UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
ENVIRONMENTAL
CLEANUP

DATE: December 13, 2019

SUBJ: Removal Site Evaluation Completion Memorandum
Former Kaiser Smelter
Mead, Spokane County, Washington

FROM: Brooks Stanfield, On-Scene Coordinator
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THRU: Wally Moon, Manager
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TO: Former Kaiser Smelter Site File

In accordance with section 300.410 of the National Contingency Plan (NCP), a Removal Site Evaluation (RSE) has been undertaken at the Former Kaiser Smelter ("Site") in Mead, Spokane County, Washington. The facility is a former aluminum smelter that began operations in 1942 during World War II and closed in 2000. On March 6, 2019, EPA received a written request for assistance from Washington Department of Ecology (Ecology) and Spokane Regional Clean Air Agency (SRCAA) to perform an emergency Removal Action to remove hazardous substances, pollutants, and contaminants from the Site. A summarized list of concerns identified in the request for assistance from Ecology and SRCAA includes:

1. The amount and types of contaminants present that are highly toxic to humans and ecosystems;
2. Building conditions and illegal trespass, including an increase in homeless encampments, on the property, which are likely to result in exposure;
3. Threat of fire or explosion, particularly with no current fire water service available on the property;
4. A current owner that is failing to meet basic regulatory requirements; and
5. Migration of hazardous substances such as PCBs and metals into waterways that are already heavily challenged by these contaminants (303d listing).

The specific goals and objectives for the RSE were to assess the presence, concentrations, and migration pathways of hazardous substances at the site to determine risks of exposure. The findings of the RSE have been evaluated under the criteria set forth in section 300.415 of the NCP and section 104(a) and (b) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C.

§9605 and the Clean Water Act (CWA) 33 U.S.C. §1321(d) as amended by the Oil Pollution Act of 1990 (OPA).

The RSE consisted of the following activities.

1. Review of reports documenting previous site activities. These include but are not limited to:
    a. Washington Department of Ecology NPDES program – Lab results from sampling of Polychlorinated Biphenyls and Congeners, Semivolatile Organics, Metals, and general water quality parameters - Spokane Recycling facility, 2018
    b. Review of Clean Water Act 303(d) list of Category 5 (impaired) water bodies.
    c. IRS Environmental (IRS) – June 9, 2015 – Former Kaiser Mead Plant Asbestos Abatement estimate, prepared for Spokane Recycling Company, LLC.
    d. IRS – January 2, 2013 – Bid document for demolition of potline buildings at NMC Mead LLC property.
    e. Landau Associates, August 4, 2010, CDC – Mead Facility Environmental Sampling Results report. Prepared for CDC Mead.
    f. Washington Department of Ecology (Ecology), May 2002, Cleanup Action Plan, Kaiser Aluminum National Priorities List Site in Mead, Washington. https://semspub.epa.gov/work/10/100042759.pdfContract 68-W6-0008, Technical Direction Document Number 98-04-0001.

2. Review of newspaper articles from local periodicals documenting Site activities, including:
    a. Spokane Business Journal - June 5, 2014 – Kaiser plant owner eyes second phase of demolition: Former Mead Works site prepped for business park.
    b. The Spokesman-Review – October 6, 2013 – The next phase: Kaiser Mead's smelting plant undergoes demolition.

3. Completion of a limited field sampling event of the former facility to:
    a. Evaluate the potential presence and/or release of hazardous substances at the former facility by conducting sampling of surface water, sediment, soil, waste and product, suspect Asbestos Containing Material (ACM), and building materials;
    b. Compare concentrations of hazardous substances detected against appropriate regulatory action levels;
    c. Generate estimates of volumes of suspected hazardous substances;
    d. Document site conditions, including road conditions, building structure and integrity, and health and safety hazards;
    e. Identify potential removal strategies for suspect waste material.

Summary of RSE Findings:
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 include, but are not necessarily limited to, the list below.

Hazardous Substances or Pollutants or Contaminants	Media
PCBs	Building siding material, waste piles, soil, sediment, surface water.
ACM	Building siding material, Thermal System Insulation (TSI) on interior and exterior piping.
PAHs (SVOCs)	Waste piles, storage tanks, soil, sediment.

The former facility is comprised of approximately 60 buildings and structures sitting on approximately 170 acres. The facility also has a system of catch basins and storm sewers to collect and divert stormwater through an aqueduct flowing north from the facility to a pair of settling ponds on an adjacent property. The water flows into the southern end of the lower settling pond and flows out at the northern end of the lower pond where a pipe transfers the water through a second aqueduct. The outgoing aqueduct flows approximately one mile before reaching an outfall where effluent is discharged into Deadman Creek, a tributary of the Little Spokane and Spokane Rivers. The RSE sampling effort focused on the potential migration pathway 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.

EPA and its contractors 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[1]. The Robertson Siding panels were noted to be weathered and damaged, with multiple pieces observed to be on the ground around the buildings. Chrysotile asbestos was detected in most of the Robertson Siding samples at concentrations of about 20%. Additionally, the analytical results confirmed the presence of high concentrations of Aroclor 1268 in siding material ranging from 70,000 to 39,000,000 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. As such, the Robertson Siding is unauthorized under TSCA and the property owner is required to remove it.

1 A prior asbestos survey conducted by a demolition and abatement contractor several years prior to the initiation of this RSE estimated that at least 30 buildings had portions of them constructed with Robertson Siding adding up to an estimated 978,553 square feet of material.

Aroclor 1268 was detected in soils and solids on the ground near exterior walls with Robertson Siding at concentrations ranging from 920 to 170,000 µg/kg and sediments accumulated on top of facility catch basins at concentrations ranging from 3,500 to 220,000 µg/kg. All three soil and sediment samples collected in the area of the Baghouse significantly exceeded the TSCA cleanup standard of 25,000 µg/kg for un-restricted use at low occupancy areas, the low-occupancy cleanup standard of 100,000 µg/kg where a cap is in place, and the Removal Management Level (RML) of 94,000 µg/kg for total PCBs in industrial soil[2]. In stormwater settling ponds where facility stormwater sediments were transported to, Aroclor 1268 concentrations in sediment ranged from 1,500 to 12,000 µg/kg. Total PCB concentrations exceeded Washington State sediment cleanup goal of 110 µg/kg in all three samples. All soil and sediment samples exceeded TSCA's PCB soil cleanup standards for high occupancy areas of 10,000 µg/kg without further conditions/unrestricted use. 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 both the Washington State (7 pg/L) and Spokane Tribe (1.3 pg/L) human health screening levels 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 both the Washington State (7 pg/L) and Spokane Tribe (1.3 pg/L) human health screening levels for the Spokane River3. PCBs were detected in sediment at the outfall at trace concentrations and were below Washington State sediment cleanup goals.

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. 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 these contaminants 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.

In the rafters of the Baghouse Building and exterior piping throughout the facility, Thermal System Insulation (TSI) material was visibly deteriorating from the pipelines and had fallen onto the ground. The results of the asbestos sampling indicated some of the TSI on the pipelines contained both amosite and chrysotile asbestos at total concentrations of approximately 20% and thus were ACM. Within the Baghouse Building and connected Building 32, there were approximately 5,500 linear feet of ACM TSI

2 https://semspub.epa.gov/work/HQ/199688.pdf

3 Sampling occurred during base flow conditions. It is unknown how concentrations change during periods of higher flow.

in the rafters. On observed exterior pipelines throughout the facility, there is approximately 750 linear feet of suspect ACM TSI.[4]

EPA and START observed numerous piles of waste materials and former products. Many of these materials were uncontrolled and without secondary containment. They were either outside and exposed to the elements, or inside unsecured and open buildings. Within the Green Mill Building, there was approximately 4,500 cubic yards of a material labeled "Green Coke" in numerous piles and containers. Samples collected from the green coke contained elevated concentrations of PAHs in comparison to the RML for industrial soil. For instance the benzo(a)pyrene, a human carcinogen, was detected at 560,000 µg/kg, which is over two-times higher than the RML of 210,000 µg/kg for this contaminant. Metals were also detected but were below action levels. In and near the Baghouse Building there 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 to the north of the Baghouse Building. Samples from the baghouse dust contained concentrations of PCBs that ranged from 1,080 µg/kg to 2,690 µg/kg (including Aroclor 1268), PAHs, and metals. There were three coal tar ASTs at the coal tar tank farm, and approximately 370 cubic yards of coal tar was spilling out of one open AST. The coal tar sample contained elevated concentrations of PAHs, including multiple carcinogenic PAH compounds that exceeded RMLS including benzo(a)pyrene detected at 3,400,000 µg/kg compared to the RML of 210,000 µg/kg. The maximum capacity of each tank is 2,300 cubic yards or 100,000 gallons.

During the field sampling event, EPA and START observed evidence of uncontrolled access to the facility. Although there is a front gate that was sometimes staffed by security, START observed multiple visitors entering and driving throughout the property. START also observed graffiti, several mattresses, and online videos show members of the public readily driving and/or walking throughout the former facility and documenting their visit without any apparent knowledge of potential risk of exposure. The security guard told EPA that he finds new graffiti on a weekly basis. In addition to this, one business is currently leasing a building on Site located near the eastern boundary to a metal fabrications business; this business is located approximately 500 feet from the Baghouse and the nearest known contaminants described in this memorandum. The property owner is actively marketing leasing opportunities for other portions of the property and EPA is aware of one company actively pursuing a lease to start an operation that would transload butane from rail cars to trucks. The exact extent of this proposed operation is unclear, but it would potentially be located 500 feet from the Green Mill building which is the closest known source of contaminants described in this memorandum. Given the presence of friable asbestos and several known carcinogenic contaminants in an uncontrolled state and which exceed RMLs, the presence of authorized workers and unauthorized visitors accessing the site establishes a second potential pathway for exposure. Finally a Costco Wholesale was just constructed on property less than 500 feet northwest of the sediment ponds. With the newly constructed State Highway 395

4 A prior asbestos survey conducted by a demolition and abatement contractor several years prior to the initiation of this RSE estimated the presence of 20,666 linear feet of pipe insulation with ACM on the property.

bypass, local agencies expect to experience increases in traffic, growth, and challenges with homeless populations in the vicinity of the Site.

Applicable removal evaluation factors per 300.415(b)(2):

1. ***Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.***

   The migration of persistent, carcinogenic contaminants such as PCBs and PAHs along with other contaminants from materials on Site through a stormwater system that discharges 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. EPA is also aware that the owner is actively leasing a portion of the property and marketing other parts of the property to potential lessors for various industrial activities. The presence of PCBs in siding at concentrations greater than 50,000 µg/kg is not authorized under TSCA. Some leasing parties have expressed to EPA a lack awareness of the hazards associated with the site. The presence of uncontrolled contaminants in soil, waste piles, and deteriorated ACM on Site constitutes a National Emissions Standards for Hazardous Air Pollutants (NESHAPS) violation and creates added risks due to poorly controlled access to unauthorized visitors and authorized users that may be unaware of the hazards.

2. ***Actual or potential contamination of drinking water supplies or sensitive ecosystems.***

   Carcinogenic contaminants such as PCBs and PAHs were detected in effluent discharging into Deadman Creek from the stormwater aqueduct coming from 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 on the State of Washington's 303(d) list due to the high concentrations of PCBs. The Spokane River Regional Toxics Task Force is actively 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."

3. ***Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.***

   EPA and START observed numerous piles of waste materials and former products. Many of these materials were uncontrolled and without secondary containment. They were either outside and exposed to the elements, or inside unsecured and open buildings. Mobilization of waste material by wind and rain was visible. Within the Green Mill Building, there were approximately 4,500 cubic yards of a material labeled "Green Coke" in numerous piles and containers. Samples collected from the green coke contained elevated concentrations of PAHs and metals. In and near the Baghouse Building there 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 to the north of the Baghouse Building. Samples from the baghouse dust contained elevated concentrations of PCBs (including Aroclor 1268), PAHs, and metals. There were three coal tar ASTs at the coal tar tank farm, and approximately 370 cubic yards of coal tar was spilling out of one open AST. The coal tar sample contained elevated concentrations of PAHs, including multiple PAH compounds with concentrations greater than 1,000,000 µg/kg. The maximum capacity of each tank is 2,300 cubic yards or 100,000 gallons.

4. High levels of hazardous substances or pollutants in soils largely at or near the surface that may migrate.

One PCB congener, Aroclor 1268, was detected at concentrations ranging from 920 to 220,000 µg/kg in surface soils adjacent to buildings with Robertson Siding and in sediment accumulated near stormwater drains. Half of the samples exceeded the RML for total PCBs in industrial soil (94,000 µg/kg). In addition to the PCBs, samples from the sediment samples from the catch basins and settling ponds also contained elevated concentrations of other compounds, including PAHs, metals, and petroleum hydrocarbons (diesel- and heavy oil-range organics). The carcinogenic PAH, benzo(a)pyrene was detected in samples collected near the Green Mill Building at concentrations ranging from 160,000 to 480,000 µg/kg; two of three samples exceeded the RML for industrial soil by more than two times (210,000 µg/kg).

5. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

The RSE documented presence of friable ACM in a deteriorated condition and waste piles left outside in the elements or in structures that are open and affected by the elements. The area where the Site is located is known for seasonally high winds. EPA documented visual evidence of mobilization of material from waste material inside from wind and outside buildings from rain. When dust settles onto PCB contaminated material, including intact siding material, it sorbs PCBs causing PCBs from soil and the Robertson Siding to mobilize away from the building when the wind or rain move the newly contaminated dust off the siding

PCBs concentrations in the lower pond were detected as high as 12,000 µg/kg which exceed the Washington State Sediment Cleanup Objective (SCO) of 110 µg/kg by two orders of magnitude. 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 of the aqueduct that conveys stormwater from the pond to its point of final discharge in Deadman creek. PCB detections in stormwater effluent discharging into Deadman Creek confirm that, in base 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.

6. ***Threat of fire or explosion.***

   During the RSE and during the weeks following, EPA was contacted by the local Fire Chief. Among the concerns discussed included the lack of water service on the 170-acre Site that would be needed in the event of a fire. The previously cited increase in homeless encampments on the property and lack of consistent security also increase the risk of fire. If PCBs are burned dioxin is formed, thus potentially creating a new, more toxic, contaminant of concern.

7. ***The availability of other appropriate federal or state response mechanisms to respond to the release.***

   The Washington Department of Ecology is currently regulating contaminant issues on the site through its NPDES program. The property owner has not complied with any regulatory requirements under this permit since acquiring the property in 2014. Ecology's MTCA may be able to regulate some contaminants that are confirmed to be migrating off-site, but it does not have removal authority or resources to address immediate threats of release in a time-critical fashion. MTCA does not have authority to address releases of ACM and, according to Region 10's PCB coordinator, does not have authority to address PCBs in building materials.

   The Spokane Regional Clean Air Agency regulates management of ACM during demolition and abatement activities. The SRCAA has limited staff to provide oversight of permitted projects. They have no resources available to conduct cleanup of ACM issues themselves. Their authorities are limited when a property owner or construction project manager chooses to ignore their administrative actions such as notices of violation and penalties.

   EPA's PCB program can compel the removal of Robertson Siding but this program does not have injunctive relief under TSCA, so cannot compel a facility with an enforcement order to clean the site. The PCB Program is not funded to conduct cleanups directly.

The RSE has led to the determination that a Removal Action is appropriate at the Site at this time that addresses the following issues.

- Eliminate the pathway between source materials and the watershed, Reduce off-site migration of source materials;
- Eliminate exposures to source materials by authorized and unauthorized visitors to the site;
- Address potential migration/mobilization of contaminants by wind and rain;
- Address potential threats created by the risk of fire.

It is the opinion of the On-Scene coordinator that the most immediate removal actions need to include:

- Excavation and off-site disposal of contaminated sediment from stormwater sediment ponds and associated areas of accumulation around facility storm drains;
- Physical removal and off-site disposal of TSI pipe insulation;
- Physical removal and off-site disposal of waste piles of green coke and baghouse dust;
- Removal or containment of coal tar pitch from two ASTs.

Following these actions EPA, Ecology and SRCAA will need to develop a strategy to contain the ongoing release of PCBs from building materials to avoid recontamination of the site and exposure to humans and ecosystems in accordance with TSCA. Following removal activities, groundwater issues and lower level of contaminants in soil may need to be addressed through the state cleanup program.