements.

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Lead in Construction



U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3142-09R
2003

Contents

Health Hazards of Lead Exposure...	3
Worker Exposure...	5
Construction Workers and Lead Exposure...	5
OSHA's Lead Standard...	6
Employer Responsibilities...	8
Hazard Assessment...	9
Medical Surveillance...	12
Medical Removal Provisions...	14
Recordkeeping...	16
Exposure Reduction and Employee Protection...	18
Engineering Controls...	18
Housekeeping and Personal Hygiene...	21
Protective Clothing and Equipment...	24
Respiratory Protection...	26
Employee Information and Training...	29
OSHA Assistance, Services, and Products...	30
OSHA Regional Office Directory...	36



Health Hazards of Lead Exposure

Pure lead (Pb) is a heavy metal at room temperature and pressure. A basic chemical element, it can combine with various other substances to form numerous lead compounds.

Lead has been poisoning workers for thousands of years. Lead can damage the central nervous system, cardiovascular system, reproductive system, hematological system, and kidneys. When absorbed into the body in high enough doses, lead can be toxic.

In addition, workers' lead exposure can harm their children's development.

Short-term (acute) overexposure—as short as days—can cause acute encephalopathy, a condition affecting the brain that develops quickly into seizures, coma, and death from cardiorespiratory arrest. Short-term occupational exposures of this type are highly unusual but not impossible.

Extended, long-term (chronic) overexposure can result in severe damage to the central nervous system, particularly the brain. It can also damage the blood-forming, urinary, and reproductive systems. There is no sharp dividing line between rapidly developing acute effects of lead and chronic effects that take longer to develop.

SYMPTOMS OF CHRONIC OVEREXPOSURE

Some of the common symptoms include:

- Loss of appetite;
- Constipation;
- Nausea;
- Excessive tiredness;
- Headache;
- Fine tremors;
- Colic with severe abdominal pain;
- Metallic taste in the mouth;
- Weakness;
- Nervous irritability;
- Hyperactivity;



- Muscle and joint pain or soreness;
- Anxiety;
- Pallor;
- Insomnia;
- Numbness; and
- Dizziness.

REPRODUCTIVE RISKS

Lead is toxic to both male and female reproductive systems. Lead can alter the structure of sperm cells and there is evidence of miscarriage and stillbirth in women exposed to lead or whose partners have been exposed. Children born to parents who were exposed to excess lead levels are more likely to have birth defects, mental retardation, or behavioral disorders or to die during the first year of childhood.

Workers who desire medical advice about reproductive issues related to lead should contact qualified medical personnel to arrange for a job evaluation and medical followup—particularly if they are pregnant or actively seeking to have a child. Employers whose employees may be exposed to lead and who have been contacted by employees with concerns about reproductive issues must make medical examinations and consultations available.

CHELATING AGENTS

Under certain limited circumstances, a physician may prescribe special drugs called chelating agents to reduce the amount of lead absorbed in body tissues. Using chelation as a preventive measure—that is, to lower blood level but continue to expose a worker—is prohibited and therapeutic or diagnostic chelations of lead that are required must be done under the supervision of a licensed physician in a clinical setting, with thorough and appropriate medical monitoring. The employee must be notified in writing before treatment of potential consequences and allowed to obtain a second opinion.



Worker Exposure

Lead is most commonly absorbed into the body by inhalation. When workers breathe in lead as a dust, fume, or mist, their lungs and upper respiratory tract absorb it into the body. They can also absorb lead through the digestive system if it enters the mouth and is ingested.

A significant portion of the lead inhaled or ingested gets into the bloodstream. Once in the bloodstream, lead circulates through the body and is stored in various organs and body tissues. Some of this lead is filtered out of the body quickly and excreted, but some remains in the blood and tissues. As exposure continues, the amount stored will increase if the body absorbs more lead than it excretes. The lead stored in the tissue can slowly cause irreversible damage, first to individual cells, then to organs and whole body systems.

Construction Workers and Lead Exposure

HOW LEAD IS USED

In construction, lead is used frequently for roofs, cornices, tank linings, and electrical conduits. In plumbing, soft solder, used chiefly for soldering tinplate and copper pipe joints, is an alloy of lead and tin. Soft solder has been banned for many uses in the United States. In addition, the Consumer Product Safety Commission bans the use of lead-based paint in residences. Because lead-based paint inhibits the rusting and corrosion of iron and steel, however, lead continues to be used on bridges, railways, ships, lighthouses, and other steel structures, although substitute coatings are available.

Construction projects vary in their scope and potential for exposing workers to lead and other hazards. Projects such as removing paint from a few interior residential doors may involve limited exposure. Others projects, however, may involve removing or stripping substantial quantities of lead-based paints on large bridges and other structures.

MOST VULNERABLE WORKERS

Workers potentially at risk for lead exposure include those involved in iron work; demolition work; painting; lead-based paint



abatement; plumbing; heating and air conditioning maintenance and repair; electrical work; and carpentry, renovation, and remodeling work. Plumbers, welders, and painters are among those workers most exposed to lead. Significant lead exposures also can arise from removing paint from surfaces previously coated with lead-based paint such as bridges, residences being renovated, and structures being demolished or salvaged. With the increase in highway work, bridge repair, residential lead abatement, and residential remodeling, the potential for exposure to lead-based paint has become more common.

Workers at the highest risk of lead exposure are those involved in:

- Abrasive blasting and
- Welding, cutting, and burning on steel structures.

Other operations with the potential to expose workers to lead include:

- Lead burning;
- Using lead-containing mortar;
- Power tool cleaning without dust collection systems;
- Rivet busting;
- Cleanup activities where dry expendable abrasives are used;
- Movement and removal of abrasive blasting enclosures;
- Manual dry scraping and sanding;
- Manual demolition of structures;
- Heat-gun applications;
- Power tool cleaning with dust collection systems; and
- Spray painting with lead-based paint.

OSHA's Lead Standard

OSHA's Lead Standard for the Construction Industry, Title 29 Code of Federal Regulations 1926.62, covers lead in a variety of forms, including metallic lead, all inorganic lead compounds, and organic lead soaps.

EXPOSURE LIMITS

The standard establishes maximum limits of exposure to lead for all workers covered, including a permissible exposure limit (PEL) and action level (AL).

The PEL sets the maximum worker exposure to lead: 50 micrograms of lead per cubic meter of air (50µg/m³) averaged over an eight-hour period. If employees are exposed to lead for more than eight hours in a workday, their allowable exposure as a TWA for that day must be reduced according to this formula:

Employee exposure (in µg/m³) = 400 divided by the hours worked in the day.

The AL, regardless of respirator use, is an airborne concentration of 30µg/m³, averaged over an eight-hour period. The AL is the level at which an employer must begin specific compliance activities outlined in the standard.

APPLICABILITY TO CONSTRUCTION

OSHA's lead in construction standard applies to all construction work where an employee may be exposed to lead. All work related to construction, alteration, or repair, including painting and decorating, is included. Under this standard, construction includes, but is not limited to:

- Demolition or salvage of structures where lead or materials containing lead are present;
- Removal or encapsulation of materials containing lead;
- New construction, alteration, repair, or renovation of structures, substrates, or portions or materials containing lead;
- Installation of products containing lead;
- Lead contamination from emergency cleanup;
- Transportation, disposal, storage, or containment of lead or materials containing lead where construction activities are performed; and
- Maintenance operations associated with these construction activities.

Employer Responsibilities

WORKER PROTECTIONS

Employers of construction workers are responsible for developing and implementing a worker protection program. At a minimum, the employer's worker protection program for employees exposed to lead above the PEL should include:

- Hazard determination, including exposure assessment;
- Medical surveillance and provisions for medical removal;
- Job-specific compliance programs;
- Engineering and work practice controls;
- Respiratory protection;
- Protective clothing and equipment;
- Housekeeping;
- Hygiene facilities and practices;
- Signs;
- Employee information and training; and
- Recordkeeping.

Because lead is a cumulative and persistent toxic substance and health effects may result from exposure over prolonged periods, employers must use these precautions where feasible to minimize employee exposure to lead.

The employer should, as needed, consult a qualified safety and health professional to develop and implement an effective, site-specific worker protection program. These professionals may work independently or may be associated with an insurance carrier, trade organization, or onsite consultation program.

ELEMENTS OF A COMPLIANCE PROGRAM

For each job where employee exposure exceeds the PEL, the employer must establish and implement a written compliance program to reduce employee exposure to the PEL or below. The compliance program must provide for frequent and regular inspections of job sites, materials, and equipment by a competent person. Written programs, which must be reviewed and updated at least every six months, must include:



- A description of each activity in which lead is emitted (such as equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices);
- The means to be used to achieve compliance and engineering plans and studies used to determine the engineering controls selected where they are required;
- Information on the technology considered to meet the PEL;
- Air monitoring data that document the source of lead emissions;
- A detailed schedule for implementing the program, including copies of documentation (such as purchase orders for equipment, construction contracts);
- A work practice program;
- An administrative control schedule, if applicable; and
- Arrangements made among contractors on multi-contractor sites to inform employees of potential lead exposure.

Hazard Assessment

An employer is required to conduct an initial employee exposure assessment of whether employees are exposed to lead at or above the AL based on:

- Any information, observation, or calculation that indicates employee exposure to lead;
- Any previous measurements of airborne lead; and
- Any employee complaints of symptoms attributable to lead exposure.

Objective data and historical measurements of lead may be used to satisfy the standard's initial monitoring requirements.

INITIAL EMPLOYEE EXPOSURE ASSESSMENT

Initial monitoring may be limited to a representative sample of those employees exposed to the greatest concentrations of airborne lead. Representative exposure sampling is permitted when there are a number of employees performing the same job, with



lead exposure of similar duration and level, under essentially the same conditions. For employees engaged in similar work, the standard requires that the members of the group reasonably expected to have the highest exposure levels be monitored. This result is then attributed to the other employees of the group.

The employer must establish and maintain an accurate record documenting the nature and relevancy of previous exposure data. Instead of performing initial monitoring, the employer may in some cases rely on objective data that demonstrate that a particular lead-containing material or product cannot result in employee exposure at or above the action level when it is processed, used, or handled.

BIOLOGICAL MONITORING TESTS

Analysis of blood lead samples must be conducted by an OSHA-approved lab and be accurate (to a confidence level of 95 percent) within plus or minus 15 percent, or 6 µg/dl, whichever is greater. If an employee's airborne lead level is at or above the AL for more than 30 days in any consecutive 12 months, the employer must make biological monitoring available on the following schedule:

- At least every two months for the first six months and every six months thereafter for employees exposed at or above the action level for more than 30 days annually;
- At least every two months for employees whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/dl; and
- At least monthly while an employee is removed from exposure due to an elevated blood lead level.

PENDING EMPLOYEE EXPOSURE ASSESSMENT

Until the employer performs an exposure assessment and documents that employees are not exposed above the PEL, OSHA requires some degree of interim protection for employees. This means providing respiratory protection, protective work clothing and equipment, hygiene facilities, biological monitoring, and training—as specified by the standards—for certain tasks prone to produce high exposure. These include:



- Manual demolition of structures such as dry wall, manual scraping, manual sanding, and use of a heat gun where lead-containing coatings or paints are present;
- Power tool cleaning with or without local exhaust ventilation;
- Spray painting with lead-containing paint;
- Lead burning;
- Use of lead-containing mortar;
- Abrasive blasting, rivet busting, welding, cutting, or torch-burning on any structure where lead-containing coatings or paint are present;
- Abrasive blasting enclosure movement and removal;
- Cleanup of activities where dry expendable abrasives are used; and
- Any other task the employer believes may cause exposures in excess of the PEL.

TEST RESULTS SHOWING NO OVEREXPOSURES

If the initial assessment indicates that no employee is exposed above the AL, the employer may discontinue monitoring. Further exposure testing is not required unless there is a change in processes or controls that may result in additional employees being exposed to lead at or above the AL, or may result in employees already exposed at or above the AL being exposed above the PEL. The employer must keep a written record of the determination, including the date, location within the work site, and the name and social security number of each monitored employee.

EMPLOYEE NOTIFICATION OF MONITORING RESULTS

The employer must notify each employee in writing of employee exposure assessment results within five working days of receiving them. Whenever the results indicate that the representative employee exposure, without the use of respirators, is above the PEL, the employer must include a written notice stating that the employee's exposure exceeded the PEL and describing corrective action taken or to be taken to reduce exposure to or below the PEL.



Medical Surveillance

When an employee's airborne exposure is at or above the AL for more than 30 days in any consecutive 12 months, an immediate medical consultation is required when the employee notifies the employer that he or she:

- Has developed signs or symptoms commonly associated with lead-related disease;
- Has demonstrated difficulty in breathing during respirator use or a fit test;
- Desires medical advice concerning the effects of past or current lead exposure on the employee's ability to have a healthy child; and
- Is under medical removal and has a medically appropriate need.

MEDICAL EXAMS

The best indicator of personal lead exposure is through a blood test to indicate elevated blood lead levels. A medical exam must also include:

- Detailed work and medical histories, with particular attention to past lead exposure (occupational and nonoccupational), personal habits (smoking and hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurological problems;
- A thorough physical exam, with particular attention to gums, teeth, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems; evaluation of lung function if respirators are used;
- A blood pressure measurement;
- A blood sample and analysis to determine blood lead level;
 - Hemoglobin and hematocrit determinations, red cell indices, and an exam of peripheral smear morphology; and
 - Zinc protoporphyrin; blood urea nitrogen; and serum creatinine;
- A routine urinalysis with microscopic exam; and
- Any lab or other test the examining physician deems necessary.



INFORMATION FOR THE EXAMINING PHYSICIAN

The employer must provide all examining physicians with a copy of the lead in construction standard, including all appendices, a description of the affected employee's duties as they relate to the employee's exposure, the employee's lead exposure level or anticipated exposure level, a description of personal protective equipment used or to be used, prior blood lead determinations, and all prior written medical opinions for the employee.

WHEN MONITORING SHOWS NO EMPLOYEE EXPOSURES ABOVE THE AL

Employers must make available, at no cost to the employee, initial medical surveillance for employees exposed to lead on the job at or above the action level on any one day per year. This initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin (ZPP) levels. In addition, a medical surveillance program with biological monitoring must be made available to any employee exposed at or above the action level for more than 30 days in any consecutive 12 months.

AFTER THE MEDICAL EXAMINATION

Employers must obtain and provide the employee a copy of a written opinion from each examining or consulting physician that contains only information related to occupational exposure to lead and must include:

- Whether the employee has any detected medical condition that would increase the health risk from lead exposure;
- Any special protective measures or limitations on the worker's exposure to lead;
- Any limitation on respirator use; and
- Results of the blood lead determinations.

In addition, the written statement may include a statement that the physician has informed the employee of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.



The employer must instruct the physician that findings, including lab results or diagnoses unrelated to the worker's lead exposure, must not be revealed to the employer or included in the written opinion to the employer. The employer must also instruct the physician to advise employees of any medical condition, occupational or non-occupational, that necessitates further evaluation or treatment. In addition, some states also require laboratories and health care providers to report cases of elevated blood lead concentrations to their state health departments.

Medical Removal Provisions

Temporary medical removal can result from an elevated blood level or a written medical opinion. More specifically, the employer is required to remove from work an employee with a lead exposure at or above the AL each time periodic and follow-up (within two weeks of the periodic test) blood sampling tests indicate that the employee's blood level is at or above 50 µg /dl. The employer also must remove from work an employee with lead exposure at or above the AL each time a final medical determination indicates that the employee needs reduced lead exposure for medical reasons. If the physician who is implementing the employer's medical program makes a final written opinion recommending the employee's removal or other special protective measures, the employer must implement the physician's recommendation.

For an employee removed from exposure to lead at or above the AL due to a blood lead level at or above 50 µg/dl, the employer may return that employee to former job status when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40 µg /dl. For an employee removed from exposure to lead due to a final medical determination, the employee must be returned when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition that places the employee at increased risk of lead exposure.

The employer must remove any limitations placed on employees or end any special protective measures when a subse-

quent final medical determination indicates they are no longer necessary. If the former position no longer exists, the employee is returned consistent with whatever job assignment discretion the employer would have had if no removal occurred.

WORKER PROTECTIONS AND BENEFITS

The employer must provide up to 18 months of medical removal protection (MRP) benefits each time an employee is removed from lead exposure or medically limited. As long as the position/job exists, the employer must maintain the earnings, seniority, and other employment rights and benefits as though the employee had not been removed from the job or otherwise medically limited. The employer may condition medical removal protection benefits on the employee's participation in followup medical surveillance.

If a removed employee files a worker's compensation claim or other compensation for lost wages due to a lead-related disability, the employer must continue medical removal protection benefits until the claim is resolved. However, the employer's MRP benefits obligation will be reduced by the amount that the employee receives from these sources. Also, the employer's MRP benefits obligation will be reduced by any income the employee receives from employment with another employer made possible by virtue of the employee's removal.

RECORDS REQUIREMENTS INVOLVING MEDICAL REMOVAL

In the case of medical removal, the employer's records must include:

- The worker's name and social security number,
- The date of each occasion that the worker was removed from current exposure to lead,
- The date when the worker was returned to the former job status,
- A brief explanation of how each removal was or is being accomplished, and
- A statement indicating whether the reason for the removal was an elevated blood lead level.

Recordkeeping

EMPLOYER REQUIREMENTS

The employer must maintain any employee exposure and medical records to document ongoing employee exposure, medical monitoring, and medical removal of workers. This data provides a baseline to evaluate the employee's health properly. Employees or former employees, their designated representatives, and OSHA must have access to exposure and medical records in accordance with 29 CFR 1910.1020. Rules of agency practice and procedure governing OSHA access to employee medical records are found in 29 CFR 1913.10.

EXPOSURE ASSESSMENT RECORDS

The employer must establish and maintain an accurate record of all monitoring and other data used to conduct employee exposure assessments as required by this standard and in accordance with 29 CFR 1910.1020. The exposure assessment records must include:

- The dates, number, duration, location, and results of each sample taken, including a description of the sampling procedure used to determine representative employee exposure;
- A description of the sampling and analytical methods used and evidence of their accuracy;
- The type of respiratory protection worn, if any;
- The name, social security number, and job classification of the monitored employee and all others whose exposure the measurement represents; and
- Environmental variables that could affect the measurement of employee exposure.

MEDICAL SURVEILLANCE RECORDS

The employer must maintain an accurate record for each employee subject to medical surveillance, including:

- The name, social security number, and description of the employee's duties;
- A copy of the physician's written opinions;



- The results of any airborne exposure monitoring done for the employee and provided to the physician; and
- Any employee medical complaints related to lead exposure. In addition, the employer must keep or ensure that the examining physician keeps the following medical records:
 - A copy of the medical examination results including medical and work history;
 - A description of the laboratory procedures and a copy of any guidelines used to interpret the test results; and
 - A copy of the results of biological monitoring.
- The employer or physician or both must maintain medical records in accordance with 29 CFR 1910.1020.

DOCUMENTS FOR EMPLOYEES SUBJECT TO MEDICAL REMOVAL

The employer must maintain--for at least the duration of employment--an accurate record for each employee subject to medical removal, including:

- The name and social security number of the employee;
- The date on each occasion that the employee was removed from current exposure to lead and the corresponding date which the employee was returned to former job status;
- A brief explanation of how each removal was or is being accomplished; and
- A statement about each removal indicating whether the reason for removal was an elevated blood level.

EMPLOYER REQUIREMENTS RELATED TO OBJECTIVE DATA

The employer must establish and maintain an accurate record documenting the nature and relevancy of objective data relied on to assess initial employee exposure in lieu of exposure monitoring. The employer must maintain the record of objective data relied on for at least 30 years.

DOCUMENTS FOR OSHA AND NIOSH REVIEW

The employer must make all records--including exposure monitoring, objective data, medical removal, and medical records--

17



available upon request to affected employees, former employees, and their designated representatives and to the OSHA Assistant Secretary and the Director of the National Institute for Occupational Safety and Health (NIOSH) for examination and copying in accordance with 29 CFR 1910.1020.

WHEN CLOSING A BUSINESS

When an employer ceases to do business, the successor employer must receive and retain all required records. If no successor is available, these records must be sent to the Director of NIOSH.

Exposure Reduction and Employee Protection

The most effective way to protect workers is to minimize their exposure through engineering controls, good work practices and training, and use of personal protective clothing and equipment, including respirators, where required. The employer needs to designate a competent person capable of identifying existing and predictable lead hazards and who is authorized to take prompt corrective measures to eliminate such problems. The employer should, as needed, consult a qualified safety and health professional to develop and implement an effective worker protection program. These professionals may work independently or may be associated with an insurance carrier, trade organization, or onsite consultation program.

Engineering Controls

Engineering measures include local and general exhaust ventilation, process and equipment modification, material substitution, component replacement, and isolation or automation. Examples of recommended engineering controls that can help reduce worker exposure to lead are described as follows.

EXHAUST VENTILATION

Equip power tools used to remove lead-based paint with dust collection shrouds or other attachments so that paint is exhausted

18

through a high-efficiency particulate air (HEPA) vacuum system. For operations such as welding, cutting/burning, or heating, use local exhaust ventilation. Use HEPA vacuums during cleanup operations.

For abrasive blasting operations, build a containment structure that is designed to optimize the flow of clean ventilation air past the workers' breathing zones. This will help reduce the exposure to airborne lead and increase visibility. Maintain the affected area under negative pressure to reduce the chances that lead dust will contaminate areas outside the enclosure. Equip the containment structure with an adequately sized dust collector to control emissions of particulate matter into the environment.

ENCLOSURE OR ENCAPSULATION

One way to reduce the lead inhalation or ingestion hazard posed by lead-based paint is to encapsulate it with a material that bonds to the surface, such as acrylic or epoxy coating or flexible wall coverings. Another option is to enclose it using systems such as gypsum wallboard, plywood paneling, and aluminum, vinyl, or wood exterior siding. Floors coated with lead-based paint can be covered using vinyl tile or linoleum.

The building owner or other responsible person should oversee the custodial and maintenance staffs and contractors during all activities involving enclosed or encapsulated lead-based paint. This will minimize the potential for an inadvertent lead release during maintenance, renovation, or demolition.

SUBSTITUTION

Choose materials and chemicals that do not contain lead for construction projects. Among the options are:

- Use zinc-containing primers covered by an epoxy intermediate coat and polyurethane topcoat instead of lead-containing coatings.
- Substitute mobile hydraulic shears for torch cutting under certain circumstances.
- Consider surface preparation equipment such as needle guns with multiple reciprocating needles completely enclosed within an adjustable shroud, instead of abrasive blasting under certain

conditions. The shroud captures dust and debris at the cutting edge and can be equipped with a HEPA vacuum filtration with a self-drumming feature. One such commercial unit can remove lead-based paint from flat steel and concrete surfaces, outside edges, inside corners, and pipes.

- Choose chemical strippers in lieu of hand scraping with a heat gun for work on building exteriors, surfaces involving carvings or molding, or intricate iron work. Chemical removal generates less airborne lead dust. (Be aware, however, that these strippers themselves can be hazardous and that the employer must review the material safety data sheets (MSDSs) for these stripping agents to obtain information on their hazards.)

COMPONENT REPLACEMENT

Replace lead-based painted building components such as windows, doors, and trim with new components free of lead-containing paint. Another option is to remove the paint offsite and then repaint the components with zinc-based paint before replacing them.

PROCESS OR EQUIPMENT MODIFICATION

When applying lead paints or other lead-containing coatings, use a brush or roller rather than a sprayer. This application method introduces little or no paint mist into the air to present a lead inhalation hazard. (Note that there is a ban on the use of lead-based paint in residential housing.)

Use non-silica-containing abrasives such as steel or iron shot/grit sand instead of sand in abrasive blasting operations when practical. The free silica portion of the dust presents a respiratory health hazard.

When appropriate for the conditions, choose blasting techniques that are less dusty than open-air abrasive blasting. These include hydro- or wet-blasting using high-pressure water with or without an abrasive or surrounding the blast nozzle with a ring of water, and vacuum blasting where a vacuum hood for material removal is positioned around the exterior of the blasting nozzle.

When using a heat gun to remove lead-based paints in residential housing units, be sure it is of the flameless electrical softener

type. Heat guns should have electronically controlled temperature settings to allow usage below 700 degrees F. Equip heat guns with various nozzles to cover all common applications and to limit the size of the heated work area.

When using abrasive blasting with a vacuum hood on exterior building surfaces, ensure that the configuration of the heads on the blasting nozzle match the configuration of the substrate so that the vacuum is effective in containing debris.

Ensure that HEPA vacuum cleaners have the appropriate attachments for use on unusual surfaces. Proper use of brushes of various sizes, crevice and angular tools, when needed, will enhance the quality of the HEPA-vacuuming process and help reduce the amount of lead dust released into the air.

ISOLATION

Although it is not feasible to enclose and ventilate some abrasive blasting operations completely, it is possible to isolate many operations to help reduce the potential for lead exposure.

Isolation consists of keeping employees not involved in the blasting operations as far away from the work area as possible, reducing the risk of exposure.

Housekeeping and Personal Hygiene

Lead is a cumulative and persistent toxic substance that poses a serious health risk. A rigorous housekeeping program and the observance of basic personal hygiene practices will minimize employee exposure to lead. In addition, these two elements of the worker protection program help prevent workers from taking lead-contaminated dust out of the worksite and into their homes where it can extend the workers' exposures and potentially affect their families' health.

HOUSEKEEPING PRACTICES

An effective housekeeping program involves a regular schedule to remove accumulations of lead dust and lead-containing debris. The schedule should be adapted to exposure conditions at a particular worksite. OSHA's Lead Standard for Construction requires

employers to maintain all surfaces as free of lead contamination as practicable. Vacuuming lead dust with HEPA-filtered equipment or wetting the dust with water before sweeping are effective control measures. Compressed air may not be used to remove lead from contaminated surfaces unless a ventilation system is in place to capture the dust generated by the compressed air.

In addition, put all lead-containing debris and contaminated items accumulated for disposal into sealed, impermeable bags or other closed impermeable containers. Label bags and containers as lead-containing waste. These measures provide additional help in controlling exposure.

PERSONAL HYGIENE PRACTICES

Emphasize workers' personal hygiene such as washing their hands and face after work and before eating to minimize their exposure to lead. Provide and ensure that workers use washing facilities. Provide clean change areas and readily accessible eating areas. If possible, provide a parking area where cars will not be contaminated with lead. These measures:

- Reduce workers' exposure to lead and the likelihood that they will ingest lead,
- Ensure that the exposure does not extend beyond the worksite,
- Reduce the movement of lead from the worksite, and
- Provide added protection to employees and their families.

CHANGE AREAS

The employer must provide a clean change area for employees whose airborne exposure to lead is above the PEL. The area must be equipped with storage facilities for street clothes and a separate area with facilities for the removal and storage of lead-contaminated protective work clothing and equipment. This separation prevents cross contamination of the employee's street and work clothing.

Employees must use a clean change area for taking off street clothes, suiting up in clean protective work clothing, donning respirators before beginning work, and dressing in street clothes after work. No lead-contaminated items should enter this area.



Work clothing must not be worn away from the jobsite. Under no circumstances should lead-contaminated work clothes be laundered at home or taken from the worksite, except to be laundered professionally or for disposal following applicable federal, state, and local regulations.

SHOWERS AND WASHING FACILITIES

When feasible, showers must be provided for use by employees whose airborne exposure to lead is above the permissible exposure limit so they can shower before leaving the worksite. Where showers are provided, employees must change out of their work clothes and shower before changing into their street clothes and leaving the worksite. If employees do not change into clean clothing before leaving the worksite, they may contaminate their homes and automobiles with lead dust, extending their exposure and exposing other members of their household to lead.

In addition, employers must provide adequate washing facilities for their workers. These facilities must be close to the worksite and furnished with water, soap, and clean towels so employees can remove lead contamination from their skin.

Contaminated water from washing facilities and showers must be disposed of in accordance with applicable local, state, or federal regulations.

PERSONAL PRACTICES

The employer must ensure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed. HEPA vacuuming and use of a downdraft booth are examples of cleaning methods that limit the dispersion of lead dust from contaminated work clothing.

In all areas where employees are exposed to lead above the PEL, employees must observe the prohibition on the presence and consumption or use of food, beverages, tobacco products, and cosmetics. Employees whose airborne exposure to lead is above the PEL must wash their hands and face before eating, drinking, smoking, or applying cosmetics.



END-OF-DAY PROCEDURES

Employers must ensure that workers who are exposed to lead above the permissible exposure limit follow these procedures at the end of their workday:

- Place contaminated clothes, including work shoes and personal protective equipment to be cleaned, laundered, or disposed of, in a properly labeled closed container.
- Take a shower and wash their hair. Where showers are not provided, employees must wash their hands and face at the end of the workshift.
- Change into street clothes in clean change areas.

Protective Clothing and Equipment

EMPLOYER REQUIREMENTS

Employers must provide workers who are exposed to lead above the PEL or for whom the possibility of skin or eye irritation exists with clean, dry protective work clothing and equipment that are appropriate for the hazard. Employers must provide these items at no cost to employees. Appropriate protective work clothing and equipment used on construction sites includes:

- Coveralls or other full-body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets;
- Vented goggles or face shields with protective spectacles or goggles;
- Welding or abrasive blasting helmets; and
- Respirators.

Clean work clothing must be issued daily for employees whose exposure levels to lead are above 200 µg/m³, weekly if exposures are above the PEL but at or below 200 µg/m³ or where the possibility of skin or eye irritation exists.

HANDLING CONTAMINATED PROTECTIVE CLOTHING

Workers must not be allowed to leave the worksite wearing lead-contaminated protective clothing or equipment. This is an essential



step in reducing the movement of lead contamination from the workplace into the worker's home and provides added protection for employees and their families.

Disposable coveralls and separate shoe covers may be used, if appropriate, to avoid the need for laundering. Workers must remove protective clothing in change rooms provided for that purpose.

Employers must ensure that employees leave the respirator use area to wash their faces and respirator facepieces as necessary. In addition, employers may require their employees to use HEPA vacuuming, damp wiping, or another suitable cleaning method before removing a respirator to clear loose particle contamination on the respirator and at the face-mask seal.

Place contaminated clothing that is to be cleaned, laundered, or disposed of by the employer in closed containers. Label containers with the warning: "Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead-contaminated wash water in accordance with applicable local, state, or federal regulations."

Workers responsible for handling contaminated clothing, including those in laundry services or subcontractors, must be informed in writing of the potential health hazard of lead exposure. At no time shall lead be removed from protective clothing or equipment by brushing, shaking, or blowing. These actions disperse the lead into the work area.

PREVENTING HEAT STRESS

Workers wearing protective clothing, particularly in hot environments or within containment structures, can face a risk from heat stress if proper control measures are not used.

Heat stress is caused by several interacting factors, including environmental conditions, type of protective clothing worn, the work activity required and anticipated work rate, and individual employee characteristics such as age, weight, and fitness level. When heat stress is a concern, the employer should choose lighter, less insulating protective clothing over heavier clothing, as long as



it provides adequate protection. Other measures the employer can take include: discussing the possibility of heat stress and its signs and symptoms with all workers; using appropriate work/rest regimens; and providing heat stress monitoring that includes measuring employees' heart rates, body temperatures, and weight loss. Employers must provide a source of water or electrolyte drink in a non-contaminated eating and drinking area close to the work area so workers can drink often throughout the day. Workers must wash their hands and face before drinking any fluid if their airborne exposure is above the PEL.

Respiratory Protection

Although engineering and work practice controls are the primary means of protecting workers from exposure to lead, source control at construction sites sometimes is insufficient to control exposure. In these cases, airborne lead concentrations may be high or may vary widely. Respirators often must be used to supplement engineering controls and work practices to reduce worker lead exposures below the PEL. When respirators are required, employers must provide them at no cost to workers.

The standard requires that respirators be used during periods when an employee's exposure to lead exceeds the PEL, including

- Periods necessary to install or implement engineering or work practice controls, and
- Work operations for which engineering and work practice controls are insufficient to reduce employee exposures to or below the PEL.

Respirators also must be provided upon employee request. A requested respirator is included as a requirement to provide increased protection for those employees who wish to reduce their lead burden below what is required by the standard, particularly if they intend to have children in the near future. In addition, respirators must be used when performing previously indicated high exposure or "trigger" tasks, before completion of the initial assessment.



PROVIDING ADEQUATE RESPIRATORY PROTECTION

Before any employee first starts wearing a respirator in the work environment, the employer must perform a fit test. For all employees wearing negative or positive pressure tight-fitting facepiece respirators, the employer must perform either qualitative or quantitative fit tests using an OSHA-accepted fit testing protocol. In addition, employees must be fit tested whenever a different respirator facepiece is used, and at least annually thereafter.

Where daily airborne exposure to lead exceeds 50 µg/m³, affected workers must don respirators before entering the work area and should not remove them until they leave the high-exposure area or have completed a decontamination procedure. Employers must assure that the respirator issued to the employee is selected and fitted properly to ensure minimum leakage through the facepiece-to-face seal.

RESPIRATORY PROTECTION PROGRAMS

When respirators are required at a worksite, the employer must establish a respiratory protection program in accordance with the OSHA standard on respiratory protection, 29 CFR 1910.134. At a minimum, an acceptable respirator program for lead must include:

- Procedures for selecting respirators appropriate to the hazard;
- Fit testing procedures;
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations, including cartridge change schedules;
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- Training of employees in the respiratory hazard to which they are potentially exposed during routine and emergency situations;
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations of their use, and their maintenance;

27



- Procedures for regularly evaluating the effectiveness of the program;
- Procedures to ensure air quality when supplied air is used;
- A written program and designation of a program administrator; and
- Recordkeeping procedures.

In addition, the construction industry lead standard stipulates medical evaluations of employees required to use respirators.

If an employee has difficulty in breathing during a fit test or while using a respirator, the employer must make a medical examination available to that employee to determine whether he or she can wear a respirator safely.

SELECTING A RESPIRATOR

The employer must select the appropriate respirator from Table 1 of the lead standard, 29 CFR 1926.62(f)(3)(i). The employer must provide a powered air-purifying respirator when an employee chooses to use this respirator and it will provide the employee adequate protection. A NIOSH-certified respirator must be selected and used in compliance with the conditions of its certification. In addition, if exposure monitoring or experience indicates airborne exposures to contaminants other than lead such as silica, solvents, or polyurethane coatings, these exposures must be considered when selecting respiratory protection.

Select type CE respirators approved by NIOSH for abrasive blasting operations. Currently, there are two kinds of CE respirators with the following assigned protection factors (APFs): a continuous-flow respirator with a loose-fitting hood, APF 25; and a full facepiece supplied-air respirator operated in a positive-pressure mode, APF 2,000. (Note: OSHA recognizes Bullard Helmets, Models 77 and 88 (1995); Clemco Appollo, Models 20 and 60 (1997); and 3M Model 8100 (1998) as having APFs of 1,000.)

For any airline respirator, it is important to follow the manufacturer's instructions regarding air quality, air pressure, and inside diameter and length of hoses. Be aware that using longer hoses or smaller inside diameter hoses than the manufacturer specifies or

28



hoses with bends or kinks may reduce or restrict the airflow to a respirator.

Employee Information and Training

The employer must inform employees about lead hazards according to the requirement of OSHA's Hazard Communication standard for the construction industry, 29 CFR 1926.59, including--but not limited to--the requirements for warning signs and labels, material safety data sheets (MSDSs), and employee information and training. (Refer to 29 CFR 1910.1200.)

PROGRAM REQUIREMENTS

Employers must institute an information and training program and ensure that all employees subject to exposure to lead or lead compounds at or above the action level on any day participate. Also covered under information and training are employees who may suffer skin or eye irritation from lead compounds. Initial training must be provided before the initial job assignment. Training must be repeated at least annually and, in brief summary, must include:

- The content of the OSHA lead standard and its appendices;
- The specific nature of operations that could lead to lead exposure above the action level;
- The purpose, proper selection, fit, use, and limitations of respirators;
- The purpose and a description of the medical surveillance program, and the medical removal protection program;
- Information concerning the adverse health effects associated with excessive lead exposure;
- The engineering and work practice controls associated with employees' job assignments;
- The contents of any lead-related compliance plan in effect;
- Instructions to employees that chelating agents must not be used routinely to remove lead from their bodies and when necessary only under medical supervision and at the direction of a licensed physician; and



- The right to access records under "Access to Employee Exposure and Medical Records," 29 CFR 1910.1020.

All materials relating to the training program and a copy of the standard and its appendices must be made readily available to all affected employees.

WARNING SIGNS

Employers are required to post these warning signs in each work area where employee exposure to lead is above the PEL:

- WARNING
- LEAD WORK AREA
- POISON
- NO SMOKING OR EATING

All signs must be well lit and kept clean so that they are easily visible. Statements that contradict or detract from the signs' meaning are prohibited. Signs required by other statutes, regulations, or ordinances, however, may be posted in addition to, or in combination with, this sign.

OSHA Assistance, Services, and Products

OSHA can provide extensive help through a variety of programs, including assistance about safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, alliances, and training and education. An overall commitment to workplace safety and health can add value to your business, to your workplace, and to your life.

How does safety and health management system assistance help employers and employees?

Working in a safe and healthful environment can stimulate innovation and creativity and result in increased performance and higher productivity. The key to a safe and healthful work environment is a comprehensive safety and health management system.

OSHA has electronic compliance assistance tools, or eTools, on its website that walks users through the steps required to develop a



comprehensive safety and health program. The eTools are posted at www.osha.gov, and are based on guidelines that identify four general elements critical to a successful safety and health management system:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

STATE PROGRAMS

The Occupational Safety and Health Act of 1970 (OSH Act) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans and funds up to 50 percent of each program's operating costs. State plans must provide standards and enforcement programs, as well as voluntary compliance activities, that are at least as effective as federal OSHA's.

Currently, 26 states and territories have their own plans. Twenty-three cover both private and public (state and local government) employees and three states, Connecticut, New Jersey, and New York, cover only the public sector. For more information on state plans, see the list at the end of this publication, or visit OSHA's website at www.osha.gov.

CONSULTATION ASSISTANCE

Consultation assistance is available on request to employers who want help establishing and maintaining a safe and healthful workplace. Funded largely by OSHA, the service is provided at no cost to small employers and is delivered by state authorities through professional safety and health consultants.

SAFETY AND HEALTH ACHIEVEMENT RECOGNITION PROGRAM

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation includes, but is not limited to, receiving a full-service, compre-



hensive consultation visit, correcting all identified hazards, and developing an effective safety and health management system.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for 1 year initially, or 2 years upon renewal. For more information about consultation assistance, see the list of consultation projects at the end of this publication.

VOLUNTARY PROTECTION PROGRAMS

Voluntary Protection Programs (VPP) are designed to recognize outstanding achievements by companies that have developed and implemented effective safety and health management programs. There are three VPP programs: Star, Merit, and Demonstration. All are designed to

- Recognize who that have successfully developed and implemented effective and comprehensive safety and health management programs;
- Encourage these employers to continuously improve their safety and health management programs;
- Motivate other employers to achieve excellent safety and health results in the same outstanding way; and
- Establish a cooperative relationship between employers, employees, and OSHA.

VPP participation can bring many benefits to employers and employees, including fewer worker fatalities, injuries, and illnesses; lost-workday case rates generally 50 percent below industry averages; and lower workers' compensation and other injury- and illness-related costs. In addition, many VPP sites report improved employee motivation to work safely, leading to a better quality of life at work; positive community recognition and interaction; further improvement and revitalization of already-good safety and health programs; and a positive relationship with OSHA.

After a site applies for the program, OSHA reviews an employer's VPP application and conducts a VPP onsite evaluation to verify that the site's safety and health management programs are



operating effectively. OSHA conducts onsite evaluations on a regular basis.

Sites participating in VPP are not scheduled for regular, programmed inspections. OSHA does, however, handle any employee complaints, serious accidents, or significant chemical releases that may occur at VPP sites according to routine enforcement procedures.

Additional information on VPP is available from OSHA regional offices listed at the end of this booklet. Also, see "Cooperative Programs" on OSHA's website.

COOPERATIVE PARTNERSHIPS

OSHA has learned firsthand that voluntary, cooperative partnerships with employers, employees, and unions can be a useful alternative to traditional enforcement and an effective way to reduce worker deaths, injuries, and illnesses. This is especially true when a partnership leads to the development and implementation of a comprehensive workplace safety and health management system.

ALLIANCE PROGRAM

Alliances enable organizations committed to workplace safety and health to collaborate with OSHA to prevent injuries and illnesses in the workplace. OSHA and its allies work together to reach out to, educate, and lead the nation's employers and their employees in improving and advancing workplace safety and health.

Alliances are open to all, including trade or professional organizations, businesses, labor organizations, educational institutions, and government agencies. In some cases, organizations may be building on existing relationships with OSHA through other cooperative programs.

There are few formal program requirements for alliances, which are less structured than other cooperative agreements, and the agreements do not include an enforcement component. However, OSHA and the participating organizations must define, implement, and meet a set of short- and long-term goals that fall into three cat-



egories: training and education; outreach and communication; and promotion of the national dialogue on workplace safety and health.

STRATEGIC PARTNERSHIP PROGRAM

OSHA Strategic Partnerships are agreements among labor, management, and government to improve workplace safety and health. These partnerships encourage, assist, and recognize the efforts of the partners to eliminate serious workplace hazards and achieve a high level of worker safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships build cooperative relationships with groups of employers and employees.

For more information about this program, contact your nearest OSHA office or visit our website.

OCCUPATIONAL SAFETY AND HEALTH TRAINING

The OSHA Training Institute in Arlington Heights, Ill., provides basic and advanced training and education in safety and health for federal and state compliance officers, state consultants, other federal agency personnel, and private-sector employers, employees, and their representatives.

TRAINING GRANTS

OSHA awards grants to nonprofit organizations to provide safety and health training and education to employers and workers in the workplace. Grants often focus on high-risk activities or hazards or may help nonprofit organizations in training, education, and outreach.

OSHA expects each grantee to develop a program that addresses a safety and health topic named by OSHA, recruit workers and employers for the training, and conduct the training. Grantees are also expected to follow up with students to find out how they applied the training in their workplaces.

For more information contact OSHA Office of Training and Education, 2020 Arlington Heights Rd., Arlington Heights, IL 60005; or call (847) 297-4810.



OTHER ASSISTANCE MATERIALS

OSHA has a variety of materials and tools on its website at www.osha.gov. These include eTools such as Expert Advisors and Electronic Compliance Assistance Tools, information on specific health and safety topics, regulations, directives, publications, videos, and other information for employers and employees.

OSHA also has an extensive publications program. For a list of items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210. Telephone (202) 693-1888 or fax to (202) 693-2498.

In addition, OSHA's CD-ROM includes standards, interpretations, directives, and more. It is available for sale from the U.S. Government Printing Office. To order, write to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, or phone (202) 512-1800.

IN CASE OF AN EMERGENCY OR TO FILE A COMPLAINT

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA regional office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Employees can also file a complaint online and get more information on OSHA federal and state programs by visiting OSHA's website at www.osha.gov.

OSHA Regional Offices

Region I (CT,* ME, MA, NH, RI, VT*) Boston, MA 02203 (617) 565-9860	Region VI (AR, LA, NM,* OK, TX) 525 Griffin Street, Room 602 Dallas, TX 75202 (214) 767-4731 or 4736 x224
Region II (NJ,* NY,* PR,* VI*) 201 Varick Street, Room 670 New York, NY 10014 (212) 337-2378	Region VII (IA,* KS, MO, NE) City Center Square 1100 Main Street, Suite 800 Kansas City, MO 64105 (816) 426-5861
Region III (DE, DC, MD,* PA,* VA,* WV) The Curtis Center 170 S. Independence Mall West Suite 740 West Philadelphia, PA 19106-3309 (215) 861-4900	Region VIII (CO, MT, ND, SD, UT,* WY*) 1999 Broadway, Suite 1690 PO Box 46550 Denver, CO 80202-5716 (303) 844-1600
Region IV (AL, FL, GA, KY,* MS, NC,* SC,* TN*) Atlanta Federal Center 61 Forsyth Street SW, Room 6T50 Atlanta, GA 30303 (404) 562-2300	Region IX (American Samoa, AZ,* CA,* HI, NV,* Northern Mariana Islands) 71 Stevenson Street, Room 420 San Francisco, CA 94105 (415) 975-4310
Region V (IL, IN,* MI,* MN,* OH,* WI) 230 South Dearborn Street, Room 3244 Chicago, IL 60604 (312) 353-2220	Region X (AK,* ID, OR,* WA*) 1111 Third Avenue, Suite 715 Seattle, WA 98101-3212 (206) 553-5930

*These states and territories operate their own OSHA-approved job safety and health programs (Connecticut, New Jersey, and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective as, the federal standard.

Note: To get contact information for OSHA Area Offices, OSHA-approved state plans, and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at (800) 321-OSHA.

APPENDIX E
Analytical Information



SPECTRA Laboratories

2221 Ross Way • Tacoma, WA 98421 • (253) 272-4850 • Fax (253) 572-9838

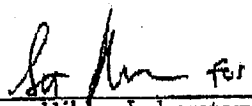
11/09/2004

Dessert Creek LLC
PO Box 1900
Eatonville, WA 98328
Attn: Chad Gilliard

P.O.#: PD CC 006557
Project: Ottinger
Client ID: Wall
Sample Matrix: Soil
Date Sampled: 10/27/2004
Date Received: 10/27/2004
Spectra Project: 2004100379
Spectra Number: 1

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>
TCLP Lead	0.38	mg/L	SW846 6010B
pH	7.55	pH Units	SW846 9045

SPECTRA LABORATORIES


Steve Hibbs, Laboratory Manager
as/mlh