Holcim, Inc. Site

Toxics Cleanup Program **December 2013**

Reports about Cement Kiln Dust at Site Available for Comment

The Washington State Department of Ecology entered into an Agreed Order with Holcim (US), Inc., and the City of Spokane Valley. The Order required these two property owners to conduct a Remedial Investigation and Feasibility Study at the site known as Holcim, Inc.

View of CKD deposit on City of Spokane Valley property

The site is made up of approximately 24 acres. The largest portion of the site is owned by Holcim (US) Inc. The remaining portions of the site are owned by the City of Spokane Valley, the Neighborhood, Inc. Coyote Rock Development, and Spokane County. The Centennial Trail runs adjacent to a portion of the site owned by the City. The site also lies along the Spokane River and above the Rathdrum Prairie-Spokane Valley Aquifer. The Site is located at 12207 East Empire Avenue in the City of Spokane Valley, Spokane County, Washington (see Figure 1 Map).

The Remedial Investigation Report provides detailed information about the extent of site-related contaminants in soil and groundwater. The Feasibility Study Report identifies and evaluates cleanup options.

You are Invited to Comment

- **Review** the Remedial Investigation and Feasibility Study Reports at the locations listed in the box on the right.
- **Send** your comments to Ecology for consideration. Comments will be accepted **December 30, 2013 through January 29, 2014**. See the shaded box at the right for details about where to review documents and submit comments.

Ecology will hold a public meeting to explain the RI/FS reports if ten or more people request a meeting. Please send meeting requests to Carol Bergin. Her contact information is listed in the box at the right.

Comments Accepted

December 30, 2013 through January 29, 2014

For **ADA** accommodations or documents in an alternate format call Carol Bergin 509/329-3546, 711 (relay service), or 877-833-6341 (TTY).

Para asistencia en Español
Gregory Bohn 509/454-4174

Если вам нужна помощь на русском, звоните Larissa Braaten 509/710-7552

Site Manager
Jeremy Schmidt, P.E.
WA Department of Ecology
Toxics Cleanup Program
4601 N. Monroe, Spokane WA 99205
509/329-3484
jeremy.schmidt@ecy.wa.gov

Public Involvement Coordinator
Carol Bergin
See Ecology address above
509/329-3546
carol.bergin@ecy.wa.gov

Document Review Locations

Argonne Branch Spokane County Library
4322 N. Argonne Road
Spokane, WA 99212 or 509/893-8260

WA Department of Ecology
Kari Johnson, Public Disclosure
4601 N. Monroe, Spokane, WA 99205
Call for an appointment 509/329-3415

Ecology's Toxics Cleanup Website
https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=4580

Facility Site ID No. 52126416
Cleanup Site ID No. 4580

Site Overview

Property owners identified as potentially liable persons (PLPs) are responsible for the costs associated with cleanup at a site. Holcim (US), Inc., and the City of Spokane Valley have been identified as the PLPs for the Holcim, Inc. site. Holcim and its predecessor companies operated a cement manufacturing plant on the property from 1910 to 1967. Several buildings used for various aspects of cement manufacturing or business needs were demolished between 1970 and 1974. The remaining buildings were demolished in 2006.

Cement kiln dust (CKD) was generated and deposited on the site during the period when cement was manufactured. Some of the CKD was landfilled on the northern portion of the site. This practice stopped in 1967. CKD was also deposited at the site on property currently owned by the City of Spokane Valley.

Washington State dangerous waste rules did not exist when the CKD material was originally deposited at the site. Now the rules state that wastes with a pH greater than 12.5 are considered dangerous waste. Certain areas of the site contain CKD with pH levels that exceed 12.5 and need to be addressed.

In 2007 and 2008 Holcim conducted an analysis of the CKD and groundwater under and adjacent to the site. Some of the CKD was very alkaline with a pH greater than 12.5 which means it was very corrosive and considered a dangerous waste if disturbed. Some CKD on the Holcim portion of the site also contained arsenic, cadmium, and lead at levels that did not meet state standards. Arsenic and lead were found in groundwater at levels that exceeded state standards.

In 2009 Ecology conducted an assessment of the site and ranked it a 1. A rank of 1 represents the greatest threat to human health and the environment and a rank of 5 the least threat. The site's close proximity to the river and aquifer contributed to the high ranking of the site.

Another factor in the ranking was that the Irvin Water District operates a drinking water well southwest of the site. Groundwater monitoring has shown there are no site-related impacts to that well. Groundwater at the site flows away from the Spokane River.

Based on current knowledge, there is not an immediate threat to human health and the environment from the site. Fences have been installed surrounding both deposits as a protective measure. The Remedial Investigation Report provides more details about the contamination.

Remedial Investigation Results

The Remedial Investigation was conducted between 2012 and 2013 and included review of past site investigations dating back to 2007. Contractors also collected two hundred and forty-four (244) soil samples from 75 explorations at the site during the investigation.

Soil Results

Soil sample results confirmed one deposit of CKD approximately 109,100 cubic yards in volume is located on the Holcim property. The Holcim property is about 20-50 feet higher in elevation than the City and Neighborhood, Inc. properties. Another CKD deposit in soil, approximately 12,300 cubic yards in volume, was found on the City property. These deposits of CKD contain high levels of pH. Some CKD in soil samples also had levels of lead, arsenic, and cadmium that did not meet state standards.

Some samples taken under the CKD on the Holcim property did not contain high levels of pH. Arsenic, cadmium and lead in these samples did not exceed state standards.

Elevated levels of arsenic were found in soil samples near the southern part of the Holcim property where CKD was not present. Some soils in the southeast part of the site also contained elevated levels of lead, gasoline-range petroleum hydrocarbons (GRPH), benzene and

carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs). These contaminants were found in soil that was within 2 feet of the surface.

Some areas of CKD were found on the Neighborhood, Inc. property. The CKD appears to be mixed with soil and is not exposed at the surface. Arsenic, cadmium, and lead exceeded state standards in some soil samples from this property.

Groundwater Results

Groundwater flow in this area is complex. In the eastern section of the site, groundwater generally flows away from the Spokane River toward the west-northwest. In the central section of the site it flows toward the south-southeast. In the west section of the site it flows southwest. Additionally, groundwater elevations fluctuate seasonally as much as 16 feet with the highest levels in late spring and the lowest levels in late summer and fall.

The base of the CKD deposit on the Holcim property is about 30 to 40 feet higher than groundwater. However, the base of CKD on the City property is closer to groundwater. Elevated levels of arsenic were found in one groundwater monitoring well during spring run-off when water levels are high and come into contact with the base of the CKD on the City property. There were no elevated levels of cadmium or lead present in the groundwater samples.

Feasibility Study Results

Five alternatives were evaluated to address contamination at this site. The following is a brief summary of the alternatives:

Alternative 1: CKD (dangerous waste) will be removed from the Holcim and City properties (areas A&B in Figure 2) and transported to an approved Subtitle D Landfill Facility in Arlington, Oregon. Contaminated soil from the Holcim and Neighborhood, Inc. properties (areas C&D in Figure 2) will be excavated and transported to a landfill facility. Excavated areas will be backfilled. The excavated area on the City property will be covered with 6 inches of topsoil and hydroseeded. Areas where CKD and non-CKD soil is removed may be redeveloped without deed restrictions. The estimated cost is slightly more than $11 million.

Alternative 2: CKD (dangerous waste) will be excavated from the Holcim and City properties (areas A&B in Figure 2). Before removal, CKD will be chemically stabilized by lowering the pH so it is no longer considered dangerous waste.

Contaminated soil will be excavated from the Holcim and Neighborhood, Inc. properties (areas C&D in Figure 2). The stabilized CKD and excavated soil will be transported to a landfill facility. Excavated areas will be backfilled. The excavated area on the City property will be covered with 6 inches of topsoil and hydroseeded. Areas where CKD and non-CKD soil are removed may be redeveloped without deed restrictions. The estimated cost for this option is just under $10 million.

Alternative 3: An engineered cap or cover will be placed on the CKD and contaminated areas at the Holcim, City and Neighborhood, Inc. properties. The cap includes 1 foot of clean fill material made up of 4 inch minus quarry spalls and 4 inches of gravel. Then 6 inches of hydroseeded topsoil would be added. A restrictive covenant will be placed on the deeds. The estimated cost for this option is $1.6 million.

Alternative 4: CKD would be excavated on the City property and placed where the CKD is located on the Holcim property. An engineered cap or cover would be placed over the CKD on the Holcim property. The cap includes 1 foot of clean fill material made up of 4 inch minus quarry spalls and 4 inches of gravel. Then 6 inches of hydroseeded topsoil would be added. The other contaminated soil at Holcim and Neighborhood, Inc. would be excavated and

transported to a Subtitle D Facility. A restrictive covenant would be placed on the deed for the Holcim property. The estimated cost for this option is slightly over $2 million.

Alternative 5: CKD on the City property would be excavated and placed on the Holcim property with Holcim CKD. An engineered cap or cover would be placed on the CKD on the Holcim property. The cap includes 1 foot of clean fill material made up of 4 inch minus quarry spalls and 4 inches of gravel. Then 6 inches of hydroseeded topsoil would be added. A restrictive covenant would be placed on the deed for the Holcim property. The estimated cost for this option is about $2 million.

The PLPs propose Alternative 5 as their preferred alternative to clean up the site. They believe this alternative is both protective to human health and the environment as well as cost effective. Ecology will consider the PLP's preferred alternative during its analysis. Part of Ecology's determination of the final cleanup alternative is based on state regulations. The Model Toxics Control Act (MTCA) provides if two or more alternatives are equal in benefits, Ecology shall select the less costly alternative provided that all minimum requirements for cleanup actions are met.

What Happens Now?

Ecology will review and respond to all comments received no later than **January 29, 2014**. If appropriate, the reports may be modified based on public comment. If there are no modifications, the reports become final and Ecology will write a Draft Cleanup Action Plan (DCAP). The DCAP provides Ecology's selected cleanup option and outlines the proposed work. The public will be provided an opportunity to comment on the DCAP which includes a State Environmental Policy Act (SEPA) determination for the proposed work.

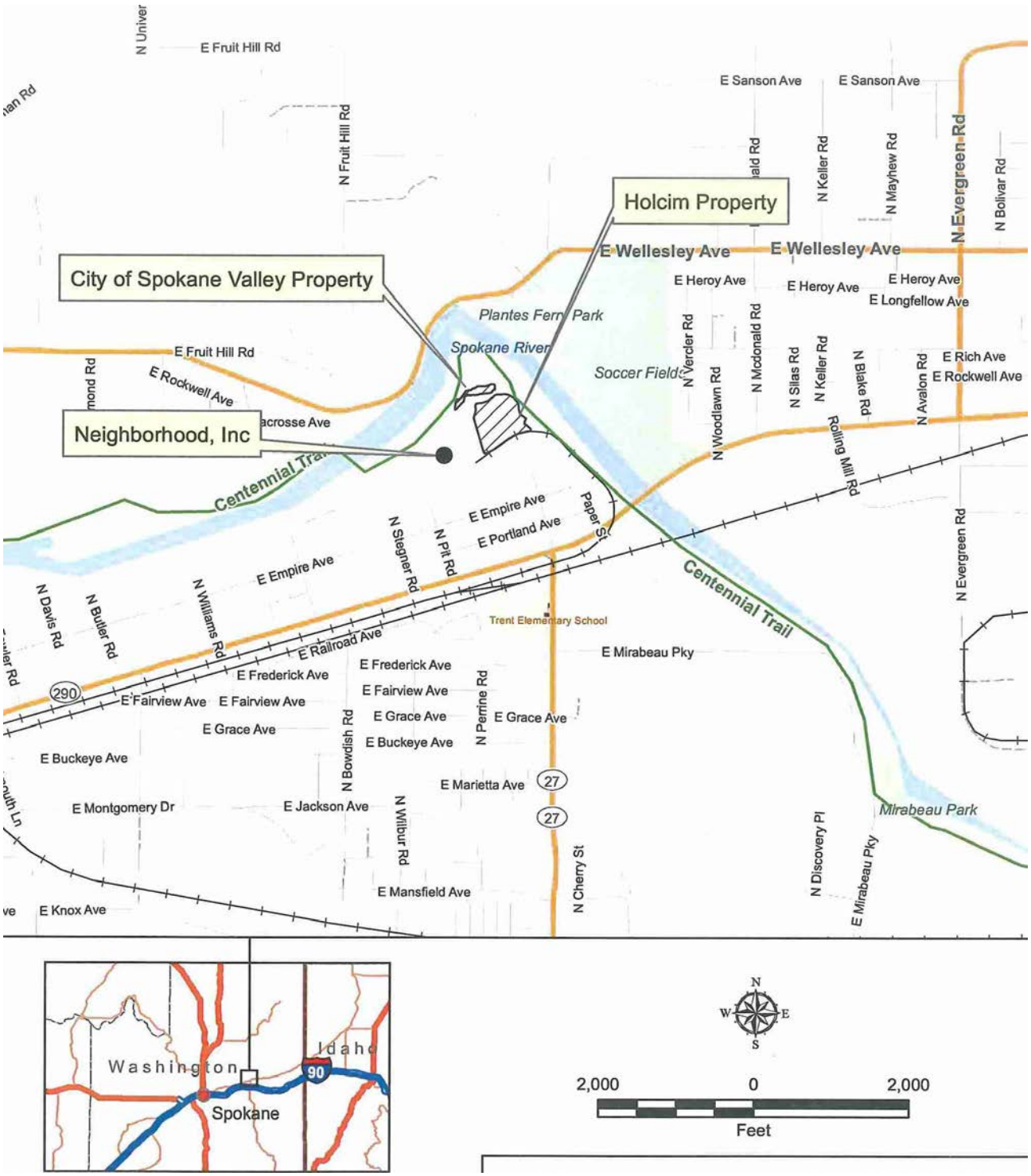

Figure 1 Map adapted from GeoEngineers Site Map

Figure 2

Reference: Aerial photo provided by ESRI Data Online. Tax parcel boundaries provided by Spokane County Tax Assessor's Office, downloaded September 20, 2011.
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. Sample locations along north side of Spokane River are not shown on this map.
4. Metals include one or more of the following: arsenic, cadmium, and lead

Areas Requiring Cleanup Action

Holcim Inc. Site
Spokane Valley, Washington

GeoEngineers

Figure 5