



PERIODIC REVIEW

North Omak Elementary School
Facility/Site ID #: 5833572
Cleanup Site ID #: 4016

615 Oak Street
Omak, Washington 98841

Prepared by:
Washington State Department of Ecology
Central Regional Office
Toxics Cleanup Program

April 2013

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1.0 INTRODUCTION

This document is the Department of Ecology's review of post-cleanup site conditions and monitoring data to assure that human health and the environment are being protected at the North Omak Elementary School site (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA), Chapter 173-340 of the Washington Administrative Code (WAC).

Cleanup activities at this Site were completed as an interim action by Ecology. Following implementation of institutional controls, it was determined that the interim action constituted the final cleanup action for the Site per WAC 173-340-430 (1). The Site was removed from Ecology's Hazardous Sites List and it was determined that no additional remedial actions were necessary. The cleanup actions resulted in residual concentrations of lead and arsenic that exceed MTCA Method A cleanup levels for soil established under WAC 173-340-740(2). The MTCA Method A cleanup levels for soil are established under WAC 173-340-740. Institutional controls were implemented at the Site in the form of an environmental covenant to prevent exposure and release of contaminated soils capped as part of the remedy for the Site. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- (a) Whenever the department conducts a cleanup action;
- (b) Whenever the department approves a cleanup action under an order, agreed order or consent decree;
- (c) Or, as resources permit, whenever the department issues a no further action opinion;
- (d) And one of the following conditions exists:
 - 1. Institutional controls or financial assurance are required as part of the cleanup
 - 2. Where the cleanup level is based on a practical quantitation limit
 - 3. Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions;
- (b) New scientific information for individual hazardous substances or mixtures present at the Site;
- (c) New applicable state and federal laws for hazardous substances present at the Site;
- (d) Current and projected Site use;
- (e) Availability and practicability of higher preference technologies; and
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Site History

The North Omak Elementary School is located in the City of Omak in Okanogan County, Washington. The Site is approximately 1-mile west of State Highway 97 and approximately 100 miles north of the City of Wenatchee. A vicinity map is available as Appendix 6.1 and a Site plan is available as Appendix 6.2.

North Omak Elementary was constructed on historic orchard land in 1955. Prior to 1948, pear and apple orchards used lead arsenate as a pesticide to control the codling moth. By 1948, lead arsenate use generally ceased because the codling moth had developed resistance to the arsenate compound, and dichlorodiphenyltrichloroethane (DDT) was found to be a much more effective control agent.

The application of lead arsenate over several decades resulted in the accumulation of lead and arsenic in surface soils at levels that are hazardous to human health and the environment. Lead and arsenic are relatively immobile in soil and generally remain in the top 12 inches of the soil column, even though application ceased prior to 1950.

2.2 Previous Site Investigations and Remedial Actions

The Okanogan Health District and Ecology began initial soil analysis to evaluate the presence of lead arsenate contamination in 2002 and 2003. Analytical results showed arsenic and lead concentrations of up to 212 parts per million (ppm) and 1523 ppm, respectively. Based on these results, the property was added to Ecology's Confirmed and Suspected Contaminated Sites list in May 2003.

Between 2003 and 2005, several interim remedial actions were taken to address contamination hot-spots, including consolidation of playground equipment, installation of a geo-textile barrier beneath a layer of cedar wood chips in playground areas, replacement of soil in garden planters and play areas, and re-vegetation of bare soil areas. A comprehensive turf maintenance plan, including irrigation system upgrades, was also devised to help reduce re-occurrence of bare soil spots.

Following completion of interim remedial actions, additional soil sampling was conducted in 2005 and 2006 to better delineate the nature of lead and arsenic contamination across the Site. Analytical results indicated further remediation was necessary. In 2006, the Washington State legislature made funding available to Ecology to conduct interim remedial actions at schools where children were exposed to pesticide contamination in soil. North Omak Elementary was selected for remediation through this program.

2.3 Cleanup Levels and Point of Compliance

WAC 173-340-704 states that MTCA Method A may be used to establish cleanup levels at sites that have few hazardous substances, are undergoing a routine cleanup action, and where numerical standards are available for all indicator hazardous substances in the media for which the Method A cleanup level is being used.

MTCA Method A cleanup levels for unrestricted land use were determined to be appropriate for contaminants at this Site. The cleanup actions conducted at the Site were determined to be 'routine', few hazardous substances were found at the Site, and numerical standards were available in the MTCA Method A table for each hazardous substance. The MTCA Method A cleanup level for arsenic is 20 ppm and the MTCA Method A cleanup level for lead is 250 ppm.

For soil, the point of compliance is the area where the soil cleanup levels must be attained. For this Site, the point of compliance is established as soils throughout the Site.

2.4 Remedial Actions

The initial remediation plan for North Omak Elementary was based upon sampling conducted across the Site to a depth of approximately 8 inches below ground surface (bgs). This data indicated that the Site might be suitable for deep mixing technology. Deep mixing involves mixing contaminated surface soils with clean, deeper soils. Sample results indicated that there were areas with lead and arsenic contamination high enough that some excavation would be required prior to deep mixing.

The deep mixing equipment was supplied by CBA Environmental Inc. (CBA) from Hegins, Pennsylvania. This technology used a piece of heavy equipment manufactured by Vermeer Manufacturing and modified specifically for this purpose. The machine is track mounted and mixes soil to a maximum depth of 4.5 feet bgs.

Prior to beginning excavation, a deep mixer was brought on-site to conduct test mixing on the southern portion of the Site that had lower lead and arsenic concentrations. Test mixing revealed that this technology would not be successful at the Site. Even if the higher surface concentrations were removed, concentrations exist above MTCA cleanup levels deep into the soil profile where clean soil is required for dilution. Depth profile samples taken across the Site confirmed similar conditions throughout.

When it became apparent that deep mixing was not feasible at the Site, it was decided to proceed with capping the contamination with clean soil. The highest concentrations (anything above 75 ppm arsenic or 500 ppm lead) were removed by excavation and the remaining contaminated soils were covered with a non-woven permeable geotextile fabric followed by approximately 8" of clean topsoil.

It was determined that arsenic concentrations could be used to guide excavation. When soils containing arsenic above 75 ppm were removed, lead concentrations had also been reduced below 500 ppm. When post-excavation surface concentrations of 75 ppm of arsenic were

reached, excavation was considered complete for that area. Approximately 6,000 cubic yards of soil were excavated from the Site. Soil excavated from North Omak Elementary was transported to the Okanogan County Landfill located in Okanogan, Washington.

After excavation was complete, a geotextile membrane was placed on the soil surface and covered with clean topsoil. The topsoil was supplied from an undisturbed Site and tested for lead and arsenic concentrations. Neither lead nor arsenic were detected above background concentrations in 10 samples taken from the import topsoil. Approximately 5,000 yards of topsoil were imported on-site.

2.5 Environmental Covenants

Institutional controls were required as part of the remedy for the Site to prevent future property uses that may disturb or expose capped contaminated soils. Institutional controls were implemented in the form of an environmental covenant, which was recorded for the Site in 2008. The environmental covenant imposes the following conditions:

1. Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: significant drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, bulldozing or earthwork. This restriction does not include minor maintenance activities including: repairing or replacing sprinkler heads, re-seeding or re-sodding portions of the fields, or minor repairs to the sprinkler system plumbing.
2. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.
3. The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.
4. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any inconsistent use only after public notice and comment.
5. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.
6. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

A copy of the Restrictive Covenant for the Site is available as Appendix 6.3.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

3.1.1 Soil Contact

A Site visit was conducted on March 7, 2013. The Site remains occupied by North Omak Elementary School. The capped field and play areas are used by elementary school children during recess, physical education, and after school activities.

The playground turf is generally in good condition with some bare areas caused by concentrated use, as well as some areas adjacent to the asphalt that appear to have been cut by a snowplow during winter snow-clearing activities. There is a large wood chip play area at the west side of the field that is bordered with plastic barriers. Dirt beneath the wood-chip filled play areas has been exposed beneath swing sets where geotextile membrane has been uncovered and damaged. This appears a result of concentrated use in these areas. The smaller play area immediately to the north of the School is enclosed with chain link fence and is used exclusively by early elementary children. All surface covers in this area are in good condition.

Overall, the turf at the school remains in good condition with the exception of areas where it receives concentrated use. The clean soil cap continues to eliminate human and ecological exposure pathways (ingestion, contact) to contaminated soils. Maintenance and repair activities should be conducted where the clean soil cap has been exposed. A photo log is available as Appendix 6.4.

3.1.2 Institutional Controls

The restrictive environmental covenant for the school was recorded and remains effective. There is no evidence that a new instrument has been recorded which limits the applicability or effectiveness of the covenant. The environmental covenant prohibits activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval, and prohibit any use of the property that is inconsistent with the Covenant. The environmental covenant serve to protect the long term integrity of the surface cover by restricting property uses.

3.2 New scientific information for individual hazardous substances for mixtures present at the Site

There is no new pertinent scientific information for the contaminants related to the Site.

3.3 New applicable state and federal laws for hazardous substances present at the Site

There are no new relevant state or federal laws for the hazardous substances present at the Site.

3.4 Current and projected Site use

The Site is currently used as a primary school facility. There have been no changes in current or projected future Site or resource uses.

3.5 Availability and practicability of higher preference technologies

The remedy implemented included containment of hazardous materials, and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The analytical methods used at the time of the remedial action were capable of detection well below MTCA Method A cleanup levels. The presence of improved analytical techniques would not effect decisions or recommendations made for the Site.

4.0 CONCLUSIONS

- The cleanup actions completed at North Omak Elementary School are protective of human health and the environment.
- An environmental covenant has been recorded for the Site that restricts activities that may expose contaminated soil, and notifies future property owners of contamination remaining at the Site.
- Soils cleanup levels have not been met at the Site; however, the cleanup action is determined to comply with cleanup standards at the time of the action, since the long-term integrity of the containment system is ensured and the requirements for containment technologies have been met.
- **Portions of the field where the clean soil cap has been exposed beneath play areas or damaged turf should be repaired to prevent exposure to contaminated soils.**

Based on this periodic review, the Department of Ecology has determined that the requirements of the environmental covenants are being followed. No additional remedial actions are required by the School District, but maintenance of the field should be conducted. It is the School District's responsibility to continue to inspect and maintain the Site to ensure that the integrity of the cap is maintained.

4.1 Next Review

The next review for the Site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

5.0 REFERENCES

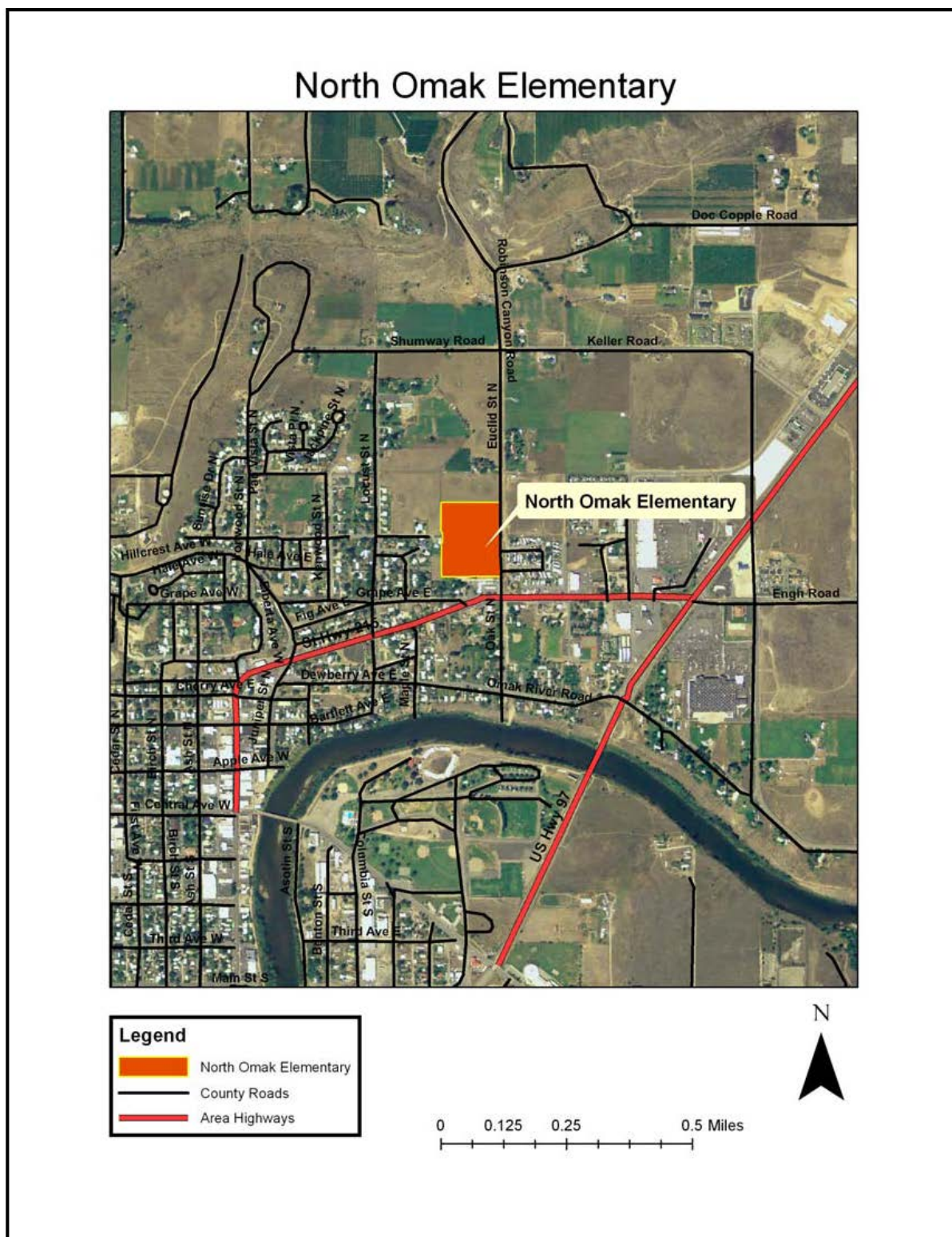
Omak School District. *Restrictive Environmental Covenant*. February 6, 2008

Ecology. *Interim Action Report – North Omak Elementary*. October 9, 2006.

Ecology. *Site Visit*. March 28, 2013.

6.0 APPENDICES

6.1 Vicinity Map



6.2 Site Map



6.3 Environmental Covenant

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Covenant's DEPT OF ECOLOGY
Okanogan County Washington

3129292



Restrictive Environmental Covenant

After Recording Return to:

Jeff Newschwander
Department of Ecology
15 West Yakima Avenue, Suite 200
Yakima, Washington 98902

Grantor: Omak School District
Grantee: State of Washington, Department of Ecology
Legal: IAX 166 PT SE SE NE, S1/2 NE SE NE L/RD~
Tax Parcel Nos.: 3426260166

Grantor, Omak School District, hereby binds Grantor, its successors and assigns to the land use restrictions identified herein and grants such other rights under this environmental covenant (hereafter "Covenant") made this 5th day of November, 2007, in favor of the State of Washington Department of Ecology (Ecology). Ecology shall have full right of enforcement of the rights conveyed under this Covenant pursuant to the Model Toxics Control Act, RCW 70.105D.030(1)(g), and the Uniform Environmental Covenants Act, 2007 Wash. Laws ch. 104, sec. 12.

This Declaration of Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Omak School District its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Covenant. The Remedial Action conducted at the property is described in the following document[s]:

1. Interim Action Report-North Omak Elementary, Washington State Department of Ecology, October 2007.

This document is on file at Ecology's Central Region Office in Yakima, Washington.

This Covenant is required because the Remedial Action resulted in residual concentrations of lead and arsenic which exceed the Model Toxics Control Act Method A Cleanup Level(s) for soil established under WAC 173-340-440.

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Covenants DEPT OF ECOLOGY
Okanogan County Washington

3129292



The undersigned, Omak School District, is the fee owner of real property (hereafter "Property") in the County of Okanogan, State of Washington, that is subject to this Covenant. The Property is legally described as follows: TAX PARCEL 166 PT SE SE NE, S1/2 NE SE NE L/RD. Omak School District makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: significant drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, bulldozing or earthwork. This restriction does not include minor maintenance activities including: repairing or replacing sprinkler heads, re-seeding or re-sodding portions of the fields, or minor repairs to the sprinkler system plumbing.

The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

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

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

The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

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Covenants DEPT OF ECOLOGY
Okanogan County Washington

3129292



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

OMAK SCHOOL DISTRICT

Robert Risinger
Superintendent
Omak School District

Dated: 1/17/08

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Donald W. Abbott
Section Manager
Toxics Cleanup Program
Central Regional Office

Dated: 1/12/08

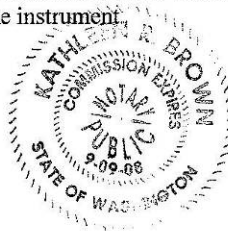
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Covenants DEPT OF ECOLOGY
Okanogan County Washington

3129292



STATE OF Washington
COUNTY OF Okanogan

On this 17th day of January, 2008, I certify that Robert Risinger personally appeared before me, acknowledged that he/she signed this instrument, on oath stated that he/she was authorized to execute this instrument, and acknowledged it as the Superintendent [type of authority] of Omak School District [name of party being represented] to be the free and voluntary act and deed of such party for the uses and purposes mentioned in the instrument.



Kathleen R. Brown
Notary Public in and for the State of
Washington, residing at Omak
My appointment expires 9/09/08

6.4 Photo log

Photo 1: North Omak Elementary Playfield – from the north



Photo 2: Torn Geotextile and Exposed Soil Beneath Swings - from the east



Photo 3: Cut Turf Adjacent to Asphalt - from the northeast



Photo 4: Play Equipment and Wood Chips - from the south

