Periodic Review
Holcim Inc Site

12207 E. Empire Way, Spokane Valley, Spokane County
Facility Site ID: 52126416, Cleanup Site ID: 4580

Toxics Cleanup Program, Eastern Region

Washington State Department of Ecology
Spokane, Washington

June 2025

Document Information

This document is available on the Department of Ecology's Holcim Inc cleanup site page.[1]

Related Information

- Facility Site ID: 52126416
- Cleanup Site ID: 4580

Contact Information

Toxics Cleanup Program[2]

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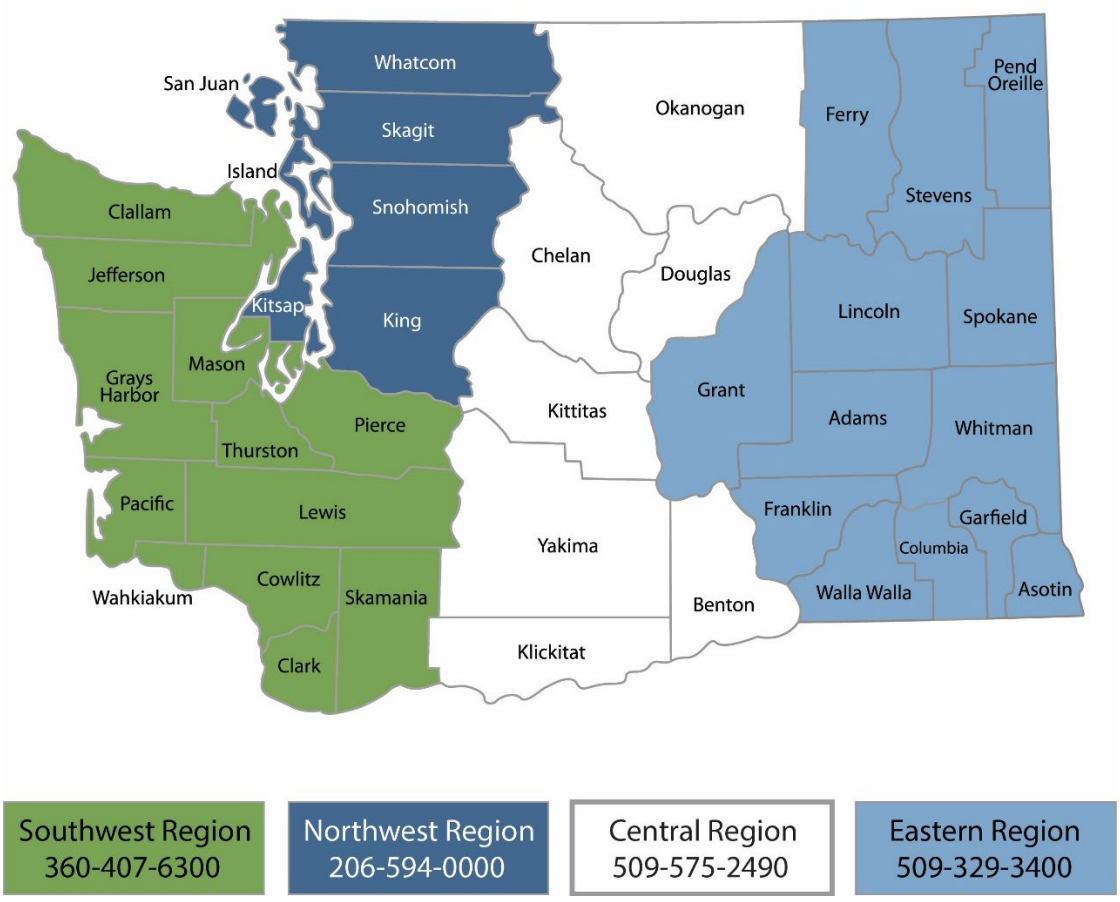
[1] https://apps.ecology.wa.gov/cleanupsearch/site/4580
[2] https://ecology.wa.gov/About-us/Who-we-are/Our-Programs/Toxics-Cleanup
[3] https://ecology.wa.gov/About-us/Accountability-transparency/Our-website/Accessibility

Department of Ecology's Regional Offices

Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

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Introduction

The Washington Department of Ecology (Ecology) reviewed post-cleanup site conditions and monitoring data to ensure human health and the environment are being protected at the Holcim Inc cleanup site (Site). Site cleanup was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC). This is the first periodic review conducted for this Site.

Cleanup activities at this Site were completed under Consent Decree 15204672-6. Residual concentrations of metals that exceeded MTCA cleanup levels remain on the property. The MTCA cleanup levels for soil and groundwater are established under WAC 173-340-740[4] and WAC 173-340-720,[5] respectively.

Ecology determined institutional controls in the form of an environmental covenant (Covenant) would be required as part of the cleanup action for the Site. WAC 173-340-420(2)[6] requires Ecology to conduct a periodic review of certain sites every five years. For this Site, a periodic review is required because an institutional control was required as part of the cleanup action.

When evaluating whether human health and the environment are being protected, Ecology must consider the following factors (WAC 173-340-420(4)):

a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the site

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 and resource uses

e) The availability and practicability of more permanent remedies

f) The availability of improved analytical techniques to evaluate compliance with cleanup levels

Ecology publishes a notice of all periodic reviews for Ecology-supervised and -conducted cleanups in the *Contaminated Site Register* and provides an opportunity for public comment.

[4] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-740
[5] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-720
[6] https://app.leg.wa.gov/wac/default.aspx?cite=173-340-420

Summary of Site Conditions

Site description and history

The Site is industrial land owned by Holcim (US) Inc., park land owned by the City of Spokane Valley, and high-density residential apartments owned by Riverside Place, LLC (formerly Neighborhood, Inc). It is bounded by the Centennial Trail (City property) and Spokane River to the east and north, Riverside LLC property to the west, and multiple commercial businesses and government entities to the south. One property south of Holcim is owned by the Irvin Water District, where a public water supply well is located. One small property between Holcim and Riverside LLC is owned by Spokane County, where a wastewater pump station is located. The City property is zoned parks/open space. The Holcim and Riverside LLC properties are zoned mixed use center (MUC). According to the City of Spokane Valley, MUC zoning allows "employment, lodging, and retail along with higher density residential uses."

The Holcim property was developed and operated as a cement manufacturing plant from 1910 through 1967 and later used as a cement distribution terminal from 1967 to 2002. During the facility's operational history, cement kiln dust (CKD), a by-product of the manufacturing process, was deposited on the Site. Numerous cement companies have operated at and/or owned the Holcim property, including International Portland Cement Company (1910–1932), Spokane Portland Cement Company (1933–1954), Ideal Cement Company (1955–1977), Ideal Basic Industries Cement Division (1978–1992), Holnam Inc. (1993–2000), Holnam Trucking Terminal Facility (2001), Holnam Cement Hydraulic (2002), and Holcim (2003–present).

Several structures were located at the Holcim property, including a crushing mill and rotary kiln, offices and laboratory, coal and clinker storage buildings and sheds, precipitator building, packhouse, machine shop, crusher building, numerous storehouses and storage sheds, silos, truck wash and wash house, and a water tower. Rail spurs, sidings, and lines were located at and adjacent to the Holcim property; and at least two elevated rail spurs terminated on the west portion of the plant. Several buildings were demolished between 1970 and 1974, including the mill and kiln, the office and laboratory, coal storage building, precipitator building, and crusher building. During the operating period as a cement distribution terminal, powdered cement was delivered via rail, stored in silos, and loaded onto trucks. Remaining buildings primarily were used for storing powdered cement. In 2006, the remaining structures were demolished (GeoEngineers 2013a).

Site investigations

During the cement plant's operational history, CKD was deposited on the Holcim and City properties. Environmental site characterization activities began at the site in 2007 with the goal of characterizing the chemical nature of the CKD and surrounding soil, defining the lateral and vertical extent of the CKD deposits, identifying any other areas of non-CKD-related contaminated soil, and characterizing groundwater beneath the site.

In 2007, groundwater monitoring wells MW-1 through MW-10 were installed and quarterly sampling began. In 2010, Waste Management conducted a pilot test to assess the viability of using the Site CKD as a metals-stabilizing reagent. Pilot test results indicated the CKD was not a viable reagent. As required by an Agreed Order with Ecology, remedial investigation (RI) assessment activities were conducted in 2012 and 2013 on the Holcim, City and Neighborhood, Inc. properties, and along the north bank of the Spokane River. Assessment results are summarized in the RI report (GeoEngineers 2013a).

The RI found that CKD often contained arsenic, cadmium, and lead at concentrations exceeding the MTCA unrestricted land use cleanup criteria. Analytical results also indicated pH levels greater than 12.5, which characterized the CKD as a dangerous waste in the State of Washington as defined by the Dangerous Waste Regulations (Chapter 173- 303 WAC).

The RI found that groundwater beneath the Site was occasionally contaminated with metals, particularly arsenic. The interaction between the Spokane-Valley Rathdrum-Prairie Aquifer and the Spokane River, which is in a losing reach near the site (surface water discharges to groundwater), results in complex hydrogeologic site conditions. In addition, portions of the CKD deposit formerly on the City property were in contact with groundwater during periods of seasonally high groundwater elevations likely resulting in a release of arsenic from CKD to groundwater. Surface water adjacent to the Site is not contaminated with Site contaminants of concern (COCs) (Geoengineers 2018).

Cleanup actions

Following a public hearing and additional opportunity for public review and comment, Ecology completed the CAP for the Site on December 8, 2015. The CAP specified the following requirements for the cleanup action:

- Relocation of CKD and contaminated soil from the City and Neighborhood, Inc. properties to the Holcim property.
- After visual confirmation that all CKD on the City and Neighborhood, Inc. properties was removed and confirmation sampling indicated all contamination associated with the CKD on these properties had been removed, the excavations were backfilled with clean soil and planted with appropriate native plant species.
- Removal and off-site disposal of contaminated soil on the Holcim property not associated with CKD.
- After confirmation sampling indicated all contamination from excavations on the Holcim property not associated with CKD was removed, the excavations were backfilled with clean soil and planted with appropriate native plant species.
- The combined Holcim, City, and Neighborhood, Inc. CKD-related material was regraded to ensure all CKD and contaminated soil was at least 10 feet away from the property boundary, 200 feet from the 100-year floodplain of the Spokane River, and 200 feet from the Irvin Water District Well.

- A low-permeability composite engineered cover system was installed over the CKD material on the Holcim property. The cover system consists of the following layers, from the cover surface down to the graded CKD:
    - Two feet of topsoil
    - 270-mil drainage geonet
    - 40-mil high-density polyethylene (HDPE) liner
- The cover system was vegetated with native grasses and will be maintained for perpetuity. The cover system was designed so any precipitation that enters the soil and drainage layer or runs off the surface of the cover is collected and managed in stormwater swales on Holcim's property.
- MTCA requires that where soil cleanup levels are exceeded, an environmental covenant must be placed with the deed. As required by the CAP, a Covenant was placed on the deed for the Holcim property. Institutional controls that restrict access to the engineered cover system and readily identify its location are required and identified in the Covenant and the CAP.

Holcim (US) Inc. and their selected contractor began the remedial construction activities on August 17, 2016, and completed work on November 4, 2016.

Groundwater monitoring

Groundwater monitoring at the Site is completed semi-annually. Historically, groundwater monitoring occurred quarterly for total arsenic and total lead. From 2007 to 2016, groundwater monitoring activities were conducted at four monitoring wells (MW-1 through MW-4) on the Holcim property and six monitoring wells on the adjacent City property (MW-6 through MW-10).

In compliance with Ecology-approved work plans associated with the cleanup action, groundwater monitoring wells MW-1 through MW-3 and MW-6 through MW-10 were decommissioned and removed during the remedial actions conducted in 2016. Four new groundwater monitoring wells (MW-11 through MW-14) were installed on the western portion of the Holcim property in June 2017 to monitor groundwater quality on the downgradient portion of the Site.

The third-quarter 2017 groundwater monitoring event marked the first sampling event following remedial actions. With Ecology approval, total lead was dropped from the target analyte list beginning the fourth quarter 2019; total lead was only detected in MW-11 and MW-12 during the first groundwater monitoring event in August 2017. Since the August 2017 event, lead was not detected in samples from any of the monitoring wells; MTCA allows for contaminants to be removed from monitoring once all site wells achieved cleanup level compliance for four consecutive monitoring events.

Because groundwater monitoring results had indicated compliance with cleanup standards at monitoring wells MW-5, MW-13, and MW-14 since at least 2017, these wells were decommissioned in 2024, as Ecology determined continued monitoring was not required.

Cleanup standards

Cleanup standards include cleanup levels, the location where these cleanup levels must be met (point of compliance), and any other regulatory requirements that apply to the Site. WAC 173-340-704[7] states 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 both soil and groundwater were implemented at the Site. The CAP identified three metals, pH (see footnote of Table 1), total petroleum hydrocarbons (TPH), gasoline-range petroleum hydrocarbons (GRPH), benzene, and total polycyclic aromatic hydrocarbons toxicity equivalency factors (PAH TEQ) as indicator substances for Site soil. The CAP identified two metals as indicator substances for Site groundwater. Each indicator substance and associated cleanup level is in Table 1.

Table 1. Site indicator substances and cleanup levels

Substance type	Soil Indicator substance	Soil Cleanup level
Metals	Arsenic	20 mg/kg
Metals	Cadmium	2 mg/kg
Metals	Lead	250 mg/kg
Alkalinity	pH[1]	12.5 pH units[1]
TPH	TPH	2000 mg/kg
TPH	GRPH	30 mg/kg
VOCs	Benzene	0.03 mg/kg
PAHs	Total PAH TEQ	0.1 mg/kg
Substance type	**Groundwater Indicator substance**	**Groundwater Cleanup level**
Metals	Arsenic	5 ug/L
Metals	Lead	15 ug/L

µg/L = micrograms per liter
mg/kg = milligrams per kilogram
TPH = total petroleum hydrocarbons
GRPH = gasoline-range petroleum hydrocarbons
VOC = volatile organic compound
PAH TEQ = polycyclic aromatic hydrocarbons toxicity equivalency factors
[1] = A pH of 12.5, while not a Method A cleanup level, was used as a substantive requirement of the dangerous waste regulations, WAC 173-303

[7] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-704

The point of compliance is the area where the cleanup levels must be attained. WAC 173-340-740(6) gives the point of compliance requirements for soil. The standard point of compliance for soil is established at a depth of 15 feet and shall apply at this Site to contaminants that are not found in groundwater. The standard point of compliance for soil cleanup levels based on protection of groundwater is throughout the soil column and were applied to arsenic and lead, which were found in groundwater. For cleanup actions that involve containment of hazardous substances, soil cleanup levels will typically not be met inside containment areas.

The groundwater point of compliance was established from the uppermost level of the saturated zone to the lowest depth that could be potentially affected by the Site over the entire Site. Groundwater cleanup levels will be met in all groundwater from the point of compliance to the outer boundary of the contaminant plume.

Environmental covenant

Ecology determined that institutional controls would be required as part of the cleanup action to document the remaining contamination, protect the cleanup action, and protect human health and the environment. On December 12, 2018, the Covenant[8] was recorded for the Site, which imposes the following limitations:

1. No wells may be drilled or groundwater extracted within the property for any purpose other than temporary construction dewatering, investigation, monitoring or remediation. Drilling of a well anywhere on the property for any water supply purpose is strictly prohibited. Groundwater extracted from the property for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law.
2. Access to the property shall be limited, and any activities or development that could interfere with the components of the cleanup action is prohibited.
3. No person may engage in activities within the boundaries of the restricted area (CKD containment area) that could results in the release of hazardous substances contained by the cleanup action without prior written consent from Ecology.
4. The property may not be conveyed to any person without first giving notice to Ecology.
5. The property may not be leased for uses or activities that are not consistent with the Covenant.
6. Any current or future owner of the property will need to request and receive written consent from Ecology before using the property in a way that is inconsistent with the Covenant.

[8] https://apps.ecology.wa.gov/cleanupsearch/document/157648

7. Ecology and its representatives have the right to enter the property at reasonable times to inspect or evaluate compliance with the Cleanup Action Plan, to take samples, and to inspect records.
8. The current or future owners of the property have the right to remove the Covenant from the property with Ecology's consent and after public notice.

Periodic Review

Effectiveness of completed cleanup actions

During the Site visit Ecology conducted on May 5, 2025, the Site was found to be well managed, and the components of the remedy are in good condition. Stormwater is controlled to move rainwater and snowmelt off the protective cap to a series of stormwater infiltration basins. Groundwater monitoring wells were inspected and found to be in good condition. The Site is restricted from public access by gates and perimeter fencing. Fencing is regularly inspected by contractors for Holcim (US) Inc. A photo log is in Appendix C.

Direct contact

Exposure pathways to contaminated soils by ingestion and direct contact were eliminated by the protective cover system and the Covenant. The cover system appears to be in satisfactory condition, and no repair, maintenance, or contingency actions are required at this time.

Protection of groundwater

Historically, groundwater monitoring occurred quarterly for Site COCs (total arsenic and total lead). With Ecology approval, total lead was dropped from the target analyte list beginning the fourth quarter 2019. Beginning in 2024, and with Ecology approval, groundwater monitoring frequency was modified from quarterly to semi-annually.

Since cleanup action implementation, total lead has been measured above detection limits two times, both in third quarter 2017. Both detections were downgradient of the CKD repository; one detection was slightly above the cleanup level, and one was below the cleanup level. From fourth quarter 2017 until lead was dropped from the analyte list in third quarter 2019, lead was not detected in samples from any of the monitoring wells.

Total arsenic is intermittently detected in groundwater at concentrations slightly above cleanup levels immediately downgradient of the CKD repository. Appendix B shows a time series graph of total arsenic since the cleanup action was implemented.

Cleanup action implementation has significantly reduced the impact from CKD on groundwater.

Institutional controls

Institutional controls in the form of a Covenant were implemented at the site in 2018, which remains active and discoverable. This Covenant prohibits activities that will result in the release of contaminants contained as part of the cleanup action and prohibits any use of the property that is inconsistent with the Covenant, unless approved by Ecology in advance. This Covenant ensures the long-term integrity of the cleanup action will be protected.

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

There is no new relevant scientific information for the hazardous substances remaining at the Site.

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

The CAP, written in 2016, was based on the 2007 edition of MTCA. MTCA has been amended since the CAP was completed. WAC 173-340-702(12)(c) [2001 edition] provides that: "A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provision in this chapter on cleanup levels, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment."

No cleanup levels for any indicator hazardous substances have changed during recent MTCA amendments, therefore Site cleanup levels in the CAP will not change.

Ecology determined the remedy is protective since the cleanup action and institutional controls prevent exposure to potential receptors.

Current and projected site and resource uses

The Site is vacant. There have been no changes in current Site or resource uses. The current Site use is not likely to have a negative impact on the protectiveness of the cleanup action. Substantial commercial and residential growth has occurred in the Site area, and more is anticipated. Future development pressure is anticipated to affect the Site in the future; however, the timing of a potential change in future Site use is unknown.

Availability and practicability of more permanent remedies

A "permanent" cleanup action is defined in MTCA as a cleanup action in which cleanup standards can be met without further action being required. Several remedial alternatives were evaluated in the CAP. Of these, the only remedy evaluated that would be more permanent would be removal and off-site disposal, which Ecology found to be disproportionately

expensive. No new technologies have been developed since the CAP that would be more permanent.

Availability of improved analytical techniques to evaluate compliance with cleanup levels

No improved analytical techniques are available.

Protectiveness of the remedy

Based on Ecology's review of the Site data, the remedy is functioning as intended, and is protective of human health and the environment.

Conclusions

Ecology has determined the remedy at the Site is generally protective of human health and the environment. The original cleanup action remains protective today. Continued quarterly inspections ensure the cap remains functional, and semi-annual compliance monitoring allows for groundwater impacts and trends to be measured. The existence of institutional controls in the form of deed restrictions confirms Site uses will remain consistent with the presence of contamination. Further, periodic reviews will be required as long as institutional controls are in place at the Site, in accordance with WAC 173-340-420(7).

Next review

Ecology will schedule the next review for the Site five years from the date of this periodic review. If additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years after those activities are completed.

References

Ecology. *Environmental Covenant, Spokane County, Holcim Inc Site*. December 12, 2018.

Ecology. Site visit. May 5, 2025.

Ecology. *Cleanup Action Plan*. December 8, 2015.

Appendix A. Vicinity Map and Site Plan

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Based on historic site data, the actual site groundwater elevation distribution is likely more complex than the distribution depicted herein, which is based on a limited dataset consisting of the six site wells.
4. NM = not measured
5. Groundwater samples collected November 22, 2023. Groundwater elevations collected November 22, 2023.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 feet. Elevations are referenced to NAVD88.
Data Source: Current image from Spokane Environmental Services. Monitoring well locations were surveyed by Coffman Engineers.

Legend

- Monitoring Well Location, Well Number and Groundwater Elevation (feet)
- Water Supply Well
- Approximate Limits of Capped CKD
- Holcim Tax Parcel Boundary
- Tax Parcels

N
W E
S

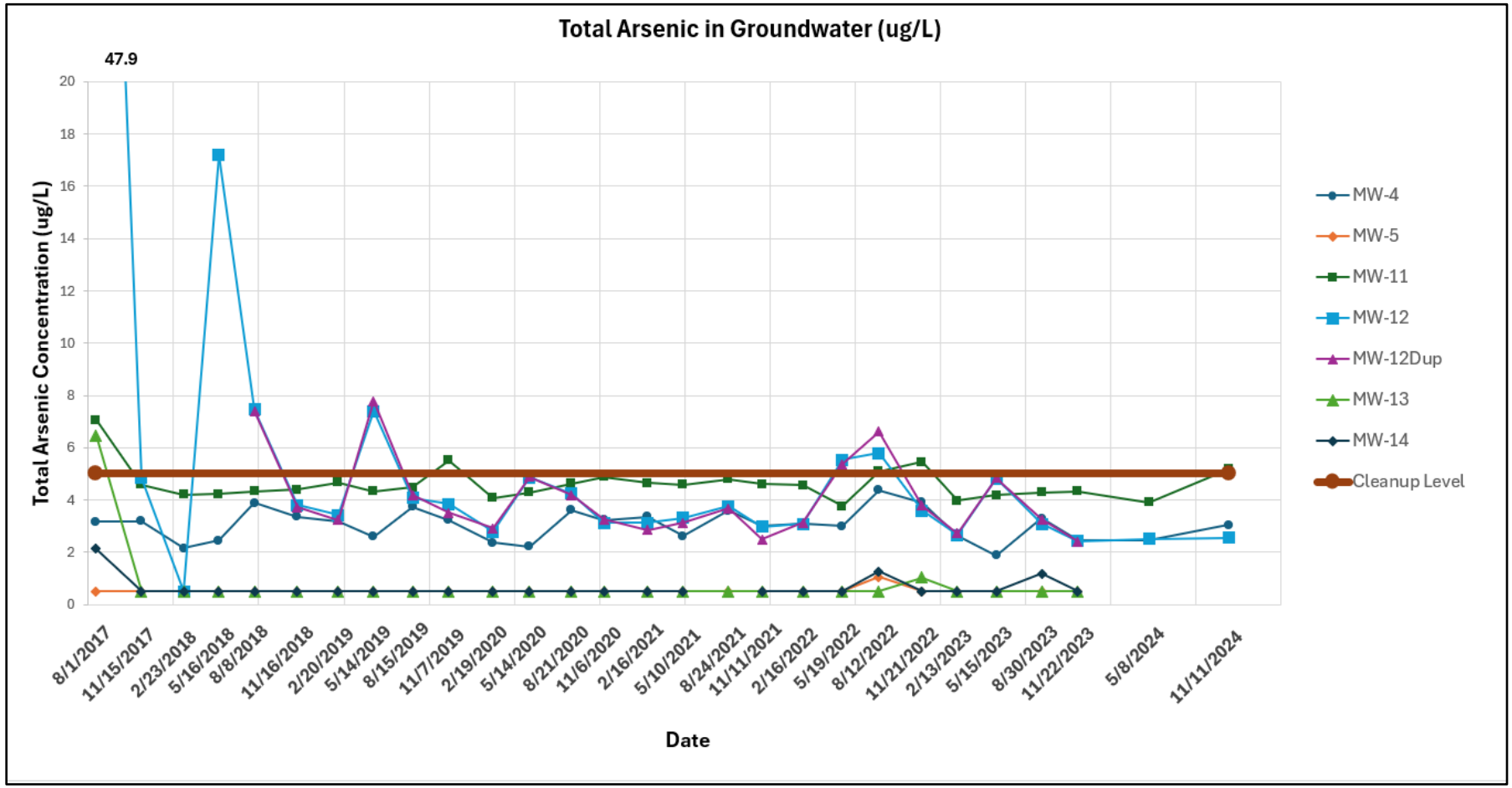
200 0 200
Feet

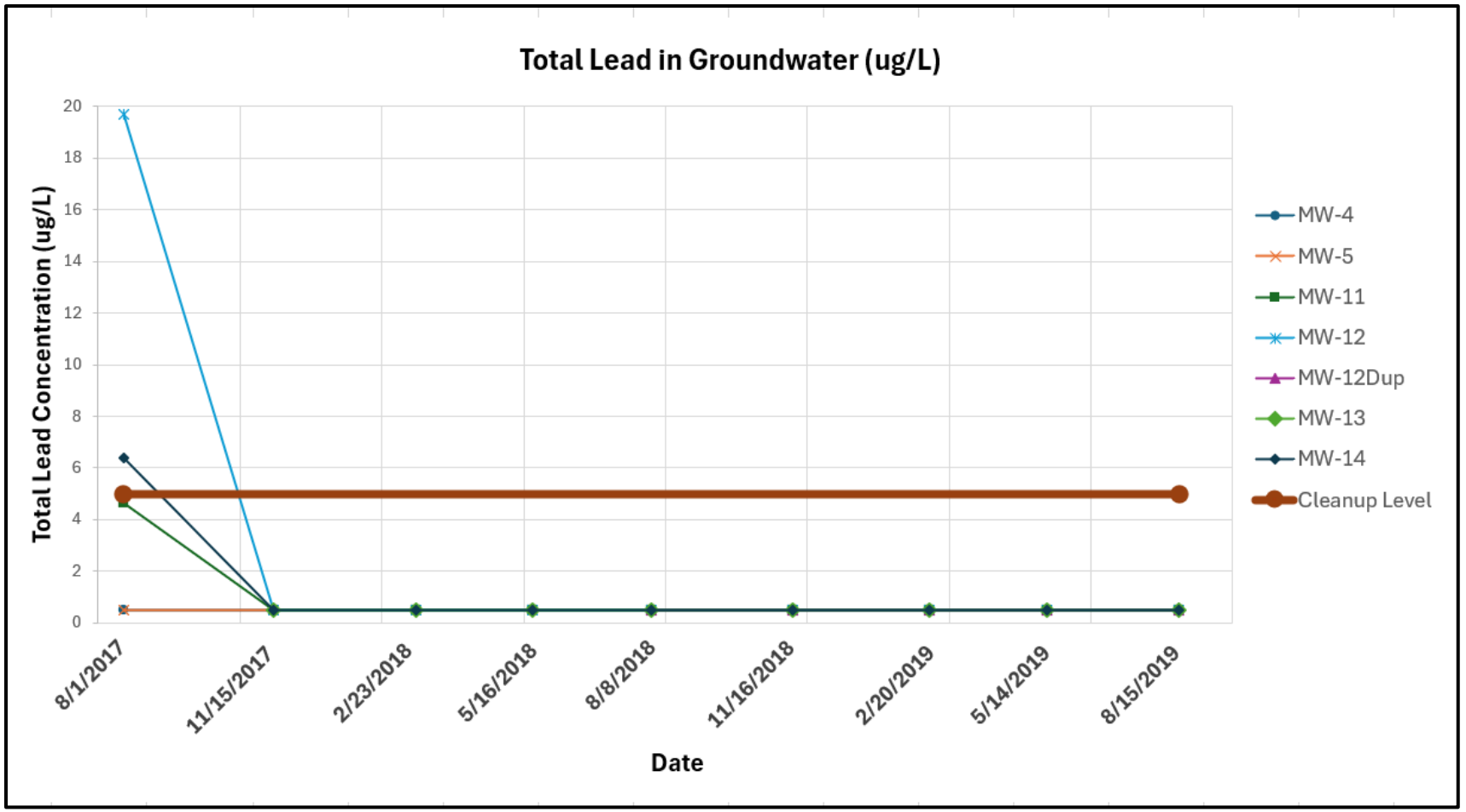
SITE PLAN

Former Cement Manufacturing Plant
Holcim Property & City of Spokane Valley Property
Spokane Valley, Washington

GeoEngineers

Appendix B. Time Series Graphs




Total Lead in Groundwater (ug/L)
Total Lead Concentration (ug/L)
20
18
16
14
12
10
8
6
4
2
0
8/1/2017
11/15/2017
2/23/2018
5/16/2018
8/8/2018
11/16/2018
2/20/2019
5/14/2019
8/15/2019
Date
MW-4
MW-5
MW-11
MW-12
MW-12Dup
MW-13
MW-14
Cleanup Level

Appendix C. Photo Log

Photo 1: Landfill cap looking north/northeast

Photo 2: Landfill cap and stormwater management area

Photo 3: Top of landfill cap looking northwest. Stormwater management area and Spokane River in the distance

Photo 4: Top of landfill cap looking east

Photo 5: Top of landfill cap looking south

Photo 6: Site fencing and remediated City of Spokane Valley property to the north

Photo 7: Groundwater monitoring well (MW-11) and Site fencing