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SUPERFUND &
EMERGENCY
MANAGEMENT DIVISION

July 02, 2020

MEMORANDUM

SUBJECT: Request for Approval and Funding for a Time-Critical Removal Action for KAIC Pond Removal at the Former Kaiser Smelter Site, Mead, Spokane County, Washington,
ACTION MEMORANDUM

FROM: Brooks Stanfield, On-Scene Coordinator
Spill Prevention and Removal Section

THRU: Wally Moon, Chief
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TO: Calvin Terada, Director
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SITE ID: 10SS

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the time-critical removal action (TCRA), specifically the KAIC Pond Removal, within the Former Kaiser Smelter Site located in Mead, Spokane County, Washington (Site). The TCRA will mitigate threats posed to human health and the environment from an ongoing release of hazardous substances and the potential for a catastrophic release of hazardous substances. This selected time-critical removal action meets the criteria for initiating a removal action under the National Contingency Plan (NCP), 40 C.F.R. § 300.415.

The Site consists of three parcels which are owned by two entities, both of which are identified as potentially responsible parties (PRPs). The removal actions in this Action Memorandum will be undertaken by the PRPs.

EPA has planned additional removal activities at the Site which are addressed in a separate Action Memorandum, dated June 1, 2020.

II. SITE CONDITIONS AND BACKGROUND

The SEMS ID No: WAN001020091

The Site includes three separate tax parcels owned by two distinct owners. One parcel covers approximately 170 acres and includes the former aluminum smelter facility. The “facility parcel” is owned by Spokane Recycling, LLC and is zoned for heavy industrial use. This parcel contains dozens of large industrial buildings, common industrial site features, and a network of stormwater catch basins.

The former facility parcel’s system of catch basins and storm sewers collect and divert stormwater through a half-mile long aqueduct flowing north from the facility to a pair of settling ponds, referred to as the upper pond and lower pond. The ponds are located on a second 405-acre undeveloped parcel zoned for mixed use, which is owned by Kaiser Aluminum Investments Company (KAIC). At the northern end of the lower pond, a pipe transfers the water into a second aqueduct that runs approximately 1.25 miles to a third parcel, owned by Spokane Recycling, LLC, where an effluent outfall discharges stormwater into Deadman Creek (Figure 1).

The smelter facility was constructed by the Defense Plant Corporation, who began plant operations in 1942 during World War II. The property was purchased in 1946 by Kaiser Aluminum & Chemical Company (KACC). KACC operated the facility from 1946 until 2000, when the company ceased aluminum smelting operations. A portion of the former smelter property was placed on the National Priorities List (NPL) in 1983. The NPL Site, known as the Kaiser Aluminum – Mead Works Potliner Superfund Cleanup Site, is owned by a trust, which is responsible for carrying out a long-term remedy that is being overseen by the Washington Department of Ecology (Ecology). The 50-acre NPL Site consists of spent potliner solid waste, a 25-acre wet scrubber sludge bed, and a plume of groundwater contaminated with cyanide and fluoride, which flows in a northwest direction and away from the Site features discussed in this memorandum. Since its listing on the NPL, Ecology has overseen the consolidation of potliner waste into one pile, the covering of the pile with an engineered cap, and the maintenance of a system of sumps and piping around the pile. In fall of 2020, Ecology will be overseeing the installation of a groundwater pump and treatment system to address contaminated groundwater flowing from the pile. No records indicate that environmental data was available or considered for purposes of including other components of the facility within the scope of the original NPL listing.

The facility parcel and the outfall parcel (located to the north by Deadman Creek) have been sold together to three separate owners since 2004 following close of KACC’s operations. The current owner, Spokane Recycling, LLC, acquired the plant and outfall parcels in 2014. The undeveloped 405-acre parcel with the settling ponds was originally acquired by KACC from the United States of America in 1976. The undeveloped parcel was not sold with the facility parcel and outfall parcel but rather transferred from KACC to Kaiser Aluminum Fabricated Products in 2006 and then later transferred to KAIC in 2010. As part of the sale of the plant and outfall parcels, KACC granted an easement to the purchaser to provide ongoing access to the stormwater aqueducts and settling ponds located on the 405-acre undeveloped parcel.

Numerous waste piles and deteriorating building materials on the facility parcel have been found to contain elevated concentrations several hazardous substances and serve as a primary source of contamination at the Site. Many of these hazardous substances from this source material are also migrating through the stormwater system where they have and continue to accumulate in the settling ponds on the undeveloped 405-acre parcel, which has become a secondary source of contamination at the Site. The removal of primary source material from the facility parcel will be conducted by EPA in a separate TCRA, as described and approved in a separate Action Memorandum. This Action

Memorandum for the KAIC Ponds Removal outlines actions that will be taken to remove hazardous substances that have accumulated in the settling ponds, stormwater transmission pipes, and aqueducts. These removal actions will address the release and threat of release of hazardous substances due to the existing stormwater system at the Site that allows contamination to migrate off the facility parcel, through the settling ponds on the 405-acre undeveloped parcel, and ultimately into Deadman Creek.

The vicinity of the Site is comprised of a mix of residential, educational, commercial, and industrial development. The closest surface water body is Deadman Creek, which is located approximately 1.15 miles northeast of the settling ponds. Deadman Creek is a tributary of the Little Spokane River, which subsequently flows into the Spokane River.

A. Site Description

1. Removal site evaluation

EPA received a formal written request for assistance from Ecology and the Spokane Regional Clean Air Agency (SRCAA) concerning the release of polychlorinated biphenyls (PCBs) and other contaminants from the Site.¹ Among the concerns identified in the request for assistance from Ecology and SRCAA were:

- a. The amount and types of contaminants present that are highly toxic to humans and ecosystems;
- b. Migration of hazardous substances such as PCBs and metals into waterways that are already negatively impacted by these contaminants; and
- c. A current facility owner that is failing to meet basic regulatory requirements.

An abbreviated Preliminary Assessment was completed for the Site on February 12, 2019, pursuant to Section 104(b)(1) of CERCLA, which provided background information included in the previous section of this memorandum. Three other previous investigations are known to have taken place at the Site:

- An environmental consultant conducted a due diligence investigation on behalf of a potential buyer of the property in April 2010. A report documenting the investigation reported elevated concentrations of PCBs, including the PCB Aroclor 1268, present in siding material on buildings, soil and sediment samples on Site, and sediment in settling ponds on the adjacent undeveloped parcel. This report also documented that other contaminants, including diesel-range organics and polycyclic aromatic hydrocarbons (PAHs), were present in catch basins at the facility;
- An environmental contractor, IRS Environmental, completed a cost estimate in June 2015 for removal of contaminated source material including Robertson Siding found throughout the facility; and
- Sampling activities performed by Ecology's National Pollution Discharge Elimination System (NPDES) program staff starting in March 2018 confirmed the presence of

¹ Kaiser Mead Request. March 6, 2019. Letter from Brook Beeler, Director of Washington Department of Ecology's Eastern Region to Wally Moon, Chief of the U.S. Environmental Protection Agency Region 10 Spill Prevention and Removal Section.

PCBs in sediments in stormwater catch basins, the two settling ponds, and water discharging from the stormwater outfall into Deadman Creek. Ecology reported total PCB concentrations in surface water as high as 236,000 picograms per liter (pg/L) at the stormwater outfall entering the lower settling pond, while surface water concentrations in the lower settling pond itself were 44,300 pg/L. PCB concentrations in surface water collected at the outfall to Deadman Creek were 7,460 pg/L. Ecology compared the surface water results to the Model Toxics Control Act (MTCA) human health screening level for fresh water in the Spokane River Basin (7 pg/L). The total PCB concentrations in surface water were several orders of magnitude greater than these screening levels.

EPA conducted a Removal Site Evaluation (RSE) pursuant to 40 C.F.R. § 300.410 to assess the presence, concentrations, and migration pathways of hazardous substances at the Site to determine risks of exposure. The RSE sampling effort, conducted in May 2019, focused on the potential migration pathway of hazardous substances from the facility buildings through the catch basins and settling ponds to the outfall at Deadman Creek. Several PCB congeners were detected in various sampling locations during this effort. The PCB Aroclor 1268 was detected in samples collected from each of these sampling areas, which helped trace the connection between the source, sample locations along the pathway, and the outfall at Deadman Creek.

EPA observed at least 13 facility buildings that appeared to have walls constructed with Robertson Siding (often referred to incorrectly by another trade name: Galbestos), which is a formerly used building material containing PCBs and asbestos.² The Robertson Siding panels were noted to be weathered and damaged, with multiple pieces observed to be on the ground around the buildings (Figure 2). Analytical results confirmed the presence of high concentrations of Aroclor 1268 in siding material ranging from 70,000 to 39,000,000 micrograms per kilogram (µg/kg). The regulatory limit for PCB concentrations in any substance under the Toxic Substances Control Act (TSCA) is 50,000 µg/kg as a baseline concentration to protect human health.

Aroclor 1268 was detected in soils and solids on the ground near exterior walls with Robertson Siding at concentrations as high as 170,000 µg/kg and sediments accumulated on top of facility catch basins at concentrations as high as 220,000 µg/kg. All three soil and sediment samples collected in the area of Building 34 (referred to as the Baghouse Building) significantly exceeded EPA's Removal Management Level (RML)³ of 94,000 µg/kg for total PCBs in industrial soil. In stormwater settling ponds where facility stormwater sediments were transported, Aroclor 1268 concentrations in sediment ranged upwards of 15,000 µg/kg (Figure 4 and Figure 5). Total PCB concentrations in the two ponds exceeded Washington State sediment screening level of 2,500 µg/kg by over four

² A survey conducted by an environmental contractor in 1992 estimated that portions of at least 30 buildings were constructed with Robertson Siding, adding up to an estimated 978,553 square feet of material. It is believed that approximately 488,000 square feet of Robertson siding remain after a demolition effort undertaken in 2013 by a previous owner.

³ Removal Management Levels (RMLs) are chemical-specific concentrations for individual contaminants in tap water, air, and soil that may be used to support the decision for EPA to undertake a removal action. Generic RMLs are based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for long-term/chronic exposures. <https://www.epa.gov/risk/regional-removal-management-levels-chemicals-rmls>

times. Aroclor 1268 was also detected in the surface water of the settling ponds at concentrations ranging from 10,803 to 23,821 pg/L, while total PCB concentrations ranged from 23,489 to 44,447 pg/L. These concentrations exceeded the Washington State (7 pg/L) human health screening level for the Spokane River by 3,000 times or more in each case. Finally, where stormwater discharged to Deadman Creek, Aroclor 1268 was again detected in stormwater effluent (793 pg/L) and total PCB concentrations for this sample were 1,875 pg/L, which exceeded the Washington State (7 pg/L) human health screening levels for the Spokane River.⁴ PCBs were detected in sediment at the outfall at trace concentrations and were below Washington State sediment cleanup goals.

EPA also observed numerous piles of waste materials and former products on the facility parcel. Many of these materials were uncontrolled and without secondary containment. They were either outside and exposed directly to the elements, or inside unsecured and open buildings. Within Building 52, commonly called the Green Mill Building, there were approximately 4,500 cubic yards of a material labeled “Green Coke” in numerous piles and containers (Figure 3). Samples collected from the Green Coke contained elevated concentrations of PAHs in comparison to the RML for industrial soil. For instance, the carcinogen benzo(a)pyrene was detected at 560,000 µg/kg, which is over two-times higher than the RML of 210,000 µg/kg for this contaminant. In and near the Baghouse Building were several large piles of baghouse dust. One large pile (approximately 1,000 cubic yards) was located inside a large open and unsecured building (Building 35), and another large pile (approximately 220 cubic yards) was located outside and to the north of the Baghouse Building. There was visual evidence that material from this pile was being moved by wind and/or rain. Samples from the baghouse dust indicated the presence of PCBs (including Aroclor 1268), PAHs, and metals. There were three above ground storage tanks (ASTs) containing coal tar pitch in a small tank farm area. Several yards of coal tar were spilling out of one open AST. The coal tar sample contained multiple carcinogenic PAH compounds whose concentrations exceeded RMLs, most notably benzo(a)pyrene, which was detected at 3,400,000 µg/kg compared to the RML of 210,000 µg/kg. Like PCBs, concentrations of Total PAHs were also found in settling pond sediment at concentrations greater than five times the applicable RML.

These results document a pathway for migration of PCBs from the facility buildings with Robertson Siding through the catch basins and stormwater system to the settling ponds and then to Deadman Creek. Additionally, total PCB concentrations in several of these samples, including Robertson Siding, soil/solids on the ground, and catch basin sediment, exceeded the RML for industrial soil.⁵ In addition to the PCBs, samples from the sediment in catch basins and settling ponds also contained elevated concentrations of other compounds, including PAHs, metals, and petroleum hydrocarbons (diesel- and heavy oil-range organics), indicating that contaminants from waste piles and other observed sources are also migrating off Site in a manner similar to PCBs. The presence of petroleum hydrocarbons collocated with PCBs increases the solubility and thus mobility of PCBs, which are otherwise hydrophobic. The presence of these hydrocarbons with PCBs could be contributing to the mobility observed in PCBs moving from the Site to Deadman Creek.

⁴ Sampling occurred during base flow conditions.

⁵ <https://semspub.epa.gov/work/HQ/199688.pdf>

2. Physical Location

The Site consists of three separate parcels - the facility parcel, the undeveloped parcel, and the outfall parcel. The facility parcel is located at 2111 East Hawthorne Road, Mead, Spokane County, Washington, approximately 8 miles north of downtown Spokane, Washington. The precise location is 47.753089 north latitude, 117.378199 west longitude. The undeveloped parcel where the settling ponds are located does not have a physical address but it is adjacent to the facility parcel on the south and is bounded by approximately one mile of State Highway 2 along its west side and one mile of the new State Highway 395 bypass (North Spokane Corridor) along its eastern boundary. The outfall parcel is located to the northeast of the undeveloped parcel, though it does not share any boundaries with the other two parcels. The Site is located within an area comprising a mix of residential, educational, commercial, and industrial development. An elementary school is located 0.3 miles southwest and a RV campground is located less than 0.2 miles due west of the Site with at least seven additional active commercial properties located within 0.25 of the Site. An estimated 1,220 residents live within a one-mile radius of the Site.⁶ The closest residence sits 0.25 miles northwest of the Site. The area is experiencing increased development following the completion of the new bypass for State Highway 395, that runs along the eastern boundary of the undeveloped parcel. Local agencies predict that the new bypass will bring increases in traffic and pressure to develop land for more commercial and residential use. A Costco Wholesale store was recently constructed on a 25-acre portion of the undeveloped parcel, less than 500 feet northwest of the sediment ponds. In response to this growth, local agencies such as the Mead School District are also making plans to expand in order to serve the growing local population.⁷

Local weather conditions are characterized by two main seasons: hot dry summers and cooler wetter winters. The period between late October and early June is characterized by cooler, wetter weather where average daily temperatures typically range in the 30s and 40s (degrees Fahrenheit) and average monthly rainfall ranges between 1.5 and 2.5 inches. Precipitation in the form of snowfall is most common between early November and early March. A hotter drier season spans between mid-June and mid-September where average daily temperatures range in the upper 70s and upper 80s and average monthly rainfall is approximately 0.5 inches.⁸ The area is known to have strong seasonal winds, especially during the months of March through June.⁹ Contaminants of concern (COCs) at the Site are susceptible to mobilization by moderate to heavy rainfall and winds.

The closest surface water body is Deadman Creek, which is located approximately 1.5 miles north of the Site's industrial buildings. Deadman Creek is a tributary of the Little Spokane River, which subsequently flows into the Spokane River. There are no known federally-listed threatened or endangered species on the Site. Numerous species of birds

⁶ This estimate is based on a count of 508 living units using aerial images to count single-occupancy homes plus the number of units in the Deer Run at North Pointe apartment complex (<https://www.securityproperties.com/our-locations>) and multiplying this number by the average number of persons per household (2.41) in the Spokane/Mead area as reported by the United States Census.

(<https://www.census.gov/quickfacts/fact/table/spokanecitywashington,meadcdpwashington,US/PST045219>).

⁷ Mike LaScoula – Spokane Regional Health District, personal communication, March 10, 2020.

⁸ <https://weatherspark.com/y/2019/Average-Weather-in-Mead-Washington-United-States-Year-Round#Sections-Wind>

⁹ <http://alltrowndata.com/living-in/Spokane-Washington>

listed as Birds of Conservation Concern under the Migratory Bird Treaty Act of 1918 and Bald and Golden Eagle Protection Act of 1940 are listed as potentially present in Spokane County, however no observations of species of concern birds have been reported on the Site and only one observation of one subject species has been documented within 1.5 miles of the Site.¹⁰

Excavation of subsurface soil is not being considered under this time-critical removal action. However, as final engineering and design decisions are made to address contamination in the settling ponds and conveyance system, EPA will determine the potential for excavation activities to occur in previously undisturbed soil and for encountering archeological resources. EPA has contacted the State Historic Preservation Office (SHPO) to discuss the initial scope of the project and will continue to work with SHPO to address substantive requirements of the National Historic Preservation Act during the course of the cleanup.

Several tribes have interests in the area of the Site. EPA has notified the Spokane Tribe of Indians, the Coeur d'Alene Tribe, and the Kalispel Tribe of Indians of the planned removal actions. Through communications with these tribes along with SHPO, EPA will determine what, if any, steps should be taken to address concerns related to potential impacts to natural and cultural resources.

3. Site characteristics

Currently, authorized commercial activities at the facility parcel are limited to one small business which is leasing a 10,000-square foot building on the eastern boundary of the property to run a metal fabrications shop. Several dozen buildings remain on the facility parcel. These buildings are open, are not actively maintained and are in various states of disrepair. Although the facility parcel is fenced and has a gate at its main entrance, Site security for the 170-acre property has been intermittent and limited. Debris from weathered building materials and waste piles can be seen accumulating in areas with soil, clogged storm sewer drains, and other places where stormwater accumulates. Although the owner of the facility parcel has a stormwater NPDES general permit, Ecology reports that the current owner has not complied with or met any regulatory obligations under this permit for stormwater management and violated the terms of a recent settlement agreement addressing compliance issues in March 2020.

The undeveloped 405-acre parcel where the settling ponds reside is largely dedicated to agricultural use. One 25-acre portion of this parcel was recently developed into a Costco Wholesale store. The two lined settling ponds on this parcel are enclosed by a locked chain link fence. The lower pond has a non-functioning pumphouse and a series of catchment locks where stormwater exits the ponds into the second aqueduct en route to Deadman Creek. The upper pond, which was used to hold water and sediment during maintenance of the lower pond, is largely full of sediment, water, and marsh vegetation. In general, the ponds and associated infrastructure show no sign of recent maintenance, are in disrepair, and are overgrown by vegetation. It is unknown whether the pond liners are still serving to prevent contamination from the ponds from infiltrating into groundwater.

¹⁰ <https://ebird.org/map/>

The outfall parcel borders Deadman Creek. The parcel is characterized by a mixture of deciduous trees and shrubs and tall grasses typical of marshes and riparian areas in this region. The only noteworthy features are the stormwater outfall, Deadman Creek, and a footpath that provides access to the outfall from a nearby road.

No previous CERCLA removal actions have occurred at this Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Based on the information available at this time, the principal hazardous substances or pollutants or contaminants that are being released or for which there is threat of release are listed in Table 1 below.

Table 1: Primary Contaminants of Concern

Media	Estimated Quantity	Hazardous Substances, Pollutants or Contaminants	Concentrations detected	Action Level
Sediment in aqueduct, catch basins, and settling ponds	2,300-5,600 cubic yards	PCBs	15,000 µg/kg	2,500 µg/kg ¹¹
		PAHs	177,000 µg/kg	30,000 µg/kg ¹¹
Surface water	432,000 gallons	PCBs	44,000 pg/L	7 pg/L ¹²

The substances in Table 1 are hazardous substances, pollutants, or contaminants as defined by Sections 101(14) and 101(33) of CERCLA, 42 U.S.C. §§ 9601(14) and (33). Other hazardous substances may also be present on the Site.

Primary COCs at the Site include several human carcinogens, most notably PCBs and PAHs. These substances – in addition to other secondary COCs – currently are releasing from primary sources such as building siding and waste piles on the facility parcel and migrating in extremely elevated concentrations through a stormwater system to a pair of settling ponds on the undeveloped parcel, which have become a secondary source. Stormwater is then carrying COCs from the settling ponds, through an aqueduct, and discharging into Deadman Creek, which is a tributary of the Little Spokane River. The Little Spokane River has been included on the State’s listing of impaired waters under Section 303(d) of the Clean Water Act due to the presence of PCBs in fish tissue.¹³ The presence of petroleum hydrocarbons in soils and sediments along the stormwater migration path creates an added threat, due to the ability of these constituents to increase the solubility, and thus the mobility of PCBs originating from the Site.

¹¹ Washington State sediment screening level.

¹² MTCA Human Health Fresh Water for the Spokane River.

¹³ Washington State Water Quality Assessment. Listing ID 9051.

5. NPL Status

The Site is not listed on the National Priorities List (NPL) nor has it been proposed for listing. A 50-acre portion of the former smelter property, known as the Kaiser Aluminum–Mead Works Potliner Superfund Cleanup Site, is located immediately north of the facility parcel. The Kaiser Aluminum-Mead Works Potliner Superfund Site was placed on the NPL in 1983 to address a groundwater plume contaminated with cyanide and fluoride originating from a repository of potliner waste generated at the former facility. No records indicate that environmental data was available or considered for purposes of including other components of the former facility within the scope of the NPL listing. The removal action described in this Action Memorandum will be conducted in coordination with ongoing remedial activities of the adjacent NPL site and conducted in a manner that supports any future remedial activities on the Site itself, should they occur.

6. Maps, pictures, and other graphic representations

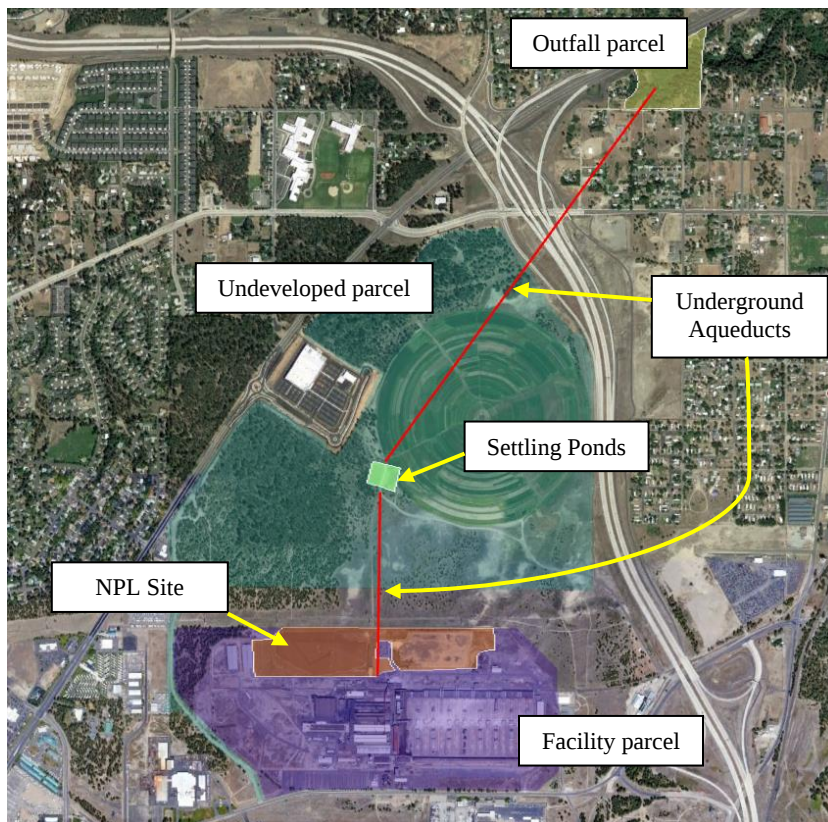


Figure 1: Overview of Site features



Figure 2: Dilapidated Robertson Siding contaminated with PCBs moving to storm drain.



Figure 3: "Green coke" waste piles are one of several primary sources containing high levels of carcinogenic PAHs migrating from the facility parcel through the stormwater system and found at elevated concentrations in settling ponds.



Figure 4: Lower settling pond.



Figure 5: Upper settling pond.

B. Other Actions to Date

1. Previous Actions

No cleanup or maintenance activity is known to have occurred on the settling ponds located on the undeveloped parcel, nor at the outfall parcel.

2. Current actions

Due to the complex nature of source contamination on multiple media migrating across two separate parcels with different owners, State and local authorities have been limited in their ability to address contaminated source material directly or to facilitate cross-property boundary solutions.

EPA is coordinating with Ecology and SRCAA to ensure the planned removal action is supportive of the longer-term Site management approach taken by these agencies.

C. State and Local Authorities' Roles

1. State and local actions to date

Ecology and SRCAA sent EPA a letter on March 6, 2019 formally requesting EPA assistance to conduct an emergency removal action. Under its NPDES authority, Ecology is conducting periodic sampling of stormwater at the point of discharge into Deadman Creek to monitor the extent of ongoing release of PCBs into the watershed. Ecology has been attempting to use its NPDES enforcement authority to compel compliance with requirements of the stormwater general permit that applies to these discharges and stormwater management at the Site. Ecology has informed EPA that, to date, NPDES regulatory requirements have not been met since the most recent sale of the facility parcel in 2014. Furthermore, Ecology informed EPA that the permittee recently violated a settlement agreement with Ecology that addressed some of the NPDES stormwater general permit non-compliance issues.

2. Potential for continued State/local response

EPA has initiated discussions for a Memorandum of Understanding (MOU) with Ecology to delineate actions EPA will take under CERCLA removal authority and what roles Ecology will have under MTCA authority in conducting or overseeing longer-term cleanup of soil, groundwater, and management of any ongoing stormwater treatment that may be needed.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The current conditions at this Site meet the following factors which indicate that the Site is a threat to the public health or welfare or the environment, and a removal action is appropriate under Section 300.415(b)(2) of the NCP.

1. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants (40 C.F.R. § 300.415(b)(2)(i)).

The conditions at the Site have created at least two primary exposure pathways to human populations, animals, and the food chain: (1) on-Site exposure and (2) off-Site migration through stormwater.

As described in section II.A.1, buildings and waste piles on the facility parcel have been found to contain concentrations of carcinogenic PCBs and PAHs that exceed applicable screening levels by several hundred times in some cases. The two settling ponds along this discharge pathway serve as a significant secondary source of contamination where several thousand cubic yards of contaminated sediment and several hundred thousand gallons of contaminated water have accumulated. The sediment and surface water concentrations are several thousand times applicable screening levels. While sampling results at the outfall to Deadman Creek demonstrate that contaminated water and sediment are actively migrating from the ponds to the watershed, the current uncontrolled management of the ponds creates an even larger risk of a catastrophic release of COCs into a watershed that, because of the presence of PCBs in fish, is already designated as impaired under Section 303(d) of the Clean Water Act. The migration of persistent, carcinogenic contaminants such as PCBs and PAHs along with other contaminants from materials on the facility parcel through a stormwater system into a tributary of the Little Spokane and Spokane River watersheds presents an exposure pathway to aquatic organisms, including fish, and human consumers of those fish. Populations that eat fish from the Spokane River include sport fishermen as well as various tribal and ethnic groups that supplement meals with fish from the river.¹⁴

PCBs are chlorinated compounds that are extremely persistent in the environment and are resistant to chemical and biological degradation. PCBs bioaccumulate in fatty tissues and are known to increase in concentration as they migrate up the food chain. Acute or chronic exposure to large amounts of PCBs can cause harmful effects to the eyes, liver, and reproductive system in humans. PCBs are carcinogens and have been shown to cause tumors of the pituitary gland and liver as well as leukemia. PAHs, including those present on Site, are linked to increased incidences of skin, lung, bladder, liver, and stomach cancers in laboratory animals and oven coke workers, the latter of which have been shown to experience disproportionately high mortality rates due to these diseases.

2. Actual or potential contamination of drinking water supplies or sensitive ecosystems (40 C.F.R. § 300.415(b)(2)(ii)).

Carcinogenic contaminants such as PCBs and PAHs were detected in effluent discharging into Deadman Creek from the stormwater aqueduct at the Site. Deadman Creek is a tributary of the Little Spokane and the Spokane Rivers, both of which are waterbodies that are listed as impaired under Section 303(d) of the Clean Water Act due to the high concentrations of PCBs found in fish tissue. The local aquatic ecosystem supports fish populations of rainbow trout, northern pikeminnow, and bridgelip suckers and the watershed is part of the greater Lake Coeur d'Alene ecosystem which also supports chinook salmon and bass fish. The Spokane River Regional Toxics Task Force currently is working on activities "[to] further analyze the existing and future data to better characterize the amounts, sources, and locations of PCBs and other toxics as defined above entering the Spokane River."¹⁵

The Site is also located above the Spokane Valley-Rathdrum Prairie Aquifer, which has been a

¹⁴ Evaluation of PCBs, PBDEs and Selected Metals in the Spokane River, Including Long Lake Spokane, Washington. A Health Consultation Prepared by the Washington Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. August 28, 2007. <https://www.doh.wa.gov/Portals/1/Documents/Pubs/334-147.pdf>

¹⁵ <https://srrttf.org/>

federally designated sole-source aquifer since 1978. The aquifer is the only affordable source of drinking water in a bi-state region serving drinking water to more than 500,000 people. Although many of the primary COCs are not highly soluble in water, the added presence of petroleum hydrocarbons in soils, sediments, and surface water on the Site creates a potential risk to the aquifer, due to the ability of these hydrocarbons to increase the solubility, and thus the mobility, of PCBs to migrate through surface or groundwater.

3. High levels of hazardous substances or pollutants in soils largely at or near the surface that may migrate (40 C.F.R. § 300.415(b)(2)(iv)).

One PCB congener, Aroclor 1268, was detected at concentrations as high as 220,000 µg/kg in surface soils and in sediment accumulated near stormwater drains adjacent to buildings with Robertson Siding. Half of the samples exceeded the RML for total PCBs in industrial soil (94,000 µg/kg). This source material was found to be migrating through the facility stormwater system and accumulating in sediment and surface water in two settling ponds, which have become a secondary source on the undeveloped parcel. Sediment samples from settling ponds showed concentrations of total PCBs upwards of 15,000 µg/kg compared to the Washington State Freshwater Sediment Cleanup Screening Level of 2,500 µg/kg. Among several contaminants observed in settling ponds, total PAHs were detected at concentrations upwards of 177,000 µg/kg compared to the Washington State Freshwater Sediment Cleanup Screening Level of 30,000 µg/kg. While both PCBs and PAHs were found to be migrating off the Site through stormwater as far as the settling ponds, only PCBs were found to be migrating from the settling ponds and discharging to Deadman Creek.

4. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released (40 C.F.R. § 300.415(b)(2)(v)).

PCBs were detected in the settling ponds at concentrations as high as 15,000 µg/kg which exceeds the Washington State sediment screening level of 2,500 µg/kg by six times. Due to the lack of maintenance of the stormwater settling ponds, the volume of sediment in the lower pond has accumulated and is at or near the level where a second aqueduct conveys stormwater from the pond to its final discharge in Deadman Creek. Thus, the settling ponds have become a secondary source. PCB detections in stormwater effluent discharging into Deadman Creek confirm that, even in base (low volume) flow conditions, PCBs are migrating through stormwater from the settling ponds to the watershed. The potential capacity of this system to mobilize large volumes of PCB-contaminated sediment during storm (peak flow) conditions presents a significant and immediate threat to the local aquatic ecosystem and human consumers of organisms living in that system.

5. The availability of other appropriate federal or state response mechanisms to respond to the release (40 C.F.R. § 300.415(b)(2)(vii)).

Ecology is currently regulating stormwater management on the Site through its NPDES program, though it has faced ongoing compliance and enforcement issues at the Site. Ecology's MTCA statute may be able to address some contaminants that are confirmed to be migrating off the Site. However, Ecology has stated it does not have the resources to address immediate threats of release in the time-critical fashion needed to address the risk of catastrophic release into Deadman Creek.

EPA is working cooperatively with the Ecology and other local authorities to use all the available and appropriate regulatory tools in order ensure threats from the release of hazardous substances are properly mitigated within appropriate timeframes.

6. Other situations or factors that may pose threats to public health or welfare of the United States or the environment. (40 C.F.R. § 300.415(b)(2)(viii)).

An overarching factor that magnifies the threats posed by this Site is the demonstrated past non-compliance with environmental regulatory requirements by the owner of the facility parcel and outfall parcel, as recently as March 2020.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

None.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Action

1. Proposed Action Description

The TCRA proposed in this Action Memorandum is intended to be undertaken by PRPs through settlement agreements. The overarching purpose of this TCRA is to eliminate the release of stormwater or reduce the contaminant concentrations of the released stormwater and sediment to below appropriate Action Levels. The technical details of the actions to be undertaken will be provided by the PRP to EPA for approval, described in a work plan written by the PRP, pursuant to the settlement agreements. Implementation of the selected removal will be conducted by the PRP and overseen by EPA. The primary elements of the TCRA are listed below.

- a. Removal of contaminated sediment and water from settling ponds and existing stormwater collection and aqueduct conveyance system.
- b. Reconstruction of the settling ponds and aqueduct conveyance and restoration to functional status as part of the stormwater management system.

Post Removal Site Controls

EPA anticipates post-removal site controls may include ongoing maintenance for the restored stormwater management system. The post-removal site controls will be addressed in settlement agreements with the PRPs. Additionally, as mentioned in Section II.C.2 above, EPA intends to enter into an MOU with Ecology which will address Ecology's role in post-removal site controls, as needed.

2. Contribution to remedial performance

The Site is not listed or proposed to be listed on the National Priorities List. The work described in this Action Memorandum should not impede any future removal or remedial activities at the Site.

3. Description of alternative technologies

There are no viable alternative technologies that have been identified for the Site. Removal of sediment and contaminated water is a standard approach for a site in which the primary COCs include PCBs and PAHs.

4. Engineering Evaluation/Cost Analysis (EE/CA)

This proposed action is for time-critical removal action and, therefore, an EE/CA is not required.

5. Applicable or relevant and appropriate requirements (ARARs)

Removal actions conducted under CERCLA are required to attain Applicable or Relevant and Appropriate Requirements (ARARs) to the extent practicable. In determining whether compliance with ARARs is practicable, the On-Scene Coordinator may consider appropriate factors, including the urgency of the situation and the scope of the removal action to be conducted. EPA also requested a list of ARARs from the State of Washington. EPA has developed the following list of ARARs and the removal action will comply with these ARARs to the extent practicable.

FEDERAL ARARs

Toxic Substances Control Act (TSCA), 15 U.S.C. §§ 2601 *et seq.*, 40 C.F.R. Part 761. TSCA and its implementing regulations specifically at Part 761 address the manufacture, processing, distribution in commerce, and use prohibitions applicable to polychlorinated biphenyls (PCBs), which are applicable to EPA's handling of waste material at the Site contaminated with PCBs.

- a. Subpart D, at Section 761.50-761.79, addresses specific PCB waste handling and disposal procedures.
- b. Subpart N, Section 761.260-761.274, addresses cleanup site remediation sampling for PCB remediation waste in accordance with Section 761.61(a)(2).

Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6921-6939g, 40 C.F.R. Parts 260-279. Hazardous waste regulations in Subtitle C of RCRA specify hazardous waste identification, management, and disposal requirements. Because the State of Washington is

authorized to operate its state hazardous waste program, the Hazardous Waste Management Act (RCW 70.105) and its Dangerous Waste Regulations (Chapter 173-303 WAC), in lieu of the federal RCRA program, this removal action will comply with the State HWMA standards to the extent practicable. Substantive requirements of RCRA Subtitle C (or the state's HWMA equivalent) may be satisfied by off-Site disposal, consistent with the CERCLA Off-Site Rule at 40 C.F.R. § 300.440. RCRA Subtitle C and the HWMA also provides treatment standards for debris contaminated with hazardous waste ("hazardous debris"), 40 C.F.R. § 268.45, although the lead agency may determine that such debris is no longer hazardous, consistent with 40 C.F.R. § 261.3(f)(2), or equivalent state regulations. While one primary contaminant of concern, PCBs, is addressed by other ARARs, there will likely be additional hazardous waste at the Site that will be addressed under RCRA. Given the status of the state authorization in Washington, it is unlikely that federal RCRA regulations will apply; however, should new information be made available, EPA will reassess whether federal RCRA regulations should be designated as ARARs.

Clean Water Act (CWA), 33 U.S.C. § 1342. The National Pollution Discharge Elimination System (NPDES) requires permits for discharge of stormwater. The State Department of Ecology has been delegated the authority under the CWA to carry out the NPDES program in the State of Washington. If response activities at the Site involve clearing, grading, excavating, or other response activities that will disturb more than one acre of land resulting in storm water discharges, such activities should comply with the substantive requirements for a Construction Stormwater General Permit to prevent or minimize the discharge of pollutants in storm water runoff from the disturbed areas to waters of the United States.

Endangered Species Act (ESA), 16 U.S.C. §§ 1531 – 1544, 50 C.F.R. Parts 17 and 402. The ESA protects species of fish, wildlife, and plants that are listed as threatened or endangered with extinction, along with designated critical habitat for those listed species. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, including consultation with resource agencies. EPA conducted an evaluation of the Site and the area surrounding the Site and found that while there are some protected species in the County, the habitat range and listed species themselves are not located within or near the Site. However, if any listed species are identified in the vicinity of removal work, and the removal work may affect such species and/or their habitat, EPA will consult with the U.S. Fish and Wildlife Service, to the extent practicable, to ensure that response actions are conducted in a manner to avoid adverse habitat modification and jeopardy to the continued existence of such species.

Migratory Bird Treaty Act (MBTA), 16 USC §§ 703 *et seq.* The MBTA makes it unlawful to "hunt, take, capture, kill" or undertake various other actions adversely affecting a broad range of migratory birds without prior approval by the U.S. Fish and Wildlife Service. The mortality of migratory birds due to ingestion of contaminated sediment is not a permitted "take" under the MBTA. EPA conducted an evaluation of the area and potential migratory birds that may have access to contaminated sediment at the Site and determined that there are no known migratory birds in the vicinity of the Site. However, should a protected migratory bird be observed during

removal activities, EPA will consult with the U.S. Fish and Wildlife Service, to the extent practicable, to ensure that the removal action will be carried out in a manner that avoids the taking or killing of protected migratory bird species, including individual birds or their nests or eggs.

National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, 36 C.F.R. §§ 60, 63, and 800. Section 106 of the NHPA requires that federal agencies take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize, or mitigate any adverse effects on those properties. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency official and affected parties, commencing at the early stages of project planning. While consultation with the State Historic Preservation Officer (SHPO) is considered by EPA to be an administrative, rather than substantive, element of the NHPA, and therefore not required for ARAR compliance, EPA has already engaged the SHPO on the planned removal activities. To the extent practicable, EPA will continue to communicate with the SHPO and provide the SHPO with a reasonable opportunity to comment on activities that may impact historic properties when practicable.

STATE ARARs

Washington State Model Toxics Control Act (MTCA), RCW 70.105D, Chapter 173-340 WAC. MTCA addresses cleanup of hazardous waste sites and establishes cleanup standards. Contaminated soil across the Site should be addressed in accordance with industrial cleanup standards at WAC 173-340-745.

Hazardous Waste Management Act and Dangerous Waste Regulations, RCW 70.105, Chapter 173-303 WAC. The Act and regulations address the handling and disposition of dangerous waste, including identification, accumulation, storage, transport, treatment, and disposal. While PCBs are addressed primarily by other ARARs, there will likely be additional waste at the Site that will be addressed under the state authorized Subtitle C RCRA program.

- a. WAC 173-303-070 addresses the process for determining whether a waste is dangerous or extremely hazardous.
- b. WAC 173-303-141 addresses treatment, storage, and disposal of dangerous waste.
- c. WAC 173-303-145 addresses spills and discharges into the environment.
- d. WAC 173-303-190 addresses preparing dangerous waste for transport.

Solid Waste Handling Standards, Chapter 173-350 WAC. The Solid Waste Handling Standards apply to management of solid waste. The regulations set minimum functional performance standards for proper handling and disposal of solid waste, describe responsibilities of various entities, and set requirements for solid waste handling facilities. Management of excavated soil or debris, not categorized as hazardous, that is generated during Site cleanup can be addressed using the standards at WAC 173-350-021, 173-350-025, 173-350-300, and 173-350-320.

General Regulations for Air Pollution Sources, Chapter 173-400 WAC. These regulations establish technically feasible and reasonably attainable standards to control or prevent the emission of air contaminants. There is the potential to generate fugitive dust during the removal action which can be addressed by the precautions to prevent fugitive dust from becoming airborne and the requirements to maintain and operate the source to minimize emissions standards in WAC 173-400-040(9).

TO-BE-CONSIDERED MATERIALS (TBCs)

TBCs are non-promulgated criteria, advisories, guidance, and proposed standards issued by federal, state, or tribal governments that, although not legally enforceable, may be helpful in establishing protective cleanup levels and developing, evaluating, or implementing removal approaches. If no ARARs address a particular chemical or situation, or if existing ARARs do not provide adequate information, TBCs may be available for use in developing removal approaches.

RCW 90.48.010 - Policy enunciated. It is declared to be the public policy of the state of Washington to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington. Consistent with this policy, the state of Washington will exercise its powers, as fully and as effectively as possible, to retain and secure high quality for all waters of the state. The state of Washington in recognition of the federal government's interest in the quality of the navigable waters of the United States, of which certain portions thereof are within the jurisdictional limits of this state, proclaims a public policy of working cooperatively with the federal government in a joint effort to extinguish the sources of water quality degradation, while at the same time preserving and vigorously exercising state powers to insure that present and future standards of water quality within the state shall be determined by the citizenry, through and by the efforts of state government, of the state of Washington.

Best Management Practices

Best management practices (BMPs) will be utilized to the extent practicable. The sequence of cleanup actions will commence in a manner that prevents re-contamination of areas where removal activities have already taken place. Surface water/stormwater control measures (storm drain plugs, straw wattles, filter fabric, etc.) will be used to prevent the release of sediment and contaminants through the aqueduct system and into Deadman Creek. Caution tape, signs, and security personnel will be used to prevent non-essential personnel or the public from becoming exposed during cleanup actions. Temporary construction-related BMPs will be employed for control of stormwater. Traffic control procedures will be implemented at the Site to minimize the

impact of increased trucking to the neighboring businesses and residential areas.

6. Project Schedule

It is expected that project implementation will begin in July 2020 and may take up to 3 months to complete.

B. Estimated Costs

All direct costs for this removal action are to be paid by PRPs pursuant to settlement agreements. In addition, it is anticipated that all costs incurred by EPA for this TCRA will be reimbursed by the PRPs pursuant to these settlement agreements. If EPA ultimately decides to undertake the work described in this Action Memorandum, an Amendment will be written to address approval of costs associated with this TCRA.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the proposed removal action should be delayed or not taken, COCs will continue to migrate through stormwater into Deadman Creek with an increasing risk of catastrophic release of these contaminants as a result of a storm event. Even without a catastrophic release in the short-term, the risk of stream sediment becoming contaminated, due to ongoing releases of COCs into Deadman Creek, thus requiring cleanup of sediment in the watershed, increases with time. Finally, it is currently unknown whether COCs are migrating in an uncontrolled manner from source material through stormwater into groundwater. Given that the Site sits atop a federally designated sole source aquifer, an uncontrolled pathway to groundwater could result in a greatly expanded scope for needed cleanup operations.

VIII. OUTSTANDING POLICY ISSUES

None.

IX. ENFORCEMENT

See the attached “Confidential Enforcement Addendum” for enforcement details.

X. RECOMMENDATION

This decision document represents the selected removal action for the Former Kaiser Smelter Site, located in Mead, Spokane County, Washington, developed in accordance with CERCLA, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Former Kaiser Smelter Site meet the criteria in Section 300.415(b)(2) of the NCP for a

removal action and I recommend your approval of the proposed PRP-lead removal action.

XI. APPROVAL / DISAPPROVAL

APPROVAL:

Calvin Terada, Director
Superfund and Emergency Management Division
EPA Region 10

Date

DISAPPROVAL:

Calvin Terada, Director
Superfund and Emergency Management Division
EPA Region 10

Date