



Periodic Review

Foothills Middle School
Facility/Site ID # 353
Cleanup Site ID # 4456
1410 Maple Street
Wenatchee, Washington 98801

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

October 2013

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1.0 INTRODUCTION

This document is the Washington State Department of Ecology's periodic review of post-cleanup site conditions and monitoring data to assure that human health and the environment are being protected at the Foothills Elementary School site (Site). The 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 as an independent remedial action. 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). As a result of residual contamination, institutional controls were required for the Site to be eligible for a no further action (NFA) determination. 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 Site is currently occupied by Foothills Middle School, in the Wenatchee School District. The Site is approximately 16.9 acres, and is located at 1410 Maple Street, Wenatchee, in Chelan County. A Site plan is available as Appendix 6.1 and a vicinity map is available as Appendix 6.2.

Prior to construction of the elementary school, the Site had been cultivated as fruit orchard. 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 Site Investigations

Olympus Environmental conducted a Site investigation in 1991 to evaluate impacts to soil from former orchard activities. Twenty-three soil samples were collected from random locations across the Site and analyzed for lead, arsenic, DDT, and Chlordane. Arsenic, lead, DDT, and chlorane were detected at maximum concentrations of 120 milligrams per kilogram (mg/kg), 2,000 mg/kg, 46 mg/kg and 2.3 micrograms per kilogram, respectively. Arsenic, lead, and DDT were each detected at concentrations exceeding MTCA Method A cleanup levels.

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 mg/kg, the MTCA Method A cleanup level for lead is 250 mg/kg, and the MTCA Method A cleanup level for DDT is 3 mg/kg. The MTCA Method B cleanup level for chlordane is 2.9 mg/kg.

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

Protective capping was selected as the remedial action for the pesticide contamination at the Site. Following constructing of the school buildings, all grass and landscaped areas were covered with a minimum of 15 inches of clean soil. Areas surrounding play equipment were also covered with landscaping fabric followed by wood chips.

2.4.1 Post-Remediation Compliance Sampling

In 2013, additional soil samples were collected and analyzed for the purpose of this review. Samples collected directly from the soil surface on a grid pattern across the property. Each sample was analyzed with an x-ray fluorescence detector. Lead was detected in 7 out of 11 samples at concentrations below MTCA Method A cleanup levels. Arsenic was detected in one sample at 23 mg/kg, exceeding the MTCA Method A cleanup level of 20 mg/kg. Though one arsenic sample result exceeded the MTCA Method A cleanup level, it was not more than twice the cleanup level, and 10% or fewer of the samples exceeded the cleanup level. This meets the statistical compliance requirements of MTCA.

All results are available in the table below.

Foothills Middle School Soil Sample Results (mg/kg)

Arsenic	Lead	School	Date	Sample ID
23.34685	154.8923	foothills ms	10\2\2013	field-1
15.88419	50.04371	foothills ms	10\2\2013	field-2
14.1082	65.39247	foothills ms	10\2\2013	field-3
6.956025	9.560772	foothills ms	10\2\2013	field-4
18.7826	47.33058	foothills ms	10\2\2013	field-infield
7.879116	22.53208	foothills ms	10\2\2013	field-5
7.10371	9.082989	foothills ms	10\2\2013	field-garden 1
8.720945	27.26286	foothills ms	10\2\2013	field-garden 2
7.846365	10.0717	foothills ms	10\2\2013	field-6
8.123352	9.556453	foothills ms	10\2\2013	field-7
7.153385	10.68445	foothills ms	10\2\2013	field-8

*Samples in Red exceed MTCA Method A cleanup levels

**Samples in Green were not detected, and this value represents the instrument's detection limit

2.5 Institutional Controls

Because soil was capped at the Site with concentrations of lead and arsenic exceeding MTCA Method A Cleanup levels, institutional controls were required for the Site to be eligible for a NFA determination. An environmental covenant was recorded for the Site in 2008, and a NFA determination was issued by Ecology in 2010. The conditions of the environmental covenant are available below:

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

A copy of the restrictive covenant is available as Appendix 6.3.

3.0 FIVE-YEAR REVIEW

3.1 Effectiveness of completed cleanup actions

Based upon the Site visit and data from the soil samples collected on October 2, 2013, no repair, maintenance or contingency actions have been required. Sample data indicates that the clean soil cap on the Site continues to reduce human exposure pathways (ingestion, contact) to contaminated soils. A photo log is available as Appendix 6.4.

The school has planted a vegetable garden for student use on the north side of the school. The garden was planted in raised beds that were filled with imported clean soil. The use of raised beds with clean soil does not allow produce from this garden to uptake or come in contact with contaminated soils at the Site. School personnel should monitor and maintain this garden area to verify that clean soil in the raised beds does not mix or come in contact with the contaminated soils beneath. Soil samples collected from the garden area indicate soils in the raised beds are clean, but soils beneath the wood chips surrounding the garden contain detectable concentrations of lead and arsenic.

The environmental covenant for the Site was recorded and remains active. There is no evidence that another instrument has been recorded that rescinds, or renders the covenant ineffective. The environmental covenant prohibits activities that will result in the release of contaminants contained as part of the cleanup without Ecology's approval, and prohibits any use of the property that is inconsistent with the covenant. The covenant serves to assure the long term integrity of the cap.

Conclusions:

Soils with residual pesticide concentrations higher than Method A cleanup levels are still present. However, the clean soil cap prevents human exposure to residual pesticides by ingestion and direct contact with soils. The environmental covenant for the Site will ensure that the integrity of the caps will be protected through restriction of certain activities and maintaining the current use of the Site.

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

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

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

This cleanup is governed by Chapter 173-340 WAC. This regulation was amended in 2001. Although some cleanup levels changed as a result of this modification, contamination remains at the Site above MTCA Method A cleanup levels.

3.4 Current and projected Site use

The Site is currently used as a middle 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 removal/recycling of hazardous substances as well as containment, 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 affect decisions or recommendations made for the Site.

4.0 CONCLUSIONS

- The cleanup actions completed at the Site is protective of human health and the environment.
- Soil cleanup levels have not been met at the Site; however, the cleanup action is determined to comply with cleanup standards under WAC 173-340-740(6)(f), since the long-term integrity of the containment system is ensured and the requirements for containment technologies have been met.
- The environmental covenant for the Site is in place and will be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this five-year review, the Department of Ecology has determined that the requirements of the Restrictive Covenant are being followed. No additional remedial actions are required by the property owner. It is the property owner's responsibility to continue to inspect the Site to assure that the integrity of the cap is maintained.

5.0 REFERENCES

Olympus Environmental, Inc. *Wenatchee Schools Soil Sampling*. June 1991.

Wenatchee School District. *Environmental Covenant*. September 2, 2008.

Ecology. *No Further Action Determination Letter*. June 22, 2010.

Ecology. *Site Visit*. October 2, 2013.

6.0 APPENDICIES

6.1 Site Plan

Foothills Middle School



0 0.0275 0.055 0.11 Miles

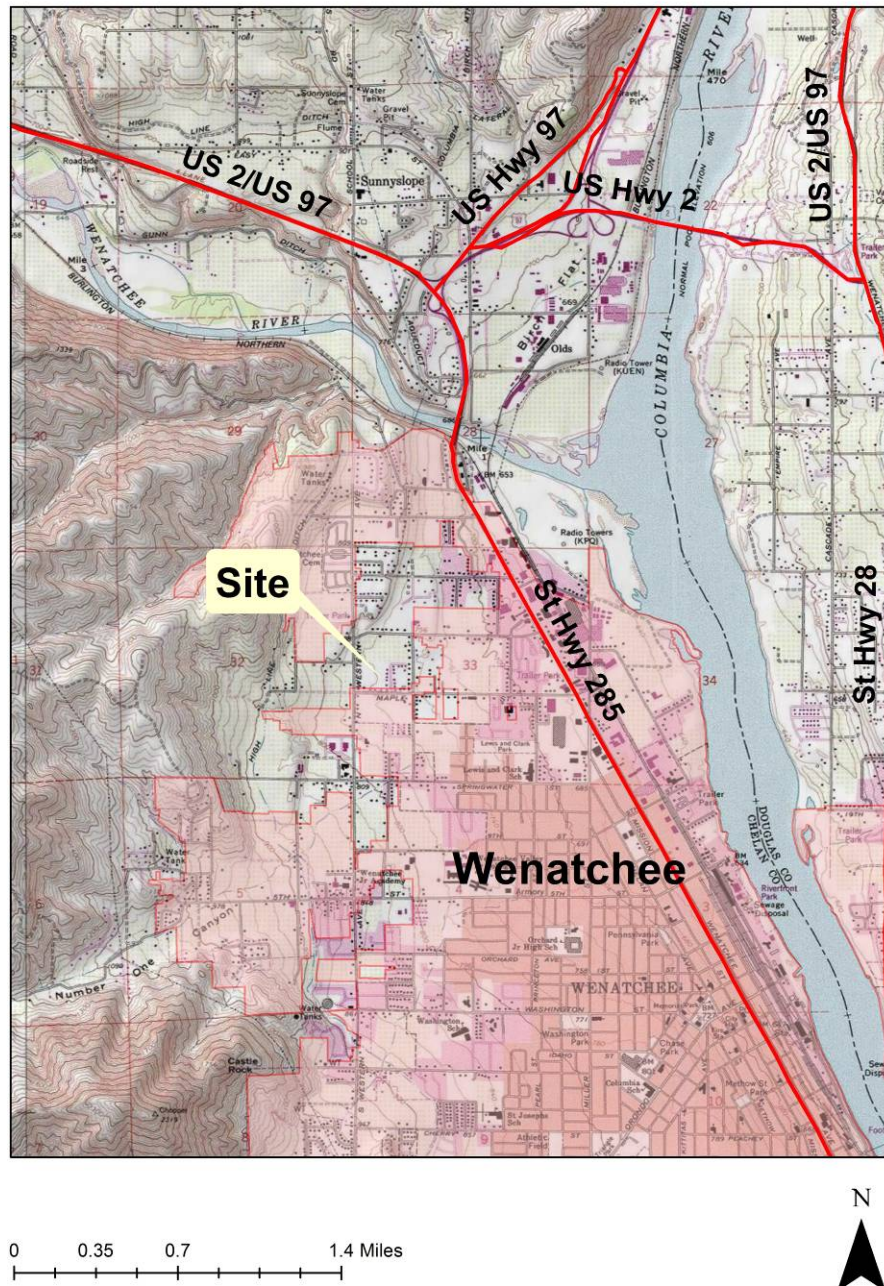
Legend

● Sample Locations



6.2 Vicinity Map

Foothills Middle School Vicinity Map



6.3 Restrictive Covenant

Environmental Covenant

Grantor: Wenatchee School District – Foothills Middle School
Grantee: State of Washington, Department of Ecology
Legal: Lot 2, Short Plat #1930
Tax Parcel No.: 232033783272
Cross Reference: 1410 Maple Street

Grantor, Wenatchee 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 12th day of August, 2008 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 the Wenatchee 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]:

Site Hazard Assessment for Foothills Middle School, Washington State Department of Ecology, February 22, 1995. These documents are on file at Ecology's Central Region Office.

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 173-340-900.

The undersigned, Wenatchee School District, is the fee owner of real property (hereafter "Property") in the County of Chelan, State of Washington, that is subject to this Covenant. The Property is legally described AS FOLLOWS: Those portions as recorded in Book 710 at Pages 122 and 123 under Auditor's file number 721938; Book 944 at Pages 1834, 1835 and 1836 under Auditor's file number 9103010023; Book 948 at Page 1347 under Auditor's file number 9105160041; and Lot 2 of Chelan County Short Plat number 1930 as recorded in Book SP-7 of Short Plats at Page 22, records of Chelan County, Washington. Except Book 771 at Page 976 under Auditor's file number 807024. All situate in Section 33, Township 23 North, Range 20 East, of the Willamette Meridian.

Evelyn L. Arnold, Auditor, Chelan County, WA
 AFN # 2289155 Recorded 04:37 PM 09/02/2008
 COVEN Page: 1 of 3 \$44.00
 WENATCHEE SCHOOL DIST

Wenatchee 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").

Section 1. Any activity on the Property that may result in the significant release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, bulldozing or earthwork. This does not include normal maintenance activities, including: soil aeration and irrigation system repair.

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

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

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

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


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

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of

any further force or effect. However, such an instrument may be recorded only if Ecology,
after public notice and opportunity for comment, concurs.

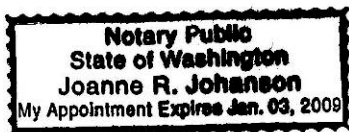
WENATCHEE SCHOOL DISTRICT

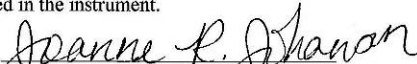

Les Vandervort
CFO

Dated: 8/13/08

STATE OF Washington
COUNTY OF Chelan

On this 13th day of August, 2008, I certify that Les Vandervort personally appeared before me,
acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and
acknowledged it as the Chief Financial Officer of Wenatchee School District to be the free and voluntary act and
deed of such party for the uses and purposes mentioned in the instrument.




Notary Public in and for the State of Washington
Residing at Wenatchee, WA.
My appointment expires 1/03/2009.

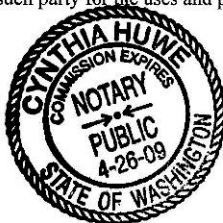
STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

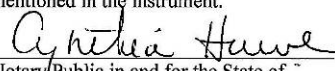

Don Abbott
Section Manager

Dated: Aug 13 2008

STATE OF Washington
COUNTY OF Yakima

On this 13 day of August, 2008 I certify that Don Abbott personally appeared before me,
acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and
acknowledged it as the Section Manager of WA Ecology to be the free and
voluntary act and deed of such party for the uses and purposes mentioned in the instrument.




Notary Public in and for the State of
Washington, residing at Yakima
My appointment expires 4/26/09

6.4 Photo log

Photo 1: Front Entrance to Foothills MS - from the east



Photo 2: Typical Turf Quality at Foothills MS - from the south



Photo 3: School Garden North of Building - from the southwest



Photo 4: Baseball Field - from the north

