

WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Southwest Regional Office
Toxics Cleanup Program
PO Box 47775
Olympia, WA 98504-7775
360-407-6240

TRANSMITTAL MEMO

Date: January 9, 2009

TO: Mr. Chuck Cole
Washington Department of Social & Health Services
Lands & Building Division

RE: Maple Lane School
SW0926

Subject: Explanation of Timeline

NOTE: The determination date is the date Ecology approved the No Further Action status for the site. Final payment and EIM Data submission was then pending, and once received, the NFA letter was released.

Ecology Determination date: January 9, 2009

Payment received date: January 22, 2009

EIM Data successfully uploaded: January 25, 2008

Ecology Determination letter mailed/sent: January 26, 2009



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

CERTIFIED MAIL

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January 9, 2009

Mr. Chuck Cole
Washington Department of Social and Health Services
Lands and Buildings Division
P.O. Box 45848
Olympia, WA 98504-5848

Re: No Further Action at the following Site:

- **Site Name:** Maple Lane School
- **Site Address:** 20311 Old Highway 9 S.W., Centralia
- **Facility/Site No.:** 63149499
- **VCP Project No.:** SW0926

Dear Mr. Cole:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Maple Lane School facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Petroleum hydrocarbons as diesel-range organic (DRO) fuel into the Soil and Ground Water. **Enclosure A** includes a detailed description and diagram of the Site, as currently known to Ecology.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Olympus Environmental, Inc., **Emergency Response, UST Removal, Due to Heating Oil Release, Maple Lane School, 20311 Old Highway 9 S.W., Centralia, Washington**, August 8, 1997.
2. Nowicki & Associates, Inc., **Detailed Site Characterization Report, Maple Lane School, 20311 Old Highway 9 Southwest, Centralia, Washington**, January 26, 2000.
3. HartCrowser, **Initial Site Evaluation and Third Quarter Monitoring Results**, November 27, 2001.
4. Washington State Department of Ecology, **Initial Investigation Field Report, ERTS#: 535670, Site Name: Maple Lane School**, October 20, 2003.
5. Thurston County Health Department, **Site Hazard Assessment, Worksheet 1, Summary Score Sheet, Maple Lane School, 20311 Old Hwy. 9 SW, Centralia, WA 98531-9620**, June 2004.
6. HartCrowser, **Maple Lane School Historical Investigation and Current Site Condition Summary**, December 19, 2007.
7. HartCrowser, **Maple Lane School Historical Investigation and Current Site Condition Summary (Revised)**, December 4, 2008.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A**.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

a. Cleanup levels.

Cleanup levels have been applied to DRO or total petroleum hydrocarbons. It has been determined that benzene, toluene, ethylbenzene, and total xylenes (BTEX), and carcinogenic polynuclear aromatic hydrocarbons are constituents not of concern. In addition, polychlorinated biphenyls (PCBs) and metals have been determined to not be constituents of concern.

MTCA Method A ground-water cleanup levels have been applied to DRO in the ground water. A value of 0.5 milligram per liter (mg/l) or the equivalent 500 microgram per liter (ug/l) is the ground-water cleanup level.

MTCA Method B soil cleanup levels have been applied to the soil throughout the site. The direct contact pathway has been eliminated as a pathway of concern. Soil residual concentrations that exceed the Method A cleanup level (2,000 milligram per kilogram [mg/kg]) are present below 15 feet below ground surface (ft bgs) and do not contribute to the direct contact pathway risk. In addition, concentrations that would contribute to terrestrial ecological risk are below the point of compliance for this pathway. The soil vapor pathway is not an issue since BTEX is not present and MTCA requires an evaluation for DRO when concentrations exceed 10,000 mg/kg.

The soil to ground-water pathway is a potential exposure pathway and has been the focus of remedial actions completed at the Maple Lane School site. A cleanup level of 10,000 mg/kg has been established for the vadose zone (unsaturated zone) and saturated area (below the water table) of the site. This is the approximate site-specific residual saturation value that would be acceptable at this site. A concentration of 4,800 mg/kg is a residual concentration that has been determined to be still present following construction of monitoring well MW-7 following remediation activities at the site.

These Method B soil cleanup levels have been developed as a result of an empirical demonstration as allowed in WAC 173-340-747(9) that show that "measured soil concentrations will not cause an exceedance of the applicable ground water cleanup levels established under WAC 173-340-720." The requirements to demonstrate compliance are the following:

- "The measured ground water concentration is less than or equal to the applicable ground water cleanup level established under WAC 173-340-720; and
- The measured soil concentration will not cause an exceedance of the applicable ground water cleanup level established under WAC 173-340-720 at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into the ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions."

To ensure that the soil concentration established by the empirical method above will not cause an exceedance of the ground-water cleanup level, the soil concentrations must not result in an accumulation of nonaqueous phase liquid on or in the ground water. This has been determined empirically at this site and the cleanup levels that have been established assure that nonaqueous phase liquid will not accumulate in either the soil or the ground water, according to MTCA requirements.

Enclosure A describes the site and circumstances of the fuel release in more detail. However, it is estimated that there were two releases as a result of filling the underground storage tank (UST) that was used for backup purposes for the school. A release occurred after the UST was first installed and filled in 1980, and again in the spring of 1997 after it was refilled and the release was discovered. The same amount of diesel fuel would have been released in both events, approximately 600 gallons. The release in 1980 would have provided sufficient time to evaluate the effects of future migration of soil into the ground water and movement within the ground water. Boreholes constructed through the spill area in July 1997 indicated that the fresh spill had leached to approximately 17 ft bgs, and

the older spill was encountered from approximately 19 ft bgs to the water table (encountered at a depth of 31.1 ft bgs).

b. Points of compliance.

The point of compliance for ground water is the standard point of compliance and is established throughout the site. The point of compliance for the soils is the standard points of compliance. For soil cleanup based on protection of ground water, the point of compliance is established throughout the site. For soil cleanup levels based on protection from soil vapors, the point of compliance is established in the soils throughout the site from the ground surface to the uppermost ground-water saturated zone (water table). For soil cleanup levels based on human health exposure via direct contact, the point of compliance is established in soils throughout the site from the ground surface to 15 ft bgs. For soil cleanup based on ecological risk the cleanup levels are applied from the ground surface to 15 ft bgs.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA for the following contamination at the site:

- DRO in soil and ground water.

On June 25, 1997, the UST was removed and 150 cubic yards of clean overburden and approximately 40 cubic yards of impacted soil were excavated and stockpiled on site. This soil was later treated on site.

Hydrogen peroxide (H_2O_2) was injected into monitoring well MW-6 in May 2003, September 2003, and March 2004 to oxidize residual DRO and reduce contaminant mass. Injection flow rates were adjusted to mound up to 10 ft of head within the well casing and maximize treatment of shallow soil in the area surrounding the monitoring well.

Monitored natural attenuation has been conducted on the ground water throughout the last 10 years. The last four quarters had indicated concentrations throughout the water table below detection levels.

4. Performance of cleanup action.

Ecology has determined the cleanup you performed meets the following cleanup standards:

- DRO in soil and ground water.

The last four quarters of ground-water monitoring indicates that ground water throughout the site is below regulatory cleanup levels meeting WAC 173-340-720 requirements. The maximum soil concentration obtained during construction of monitoring well MW-7, which replaced monitoring well MW-6, was obtained below the water table and was 4,800 mg/kg. This concentration was below the Method B cleanup level established for this site. All cleanup levels are considered protective of human health and the environment.

Listing of the Site

Based on this opinion, Ecology will initiate the process of removing the Site from our lists of hazardous waste sites, including:

- Hazardous Sites List.
- Confirmed and Suspected Contaminated Sites List.

That process includes public notice and opportunity to comment. Based on the comments received, Ecology will either remove the Site from the applicable lists or withdraw this opinion.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (SW0926).

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion or the termination of the Agreement, please contact me at (360) 407-6267.

Sincerely,



Charles S. Cline
SWRO Toxics Cleanup Program

CSC/ksc:Maple Lane School Centralia NFA

Enclosures (1): A – Description and Diagram of the Site

cc: William B. Abercrombie, Mike Ehlebracht, HartCrowser, Inc.
Gerald Tousley, Thurston County Health Dept.
Ms. Carol Johnston, Ecology
Ms. Dolores Mitchell, Ecology w/o enclosures
Mr. Scott Rose, Ecology w/o enclosures

ENCLOSURE A

The Maple Lane School is located at 20311 Old Highway 9 SW, Centralia/Rochester, Thurston County, State of Washington. Figure 1 shows the location of the property and the location of the site within the property. The Maple Lane School serves as a youth detention facility and is located in Grand Mound Prairie and is surrounded by mostly residential farmland. To the south, the site is immediately adjacent to a wetland/slough (a.k.a. Prairie Creek), which connects to the Chehalis River approximately ½ mile west and northwest. The slough is approximately 15 feet lower in elevation than the school area. The depth of the surface water in the slough fluctuates considerably according to the seasons.

In 1980, a 6,000-gallon underground storage tank (UST) was installed solely for use as a backup source of fuel for the school boilers. The UST had been filled with diesel-range organic (DRO) fuel in 1980, but was never used. In the spring of 1997, it was decided to burn the old diesel in the boiler and then refill with new diesel. The tank was refilled in early May 1997. After several days the boiler operators detected a loss of fuel. The supplier was requested to remove fuel to prevent further loss. A tightness test of the tank was conducted that substantiated the release.

On June 25, 1997, the UST was removed and a hole was discovered approximately 14 inches from the top of the tank. Apparently, during installation, a blade of a dozer or tooth of a backhoe bucket penetrated the tank. Fuel was released to within 3 to 4 inches below the gash. It is estimated that 600 gallons had been released in 1980 upon initial filling, and again in 1997 when it was discovered. The UST was removed and soils around the tank were excavated to remove as much contamination as could be done at that time. Soil sloughing prevented complete removal of the contamination. Subsequent to the UST removal, boreholes were drilled to determine extent of contamination. Field observations determined a soil profile that consisted of medium- to fine-grained sand and gravel with silt and clay. Ground water was encountered in the initial borings at 31.1 feet below ground surface (ft bgs). It was also determined that the newer release had penetrated to approximately 17 ft bgs. The older weathered release was encountered just below the new release at approximately 19 ft bgs and continued to the water table.

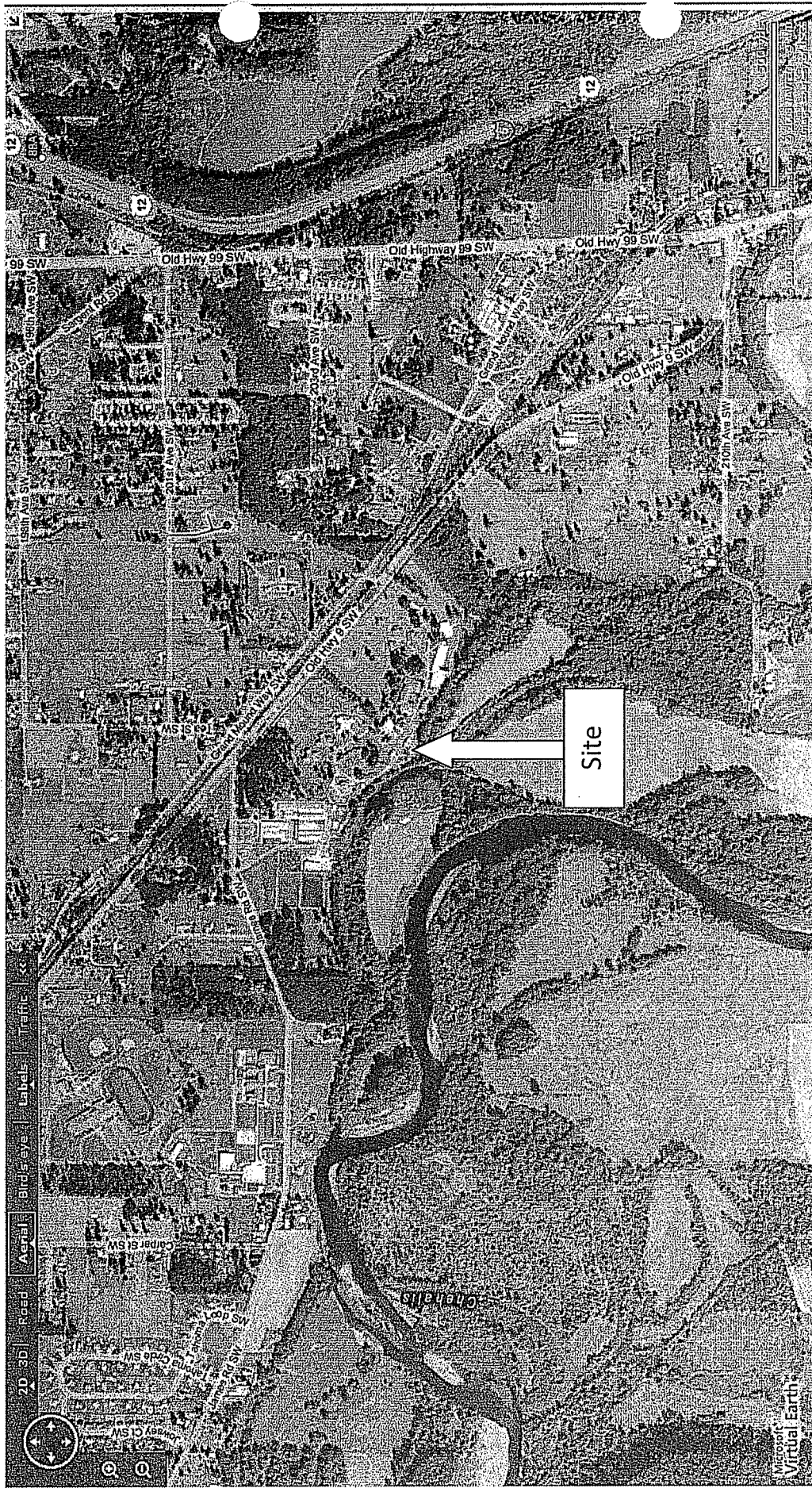
Concentrations at 19 ft bgs and 28.8 to 30.3 ft bgs were 16,000 and 5,100 milligram per kilogram (mg/kg), respectively.

Boreholes and wells constructed between February 1998 and November 1999 determined the extent of contamination within the soil. In addition, the boreholes, six monitoring wells (eventually, seven monitoring wells), and samples collected from surface water and well points constructed adjacent to the slough down-gradient of the site defined the extent of contamination in the ground water. Figure 2 shows the locations of the various monitoring wells and points.

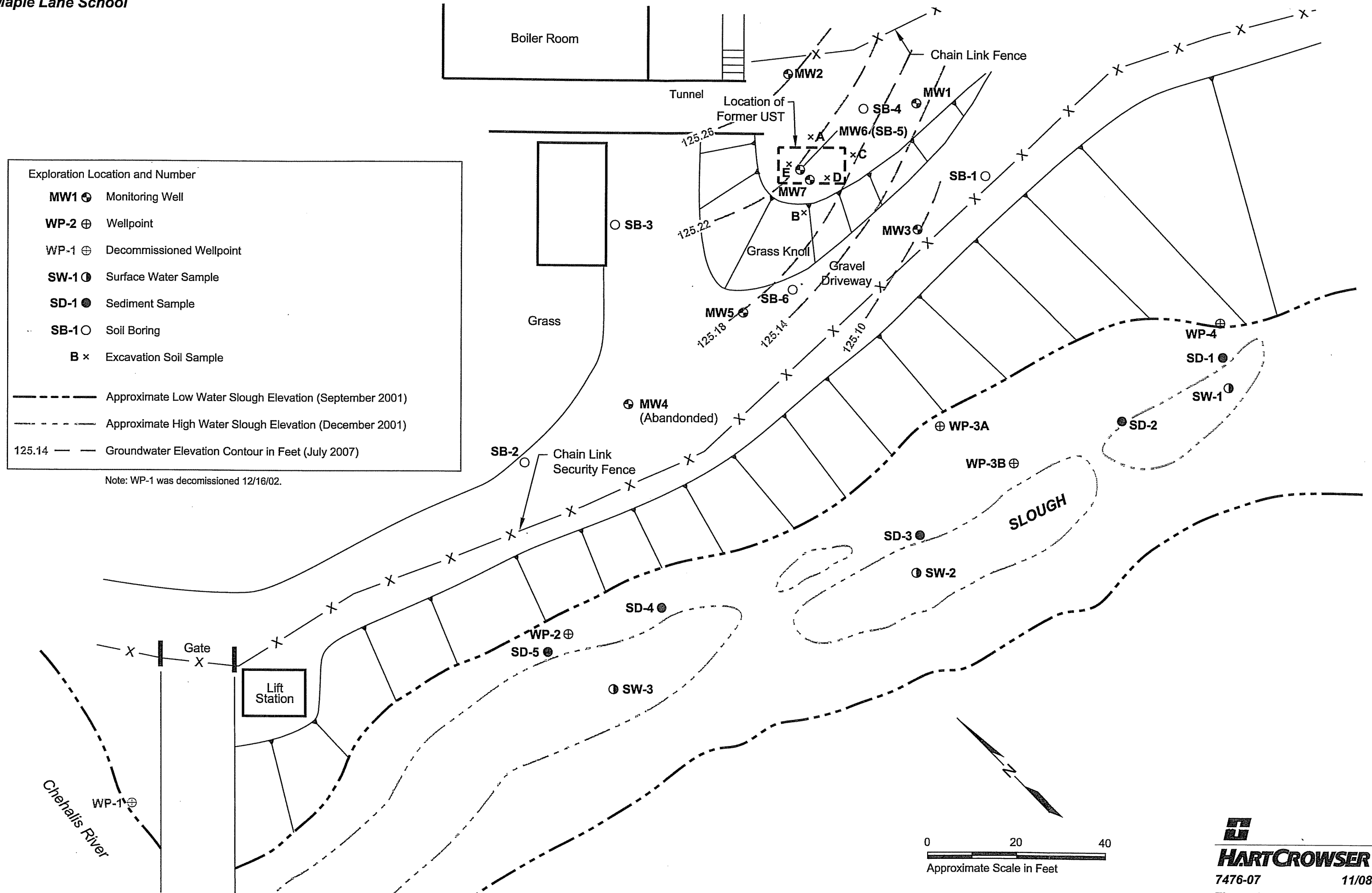
Figure 3 is an aerial photograph that shows the locations of some of the wells that define the site. Apparently, diesel contamination that leached to ground water did not move past the fenced area of the property and did not enter the surface water area of the slough. Concentrations that exceeded Model Toxics Control Act (MTCA) Method A ground-water cleanup levels were present only in the source area, represented by monitoring wells MW-6 and MW-7 after 1999. Table 2 summarizes the ground-water sampling results.

Because of the fine-grained nature of the soil at this location, monitoring well MW-6 could not be pumped clean of elevated suspended solid DRO concentrations. This monitoring well was redeveloped in December 2001 and was later investigated in December 2002 using a down-hole borehole camera. No cracks or physical abnormalities were observed. Due to the persistent problems with sediment accumulation in MW-6, possibly due to well construction issues, monitoring well MW-7 was installed approximately 5 ft distant to replace MW-6 in April 2005. The installation was subsequent to the H₂O₂ soil treatment and soil excavation. A soil sample collected from this boring at a depth of approximately 32.5 ft bgs (below the ground-water table) indicated a DRO concentration of 4,800 mg/kg. A sample collected at a depth of 22.5 ft bgs indicated a concentration of 1,500 mg/kg, below the MTCA Method A soil cleanup level. An examination of the chromatograms of both samples indicates weathered DRO, indicative of the earlier fuel release. Based on the soil and ground-water empirical data collected from this site, a Method B cleanup level of 10,000 mg/kg was established for the soil. At least four quarters of ground-water monitoring from the various wells and monitoring points indicates ground-water concentrations are all below Method A cleanup levels.

Figure 1 – Maple Lane School



Site Plan with Sample Locations
Maple Lane School



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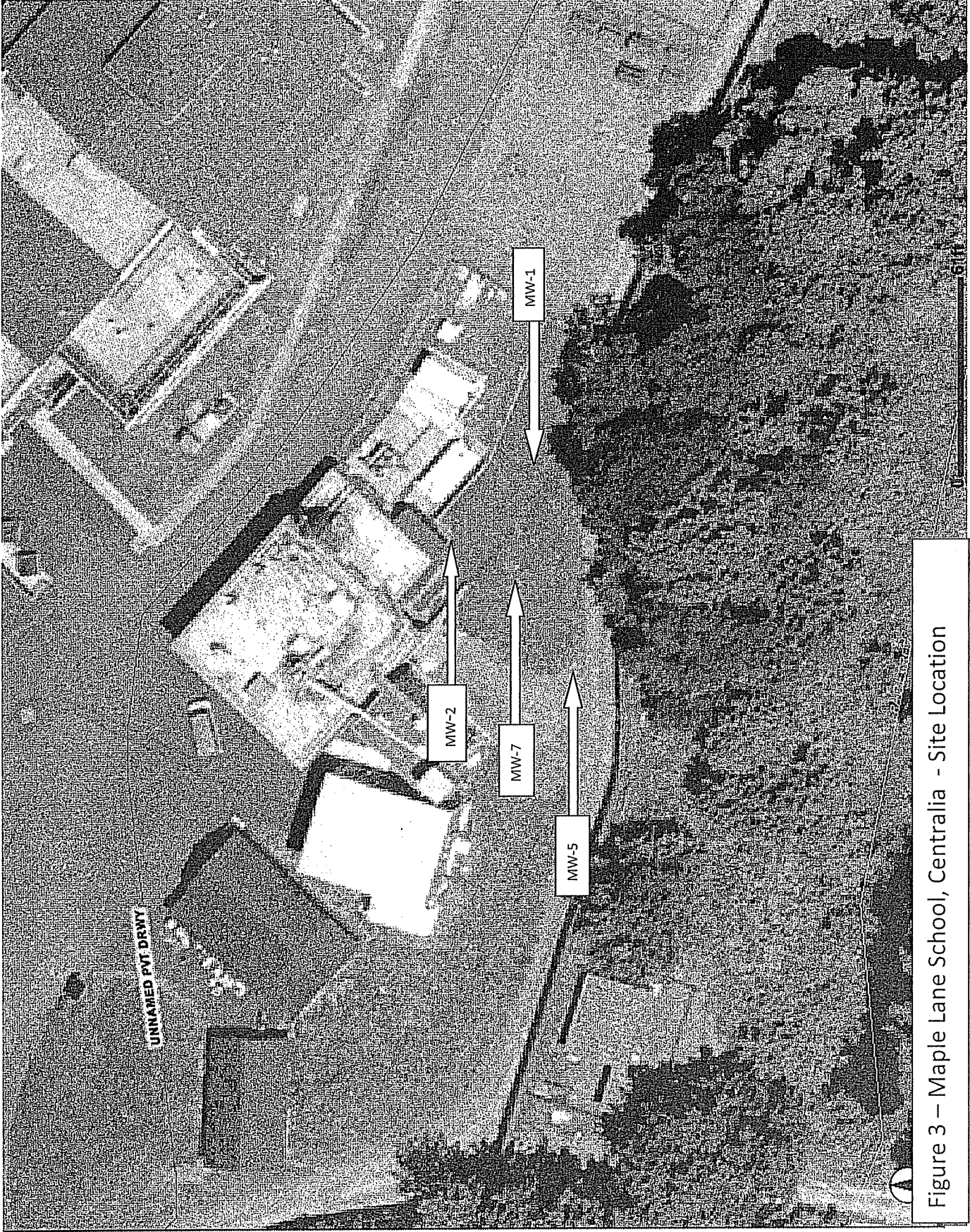


Figure 3 – Maple Lane School, Centralia - Site Location