SECOND FIVE-YEAR REVIEW REPORT FOR THE EASTERN MICHAUD FLATS SUPERFUND SITE POWER AND BANNOCK COUNTIES, IDAHO

Prepared by

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LIST OF ABBREVIATIONS & ACRONYMS

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
AWQC	Ambient Water Quality Criteria
CA	Compliance Agreement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COC	Contaminant of Concern
CSM	Conceptual Site Model
DAPL	Dense Aqueous Phase Liquid
ERP	Emergency Response Plan
EPA	United States Environmental Protection Agency
ET	Evapotranspiration
FMC	FMC Corporation
FS	Feasibility Study
FSP	Field Sampling Plan
FYR	Five-Year Review
gpm	Gallons Per Minute
HDPE	High-density polyethylene
HQ	Hazard Quotient
IC	Institutional Control
IDEQ	Idaho Department of Environmental Quality
IRODA	Interim ROD Amendment
lb/day	pounds per day
MCL	Maximum Contaminant Level
mg/kg	Milligrams Per Kilogram
mg/L	Milligrams Per Liter
mrem/yr	Millirems Per Year
NA	Not Applicable
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OM&M	Operation Maintenance and Monitoring
OU	Operable Unit
PAP	Phosphoric Acid Plant
pCi/g	Picocuries Per Gram
pCi/L	Picocuries Per Liter
POC	Point of Compliance
ppm	Parts Per Million
PRP	Potentially Responsible Party
RA	Remediation Areas
RAO	Remedial Action Objective
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
TBC	To Be Considered
TBD	To Be Determined
TMDL	Total Maximum Daily Load
UU/UE	Unlimited Use and Unrestricted Exposure

ValleyAg	Valley Agronomics LLC
VCO	Voluntary Consent Order

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)) and EPA policy.

This is the second FYR for the Eastern Michaud Flats Contamination Superfund Site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site is divided into three operable units (OUs) all of which are addressed in this FYR. However, remedial actions that have been completed, leaving no hazardous wastes in place, and remedial actions that have not yet been initiated, are not addressed in this FYR. OUs 1 and 2 include two adjacent phosphate-ore processing facilities: the former FMC Corporation Elemental Phosphorous Plant referred to as the FMC OU (OU1) and the active J.R. Simplot Company Don Plant, referred to as the Simplot OU (OU2). The Site encompasses the areal extent of contamination at and from both plants, including the Off-Plant OU (OU3) for portions beyond the FMC and Simplot plant boundaries. EPA remedial project manager (RPM), Conor Neal, led the FYR. Participants included EPA RPMs Jonathan Williams and Jeremy Jennings, EPA community involvement coordinator (CIC) Kay Morrison, EPA hydrogeologist Lee Thomas, Idaho Department of Environmental Quality (IDEQ) project manager Margie English, IDEQ Regional Remediation Manager Douglas Tanner, the Shoshone Bannock Tribes Environmental Waste Management Program director Kelly Wright, support agencies representing the state of Idaho and the Shoshone Bannock Tribes, potentially responsible party (PRP) representatives (FMC and Simplot), and Alison Cattani and Treat Suomi from EPA support contractor Skeo. The PRPs were notified of the initiation of the FYR. The review began February 24, 2020.

Site Background

The Site is located about 2.5 miles northwest of Pocatello, Idaho, in Power and Bannock counties (Figure 1). Two phosphate ore processing facilities, the FMC Corporation and the J.R. Simplot Company, began operations on site in the 1940s. The Simplot facility produces solid and liquid fertilizers using phosphate ore, sulfur, air and natural gas. The FMC plant produced elemental phosphorus for use in a variety of products from cleaning compounds to foods.

The FMC OU is about 1,450 acres and is predominantly located within the boundaries of the Fort Hall Reservation, the Native American reservation of the Shoshone-Bannock Tribes. FMC began operations in 1949 and the plant closed in December 2001. Plant infrastructure was decommissioned from 2002 to 2006. The major physical features remaining at the FMC OU are the capped slag pile, capped waste ponds and other capped remediation areas (RAs) (Figure 2).[1] The Portneuf River flows next to the northeastern boundary of the FMC OU. The FMC OU consists of four areas: The Former Operations Area, the Northern Properties, the Southern Undeveloped Area and the Western Undeveloped Area (Figure 2 and Figure D-1 in Appendix D).

The Simplot OU is about 1,025 acres. The Simplot Don Plant began operations in 1944. An ore processing facility and byproduct/waste storage facility continue to operate on the Simplot OU. The byproduct, impure gypsum which cannot be used, is slurried with water before it is added to the gypsum stack (gypstack), located south of

[1] There are 11 capped former Resource Conservation Recovery Act (RCRA)-regulated waste ponds (overseen by EPA under its RCRA program) and five capped Calciner ponds (overseen by IDEQ under a Voluntary Cleanup Order) at the former FMC facility. While these ponds are present within the boundaries of the FMC OU, they are not managed under CERCLA.

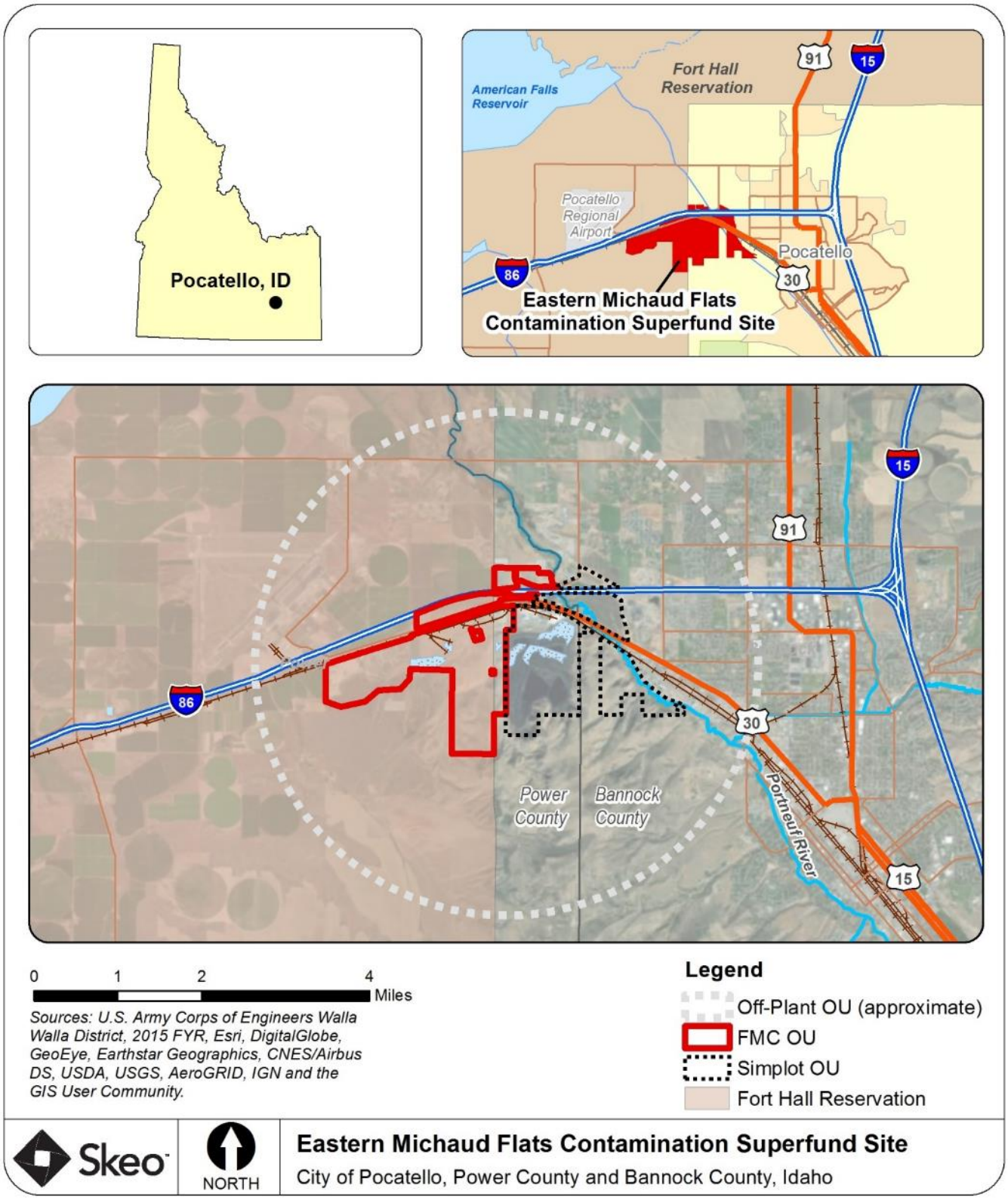
the main plant (Figure 3). Before the gypstack was lined, process water percolated down through the gypstack and into the underlying groundwater as the gypsum dried. The waste gypsum pile is now lined, and the leachate is collected and used in the fertilizer production process. The Portneuf River flows next to the northern boundary of the Simplot OU. Activities associated with ongoing operations at Simplot are regulated under separate state and/or federal regulatory authorities, including the Clean Air Act.

The Off-Plant OU is defined as all land surrounding the FMC and Simplot OUs with contamination originating from the plant, part of which is within the Fort Hall Reservation. Land in this general area is used for agriculture, grazing, residences, and light industrial and commercial uses. Some nearby areas are also used by members of the Shoshone-Bannock Tribe for cultural activities.

The Site sits on partly discontinuous layers of unconsolidated sediments deposited on volcanic bedrock. For the purposes of remedial activities at the Site, the aquifer system can, in some areas, be divided into a shallow aquifer (Upper Zone) and a deeper aquifer (Lower Zone). In the Simplot Phosphoric Acid Plant (PAP) area, the Upper and Lower Zones are separated by a fine-grained silt and clay layer, called the American Falls Lake Beds (AFLB). To the north of the Simplot and former FMC plant areas, and within parts of the FMC contaminated groundwater plume, the AFLB was either not deposited, has been eroded away, or is coarser-grained, which has allowed contamination from near-surface sources to move into the lower portion of the alluvial aquifer. Groundwater beneath the FMC OU generally flows northeast and mixes with groundwater from the Simplot OU near Highway 30. Groundwater from OUs 1 and 2 then discharges into the Portneuf River though underflow, seeps, and springs in the Batiste Springs segment of the river. Outside of the EMF Site, groundwater is extracted for agricultural, industrial and domestic uses, including downgradient from the Site. There are currently no known wells used for human consumption of groundwater screened within the plumes of contaminated groundwater.

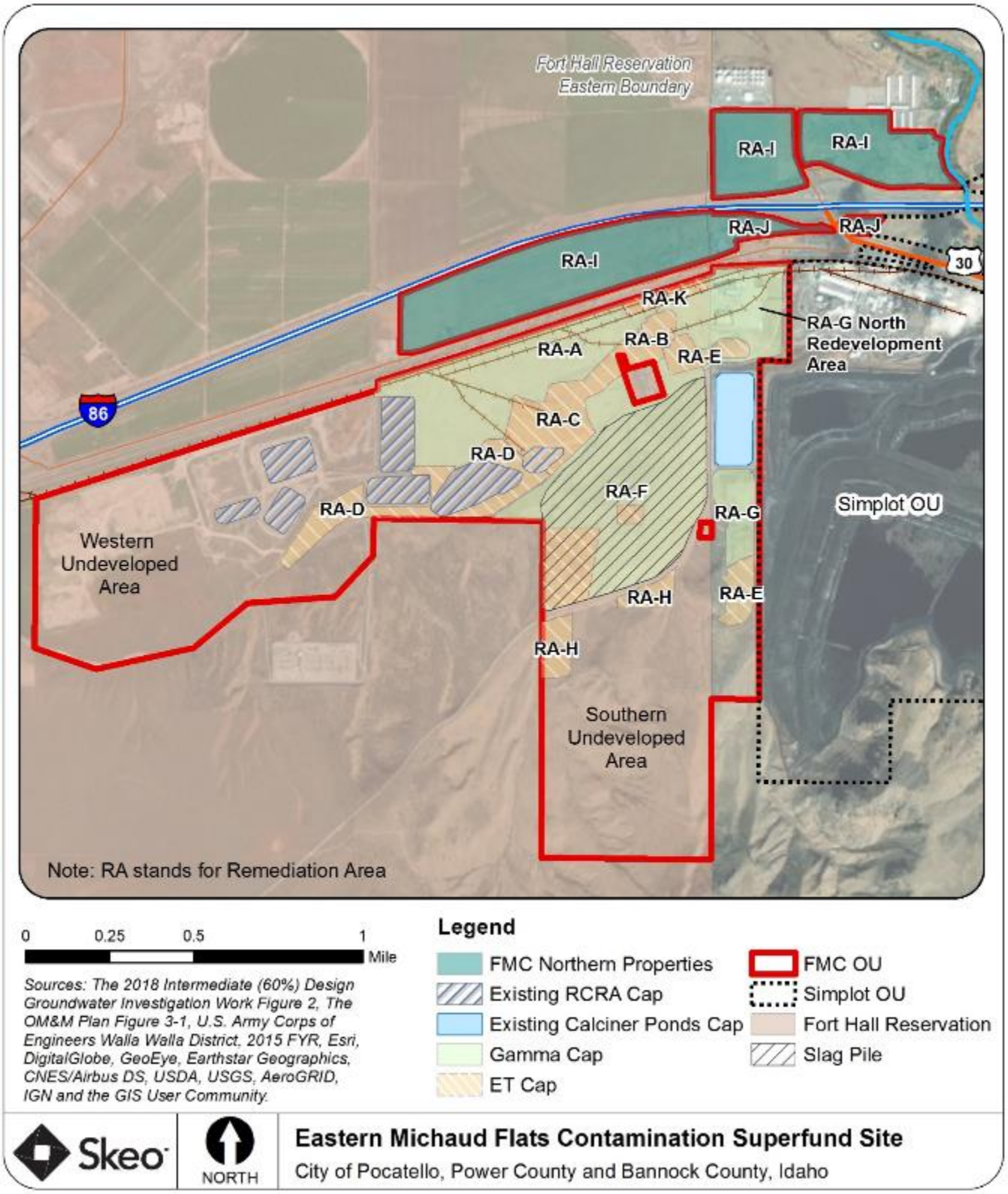
The Portneuf River flows into American Falls Reservoir northwest of the Site, both of which are used for recreation and fishing (Figure 1). The Shoshone-Bannock Tribes use the Bottoms Area, a large wetland area located about 3 miles downgradient of the Site, for many activities, including traditional and ceremonial. Appendix A lists resources used in the development of this FYR Report. Appendix B provides the Site's chronology of events.

Figure 1: Site Location Map



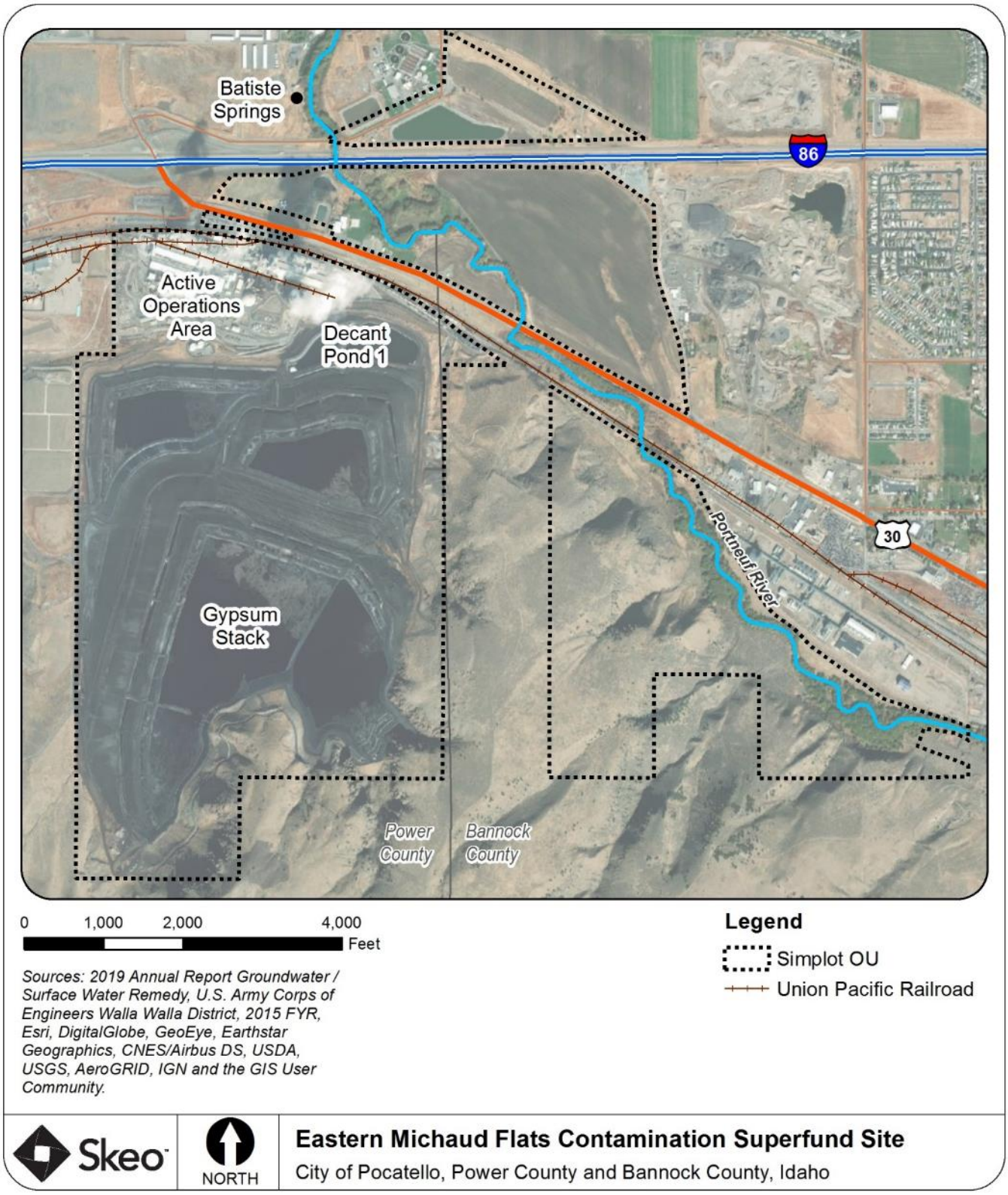
Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 2: FMC OU Features



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 3: Simplot OU Features



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FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Eastern Michaud Flats Contamination		
EPA ID: IDD984666610		
Region: 10	**State:** ID	**City/County:** Pocatello/Bannock and Power
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the Site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Conor Neal and Jeremy Jennings, with additional support provided by Skeo		
Author affiliation: EPA Region 10		
Review period: 2/24/2020 - 6/19/2020		
Date of site inspection: 6/23/2020 – 6/24/2020		
Type of review: Statutory		
Review number: 2		
Triggering action date: 9/28/2015		
Due date *(five years after triggering action date)*: 9/28/2020		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Phosphate ore is/was the primary raw material for both the FMC and Simplot operations. Contaminants of concern (COCs) at the Site are primarily linked to constituents of the phosphate ore as well as sulfur and nitrogen used in the Simplot process. Releases of contaminants into the environment at the Site occurred during storage and handling of products, byproducts, wastes, and through emissions from the two facilities. Primary constituents of the phosphate ore are calcium, phosphorus and fluoride. Primary risks at the Site are to human health and the environment from exposure to contaminated soil, groundwater, surface water and air. Table 1 lists the COCs at each OU according to the media they are found in.

At the FMC OU, elemental phosphorus in the soil at concentrations exceeding 1,000 milligrams per kilogram (mg/kg) were determined to present a significant risk to human health and the environment if exposure were to occur and was identified as a principal threat waste in the 2012 IRODA. The IRODA also added elemental phosphorus to the list of soil COCs at the FMC OU. There was also a potential risk for exposure to toxic gases, as elemental phosphorus spontaneously combusts in the presence of oxygen. EPA determined radium-226 to be a primary COC in surface soil at the FMC OU because of risks associated with gamma radiation exposure. The incremental radiological cancer risks for the exposure pathways arising from soil were determined to be due

mainly to external radiation exposure. At some locations the exposure point concentrations are comparable to background levels, but at the locations with the higher incremental radiological cancer risks the exposure point concentrations are at least 1.5 times background levels.

The 1996 Remedial Investigation (RI) identified radon as the greatest estimated incremental radiological cancer risks to potential future FMC and Simplot plant area workers. Pathways of radon exposure include inhalation of radon in buildings that may be constructed on or near soils containing radioactive contaminants, use of contaminated site groundwater as drinking water, and external radiation exposure from radionuclides in the soil.

Human health risks posed by COCs in groundwater are primarily associated with ingestion of arsenic in drinking water. Risks posed by phosphorus are primarily associated with excessive phosphorus loading of surface water in the Portneuf River, resulting in significant alteration or loss of ecological habitat and the decline of various species. The Portneuf River is listed as an impaired water body under the Clean Water Act with reductions in phosphorous loading required.

After EPA issued the 1998 Record of Decision (ROD), EPA conducted further evaluation of the data and information available regarding the extent and impact of phosphorus loading to the Portneuf River from the Site. The two primary sources of phosphorus loading to groundwater were migration of process waters percolating through the gypstack and releases within the Simplot Don Plant. These releases are contributing to the phosphorus loading to the Portneuf River and have resulted in significant reduction in the natural dissolved oxygen (DO) levels in the river. Reduced DO results in substantial risk to ecological receptors including morbidity, mortality, reproduction and growth effects on biota. These immediate ecological effects from contaminated groundwater discharge, and the contamination of underground sources of drinking water, are the bases for the need to implement the interim groundwater remedies selected in the FMC and Simplot IRODAs.

The 1996 RI identified potential risks caused by fluoride on resident plant and wildlife species of the sagebrush steppe ecosystem. The estimated risks of fluoride to native biota are only marginally above the threshold for toxic effects, and by inference the species at risk may be marginally but not severely affected. However, the ecological risk assessments did not consider risks to domestic cattle or bison grazing on forage downwind from the Site. Ecological risks to cattle were reconsidered by EPA in 2010 (Appendices M and N), and risks did not extend to the community or population level, which is EPA's threshold for CERCLA action.

Response Actions

Between 1991 and 1998, FMC and Simplot completed a number of actions to address environmental releases at the Site including paving, dust management and air emissions controls. An overview of the completed actions is included in Appendix C.

EPA signed the Site's initial ROD on June 8, 1998. The selected remedy established two OUs and identified actions for the Off-Plant Area that were included in each of the two OUs. The Off-Plant Area was later defined as the Off-Plant OU. EPA issued Interim ROD Amendments (IRODAs) for FMC on September 27, 2012 and for Simplot on January 20, 2010.

FMC OU

The Site's initial 1998 ROD included capping of contaminated soils, groundwater monitoring, contingent groundwater extraction and institutional controls. Following closure of the plant in 2001, EPA concluded that further investigatory work would be required, including characterization of the Former Operations Area. FMC implemented some limited remedial actions selected under the 1998 ROD, including groundwater monitoring and recording land use controls. FMC conducted a supplemental RI/FS in October 2003 to evaluate areas not previously investigated.

Based on the findings of the supplemental RI/FS and discovery of COCs in groundwater migrating off the FMC OU and into the Portneuf River, EPA issued the IRODA for FMC in September 2012. The 2012 IRODA replaced

the remedial action objectives (RAOs) and the remedy for the FMC OU originally selected in the 1998 ROD. The RAOs in the 2012 FMC IRODA are summarized below:

- Prevent human exposure via all potential pathways (external gamma radiation exposure, inhalation of radon in potential future buildings, incidental soil ingestion, dermal absorption and fugitive dust inhalation) to soils and solids contaminated with COCs that would result in an unacceptable risk to human health assuming current or reasonably anticipated future land use.
- Minimize generation of, and prevent exposure to, phosphine and other gases that represent an unacceptable risk to human health and the environment.
- Prevent direct exposure to elemental phosphorus under conditions that may cause it to spontaneously combust, posing a fire hazard as well as resultant air emissions that represent a significant threat to human health or the environment, and prevent such conditions.
- Prevent potential ingestion of groundwater containing COCs in concentrations exceeding risk-based concentrations (RBCs) or Applicable or Relevant and Appropriate Requirements (ARARs), or site-specific background concentrations if RBCs or ARARs are more stringent than background.
- Reduce the release and migration of COCs to the groundwater from FMC OU sources resulting in concentrations in groundwater exceeding RBCs or ARARs, or site-specific background if RBCs or ARARs are more stringent than background.
- Restore groundwater that has been impacted by the FMC OU to meet RBCs or ARARs for COCs, or site-specific background levels if RBCs or ARARs are more stringent than background, within a reasonable restoration timeframe.
- Reduce the release and migration of COCs to surface water from FMC OU sources at concentrations exceeding RBCs or ARARs, including water quality criteria pursuant to Sections 303 and 304 of the Clean Water Act.

The FMC OU interim remedy addresses metals, radionuclides, elemental phosphorus and other COCs identified in soils, slag and non-slag fill, and groundwater. The IRODA was interim rather than final because the timeframe for achieving groundwater restoration was deemed uncertain and because of the uncertain status of the Tribes' soil cleanup standards as ARARs under CERCLA. A summary of the selected interim remedy components for the FMC OU is described below.

- Place evapotranspiration (ET) caps over areas that contain non-slag fill (such as elemental phosphorus, phossy solids, precipitator solids, kiln scrubber solids, industrial waste water sediments, calciner pond solids, calcined ore, and plant/construction landfill debris) to (1) prevent migration of contaminants to groundwater, preventing the infiltration of rainwater, and (2) prevent direct contact with contaminants by current and or future workers. ET caps will be placed over the following remediation areas (RA): RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H, and RA-K as shown in Figure 1 and described in Table 1 of the IRODA.
- Place approximately 12 inches of soil cover over areas containing slag fill, ore stockpiles, and the former Bannock Paving areas to prevent the exposure to gamma radiation and fugitive dust of potential future workers. Gamma radiation-protective soil covers will be placed over RA-A, RA-A1, RA-F, and RA-G, as shown in Figure 1 and Table 1 of the IRODA.
- Excavate contaminated soil from Parcel 3 of FMC's Northern Properties, also known as RA-J, and consolidate onto the Former Operations Area to prevent exposure of residents and future workers to elevated levels of radionuclides in surface soil Clean underground reinforced concrete pipes that contain elemental phosphorus and radionuclides to prevent exposure to potential future workers.
- Clean underground reinforced concrete pipes that contain elemental phosphorus and radionuclides to prevent exposure to potential future workers.
- Install an interim groundwater extraction/treatment system to contain contaminated groundwater, thereby prevent contaminated groundwater from migrating beyond the FMC OU and into the Simplot OU and/or adjoining springs or the Portneuf River. Extracted groundwater will either be treated within the FMC OU to drinking water standards and/or risk-

based cleanup levels and discharged to an infiltration basin within the FMC OU, where it would percolate down to recharge groundwater or evaporate into the atmosphere, or pumped to a municipal treatment facility in Pocatello for treatment and released in accordance with a National Pollution Discharge Elimination System (NPDES) permit. The treatment option for groundwater will be selected during design.

- Implement a long-term groundwater monitoring program to evaluate the performance of the soil and groundwater remedial actions (to determine their effectiveness in reaching the cleanup levels described in Section 7.2 of the IRODA), and provide information needed for developing a final groundwater remedy protective of human health and the environment if the current interim remedy cannot meet cleanup requirements within an acceptable timeframe. The long-term groundwater monitoring program will be based on the current groundwater monitoring program, which may be refined during the Remedial Design/Remedial Action phase.
- Implement a gas monitoring program at the FMC OU capped ponds (also referred to as CERCLA Ponds to distinguish them from the RCRA-regulated ponds) and subsurface areas where elemental phosphorus is present to identify potential phosphine and other potential gas generation at concentrations that could pose a risk to human health.
- Implement and maintain institutional controls that include environmental land use easements that prohibit activities that may disturb remedies (such as digging in capped areas) and restrict the use of contaminated groundwater.
- Install engineering controls or barriers, such as additional fencing to further limit site access.
- Implement a remedy management system to integrate the existing RCRA Pond caps with the development of new caps, access roads, groundwater extraction system, and utility lines.
- Implement an FMC OU-wide storm water runoff management plan to minimize cap erosion and the infiltration of contaminants of concern to groundwater, including FMC OU-wide grading and the collection of storm water in retention basins.
- Conduct operations and maintenance of implemented remedial actions.

Although 16 soil COCs were identified, soil cleanup levels were only established for five constituents found to be the risk drivers for surface soils. Cleanup levels have been defined for arsenic, cadmium, fluoride, lead-210 and radium-226. Caps or soil covers will be installed over all areas in the Former Operations Area known to contain waste and with surface soils that exceed the soil cleanup levels for the five COCs. For remedy selection, RAs were designated based on geographic areas, COCs, types of risk and remedial approach. Table 1 lists the cleanup levels established for the risk drivers for groundwater and soil COCs in the 2012 FMC IRODA.[2]

Simplot OU

The remedies selected in the 1998 ROD for the Simplot OU addressed exposure to contaminated groundwater, air and soil. In May 2002, EPA and Simplot entered into a Consent Decree to implement the remedies outlined in the 1998 ROD.

Following signing of the 1998 ROD, EPA further evaluated the extent and impact of phosphorus loading to the Portneuf River from the Site. EPA identified two primary sources of phosphorus loading to groundwater in the Simplot OU including migration of process waters percolating through the gypstack and releases in the main plant area. EPA subsequently determined that augmentation of the selected remedy using additional actions was necessary to address risks to aquatic receptors in the Portneuf River posed by elevated phosphorus levels.

EPA issued the IRODA for the Simplot OU in January 2010. The IRODA added the hazardous substance phosphoric acid (measured as total phosphorus or dissolved orthophosphorus and referred to as phosphorus) as a COC and specified a groundwater/surface water remedy. The groundwater/surface water remedy required a synthetic liner be installed on the receiving area of the gypstack, additional groundwater extraction, and

[2] The 2012 FMC IRODA clarifies that other actions, including closure and compliance actions under RCRA, have been and continue to be performed at RCRA-regulated units of the FMC plant. The RCRA-regulated ponds are not part of the FMC OU and remain regulated under RCRA.

implementation of source controls in the Phosphoric Acid Plant (PAP) Area which is located within the main Don Plant Area (see Figure D-9 in Appendix D). Selected remedial actions for soil and air releases were not changed by the IRODA. EPA issued an interim rather than final ROD Amendment because the Simplot Don Plant is an operating facility and is expected to remain so for the foreseeable future and because additional evaluation of remedial actions is expected at the time of plant closure.

For the Simplot OU, RAOs from the 1998 ROD and the 2010 IRODA include:

- Reduce the exposure to radon that would occur in future buildings constructed in Simplot Don Plant areas under a future industrial use scenario.
- Prevent external exposure to radionuclides in soils at levels that pose estimated excess cancer risks greater than 1×10^{-4}, or site-specific background levels where that is not practicable.
- Prevent ingestion or inhalation of soils containing COCs at levels that pose estimated excess risks above 1×10^{-4}, a non-cancer risk hazard quotient (HQ) of 1, or site-specific background levels where that is not practicable.
- Reduce the release and migration of COCs to the groundwater from facility sources that may result in concentrations in groundwater exceeding RBCs or chemical-specific ARARs, specifically Maximum Contaminant Levels (MCLs).
- Prevent ingestion of groundwater containing COCs having concentrations exceeding RBCs or MCLs (chemical-specific ARARs).
- Restore groundwater that has been impacted by site sources to meet all RBCs or MCLs for the COCs.
- Reduce the release and migration of COCs to surface water from facility sources that result in concentrations exceeding RBCs or ARARs, including ambient water quality criteria (AWQC) pursuant to the Clean Water Act.
- Achieve source control for the existing gypsum stack and Simplot Don Plant area (including the PAP) in the shortest practicable timeframe.

The remedy for the Simplot OU, selected in the 1998 ROD and the 2010 Simplot IRODA, included the following components:

- Installation, development, operation, maintenance and augmentation, to the extent necessary, of the groundwater extraction system to keep COC levels at or below cleanup levels in affected groundwater downgradient of the gypsum stack and PAP area.
- Installation of a synthetic liner on the receiving surface of the gypsum stack to reduce the infiltration of contaminated water through the stack into groundwater.
- Development and implementation of a verifiable plan to control the sources of phosphorus and other COC releases to the environment at or from the Simplot OU.
- Subsequent to source control, development of protective numerical cleanup levels for COCs in groundwater migrating toward the Portneuf River consistent with the total maximum daily load (TMDL) established for the river, and identification of monitoring points in the river and groundwater.
- Monitoring of groundwater and implementation of institutional controls to prevent use of contaminated groundwater for drinking purposes. Groundwater monitoring and institutional controls will continue until COCs in groundwater decline to below MCLs or RBCs for those substances.
- Construction of a stable road surface over the gypsum stack to reduce fugitive emissions.
- Excavation of solids from the Dewatering Pit and disposal of excavated material on the gypstack and covering of the excavated area with soil and vegetation.
- Excavation of solids at the East Overflow Pond, disposal of excavated material on the gypstack and covering of the excavated area with a new double-lined surface impoundment for collection of non-hazardous plant water.
- Implementation of institutional controls to prevent potential future residential use of the Simplot property and control potential worker exposures under current and future ownership.

Table 1 includes a list of cleanup levels established for groundwater COCs in the 2010 Simplot IRODA. The IRODA requires Simplot to develop, for EPA's approval, a protective numerical cleanup level (RBC) for phosphorus in groundwater migrating toward the Portneuf River. The 2010 Consent Decree required development of the RBC by December 1, 2013 or the date construction of the gypstack source controls was completed. On August 25, 2016, EPA determined that postponing development of the phosphorus RBC until such time as phosphorus loadings from site-related sources have stabilized at levels closer to the targets established under the VCO would provide EPA with more assurance that the RBC value would represent the appropriate level of ecological protection. Simplot is now required to submit the proposed RBC to EPA by November 30, 2022. Until an RBC is quantified in a future decision document, the Portneuf River TMDL for total phosphorus, 0.075 mg/L, is used as an indicator of progress towards attainment of the RAO of reducing the release and migration of COCs to surface water from facility sources.

Table 1: Contaminants of Concern listed by media and their Cleanup Levels for FMC and Simplot OUs

COC	FMC OU Soil COCs and Cleanup Levels 2012 IRODA[a]	FMC OU Groundwater COCs and Cleanup Levels 2012 IRODA[b]	Simplot OU Groundwater COCs and Cleanup Levels 2010 IRODA[b]
Antimony	--	0.006	0.006
Arsenic	150	0.01	0.01
Beryllium	--	0.004	0.004
Boron	--	1.36[c]	--
Cadmium	39	0.005	0.005
Chromium	NA	0.1	0.1
Fluoride	49,000	4	4
Lead-210	67 pCi/g	NA	NA
Manganese	--	0.077[c]	--
Mercury	--	0.002	0.002
Nickel	--	0.1	0.1
Nitrate	NA	10	10
Phosphorus[d]	NA	TBD	TBD
Phosphorus (elemental)	--	0.00073[c]	NA
Polonium-210	--	NA	NA
Potassium-40	--	NA	NA
Radium-226	3.8 pCi/g	5 pCi/L	5 pCi/L
Selenium	--	0.05	0.05
Silver	--	NA	NA
Thallium	--	0.002	0.002
Tetrachloroethene	NA	0.005	0.005
Trichloroethene	NA	0.005	0.005
Vanadium	NA	0.108[c]	0.108

COC	FMC OU Soil COCs and Cleanup Levels 2012 IRODA[a]	FMC OU Groundwater COCs and Cleanup Levels 2012 IRODA[b]	Simplot OU Groundwater COCs and Cleanup Levels 2010 IRODA[b]
Zinc	NA	3.92[c]	3.92
Gross Alpha	--	15 pCi/L	15 pCi/L
Gross Beta	--	4 mrem/yr	4 mrem/yr

Notes:
a = Cleanup levels are provided for COCs associated with worker risk at the former operations area or Northern Properties. The cleanup level cited is the lower cleanup level between the outdoor/commercial/industrial worker
and construction worker preliminary remediation goal, presented in milligrams per kilogram (mg/kg) unless otherwise specified.
b = Based on MCLs unless otherwise specified, presented in mg/L unless otherwise specified.
c = Risk-based concentrations based on drinking water and watering homegrown produce. RBC value based on cancer risk of 10^{-6} or Hazard Quotient = 1.
d = To be determined (TBD) – Simplot is required to propose an RBC for phosphorus by November 30, 2022. The final cleanup level will be selected in a subsequent decision document. In the interim, the Portneuf River TMDL for total phosphorus, 0.075 mg/L, is used as an indicator of progress towards attainment of the RAOs.
-- = No cleanup level established
NA = Not a COC for listed media
pCi/g = picocuries per gram
pCi/L = picocuries per liter
mrem/yr = millirems per year
TBD = To be determined

Off-Plant OU

The 1998 ROD selected a series of remedial actions for what was then called the Off-Plant Area which were included in the FMC Plant OU and Simplot Plant OU. On July 21, 1999, EPA lodged two proposed RD/RA Consent Decrees with the Federal District Court, one with FMC and the other with Simplot, and opened a 30-day public comment period. In response to comments received, EPA withdrew the proposed Consent Decrees and determined it was appropriate to address the Off-Plant Area as a separate OU, thereby creating the Off-Plant OU.

For the Off-Plant Areas, the 1998 ROD addressed potential risks to humans from exposure to soils and groundwater and the potential for risks to ecological receptors from fluoride. The 1998 ROD identified the following RAOs for the Off-Plant OU:

- Prevent future consumption of homegrown produce grown in areas of the Site where soil constituents' levels result in a potential non-carcinogenic risk exceeding a hazard quotient (HQ) of 1.
- Prevent external exposure to radium-226 in soils at levels that pose cumulative estimated excess risks above 1×10^{-4}.
- Prevent the potential for future impacts to ecological receptors by monitoring fluoride at the Site and surface water at springs. If monitoring data indicate that fluoride levels in the environment are increasing beyond that observed during the RI sampling and the potential for an unacceptable ecological risk is indicated, additional actions, including source controls, may be required.

The selected remedy included the following components:

- In order to determine the levels of fluoride present and to evaluate the potential risk to ecological receptors, implement a fluoride monitoring program. The monitoring shall generally occur within a three-mile radius of the FMC and Simplot Plants (there may be specific areas outside the three mile radius,

which may contain sensitive species or be of particular ecological or cultural value where sampling should also occur) and shall include sampling of vegetation, soils, and appropriate biomonitors. If levels which are measured indicate a risk may exist, further evaluation will occur followed by source control or other action, if necessary.

- In Off-Plant areas where soil contaminant levels exceed a HQ of 1 for cadmium and/or which pose a 1 in 10,000, or greater, excess risk from radium-226, implement legally enforceable land use controls restricting use of agricultural products grown thereon for human consumption due to the presence of cadmium in soils. For those areas contaminated with radium-226, legally enforceable land use controls shall be implemented to prevent future residential use.

- There are areas in which contaminant levels do not exceed the criteria established for land use controls. The PRPs must notify current and future property owners if residential use is likely to occur on areas that, while not exceeding threshold criteria, are close to the threshold, or the areas are adjacent to lands that exceeded the threshold. The PRPs shall monitor property use for residential development and inform residential property owners of potential human health risks associated with consumption of homegrown fruits and vegetables due to the presence of cadmium in soils. Similar restrictions on use of agricultural products could be implemented on such areas, as necessary.

- In conjunction with this monitoring and land use controls described above, a test program shall be developed to evaluate actual uptake into produce which may be grown by residents in the affected off-plant areas. The results of the test program will be used to determine if monitoring and land use controls are still required or if any additional action is necessary to prevent potential health risks associated with consumption of homegrown fruits and vegetables.

- Groundwater monitoring and evaluation in the Off-Plant Area shall be conducted as part of the cleanup remedy to: 1) determine the effectiveness of the FMC and Simplot Plants' source control measures; 2) ensure contaminants are not migrating into the Off-Plant Area; and, 3) ensure that the remedy remains protective of human health and the environment.

Monitoring of groundwater and the Portneuf River are being implemented as part of the FMC and Simplot OU remedies, not the Off-Plant OU remedies. As such, in this FYR, monitoring will be discussed as part of the FMC and Simplot OUs, not the Off-Plant OU.

Status of Implementation

FMC OU

The FMC OU is in the remedial design/remedial action phase of implementing the 2012 IRODA. EPA issued a Unilateral Administrative Order (UAO) to FMC (effective June 20, 2013) requiring FMC to implement the IRODA in accordance with design documents and work plans approved by EPA. In October 2015, FMC submitted an addendum to the Remedial Design/Remedial Action Work Plan for a 14-acre area in RA-G North that was originally planned to include a gamma cap. The addendum included designs for an equivalent gamma cap to allow for redevelopment in RA-G North (now the RA-G North Redevelopment Area). Valley Agronomics LLC (ValleyAg) and FMC, with EPA oversight, worked together on the development, and ValleyAg constructed and now operates a fertilizer distribution center in RA-G (Figure D-3 in Appendix D).

Soil Remedy

In 2013, FMC began the remedial design work with an emphasis on the interim soil remedy. The soil remedial action was completed in two phases (Figure D-2 in Appendix D). Phase 1 occurred between September 2014 and December 2015. Phase 2 was completed between March 2016 and November 2017. [3]

[3] This information was based on information presented in the 2016 Remedial Action Work Plan and the draft Construction Completion Report (2020), however the information was not verified with a finalized Construction Completion Report.

- Phase 1:
    - Sitewide grading to achieve the design intent of creating a maximum 4H:1V side slopes at RAs to receive both ET and gamma caps. Over 4 million cubic yards of material was cut and filled. Several photos in Appendix H show the graded and capped RAs.
    - Site clearance and integration of RCRA monitoring systems involving removal, abandonment and/or relocation of existing infrastructure related to RCRA monitoring systems. Site-wide grading near existing RCRA ponds was re-graded to blend with ET and gamma capped areas.
    - Placement of capillary break component of the ET caps.
    - Excavation and removal of soil at remedial area RA-J.
    - Stormwater pipe cleaning and abandonment.
    - Excavation of stormwater retention ponds.
    - ET capping of RA-E South, RA-H East, and RA-H West.
- Phase 2:
    - Excavation of soils in the Western Undeveloped Area for cap construction.
    - Installation and seeding of ET caps on RA-B, RA-C, RA-D, RA-E, RA-F1, RA-F2, RA-H and RA-K (combined total 142 acres) (Figure D-4 in Appendix D).
    - Installation and seeding of gamma caps on RA-A, RA-F, RA-F3, RA-G North and RA-G South 1 and 2, and base of retention ponds (combined total 149 acres) (Figure D-4 in Appendix D).
    - Installation of gamma cap equivalent features within the RA-G North Redevelopment Area (about 15 acres) (Figure D-3 in Appendix D).
    - Construction of stormwater conveyance channels and concrete culverts.
    - Integration of existing monitoring wells in the final capping surfaces.
    - Construction of access roads in RA-G North and RA-A.
    - Reclamation of the Western Undeveloped Area borrow area.
    - Reinstatement of the RCRA pond fencing.
    - Installation of soil depth indicators on ET and gamma caps.
    - Completion of final status surveys for RA-G North Redevelopment area and gamma capped RAs.

FMC has completed construction of the selected interim soil remedy in accordance with the 2016 Soil Remedial Action Final Remedial Design Report, with the exception of approximately 1 acre within RA-F. During remedial action grading of the slag pile, FMC encountered pyrophoric material in RA-F. FMC managed the material consistent with the Emergency Response Plan (ERP) and temporarily stockpiled it at a consolidated location EPA approved in September 2016. FMC began segregating the P4-contaminated debris from quenching sand and packing it for off-site disposal at a hazardous waste incinerator in September 2019. Once this material is removed and disposed off-site (anticipated for Fall of 2021), FMC will install the remainder of the gamma cap, conduct the radiological final status survey of the newly constructed cap, and complete the Remedial Action Construction Report for the interim soil remedy. The interim soil remedial action areas are shown in Figure D-2 in Appendix D.

Except for the RA-F area, the post-soil remediation action operation, monitoring and maintenance (OM&M) activities were conducted in 2019 in accordance with the December 2018 OM&M Plan, which includes soil gas monitoring. The O&M section and Data Review section of this FYR Report provide more information on these activities.

Groundwater Remedy

The interim soil remedy was the primary focus of construction during this FYR period. The ET caps are primarily a component of the soil remedy, but they are also expected to reduce migration of contaminants to groundwater by inhibiting percolation of precipitation through contaminated soil below the caps. Remedial action implementation for the groundwater extraction and treatment portion of the remedy has not begun. The remedial design for this portion of the groundwater remedy began in earnest with the 2018 Intermediate Remedial Design Groundwater Investigation Work Plan. The work plan, implemented June-December 2018, included 27 borings through the groundwater plume to obtain continuous lithologic information and depth-discrete groundwater

quality data. The investigation provided data to depict the plume and lithologic framework in three dimensions, with sufficient confidence needed to advance the remedial design. While the investigation filled important known data gaps needed to update the groundwater conceptual site model (CSM) for remedial design, it also identified previously unknown data gaps. Data review during 2019 identified a portion of the plume, south of the RCRA Ponds, which apparently extends some distance beyond the OU boundary. A work plan to conduct drilling and sampling is needed to determine the approximate nature and extent of contamination within the OU and beneath adjoining Tribal trust land was approved by EPA on February 28, 2020. The drilling and sampling activities were scheduled to begin on March 16, 2020 but were delayed by the COVID-19 pandemic. In the meantime, work continues on other aspects of the intermediate remedial design. Looking ahead, EPA anticipates completion of the remedial design and initiation of remedial action extraction and treatment within about two years.

FMC has been monitoring groundwater quality since 1991 from a series of historic monitoring wells, with results provided in three separate reports given to three programs (CERCLA, RCRA, and IDEQ Voluntary Compliance Order) rather than within a single integrated groundwater quality report. Until 2019, prior to completion of the Intermediate Remedial Design Groundwater Investigation, groundwater quality data were also not used to evaluate the entire groundwater plume. The FMC OU long-term groundwater monitoring program required by the IRODA will include many of the existing monitoring wells, additional monitoring wells to be installed in response to information gained from the 2018 Remedial Design groundwater investigation, and an integrated annual report.

Simplot OU

EPA and Simplot entered into a Remedial Design/Remedial Action Consent Decree in May 2002 for the implementation of remedial actions selected in the 1998 ROD. On November 16, 2010, the Consent Decree was amended to include the additional actions selected in the 2010 IRODA. This FYR Report evaluates the remedial components with hazardous waste left in place from the 2010 IRODA and 1998 ROD.

1998 ROD Components
Prior to the issuance of the 2010 IRODA, remedial work was conducted in the former East Overflow Pond and Dewatering Pit between 1997 and 2005. Contaminated material was excavated from both areas and disposed of on the gypstack. The Dewatering Pit was covered with soil and vegetated. The former East Overflow Pond was lined and is the current western pond used for stormwater retention. In 2005, the construction of the gypstack roads was completed.

2010 IRODA Components
The Simplot OU groundwater/surface water remedy has been designed to meet the requirements of the 1998 ROD and the 2010 IRODA. The remedy in the Simplot IRODA also includes remedial actions expected to result in the attainment of the load reductions identified in the TMDL.

Between April 2010 and November 2017, the receiving surfaces of the gypstack were lined with high-density polyethylene (HDPE) liner. Figure D-5 shows the various sections of the gypstack and the dates that lining was completed. In total, Simplot covered 154 acres of the receiving surface of the gypstack. EPA issued a Remedial Action Complete letter and approved the Final Certification Report on September 28, 2018. Source control activities consisting of storm drain line repairs and drain line and sump repair work in the PAP area as well as non-PAP areas also occurred during this FYR period and are ongoing.

In 2002, following entry of a remedial design/remedial action Consent Decree in Idaho District Court, Simplot initiated the design for the groundwater extraction system selected in the ROD. Simplot had installed two extraction wells in the late 1990s and had begun groundwater extraction voluntarily at that time. In 2004, the first in a series of groundwater extraction wells to address the ROD requirements were installed and began pumping. The groundwater extraction system consists of a network of Upper Zone and Lower Zone wells near the northern and northwestern edge of the gypstack and downgradient of the PAP area. Extracted groundwater is recycled to the facility process. The wells have been located to intercept groundwater affected by gypsum stack seepage and by sources in the PAP area. The extraction system captures about 60% of affected groundwater immediately

downgradient of these areas as reported in the 2019 Annual Report. Thirteen extraction wells were operating in 2019.

In February 2013, extraction well 419 (in the PAP area) was shut down because hazardous characteristic concentrations from a dense aqueous phase liquid (DAPL) were detected in extracted groundwater. Subsequently, a pilot study was designed and implemented to evaluate pumping and treatment technologies. The main objective of the pilot treatment system was to treat the hazardous waste groundwater such that treated groundwater could be recycled directly to the Don Plant and the resulting non-hazardous sludge byproduct could be disposed of on lined portions of the gypsum stack. The pilot lime treatment system began operating in February 2014 and finished in December 2017. Over the course of the study, 734,800 gallons of hazardous characteristic groundwater were extracted, treated by lime and recycled to be used as Don Plant process water. DAPL thickness was reduced through efficient extraction and operation of the system. The system has transitioned back to higher-flow extraction of non-hazardous groundwater at extraction well 419 and nearby well 423.

Off-Plant OU

The Off-Plant remedy selected in the 1998 ROD required land use controls be implemented in areas where cadmium and radium-226 concentrations in soils exceeded risk thresholds. The remedy also required notification of residential property owners in areas close to those thresholds. In 2001 the FMC Plant ceased operations, thus eliminating the air emissions that were a primary source of contaminants in Off-Plant soils. In 2009, prior to implementing land use controls, FMC and Simplot requested an opportunity to re-sample soils so the land use controls could be based on soil concentrations measured after the FMC Plant closed. In 2010, FMC and Simplot sampled soils in the Off-Plant OU and analyzed the samples for radium-226, uranium -238 and cadmium. In 2020, EPA evaluated the data and determined that no institutional controls were required (Appendix L).

The 1998 ROD also required monitoring of fluoride levels around the Site to determine the concentrations present and to evaluate the potential risk to ecological receptors. If concentrations indicate a risk may exist, further evaluation, followed by source control or other actions, if necessary, were required. Between 2009 and 2013, supplemental actions included soil and vegetation sampling, evaluating data trends, updating the ecological risk assessment, sampling in the Bottoms Area and reviewing potential impacts to ecological receptors. In 2020, EPA evaluated the supplemental information and found that fluoride in Simplot's air emissions have been deposited on soils and vegetation near the air emission source on the Simplot OU (Appendices M and N). Fluoride concentrations on some vegetation have a potential to impact ecological receptors at the individual level but widespread or significant ecological impacts at the community or population level, the CERCLA action level, are not expected. A review of the sources indicated the fluoride originated from a single, ongoing source that is permitted by the State of Idaho. Therefore, EPA found that no additional source controls are required under CERCLA and monitoring as selected in the 1998 ROD is no longer required.

In summary, EPA reviewed the actions and determined that all elements of the Off-Plant OU remedy had been implemented and remedial action objectives have been achieved. No further CERCLA actions are required under this part of the remedy and the remedy for the Off-Plant OU, as identified in the 1998 ROD, is complete. In addition, there are no hazardous substances, pollutants, or contaminants from historic releases that remain above the thresholds identified in the 1998 ROD and, thus, above levels that allow for UU/UE.

Institutional Control (IC) Review

As remedy design and remedial action continues at both FMC and Simplot OUs, institutional controls will continue to be designed and implemented. Some institutional controls have been implemented and they are described below. Figure 4 shows the property ownership. Table C-1 in Appendix C is the key to Figure 4.

FMC OU

The FMC OU consists of FMC-owned properties, including the former operational areas, the northern properties, and the Southern Undeveloped Area and the Western Undeveloped Area. Other properties, including the closed RCRA disposal units, FMC-owned Tesco American and the Idaho Power Company, are not part of the OU and do not require institutional controls under CERCLA. However, some restrictive covenants have been implemented in these areas as required under RCRA.

The 2013 Unilateral Administrative Order requires implementation of institutional controls in accordance with an EPA-approved Institutional Control Implementation and Assurance Plan. FMC drafted a plan for initial submittal in 2014. The plan has not been approved, but EPA anticipates resolving the remaining issues in 2020. Current institutional controls include zoning restrictions and restrictive or environmental covenants on all FMC-owned property, which restrict land use to industrial. Additional planned institutional controls will include environmental land use restrictions prohibiting activities that disturb implemented remedies and restrict the use of contaminated groundwater.

The FMC OU is in an area zoned for heavy industrial uses or the half-mile buffer zone designated by Power County that prohibits any non-industrial use. In 1995, FMC filed restrictive covenants on all property owned by FMC within the FMC OU, except for Batiste Spring (Parcels H and I in the Northern Properties). In 2010, FMC recorded an environmental covenant for the remaining parcels in RA-I. EPA designated these parcels (H and I in Figure 4) Ready for Reuse for industrial or commercial use in 2010. The 2010 environmental covenant includes a groundwater use restriction. FMC provides an annual environmental covenant report confirming that the properties with restrictive covenants are not being used for unauthorized uses. Table 2 lists the institutional controls associated with areas of interest at the Simplot OU.

Table 2: Summary of Planned and/or Implemented Institutional Controls (ICs) at FMC OU

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	FMC OU: Areas where groundwater exceeds maximum contaminant levels (MCLs) or RBCs	Prevent potential ingestion of groundwater containing COCs in concentrations exceeding MCLs or RBCs.	Environmental Covenant or comparable (planned) to restrict groundwater use
			Parcels H and I in Figure 4		2010 Environmental Covenant
Soil	Yes	Yes	All FMC-owned parcels A-D and G, J in Figure 4	Restrict land uses to industrial or commercial uses.	1995 Restrictive Covenant
			Parcels H and I in Figure 4		2010 Environmental Covenant

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
			Parcels containing ET and gamma caps	Prevent any activities that would jeopardize the remedy components.	Environmental Covenant or comparable (Planned) to limit the use and activity on Ras

Simplot OU

The 1998 ROD and 2010 IRODA called for the implementation of institutional controls to prevent groundwater use and future residential use of the Simplot OU property and to control potential worker exposures under current and future ownership.

Simplot provided a draft Institutional Control Implementation and Assurance Plan to EPA in June 2003 for the Simplot OU. The plan has not been finalized, however restrictive covenants and health and safety plans are in place to prevent or control exposure to contaminants, as intended by the IRODA. To address potential worker exposures under the current ownership, Simplot has a training program that includes health and safety training for new workers and then annually thereafter. An information sheet, included in the draft plan, is used to inform workers of potential hazards associated with the remedial actions occurring at the Site. In order to address potential exposure of gypstack workers, Simplot developed a gamma monitoring/mitigation plan in 2003.

A deed notice was filed with Bannock and Power counties in August 2002. The deed notice identified which properties are within the Site and subject to the 2002 Consent Decree and the 1998 ROD. A restrictive covenant was filed with Bannock and Power counties on May 29, 2003, for all Simplot-owned properties. The restrictive covenant prohibits use of the property for residential purposes. It also requires that future office buildings must have radon-controlling methods and prohibits use of groundwater for human consumption unless sampling and analysis results are within applicable drinking water standards. Table 3 lists the institutional controls associated with areas of interest at the Simplot OU.

Table 3: Summary of Planned and/or Implemented ICs at Simplot OU

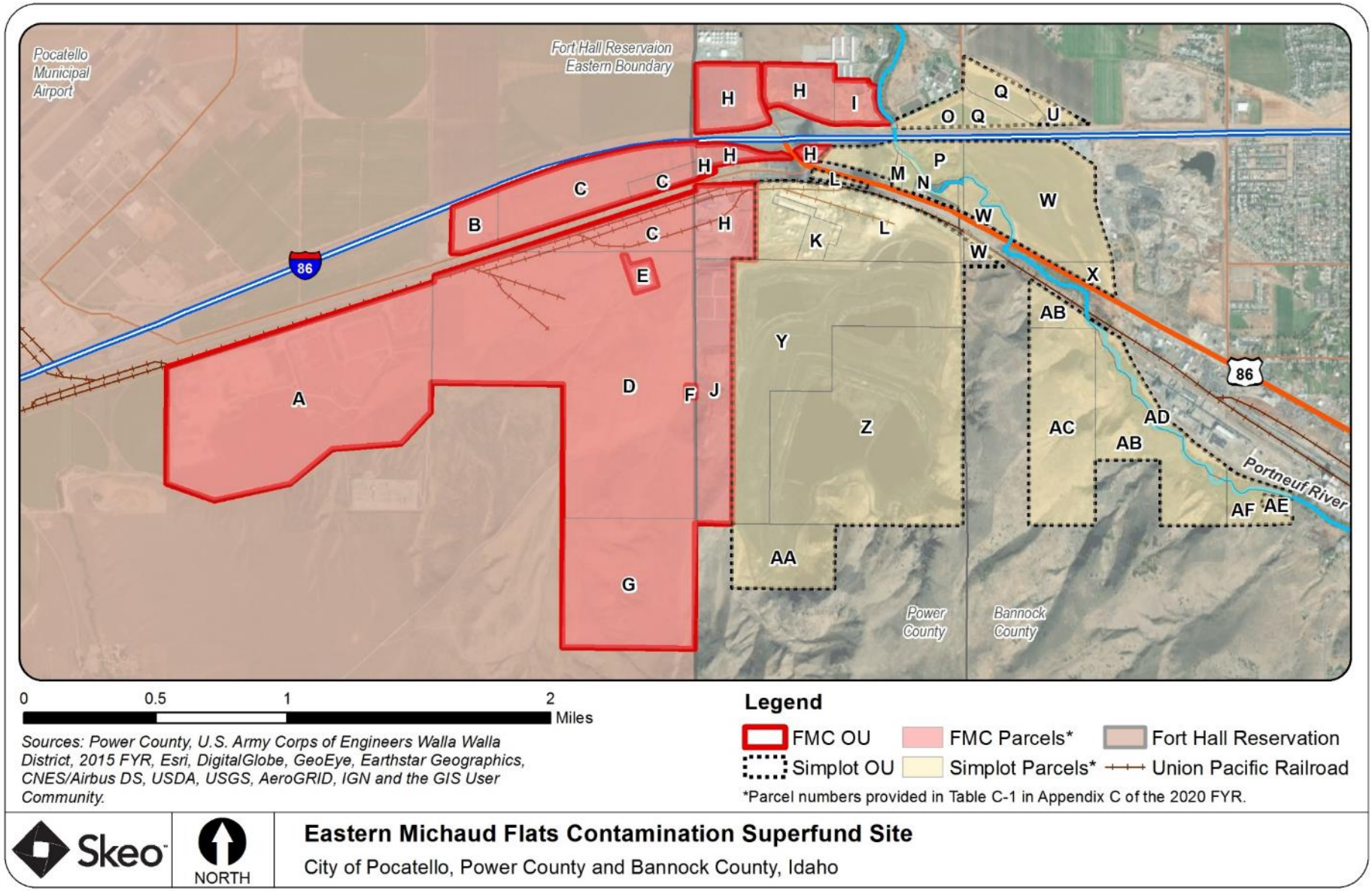
Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Groundwater	Yes	Yes	Simplot OU	Prevent ingestion of groundwater containing COCs having concentrations exceeding RBCs or MCLs.	2003 Restrictive Covenant

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date
Soil	Yes	Yes	Simplot OU	Restrict land uses to industrial or commercial uses.	2003 Restrictive Covenant
Vapor Intrusion	Yes	Yes	Gypstack	Reduce the exposure to radon that would occur in future buildings constructed within the Simplot Don Plant areas.	2003 Restrictive Covenant
Facility	Yes	Yes	Simplot OU	Inform workers of potential health hazards associated with the Superfund process at the facility.	Training programs for new hires and annually thereafter
Gypstack	Yes	Yes	Simplot OU	Prevent external exposure to radionuclides in soils that pose estimated excess cancer risks greater than $1x10^{-4}$ or site-specific background levels where that is not practicable.	2003 Gamma Radiation Exposure Monitoring/Mitigation Plan for Gypsum Stack Workers

Off-Plant OU

No institutional controls are required for the Off-Plant OU.

Figure 4: Institutional Control Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Systems Operations/Operation and Maintenance (O&M)

Systems O&M is conducted at both the FMC and Simplot OUs, as described below. There are no O&M components at the Off-Plant OU.

FMC OU

FMC conducts O&M activities for the soil remedy in accordance with the 2018 OM&M Plan, which generally includes visual inspection and surveying of ET caps, gamma caps, the RA-G North Redevelopment gamma equivalent cap, the stormwater runoff management system and engineering controls. All caps are routinely inspected for surface vegetation, soil depth indicators, signs of stormwater and wind erosion/damage, rodent or insect damage, and stormwater diversion controls. For the purposes of O&M, soil caps are divided into two groups: gamma caps in areas that do not contain known significant quantities of elemental phosphorus (also called non-P4 areas) and ET caps in areas that are known to contain significant elemental phosphorus in the subsurface (P4 areas) (Figure D-4 in Appendix D). ET caps in P4 areas have additional monitoring including soil gas and flux monitoring and ambient air monitoring. The OM&M Plan specifies the monitoring schedule, action triggers for unacceptable conditions and response actions for ET caps in P4 areas. The specific cap areas are shown in Figure D-1 in Appendix D.

The Data Review section of this FYR Report discusses data collected in accordance with the OM&M Plan, including monitoring results for shallow subsurface soil gas, surface gas flux, and ambient air at locations where elemental phosphorous (P4) or P4-contaminated materials are known or suspected to be in the subsurface. Indoor air monitoring is performed for radon and phosphine within occupied buildings of the RA-G North Redevelopment project. Other O&M activities at the FMC OU are described below.

ET Caps

Vegetation

Vegetation on ET caps is monitored to ensure plant density does not decrease to the extent that it affects cap integrity and function. Per requirements in the OM&M Plan, each ET cap surface is divided into plots (10 acres or less) and visually inspected annually at the end of the growing season and compared to the performance standard (two-thirds of the surface must meet or exceed the minimum target density of 0.5 plants per square foot). If the performance standard is not met, reseeding is conducted. If the performance standard is not met for two consecutive years following the first reseeding, FMC will prepare a plan for investigation to determine the cause and recommended action. Monitoring was conducted in fall 2018 and 2019. Of the 21 plots, three plots required maintenance in 2018. The three areas were repaired/reseeded. No plots required maintenance in 2019.

Soil Depth

The objective of the ET cap soil depth monitoring program is to determine if wind and/or water erosion has removed or redistributed soil to the extent that the ET cap may not perform as designed. Three soil-depth monitoring events have been conducted (January and December 2018 and June 2019). Action levels are specified in the OM&M Plan. During the three events, there were no action level exceedances and no maintenance was required.

Stormwater and Wind Erosion/Damage

The objective of the ET cap wind and run-on and runoff erosion monitoring program is to determine if wind and/or water erosion from run-on or runoff has removed or redistributed soil to the extent that the integrity and functionality of the cap system may be impaired. Inspections are performed quarterly. Erosion and damage were observed in several locations across the ET caps in 2018 and early 2019 and were repaired per the requirements in the OM&M Plan. No action-level exceedances were observed in the third or fourth quarter of 2019. The early erosion/damage observed was likely due to surface water runoff on steeper slopes without established vegetation. As vegetation continues to establish, less erosion is expected.

Slag Pit Settlement

The objective of the slag pit cap settlement monitoring program is to determine if settlement or movement of the historic slag pit sump area (covered by ET cap in RA-B) has occurred. The slag pit sump settlement was

measured in February 2018 and March 2019. No visible subsidence was noted, and no unacceptable conditions were evidenced. The settlement monument was clear, accessible and undamaged during each monitoring event. As insufficient data have been collected to date to calculate the five-year cumulative movement, FMC will continue annual monitoring of the slag pit settlement monument.

Gamma Caps and RA-G North Redevelopment

Soil Depth
The objective of the gamma cap soil depth monitoring program is to determine if wind and/or water erosion has removed or redistributed soil to the extent that the gamma cap may not perform as designed. Soil-depth indicators were placed at areas on the gamma cap areas most susceptible to wind and water erosion. There were multiple instances where individual gamma cap soil depth indicator readings were below the required 12 inches. However, there were no quarterly assessments made where greater than 50% of individual readings were less than 12 inches. Per the requirements outlined in the 2018 OM&M Plan, the soil depth monitoring program determined that soil depths remained acceptable in the short-term, and areas where repair or replenishment was needed were identified.

Stormwater Erosion/Damage
The objective of the gamma cap run-on and/or runoff erosion monitoring program was to determine if water erosion from run-on or runoff, including at the RA-G North gamma cap equivalent features, has removed or redistributed soil to the extent that the integrity and functionality of the cap system may be impaired as defined by the requirements outlined in the 2018 OM&M Plan. Inspections are performed quarterly. Erosion and damage were observed in several locations across the ET caps in 2018 and early 2019 and were repaired per the requirements in the OM&M Plan. No action level exceedances were observed in the third or fourth quarter of 2019. The early erosion/damage observed was likely due to surface water runoff on steeper slopes without established vegetation. As vegetation continues to establish, less erosion is expected.

Vegetation
The objective of the gamma cap vegetation monitoring is to inspect the vegetation cover on the cap surface to ensure that vegetation (plant) density does not decrease below acceptable levels. Vegetation monitoring for the gamma caps is consistent with the procedure for the ET caps (see above). In 2018, 13 out of 29 plots required maintenance. In 2019, none of the 29 plots required maintenance.

Simplot OU
Simplot conducts O&M activities for the groundwater extraction system and the gypstack in accordance with the 2012 and 2017 O&M plans, respectively.

Water levels below the surface of the gypstack are monitored using vertical piezometers to track downward seepage gradients. Concrete survey monuments were installed in the same locations as the vertical piezometers in 2012. Lateral piezometers are sensors placed under the liner to detect water that may indicate the liner is leaking. Settlement monument data were collected quarterly from the lower compartment of the gypstack from 2013 to 2019. Settlement data are used to evaluate water level elevation from the vertical piezometer monitoring. Based on the results of the monitoring associated with the lining of the gypstack, after each phase of lining, seepage through the gypstack has been significantly reduced. Based on calculations provided in the 2019 Annual Monitoring Report, Simplot reported that over 13 million pounds of phosphorus were not released to the environment due to the lining of the gypstack. Compared to the pre-lining phosphorus load released to the environment, this represents an approximately 87% reduction of phosphorus compared to pre-lining conditions.

The groundwater extraction system consists of 24 wells. Currently, 13 extraction wells are active (401, 402, 406, 411, 412, 413, 414, 415, 416, 419, 421, 422 and 423). Six wells that had been active have been converted to monitoring use (404, 405, 407, 408, 409 and 410) and five wells that were installed with the capability to be used for extraction are only used for monitoring (403, 417, 418, 420 and 424). The extraction well network is divided into three general areas: the Fenceline Area, the East Plant Area and the Central Plant Area. Table I-1 in Appendix I provides a summary of extraction well operation during this FYR period. Every year, the groundwater

extraction system is down for three to four weeks for plant turnaround activities. Other unscheduled downtime occurs for maintenance, including electrical and pump maintenance and re-piping activities. Generally, wells are operating at their target extraction range. Almost 500 million gallons of contaminated groundwater were extracted between 2015 and 2019.

Off-Plant OU

No O&M is required at the Off-Plant OU.

III. PROGRESS SINCE THE PREVIOUS FIVE-YEAR REVIEW

This section includes the protectiveness determinations and statements from the previous FYR Report as well as the recommendations from the previous FYR Report and the status of those recommendations.

Table 5: Protectiveness Determinations/Statements from the 2015 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
1	Not Protective	The interim remedy at the FMC OU (OU1) is not protective because ecological exposure pathways that could result in unacceptable risks are not under control. Source control measures must be implemented, and the groundwater extraction and treatment system operated until the phosphorus risk-based concentration determined to be protective of ecological receptors in surface water is met. Remedial actions currently being implemented are adequately controlling all human health exposure pathways that could result in unacceptable risks. Remedy design and construction are ongoing, an interim groundwater monitoring plan and a dust control and air monitoring plan are in place, access to the site is controlled, and there are currently no known wells used for human consumption of groundwater within the contaminated groundwater plume.
2	Not Protective	The remedy at Simplot OU (OU2) is not protective because ecological exposure pathways that could result in unacceptable risks are not under control. Source control measures and groundwater extraction must be operated until the phosphorus risk-based concentration determined to be protective of ecological receptors in surface water is met. The groundwater extraction system is operating, and source controls are being implemented on the gypstack and in the Phosphoric Acid Plant Area, but levels protective of ecological receptors in surface water have not been achieved. Remedial actions currently being implemented are adequately controlling all human health exposure pathways that could result in unacceptable risks. There are no known wells used for human consumption in the contaminated groundwater plume, a groundwater monitoring plan is in place and site access is control.

OU #	Protectiveness Determination	Protectiveness Statement
3	Protectiveness Deferred	A protectiveness determination of the remedy at the Off-Plant OU (OU3) cannot be made at this time until further evaluation of available information is conducted. Additional evaluation is needed to delineate the areas where the institutional controls to address human health risks from cadmium and radium contamination in soils may need to be implemented and to determine if additional actions, including source control measures, are needed to address ecological risks from fluoride contamination.

Table 6: Status of Recommendations from the 2015 FYR Report

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
2	Contaminated groundwater plume in PAP Area is not contained.	Develop a plan to remove low pH groundwater and re-establish groundwater containment.	Completed	The pilot study was implemented from February 2014 to December 2017. During this time approximately 734,800 gallons of hazardous characteristic groundwater were extracted, treated by lime and recycled to the Don Plant as process water. Partial groundwater containment was re-established, and high-flow extraction is occurring at wells 419 and 423.	12/1/2017
3	Areas in Off-Plant OU where risks exceed protective levels defined by the 1998 ROD require institutional controls or other actions. These areas have not been defined and remedial actions have not been implemented.	Define the specific areas where institutional controls or other actions are required.	Completed	Soil concentrations indicate that institutional controls are not required in the Off-Plant OU.	6/30/2020

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
3	Areas in Off-Plant OU where risks exceed protective levels defined by the 1998 ROD require institutional controls or other actions. These areas have not been defined and remedial actions have not been implemented.	Implement the required measures if necessary.	Completed	Soil concentrations indicate that institutional controls or other remedial actions are not required in the Off-Plant OU.	6/30/2020

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was made available by two newspaper postings in the Sho-Ban News and Power County Press on 6/19/2020. It stated that the FYR was underway and invited the public to submit any comments to the EPA. The results of the review and the report will be made available at the Site's information repositories: American Falls Library, located at 308 Roosevelt Street, American Falls, Idaho; Idaho State University Library, located at 850 South 9th Avenue, Pocatello, Idaho; and Shoshone-Bannock Library, located at the Tribal Business Center, Fort Hall, Idaho. The press notice is provided in Appendix E.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date**.** It should be noted that EPA was not able to meet in person with local and tribal stakeholders due to COVID-19 pandemic. During the previous FYR, these in-person meetings were invaluable to building trust and engaging with the community members. Other opportunities, including by phone and written or emailed responses were offered, however these were not as successful with engaging the community in person. Out of 25 interview solicitations, EPA received 14 responses. The interviews are summarized below and provided in Appendix F.

FMC representative Jonathan Bucca believes the interim soil remedy at the FMC OU is meeting RAOs and has had a positive impact on the community through job creation. The reuse of a portion of the FMC OU, Valley Ag, also provides support to the local agriculture industry. FMC was not aware of any community complaints or inquiries and feels communication between FMC, EPA and the Shoshone-Bannock Tribes is satisfactory. FMC's environmental contractor representative Jacob Sloan of Kase/Warbonnet reported no unexpected O&M difficulties over this FYR period and believes FMC is achieving the RAOs in accordance with approved plans.

Simplot representative Monty Johnson indicated groundwater extraction and source control at the Simplot OU have dramatically reduced arsenic and phosphorus loading to the Off-Plant OU and the Portneuf River resulting in a reduction in contaminant concentrations to the river. Simplot was not aware of any direct complaints about the remedy but noted some increased attraction due to EPA's community outreach. Simplot's environmental contractor representative Andrew Koulermos of Formation Environmental reported that the implementation of the groundwater/surface water remedy is expected to gradually improve groundwater and surface water quality downgradient of the gypstack.

Local government officials indicate there are no planned changes within the cities of Pocatello or Chubbuck that would be related to the Site. Officials also expressed that EPA could share site information more effectively by simplifying the message about the Site and the different OUs and how remediation activities are conducted for each OU. The City of Chubbuck representative indicated that it would be helpful to receive annual summaries of the activities related to the Site. A Power County official reported that they feel well informed about the progress at the FMC OU but has had minimal contact with EPA. Power County would like to see the Site be improved to allow for more productive use.

Margie English of IDEQ reported considerable progress has been made during this FYR period at the Simplot OU and measurable improvement have been made as a result of lining the gypstack, although the TMDL has not been met yet. IDEQ, Simplot and EPA will continue to work together to improve cleanup and attain all compliance targets. Scott Miller of IDEQ indicated that the implementation of the groundwater remedy at FMC is moving slower than expected, however good information has been collected recently. Mr. Miller also indicated that more time is needed to fully evaluate the effectiveness of the ET caps to reduce percolation of infiltrated precipitation below the caps.

The community provided comments and feedback on the Site through the Portneuf Resource Council as well as through individual residents. Based on the responses, the community in the vicinity are concerned with several aspects of the Site and the remedy as well as with the operating facility at Simplot. Many of the issues consistently raised are directly related to the ongoing operation at the Simplot Don Plant including the planned expansion of the gypstack and ongoing air quality concerns. Issues related to the operations of the Simplot Don Plant do not fall under the CERLA Superfund process as EPA does not regulate operating facilities. These facilities are regulated under State authority. Several concerns related to the Site included environmental justice issues associated with lower income populations living in the vicinity of the Site, the release of phosphine gas from the capped areas on FMC OU, and slag from FMC that was historically used to line roads in Pocatello and Chubbuck. The concern with slag in road surfaces is the potential for human exposure to radiation. The Portneuf Resource Council also expressed concerns with the process of selecting the interim remedy through the IRODA versus selecting a final remedy. Overall, community members feel that EPA has not done an adequate job of keeping local environmental groups and citizens informed of activities at the Site. The Portneuf Resource Council requested regular meetings between EPA and the community.

Data Review

During this FYR period, data were collected to evaluate the effectiveness of the remedies implemented at the FMC and Simplot OUs. At the FMC OU, soil gas, indoor air, and outdoor air monitoring are conducted to assess whether releases above human health limits are occurring, and to obtain information needed to evaluate whether the soil caps are meeting remedial action objectives over time. Groundwater monitoring will be conducted to assess changes in groundwater quality resulting from source area remedial actions taken to reduce infiltration through source materials. However, no post-construction groundwater monitoring is conducted at the FMC OU to evaluate the entire selected remedy for groundwater contamination, since the groundwater extraction and treatment system is still being designed and has not been constructed. Additional monitoring wells will be added to the existing well network to establish baseline plume conditions (i.e. its nature, extent, and behavior) before remedial action extraction and treatment begins. The long-term monitoring plan will continue during remedial action groundwater extraction and treatment to assess hydraulic containment and progress towards meeting groundwater quality remedial action objectives.

At the Simplot OU, groundwater and surface water data are collected to evaluate water quality trends which can be used to assess the effectiveness of source control actions and the overall groundwater/surface water remedy.

FMC OU

Soil remedy monitoring is conducted for the ET cap areas and the gamma cap areas (including the RA-G North Redevelopment Area).

ET Caps – Soil Remedy Monitoring

Soil Gas and Soil Flux
Phosphine gas monitoring is conducted in accordance with the 2018 Post-Remedial Action Conceptual Site Model and Performance Standard Verification Plan. The objectives of the ET cap phosphine gas monitoring program are to determine if phosphine gas is accumulating under the ET caps and/or if phosphine gas emissions could reach the land surface in concentrations that pose a threat to human health. Monitoring is not continuous, and the ET caps are not designed to physically contain phosphine. The ET caps are designed to inhibit percolation of precipitation below the root zone to minimize the generation of phosphine from subsurface elemental phosphorous. The monthly monitoring results are thus compared not only with health-based levels, and OM&M Plan threshold concentrations, but also for consistency with the current conceptual site model (CSM) for phosphine generation, migration, and degradation.

Phosphine gas monitoring was performed at ET caps that cover areas of known or suspected P4 (i.e., at RA-B, RA-C, RA-K, RA-F1, and RA-F2). The OM&M Plan soil gas phosphine action level is 0.05 parts per million (ppm). That concentration is above the instrument detection level of 0.02 ppm and below the 8-hour time-weighted average permissible exposure limit (PEL) of 0.30 ppm. In accordance with the OM&M Plan, if any soil gas concentration is greater than or equal to the action level, a series of actions will be triggered. Soil gas monitoring was performed monthly from December 2018 through December 2019. In total, 6,537 measurements were collected, with 95% of the measurements below the monitors' detection limit of 0.02 ppm. 305 measurements were above the detection limit and ranged between 0.02 ppm and 0.09 ppm. During the June 12, 2019 sampling event, 19 of 36 sample locations had readings above the 0.05 ppm action level (including the maximum reading of 0.09 ppm). Per the requirements in the OM&M Plan, all exceedance locations were resampled under similar weather conditions on June 13, 2019, and all locations were below action levels.

Soil flux monitoring was performed in conjunction with soil gas monitoring from April 2019 through October 2019. Soil flux monitoring is not performed in winter due to frozen ground conditions. There was no action level exceedance during soil flux monitoring. FMC will continue to monitor soil gas and soil flux on a monthly basis in 2020.

While soil gas and soil flux monitoring were below action level exceedances (with the exception of the June 2019 and May 2020 events), the number of detections and widespread nature of the detections (including in areas near the gamma caps) is not consistent with the 2018 CSM for phosphine generation, migration, and degradation. The initial CSM estimates for low phosphine generation rates and high degradation rates are not consistent with the observed widespread low-level detections observed during 2019. The current CSM also does not explain the seasonal variations in phosphine gas detections observed in the first year of sampling results. EPA has directed FMC to modify the CSM and field sampling plan (FSP) in 2020 to understand the data, develop a CSM with explanatory power, and ensure that the interim soil remedy remains protective. FMC is scheduled to modify the CSM and associated FSP in 2020, including the installation of additional soil gas sampling ports for use starting in 2021.

Outdoor Air
The objective of outdoor air monitoring is to verify that phosphine gas is below action levels in areas of known or suspected P4. Pursuant to the OM&M Plan, outdoor air monitoring for phosphine gas was performed quarterly for the first year (2019) and will be performed semiannually during the next four years (2020 through 2023). There were no action level exceedances during 2019. The results for the ET cap outdoor air monitoring ranged from non-detect to 0.03 ppm.

Gamma Caps and RA-G North Redevelopment – Soil Remedy Monitoring

Outdoor Air
The objective of the outdoor air monitoring program is to determine if emissions of phosphine gas are occurring in the RA-G North Redevelopment Area or in other areas with gamma caps where undocumented subgrade conditions were encountered. Pursuant to the OM&M Plan, semiannual outdoor air monitoring is performed

during spring and fall at locations in the RA-G North Redevelopment Area. Outdoor air monitoring was performed quarterly beginning in the first quarter of 2019 and there were no action-level exceedances.

Indoor Air

The objective of the indoor air monitoring program for the occupied building of the RA-G North Redevelopment Area is to determine if phosphine gas and/or radon gasses are accumulating under or in the occupied buildings. Pursuant to the OM&M Plan, initial monitoring was to be conducted 30 to 45 days after building completion, then annually during the heating season for at least three years until two consecutive events show consistent results below the action level. The ValleyAg dry-storage portion of the building was completed in December 2016. The office area of the building was completed in February 2017. Indoor air monitoring for the RA-G Redevelopment Area was performed during December 2016, January, March and April 2017, January and February 2018, and January 2019.

There were no action-level exceedances for phosphine gas or radon gas during the monitoring events. In 2017, subslab phosphine concentrations ranged from non-detect to 0.03 ppm. All other results were non-detect in 2017. In 2018 and 2019, there were no detections of phosphine gas in sub-slab or indoor air. The radon action level is 4 pCi/L. Radon concentrations in indoor air in 2017 and 2018 ranged from 0.0 to 1.9 pCi/L. In 2019, concentrations ranged from 0.0 to 3.6 pCi/L. While 3.6 pCi/L is below the action level, it represents an increase over the previous two years of sampling. FMC should continue monitoring indoor air in the RA-G North Redevelopment Area to determine if this increase represents an isolated instance or if concentrations are trending upwards.

Per the OM&M Plan, frequency may potentially be reduced to a 5-year frequency if two consecutive monitoring events are below action levels after three years. FMC will perform the final monitoring event of the 3-year period in 2020 and will evaluate the frequency reduction in the next annual OM&M Plan report.

Groundwater Monitoring

The IRODA selected groundwater extraction and treatment as the main component of the groundwater remedy to prevent contaminated groundwater from migrating beyond the FMC OU and into the Simplot OU and/or adjoining springs or the Portneuf River, and to remediate the plume over time. It also selected placement of ET caps to inhibit percolation of precipitation and to prevent direct contact with contaminants by current and future workers.

The main component of the groundwater remedy, groundwater extraction and treatment, has not been implemented, and a new groundwater monitoring program has not been designed. However, groundwater monitoring has been occurring under various programs since at least 1991. FMC currently conducts groundwater monitoring under three distinct monitoring programs: the CERCLA, RCRA, and Calciner pond monitoring programs. The long-term monitoring plan under development as part of the CERCLA groundwater remedial design will include the current monitoring wells for each of the three programs mentioned above and will add new monitoring wells based upon information acquired from the 2018 Remedial Design Groundwater Investigation and an additional investigation being conducted in 2020. Lysimeters will also be installed in select locations to assess the impact of ET caps on continued movement of contaminants from the unsaturated zone to underlying groundwater. The principal objectives of the long-term monitoring plan under development are to establish baseline conditions prior to remedial action groundwater extraction and treatment, assess hydraulic containment during remedial action extraction, and assess progress toward meeting the remedial action objective to restore groundwater quality to IRODA cleanup levels.

Simplot OU

Groundwater and surface water monitoring includes sampling and analysis of groundwater from selected wells and surface water from springs and the Portneuf River. The gypstack is also monitored for leaks through the liner, settling of gypstack materials, and depression of the groundwater table underneath the liner. Source control measures are being implemented and COC concentration reductions are apparent in downgradient groundwater and in the phosphorus concentrations in the Portneuf River. However, the full effect of the source control actions will take additional time to manifest due to seepage in the gypstack after lining and transport time in groundwater.

Source control actions and optimization of the groundwater extraction system will continue and the effectiveness of the remedy and attainment of RAOs will be evaluated on an ongoing basis.

Additional investigations are ongoing to further characterize the nature and extent of phosphorus, nitrogen and sulfate in groundwater.

Groundwater

The groundwater monitoring program is divided into five subareas based on remedial objectives and performance criteria. The overall objective of the monitoring program is to restore groundwater to beneficial use and attain cleanup goals. Specific areas also have other objectives and performance criteria, as follows:

- Don Plant Area – demonstrate source control via decreasing concentration trends downgradient of the gypstack and PAP area:
    - PAP area (in Don Plant Area) – demonstrate source control via equivalent concentrations in downgradient and upgradient groundwater quality.
    - Target Capture Zones (in Don Plant Area) – demonstrate hydraulic control.
- Assessment Area – demonstrate decreasing concentration trends and meet interim target concentrations at the point of compliance (POC).
- Compliance Area – demonstrate no groundwater migration into Off-Plant OU above MCLs or RBCs.

The monitoring areas and the upper, lower and bedrock monitoring wells are shown in Figures D-6 through D-8 in Appendix D. Water levels are measured during each monitoring event. Overall, the groundwater potentiometric surface elevations were consistent with the CSM with groundwater flowing towards and discharging to the Portneuf River.

Don Plant Area

As of 2019, the extent of indicator analytes (arsenic, phosphorus and sulfate) in groundwater were generally consistent with the extent observed in 2018. Concentrations generally continue to decline in response to lining of the gypstack, with a few exceptions. Simplot reported these exceptions are the result of localized sources downgradient of the gypstack. In the PAP area, Simplot calculates the phosphorus mass flux upgradient and downgradient to evaluate the total phosphorus load attributable to the PAP Area. As shown in Table I-2 in Appendix I, a brief increase in flux was observed in the first quarter of 2019 due to two reportable releases of phosphorus-based compounds in late 2018 and early 2019. While the flux has decreased overall from 2013, the PAP area is still contributing phosphorus load, likely due to the thin layer of DAPL remaining on top of the clay layer in certain areas.

Based on mass flux and mass removal calculations for the Target Capture Zones, the extraction system removed about 60% of the total estimated phosphorus mass from the gypstack and PAP area in 2019. The 2019 Annual Report indicated the extraction system removed about 50% of the sulfate and arsenic mass in 2019. The mass removal for phosphorus is higher due to optimization activities based on phosphorus loads.

Assessment Area

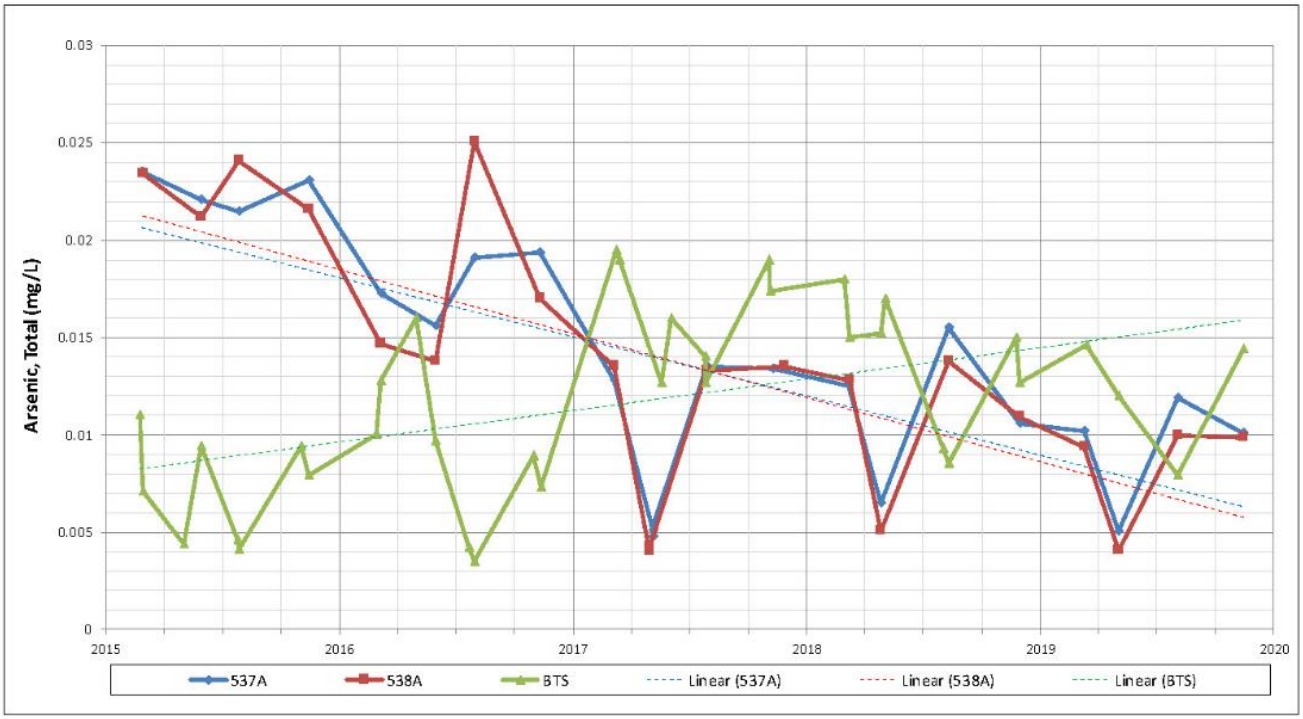
Within the Assessment Area, indicator analytes are monitored to assess any increase in concentrations upgradient of the Compliance Area. If significant increases are observed, additional evaluation and actions are undertaken to ensure performance standards are met at the point of compliance. Generally, concentrations of indicator analytes in 2019 confirm that the extent of contamination is not expanding to wells that have previously been near detection limits and/or background concentrations. However, a shift in the plume was observed in the second quarter of 2017, 2018 and 2019 due to the high stage of the Portneuf River. The high stage inhibited groundwater discharge to the river, resulting in concentration increases in wells 525, 541A and TW-11S and decreases in wells 537A and 538A. Groundwater flow paths shifted back in the third quarter in 2017, 2018 and 2019.

Compliance Area

Simplot compares COC concentrations in groundwater in the Compliance Area to RBCs and MCLs annually.

The Compliance Area includes wells 504, 505, 524 and 525 and four multi-level wells (534, 537, 538 and 539) installed in 2010. Statistical comparisons were conducted for each COC and each well. Arsenic was the only COC that had average concentrations above the MCL and no COC had concentrations above an RBC. The mean concentrations were above the MCL at three locations: 537a, 538a and Batiste Spring. While concentrations at 537a and 538a are generally decreasing, arsenic concentrations at Batiste Spring are fluctuating with a generally increasing trend (Figure 5).

Figure 5: Arsenic Concentration Trends – 537A, 538A and Batiste Spring



Source: Figure 10-6, 2019 Annual Report

Gypstack Monitoring

Simplot monitors the gypstack for settling, depression of the groundwater table and seepage gradients beneath the liner, and potential infiltration through the liner. Three pairs of vertical piezometers are installed around the upper perimeter of the lined gypstack surface, with concrete survey monuments at each station. The piezometer pairs measure groundwater levels beneath the surface of the gypstack. Simplot had to replace the original piezometers due to settlement and creep of the gypstack over time. The original piezometers, which were in use from January 2013 to August 2017, showed a 10.7-foot decrease in water levels during that time. New piezometers were installed in August 2017 and measured an average water level decrease of 5.0 feet between the time of installation and December 2019, showing that de-watering is occurring and infiltration is significantly reducing recharge to the aquifer underneath the gypstack (Table I-3 and I-4 in Appendix I).

The survey monuments are surveyed quarterly to measure the amount of settling occurring at the lined surface. Since 2012, the three monuments have measured 1.74 – 2.27 feet of settlement at the surface (Table I-5 in Appendix I).

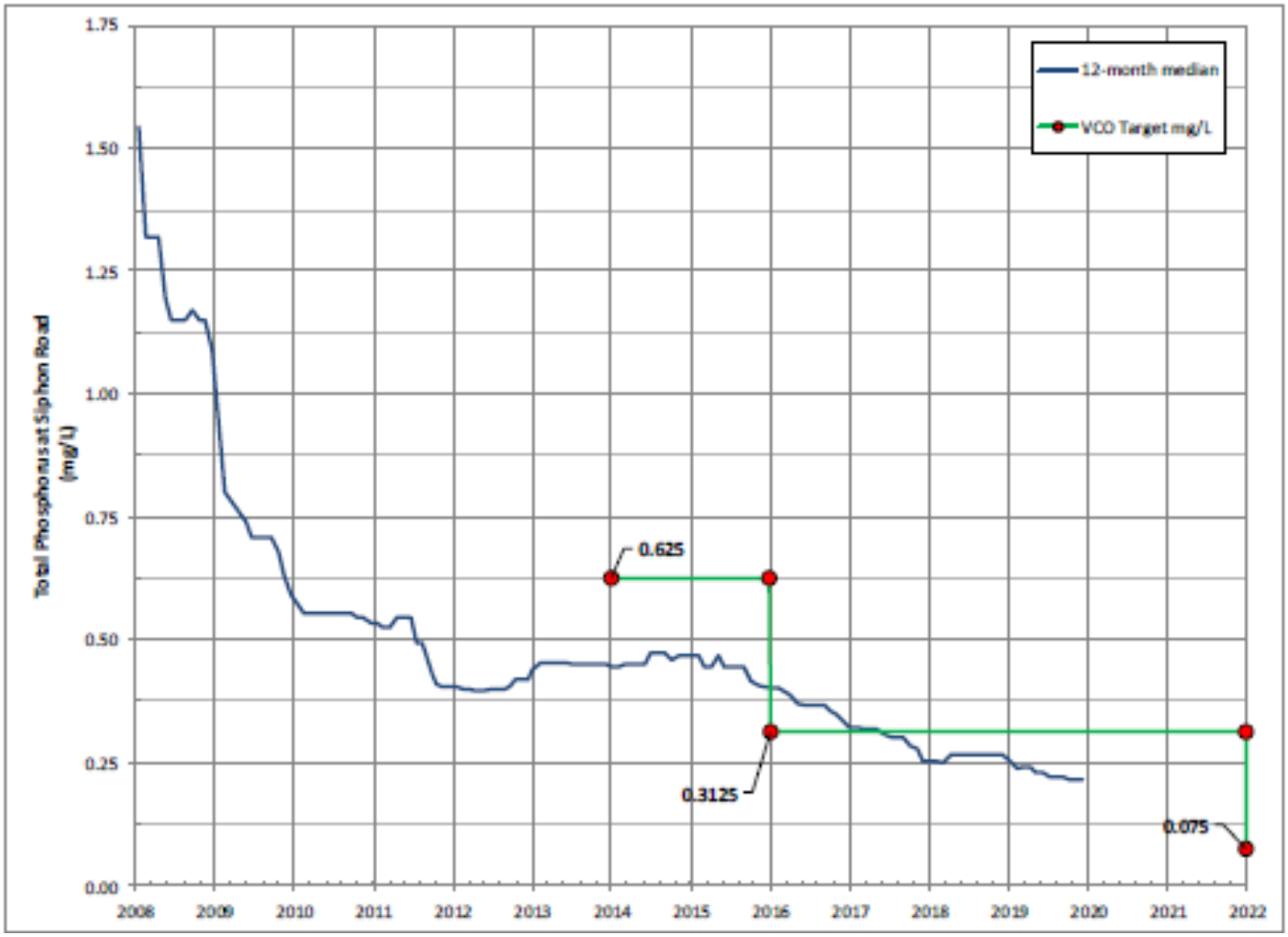
Horizontal piezometers containing vibrating wire pressure transducers are also installed under the liner to measure water pressure underneath the liner. Thirteen horizontal piezometers are installed on the gypstack providing coverage throughout the stack. The data are presented in Table I-6 of Appendix I. Small variations in pressure are considered normal and are associated with changes in barometric pressure. Larger variations, which have not been detected, would indicate the presence of a leak.

Surface Water

The objective of the surface water monitoring program is to collect sufficient data of adequate quality to assess the effectiveness of remedial actions in reducing phosphorus levels in the Portneuf River to the concentration-based requirements. Monthly flow measurement and surface water samples are collected at the point of compliance (Siphon Road) and three additional locations: Batiste Road, Batiste Road at site T2B and Batiste Spring at Wood Bridge (Figure D-9 in Appendix D). The total phosphorus concentrations at Siphon Road are shown in Figure 7 with the target concentrations from VCO/CA. Phosphorus concentrations at Siphon Road remain an order of magnitude above the TMDL of 0.075 mg/L (Figure 6).

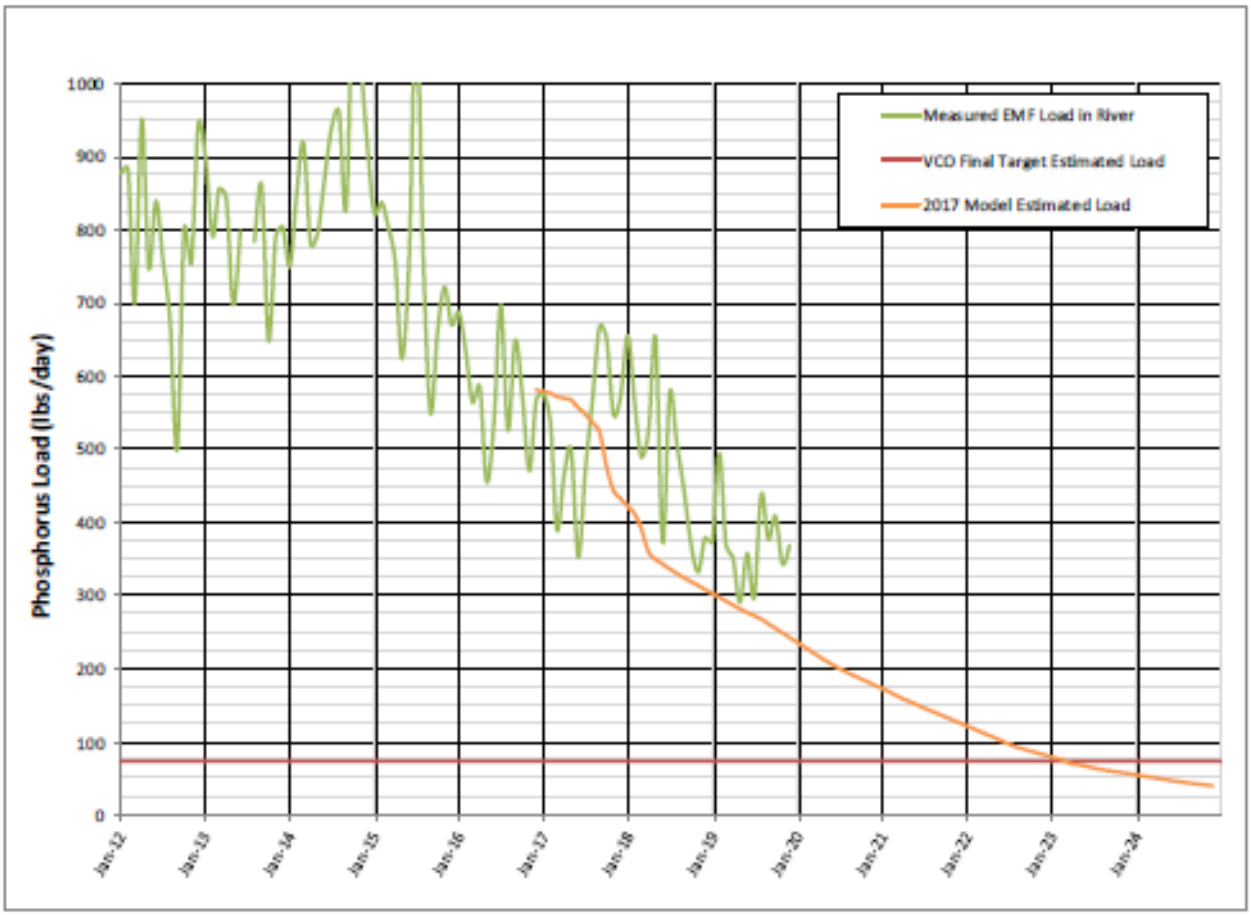
While there is not an RBC for phosphorus yet, the VCO/CA does provide targets and additional actions if the targets are not met. Concentrations need to meet the final target, based on the 12-month median concentration, by November 30, 2021. Based on a 2017 modeling evaluation shown in Figure 7, the VCO target phosphorus load will not be attained until at least 2023.

Figure 6: Phosphorous Concentrations in the Portneuf River



Source: Figure 10-7, 2019 Annual Report

Figure 7: Measured and Target Phosphorus Load



Source: Figure 10-9, 2019 Annual Report

Off-Plant OU

Cadmium and Radium in Soils

The selected remedy for the Off-Plant OU calls for implementation of institutional controls where cadmium and radium concentrations in soils exceed specified human health risk thresholds. The primary source was identified as air emissions from FMC's Pocatello facility. In late 2001, FMC closed the facility, thus removing the primary source. In 2009, soil samples were collected and analyzed for radium-226, cadmium and fluoride to evaluate post-closure conditions and determine where land use controls were required or warranted. In order to help identify the areas where institutional controls were required, FMC and Simplot collected soil samples in the Off-Plant OU in 2009 and analyzed them for radium-226, cadmium and fluoride. The results, presented in a *Comprehensive Letter Report Documenting Potential Human Health Risks for Site COCs in the Off-Plant OU* (Hanna Associates, April 2011), indicated human health risks were below the thresholds identified in the ROD.

In 2020, EPA reviewed the data and updated human health risk assessment to delineate those areas where institutional controls were required under the remedy in the 1998 ROD. The risks from noncarcinogens throughout the Off-Plant area had hazard quotients (HQs) of 0.7 or less, below the HQ=1 threshold identified in the ROD. The cumulative lifetime cancer risks associated with sources originating from the FMC and Simplot OUs was 3×10^{-5}. This is below the 1 in 10,000 (1×10^{-4}) risk level identified in the ROD and within EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6}. Therefore, EPA determined that, following the removal of the source, no unacceptable human health risks were present and no additional action was required (Appendix L).

Ecological Risks from Fluoride

The selected remedy for the Off-Plant OU calls for fluoride monitoring to determine if additional source controls or other actions are needed to address ecological impacts from fluoride, Between 2009 and 2013, EPA worked with FMC and Simplot to develop a multi-pronged approach to assessing potential ecological risks posed by the deposition of fluoride on soils and vegetation in the Off-Plant OU. In 2020, EPA reviewed the supplemental work and the status of implementation actions to address ecological risk from fluoride. The reassessment found that levels of fluoride in vegetation in some areas of the Off-Plant OU presented potential risks to individual receptors at an individual level but were not likely to result in widespread or significant ecological impacts at the community or population level, which is the CERCLA action level. Consistent with EPA guidance, EPA determined that the level of risk present did not warrant additional CERCLA action (Appendices M and N).

Furthermore, EPA's review identified the source of the excess fluoride to be the ongoing air emissions from the Simplot Don Plant. Consistent with provisions in the 1998 ROD that stated that the remedy was not designed to address ongoing operations and that the implementation of controls under the Clean Air Act was a mechanism that would reduce plant emissions, this source is being regulated under the Clean Air Act. Simplot's air permit requires stack emission and fluoride in forage data to be submitted to DEQ annually. The data are also included in the CERCLA Annual Report for the Simplot OU. Citing compliance concerns, on June 27, 2016 DEQ issued a Voluntary Consent Order to Simplot for the Simplot Don Plant requiring controls be put in place that would limit fluoride emissions to levels that would not exceed the forage standards.

Summary

In summary, EPA's 2020 review determined that all elements of the Off-Plant OU remedy that had been required had been implemented and remedial action objectives had been achieved. No further CERCLA actions are required under this part of the remedy and the remedy for the Off-Plant OU, as identified in the 1998 ROD, is complete. In addition, there are no hazardous substances, pollutants or contaminants from historic releases that remain above the thresholds identified in the 1998 ROD and, thus, no hazardous substances, pollutants or contaminants remain above levels that allow for UU/UE.

Site Inspection

The site inspection for the FMC OU and Off-Plant OU took place on 6/23/2020. The site inspection for the Simplot OU took place on 7/22/2020. Participants in the June 23 inspection of the FMC OU and Off-Plant OU included: Treat Suomi from Skeo (EPA's contractor), Doug Tanner and Ralph Oburn from the IDEQ, Kelly Wright and Susan Hanson from the Shoshone-Bannock Tribes, Paul Yochum from FMC, and Jake Sloan and Mark Smith from KASE/Warbonnet, FMC's on-site contractor. Participants in the July 22 inspection of the Simplot OU included Doug Tanner from the IDEQ, Monty Johnson, John Hewson and Sean Gumm from Simplot and Susan Hansen from the Shoshone-Bannock Tribes. EPA was unable to attend the site inspections due to travel restrictions related to the COVID-19 pandemic. The purpose of the inspections was to assess the physical condition of the site and protectiveness of the remedy components which can be visually evaluated.

FMC and Off-Plant OU Inspection

The group first received a safety briefing and summary of recent site activities. The participants toured the FMC OU to observe the condition of all remedial components, including site fencing, monitoring wells, capped areas, and ongoing work at USC. The group looked at the new Valley Ag facility on the FMC OU, including the capped area that was graded to allow for reuse as a parking area for the new operation. The group walked up to the top of RA-F and observed the cap, vegetation, and soil gas probe, and was able to get an overview of the rest of the OU. The vegetation was sparse in some areas but there was a fair amount of healthy vegetation also noted. Vegetation on gamma and ET caps are monitored to ensure plant density does not decrease to the extent that it affects cap integrity and function.

The group observed the fence separating the RCRA ponds from the FMC OU and drove to the western undeveloped area. From there the group drove to the USC area and observed continuing operations.

The FMC OU was well-maintained overall. Fencing surrounds the entire FMC property. High security-type fencing restricts access from road areas and there is a security officer monitoring entry into the Former Operations

Area. The fencing between the FMC and Simplot OUs, and fencing to the south and southwest of the FMC OU is ranch-style fencing. The ranch style fence was well maintained and showed signs of regular maintenance. There are signs that indicate the property is private, but there are no signs notifying potential trespassers that this is a Superfund site. Monitoring wells were secure and in good shape. The site visit participants then drove to and observed the Northern Properties of the FMC OU. Because all contamination has been removed, the Northern Properties were not secured with fencing and all observed monitoring wells were secured and locked. Participants drove to Batiste Spring, the bridge at Batiste Road and the Fort Hall lift station north of Siphon road. A site inspection checklist and photos are provided in Appendices G and H.

Following the inspection of the FMC OU, participants observed new development in the Off-Plant OU. Near Batiste Spring, there was a new boat and recreational vehicle storage center. A new residential development was observed north of the Simplot OU on the north side of the freeway. A site inspection checklist and photos are provided in Appendices G and H.

Simplot OU Inspection

The participants drove to the Simplot Don Plant security office at the active operations area to check in, receive visitor badges and watch a safety video. Afterward, participants toured the Simplot OU to observe the condition of all remedial components, including site fencing, monitoring wells, the multiple phases of source control at the gypstack, PAP Area source control efforts and the former pilot treatability system and groundwater extraction system. The site inspection team toured the Simplot OU starting with the PAP area and extraction wells 423 and 419. The wells were in working order and Simplot representative Monty Johnson indicated that pumps are clean and refurbished as needed with weekly pump cleanouts. Site inspection participants observed monitoring wells and locations in the Compliance and Assessment areas. All wells were locked and in working order. Participants then observed the recently completed lining of the storm drain pipes. The gypstack including the liner, settlement monuments and roads were also observed, and no issues were noted. Site fencing was in good condition. The sampling location at Batiste Spring could not be observed due to an overgrowth of stinging nettle. During sampling, vegetation is cleared to allow the sampling team to access the sampling point.

Overall, the Simplot OU was well-maintained and no issues were noted with the implementation of the remedy. The Simplot Don Plant is a secure plant with restricted access and operates 24 hours a day, 365 days a year. A site inspection checklist and photos are provided in Appendices G and H.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

FMC OU:

The interim remedial actions at the FMC OU are expected to function as intended by the decision documents when complete. However, the groundwater remedy has not yet been implemented and groundwater contamination continues to migrate off site and discharge to the Portneuf River. Phosphorus concentrations downgradient of the Site are in excess of the IDEQ TMDL. Dissolved arsenic, elemental phosphorous, and other COCs are above the IRODA cleanup levels. The groundwater remedy is in remedial design and should be implemented during the next FYR period.

The soil remedy has been implemented, except for a 1-acre area within RA-F. The installed ET and gamma caps prevent direct exposure to contaminants. The gamma caps are designed to reduce gamma radiation from slag and other sources to acceptable levels. The ET caps are designed to minimize the generation of phosphine from subsurface elemental phosphorous and minimize leaching of subsurface contaminants to groundwater. As part of the soil remedy monitoring for ET caps in areas with P4-containing waste, soil gas data collected in 2019 indicated widespread low-level detections of phosphine gas. EPA is working with FMC to modify the CSM and field sampling plan in 2020 and additional soil gas sampling ports will be installed for using starting in 2021.

Indoor and outdoor air monitoring confirmed concentrations are below action levels in the gamma caps area and the RA-G North Redevelopment area. However, in 2019, radon concentrations increased from just under 2 pCi/L to 3.6 pCi/L (action level is 4 pCi/L). FMC should continue monitoring indoor air in the RA-G North Redevelopment Area to determine if this increase represents an isolated instance or if concentrations are trending upwards.

Groundwater is currently being monitored under the 2010 Interim Groundwater Monitoring Plan and will continue until succeeded by the Long-Term Monitoring Plan now under development. FMC is updating the CSM, based largely upon information gained from the 2018 Remedial Design Groundwater Investigation, to support development of the long-term monitoring plan and the contaminated groundwater extraction/treatment system.

Institutional and engineering controls restrict access to the FMC OU and land use is limited to industrial and commercial uses. Remedial design for the groundwater extraction, treatment, and long-term monitoring well system remedy is ongoing. Groundwater institutional controls will be implemented along with the remaining remedy components. In the interim, there are currently no known wells used for human consumption of groundwater in the vicinity of the contaminated groundwater.

Parcels H and I in the Northern Properties were designated Ready for Reuse for industrial/commercial use. These parcels have both land use and groundwater use restrictions and this determination remains valid.

Simplot OU:

The remedies implemented at the Simplot OU are expected to function as intended by the decision documents. However, phosphorus in groundwater is still discharging to the Portneuf River at concentrations that result in surface water concentrations in excess of 0.075 mg/L. A numeric phosphorus RBC is scheduled to be developed by November 30, 2022.

Source control actions were implemented during this FYR period, including lining of the gypstack and storm drain and sump repair work, and are reducing concentrations of phosphorus (and other COCs) in downgradient groundwater. These actions will take time to become fully effective (for example, to drain down seepage in the gypsum stack after lining) and for the effects to manifest at the Portneuf River (due to transport time in groundwater). The extraction system is not capturing the entire plume, with only 60% capture in 2018 and 2019. Operation of the groundwater extraction system is expected to continue to progress toward groundwater remedial goals, but it is unclear if the current system is capable of attaining the target concentrations for surface water in the river. The effectiveness of the groundwater extraction in attaining the TMDL in the Portneuf River downgradient of the Site should be evaluated and additional response actions considered.

Groundwater monitoring results are used to optimize the groundwater extraction system on a regular basis. A DAPL pool was identified in the vicinity of well 419 and well 423 and a pilot treatment system operated from 2014 to 2017. The DAPL continues to impact water quality in the PAP area. Sulfate and nitrogen investigations are ongoing.

Covenants that restrict land use to industrial and commercial uses have been implemented at the Simplot OU. The active facility is fenced, access is restricted, and security guards are present 24 hours a day. Employee monitoring and training are conducted as part of the operations at Simplot to protect workers from the Superfund remedial actions that have been conducted in the OU. Groundwater institutional controls will be implemented along with the remaining remedy components. In the interim, there are currently no known wells used for human consumption of groundwater screened within the contaminated groundwater plume.

Off-Plant OU:

EPA has reviewed the requirements of the remedy and found that all required elements of the Off-Plant OU remedy have been implemented and no additional response is required. Therefore, the remedy is functioning as intended by the 1998 ROD and protective of human health and the environment.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

FMC OU:

Exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the interim remedy selection are still valid. Because the remedy is interim, final ARARs were not selected. For groundwater, ARARs were MCLs or RBCs and these remain valid with the exception of elemental phosphorus (Tables J-1 in Appendix J and K-1 in Appendix K). When compared to current toxicity using EPA's regional screening levels (RSLs), the cleanup goal for elemental phosphorus slightly exceeds the non-cancer HQ of 1 (Table K-1 in Appendix K). EPA should review the groundwater cleanup goal for elemental phosphorus and update the cleanup goal if necessary, based on the current toxicity. Soil cleanup levels were risk-based. This FYR compared the cleanup levels to EPA current RSLs and cleanup levels remain valid (Table K-2 in Appendix K). The implementation of the majority of the soil remedy and the start of O&M activities have resulted in attainment of RAOs to prevent human exposure to soils and solids. At this time, it is unclear if the RAO to minimize the generation of phosphine and other gases is being met. The widespread detection of phosphine during the soil gas and soil flux sampling indicate a change is needed to the CSM. Additional monitoring will be conducted. The groundwater remedy has not yet been implemented, so RAOs for groundwater have not been attained. Institutional controls have been partially implemented. The groundwater institutional controls will be implemented with the rest of the groundwater remedy.

Simplot OU:

Exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection are still valid. For groundwater, MCLs are ARARs and are the State of Idaho Groundwater standards and these remain valid. For surface water, the applicable portions of the Idaho Water Quality Standards are ARARs. Compliance with this ARAR will be addressed at the time an RBC for phosphorus is determined and thus, remain valid. The phosphorus targets for the Portneuf River TMDL, a TBC, have not changed and thus remain valid.

Off-Plant OU:

During EPA's 2020 review of the updated human health risk assessment and ecological risk from flouride, EPA reviewed the exposure assumptions, toxicity data, cleanup levels and RAOs used both at the time of remedy selection and in the ecological and human health risk reassessments developed in 2010 and 2011, respectively. As discussed in the 2015 FYR, Appendix L, and Appendix M, the updated assessments incorporated all changes to the exposure assumptions, toxicity data and cleanup levels that occurred between the 1995 and 2010/2011 assessments. The exposure assumptions, toxicity data, cleanup levels and RAOs used for the 2010/2011 analyses are still valid.

During the community interview process residents raised concerns related to use of slag from FMC that was historically used to line roads in Pocatello and Chubbuck. The concern with slag in road surfaces is the potential for human exposure to radiation. The Human Health Implementation Studies and Assessment (Appendix L) states that in-situ gamma-ray measurements were comparable to the in-situ background measurements and therefore, do not present a risk to human health.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information at this time that calls into question the protectiveness of the remedies.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the FYR:
OU3 – Off-Plant OU

Issues and Recommendations Identified in the FYR:				
OU(s): 1 (FMC)	**Issue Category: Remedy Performance**			
	Issue: Source control measures are not preventing groundwater contamination from migrating off site. Discharges to the Portneuf River impact protectiveness to ecological receptors. Arsenic and other COCs exceed drinking water standards on site. The onsite portion of the aquifer is not currently used for drinking water but COC concentrations above MCLs inhibit groundwater use for drinking water and will continue to do so until the groundwater extraction and treatment system is constructed.			
	Recommendation: Implement the groundwater extraction and treatment system to prevent discharges impacting protectiveness to ecological receptors to the Portneuf River and allow for beneficial use of the aquifer.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
Yes	Yes	PRP	EPA	9/28/2022

OU(s): 1 (FMC)	**Issue Category: Changed Site Conditions**			
	Issue: During soil gas monitoring in 2018 and 2019, phosphine detections were widespread, and seasonally variable, which is inconsistent with the 2018 CSM.			
	Recommendation: Revise the field sampling plan and modify the phosphine gas monitoring program to develop a CSM with explanatory power.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	9/28/2022

OU(s): 1 (FMC)	**Issue Category: Monitoring**			
	Issue: The groundwater cleanup goal for elemental phosphorus exceeds the non-cancer HQ of 1.			
	Recommendation: Review the groundwater cleanup goal for elemental phosphorus and update the cleanup goal if necessary, based on the current toxicity.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**

No	Yes	EPA	EPA	9/28/2022
OU(s): 2 (Simplot)	**Issue Category: Remedy Performance**			
	Issue: The groundwater extraction system is not capturing the entire plume and contaminated groundwater continues to discharge into the Portneuf River. It is unclear if the current system is capable of attaining the target concentrations in the river.			
	Recommendation: Evaluate the ability of the interim groundwater/surface water remedy to attain target concentrations and meet RAOs and consider additional response actions if needed.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
Yes	Yes	PRP	EPA	9/28/2025

OTHER FINDINGS

Additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- *Complete the sulfate and nitrate investigations at Simplot OU.*
- *Continue monitoring indoor air in the RA-G North Redevelopment Area in the FMC OU to determine if the radon increase in 2019 represents an isolated instance or if concentrations are trending upwards.*
- *EPA was not able to attend the FYR site inspection due to travel restrictions. The EPA RPM(s) will visit the site when travel restrictions are lifted.*
- *Consider partial deletion from the NPL of the Off-Plant OU because required remedy components have been implemented and RAOs for this OU have been achieved.*

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement	
Operable Unit: 1	*Protectiveness Determination:* Not Protective
Protectiveness Statement: The interim remedy at OU1 is not protective. Exposure pathways are not under control for ecological receptors in the Portneuf River. ET caps installed to inhibit leaching of contaminants to groundwater are insufficient to meet groundwater and surface water cleanup goals. Contaminated groundwater continues to migrate and discharge to the Portneuf River, which is water-quality impaired for phosphorus under the Clean Water Act. Additionally, groundwater onsite remains contaminated above the MCLs. The groundwater extraction and treatment system must be constructed to be protective of ecological receptors and to return the aquifer to beneficial use. Source control measures to prevent human exposure to contaminated soils, solids, and gases (ET caps and gamma caps) required by the IRODA, except at a portion of RA-F, have been installed. Phosphine monitoring data acquired under the soil remedy OM&M Plan do not currently indicate unacceptable risks are present, however they also cannot be explained by the existing CSM for phosphine generation, migration, and degradation in the subsurface. Additional monitoring will be necessary over time to assess protectiveness of the interim soil remedy.	

Protectiveness Statement	
Operable Unit: 2	*Protectiveness Determination:* Not Protective
Protectiveness Statement: The remedy at OU2 is not protective because ecological exposure pathways that could result in unacceptable risks are not under control. The groundwater extraction system is operating and source controls are being implemented on the gypstack and in the Phosphoric Acid Plant Area, but the groundwater extraction system is not capturing the entire plume, contaminated groundwater continues to discharge to the Portneuf River, and phosphorus concentrations downgradient of the Site are in excess of the IDEQ TMDL. Additionally, groundwater onsite remains contaminated above the MCLs. In order for the remedy to be protective, the effectiveness of the interim groundwater/surface water remedy should be evaluated and additional response actions considered.	

Protectiveness Statement	
Operable Unit: 3	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy at OU3 is protective of human health and the environment.	

VIII. NEXT REVIEW

The next FYR Report for the FMC OU (OU1) and the Simplot OU (OU2) of the Eastern Michaud Flats Contamination Superfund site is required five years from the completion date of this review. However, FYRs are no longer required for the Off-Plant OU (OU3) because there are no hazardous substances, pollutants, or contaminants remaining at the Off Plant OU above levels that allow for UU/UE. The Off-Plant OU will not be included in the next FYR for the site.

APPENDIX A – REFERENCE LIST

2015 through 2019 Annual Report, Groundwater/Surface Water Remedy, Don Plant, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental. March 2020.

2019 FMC OU Soil Remedy, Operation, Monitoring, and Maintenance Annual Report, FMC Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. FMC. April 2020.

Consent Decree. United States District Court for the District of Idaho. May 2002.

Ecological Risk Assessment, Eastern Michaud Flats, Pocatello, Idaho. EPA Region 10. July 1995.

Final Technical Memorandum, Proposed Action Level and Monitoring for Fluoride, Eastern Michaud Flats Superfund Site, Off-Plant Operable Unit, Pocatello, Idaho. EPA Region 10. March 2013.

First Amendment to Remedial Design/Remedial Action Consent Decree, United State District Court for the District of Idaho. May 2002.

FMC OU Remedial Design, Operation, Monitoring and Maintenance Plan. FMC. November 2018.

FMC OU Remedial Design, Performance Standards Verification Plant. FMC. December 2018.

FMC OU Remedial Design, Remedial Action Work Plan. FMC. December 2015.

Groundwater Extraction System Optimization Technical Memorandum, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental. November 2016.

Hanna Associates, 2011. Comprehensive Letter Report Documenting Potential Human Health Risks for Site COCs in the Off-Plant Operable Unit (OU); Hanna Associates, April 2011.

Intermediate (60%) Design Groundwater Investigation Work Plan, FMC Operable Unit, Pocatello, Idaho. FMC. June 2018.

Intermediate (60%) Design Groundwater Investigation Work Plan Addendum, FMC Operable Unit, Pocatello, Idaho. FMC. February 2020.

Interim Amendment to the Record of Decision, EMF Superfund Site, Simplot Plant Operable Unit, Pocatello, Idaho. EPA Region 10. January 2010.

Interim Amendment to the Record of Decision, EMF Superfund Site, FMC Operable Unit, Pocatello, Idaho. EPA Region 10. September 2012.

Interim CERCLA 2019 Groundwater Monitoring Report, FMC Operable Unit. FMC. April 2020.

Investigation of Nitrogen in Groundwater Work Plan, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental. April 2018.

Monthly Progress Reports, December 2019 through April 2020, FMC Operable Unit, Eastern Michaud Flats Superfund Site. GHD.

Operation and Maintenance Plan/Manual, Groundwater Extraction System, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental. May 2012.

Operation and Maintenance Plan/Manual, Revised Draft, Gypsum Stack, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental. March 2017.

Pilot Treatability Study Report, Phosphoric Acid Plant, Groundwater Extraction System, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental. June 2018.

Quarterly Groundwater/Surface Water Remedy Monitoring Reports, Third Quarter 2015 through Third Quarter 2019, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. Formation Environmental.

Radiological Final Status Survey of the FMC Operable Unit. Prepared by ERG. January 2020.

Record of Decision, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. EPA Region 10. June 1998.

Voluntary Consent Order/Compliance Agreement. IDEQ. April 2008.

APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
Simplot and FMC began operating phosphorous plants near Pocatello, Idaho	1940s
Idaho Department of Health and Welfare detected groundwater contamination at the Site	1976
Simplot excavated Former East Overflow Pond	1987
EPA proposed the Site for listing on NPL	May 5, 1989
EPA placed the Site on NPL	August 30, 1990
EPA issued an AOC to FMC and Simplot, requiring an RI/FS	May 30, 1991
FMC and Simplot completed an RI for the Site	1996
FMC and Simplot completed an FS for the Site	1997
EPA issued a sitewide ROD	June 8, 1998
FMC entered into a RCRA Consent Decree for hazardous waste/regulated activities	1998
FMC closed its plant	December 2001
Simplot entered into a Consent Decree for remedial actions at the Simplot OU	May 9, 2002
EPA withdrew proposed remedial design/remedial action Consent Decrees with FMC and Simplot that had been lodged in Federal District Court	2002
Dewatering Pit RA implemented at Simplot OU	April/May 2003
EPA and FMC entered into an AOC for a supplemental RI/FS of FMC OU	October 16, 2003
Simplot implemented Gypsum Stack Roads RA	September/October 2004
EPA approved supplemental RI Work Plan for the FMC OU	May 2007
EPA approved FMC's Final Design Analysis Report for Pond 16S removal action and gas extraction treatment system	February 2008
Simplot and IDEQ signed a VCO/CA to implement actions needed to reduce phosphorus concentrations in river	April 11, 2008
FMC completed the FMC OU Supplemental RI Report	2009
Simplot started construction of Decant Pond as first phase of the Gypstack Lining Project	2009
EPA finalized Supplemental RI Addendum Report for FMC OU and issued IRODA for Simplot OU	January 20, 2010
Unilateral Administrative Order issued to FMC for phosphine gas at additional closed RCRA ponds	June 14, 2010
Start of RA construction/Simplot groundwater extraction system	June 28, 2010
FMC completed supplemental RI/FS	July 2010
EPA issued Ready for Reuse Determinations for three parcels in FMC OU	October 2010
RD/RA Consent Decree amended for Simplot OU	December 2010
Simplot and FMC prepared supplemental assessments of potential risks at Off-Plant OU	2010
EPA sampled for fluoride in soils and vegetation in the Bottoms Area of Off-Plant OU	June – September, 2011
EPA released plan for IRODA for FMC OU	September 26, 2011
Remedial Action completion for groundwater extraction and monitoring elements at Simplot OU	July 2, 2012
EPA issued IRODA for FMC OU	September 27, 2012
EPA issued Unilateral Administrative Order for FMC to perform selected interim remedial action	June 10, 2013

Event	Date
EPA approved the FMC OU grading phase component of the Remedial Action Work Plan	September 5, 2014
EPA completed Site's first FYR Report	September 28, 2015
FMC completed the Remedial Action Work Plan for the soil remedy	August 3, 2016
Simplot completed the Groundwater and Surface Water Monitoring Plan	November 2016
Simplot drafted the Pilot Treatability Study Report for the PAP area	June 2018
FMC prepared the Intermediate (60%) Design Groundwater Investigation Work Plan	June 15, 2018
FMC completed the OM&M Plan	November 2018
FMC completed and EPA approved the Intermediate (60%) Remedial Design Groundwater Investigation Work Plan Addendum	February 28, 2020

APPENDIX C – ADDITIONAL SITE BACKGROUND

After the EPA issued the RI/FS AOC, both FMC and Simplot completed a number of actions to address environmental releases at the Site. The following actions took place at FMC between 1991 and issuance of the ROD in 1998:

- The slag pit sump was dewatered in March 1991.
- The John Zink Scrubbers were placed in service in December 1991 with the goal of reducing radionuclide air emissions.
- The railroad swale, an area that received stormwater runoff from the operating areas of the plant, was partially lined in 1994.
- Approximately 5 miles of formerly unpaved roadways and 200,000 square feet of formerly unpaved non-roadway plant areas were paved.
- A new, lined solar drying area for Calciner pond solids was constructed and placed into operation in 1993.
- Use of septic systems were eliminated and the entire facility was connected to the municipal sanitary sewer system during 1995.
- A new system for waste management of precipitator slurry was initiated, using lime precipitation.
- To control fugitive dust, in 1995 coke unloading was enclosed and dust was collected and recycled to the process.
- In August 1993, ventilation and dust collection for ore screening and crushing was improved.
- From 1992 to 1995, furnace tap hoods were modified for chill pits areas to improve collection of emissions from slag and ferrophos tapping.
- The furnace, proportioning, briquetting and shale buildings were tightened in 1994 to reduce fugitive emissions.
- In 1996, the recycling hopper at the ore crusher was improved, and a windscreen was installed to reduce fugitive emissions.

At Simplot, the following actions were taken between 1991 and 1998:

- An unlined ditch transporting water to the treatment pond was excavated and replaced by sealed pipe.
- Liners were installed in holding ponds in the irrigation water treatment system.
- The leaking transfer line between the nitrogen solutions plant and the urea ammonium nitrate storage tank was repaired.
- The gypsum thickeners in the phosphoric acid plant were upgraded to reduce the water content of the slurry sent to the stack.
- Use of chemical flocculants in the gypsum thickeners was initiated to increase the solids content and improve the settling characteristics of the slurry.
- The calciners were decommissioned in 1992, thus reducing air emissions.
- Some roads within the phosphoric acid plant area were paved to reduce fugitive air emissions.
- Air emission control systems were installed and upgraded within the plant area.

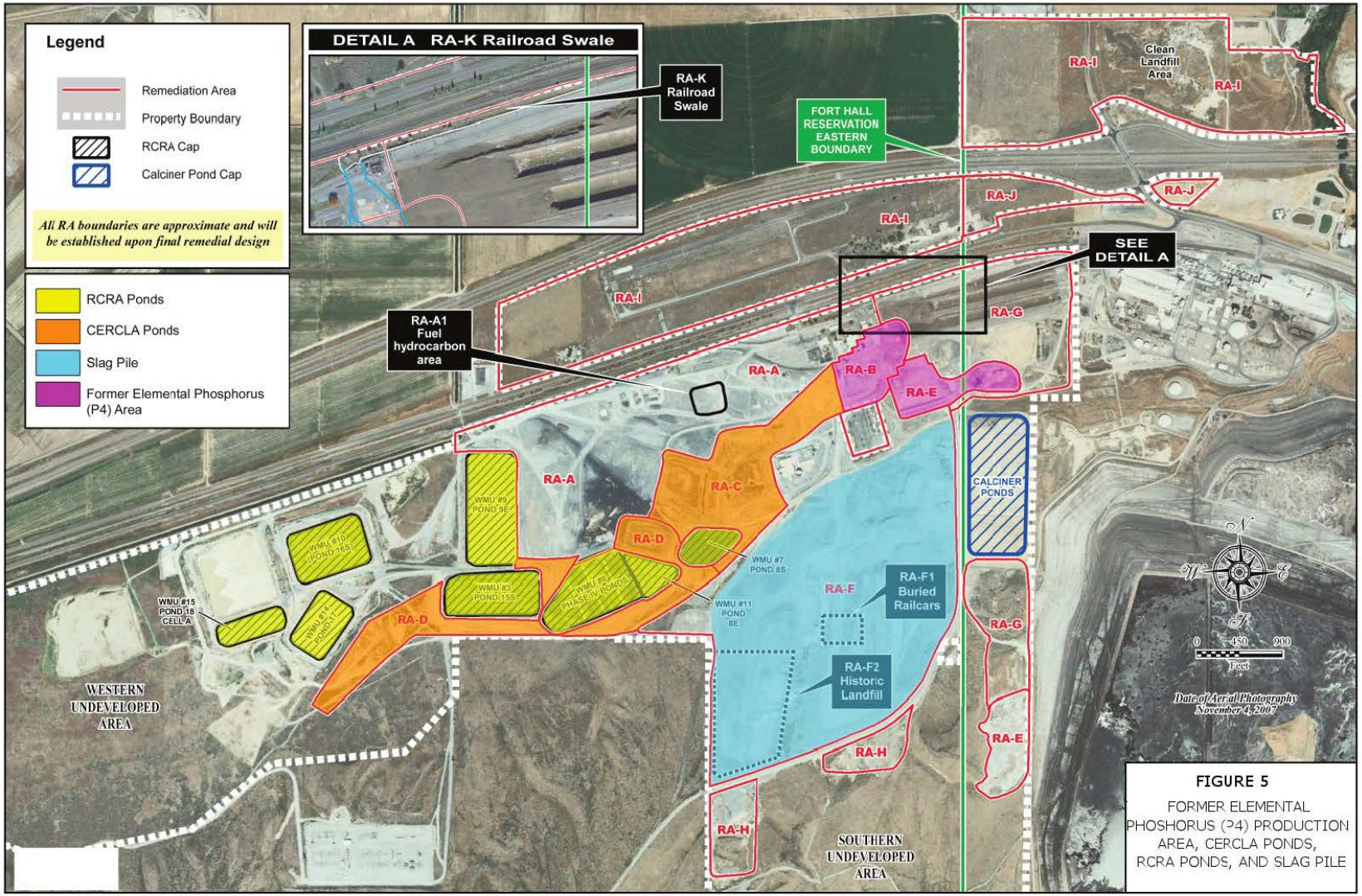
Table C-1 lists property ownership information, parcel numbers and the map identification, which correspond to Figure 4 in this FYR report.

Table C-1: Property Parcel Information

Map Identification	Parcel Number	Ownership
A	RPD0294-00	FMC
B	RPD0284-01	FMC
C	RPD0286-00	FMC
D	RPD0288-00	FMC
E	RPD0291-00	Idaho Power Co.
F	RPD0290-00	Northwest Pipeline Corporation
G	RPD0378-00	FMC
H	RPD0406-00	FMC
I	RPD0410-00	FMC
J	RPD0417-00	FMC
K	RPD0409-00	Simplot
L	RPD0408-00	Simplot
M	RPD0412-00	Simplot
N	RPD0413-00	Ruby Company
O	R3853009502	Simplot
P	R3853009503	Simplot
Q	R3853010700	Simplot
R	R3853010600	Simplot
S	R3853010800	Simplot
T	R3853010801	Simplot
U	R3853010400	Simplot
V	R3853009801	Simplot
W	R3853014702	Simplot
X	R3853020401	Simplot
Y	RPD0415-02	Ruby Company
Z	RPD0416-00	Simplot
AA	RPD0419-00	Simplot
AB	R3853020308	Simplot
AC	R3853019000	Simplot
AD	R3853020309	Simplot
AE	RPCPP044845	Simplot
AF	R3853018703	Simplot

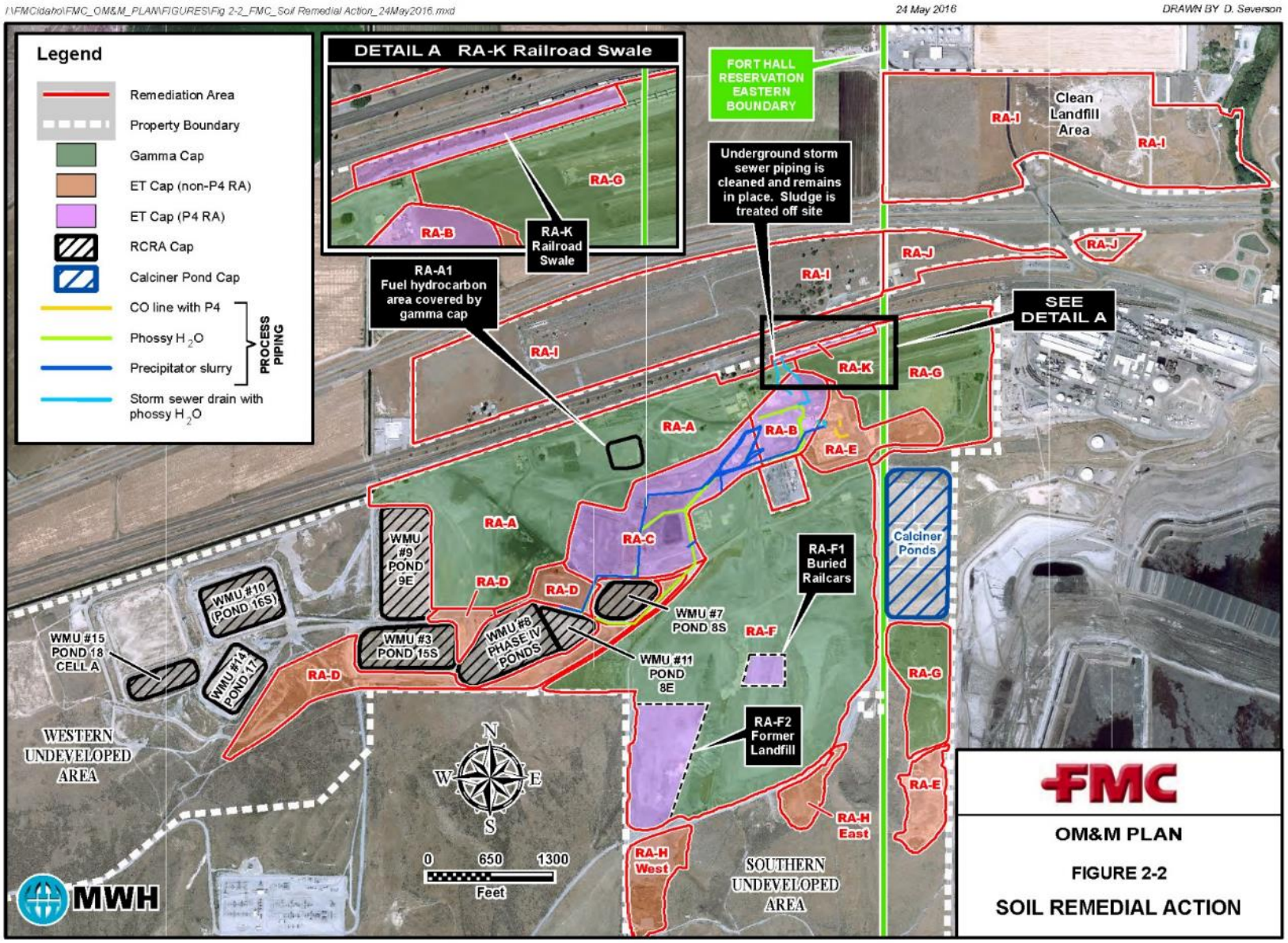
APPENDIX D – SITE MAPS

Figure D-1: FMC Site Features [4]



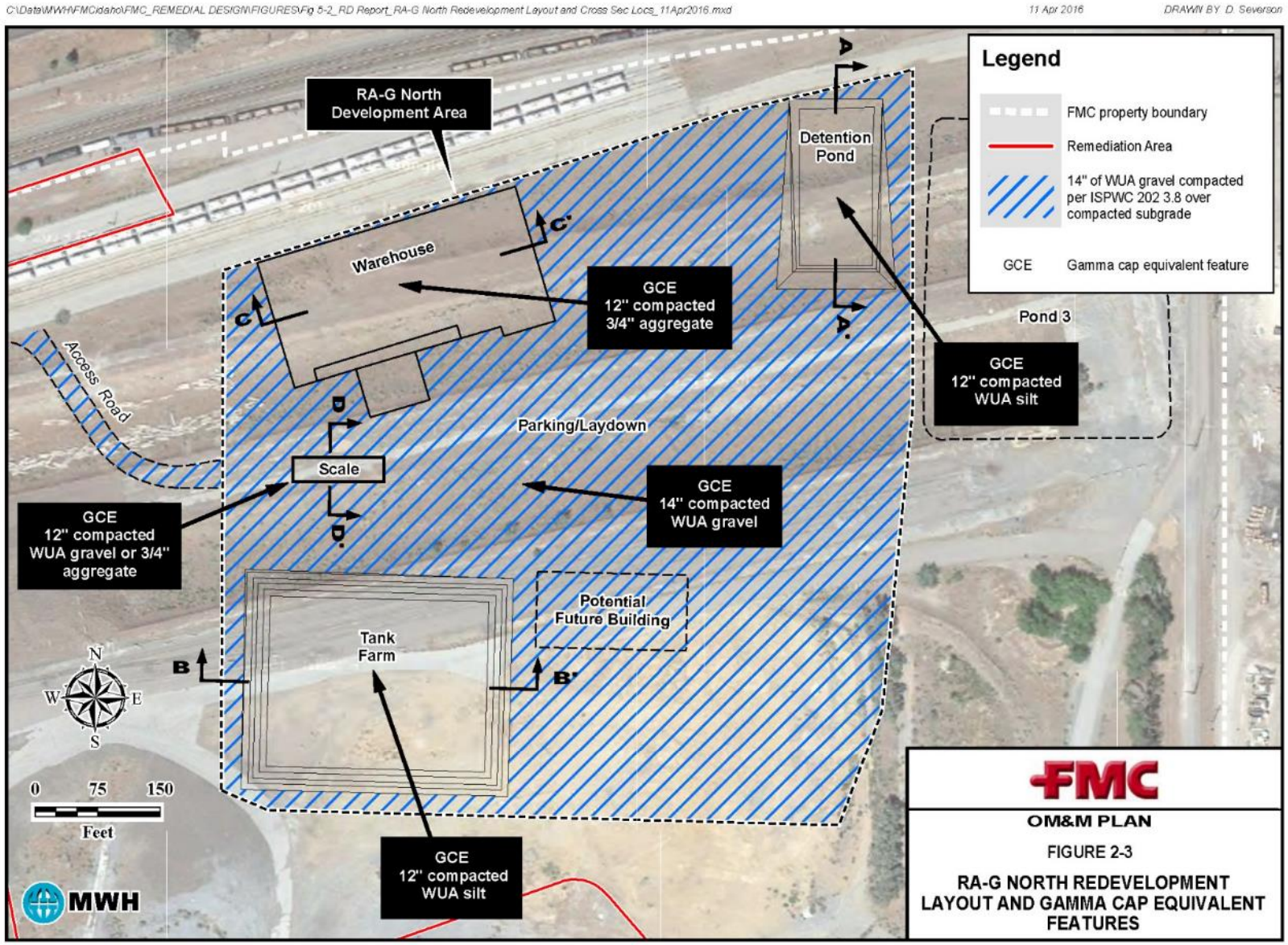
[4] Source: 2012 IRODA

Figure D-2: FMC Soil Remedial Action Areas[5]



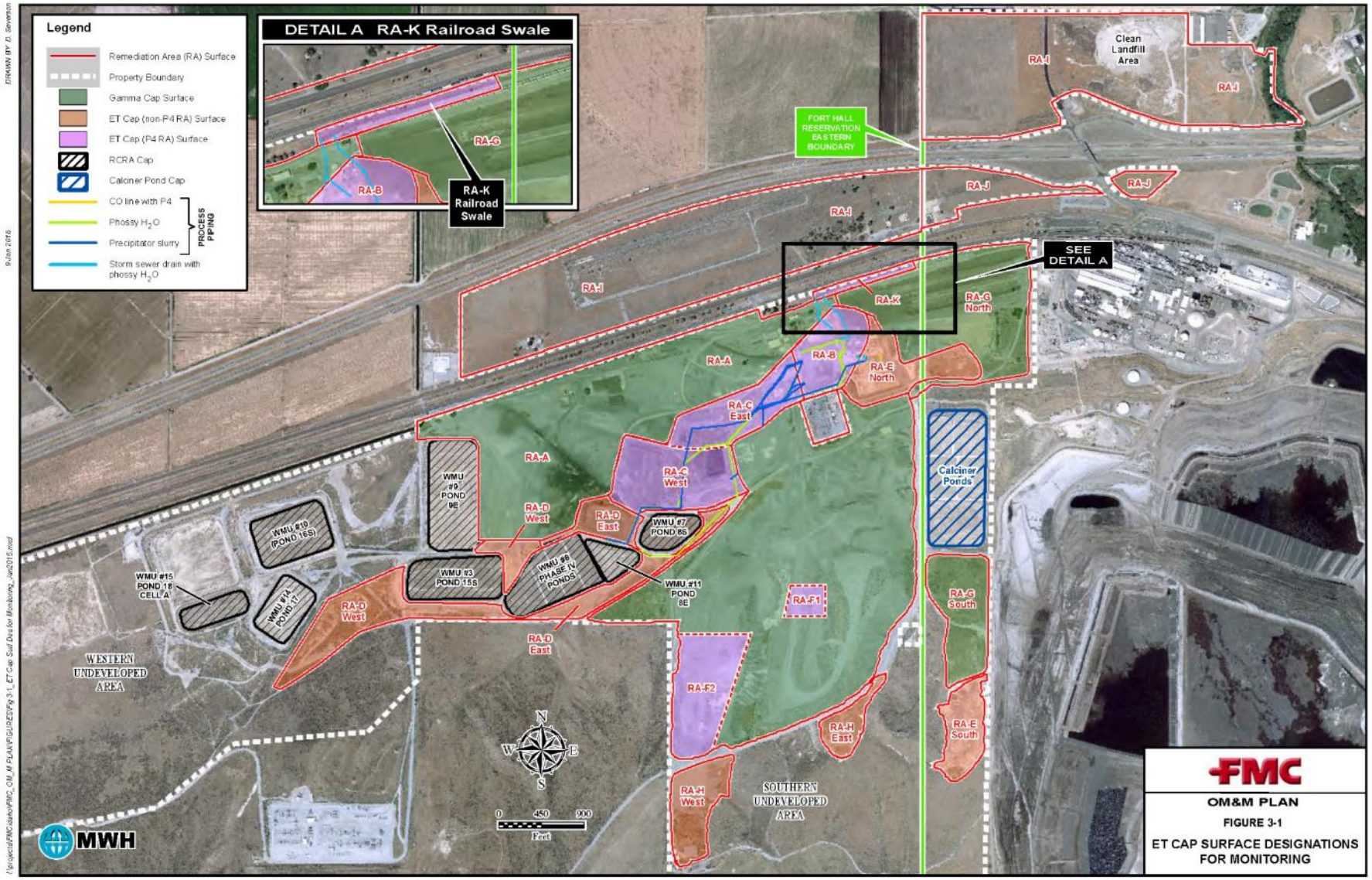
[5] Source: 2018 OM&M Plan

Figure D-3: RA-G North Redevelopment Area[6]



[6] Source: 2018 OM&M Plan

Figure D-4: ET Surface Cap Designations[7]

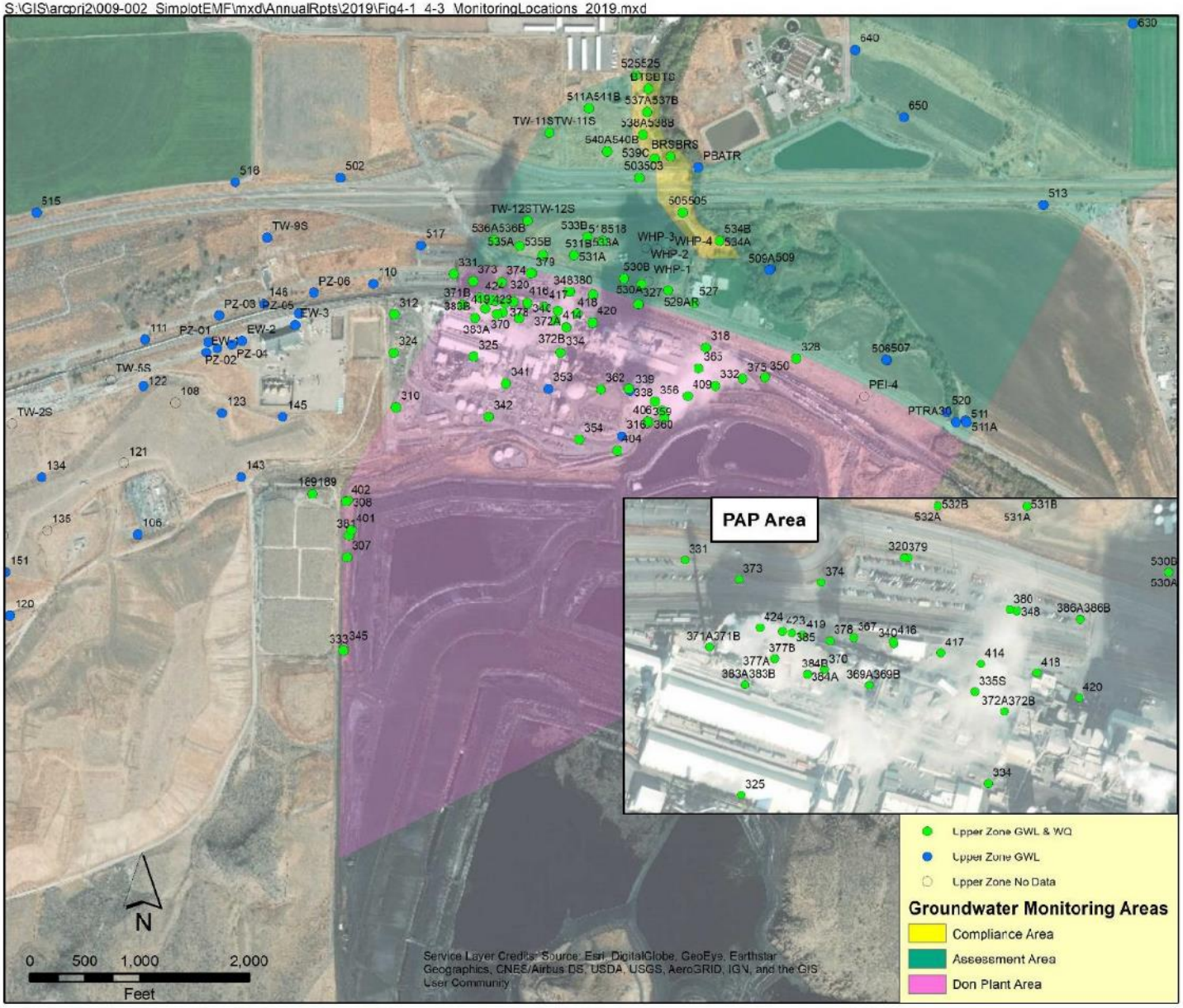


[7] Source: 2018 OM&M Plan

Figure D-5: Gypstack Sections[8]

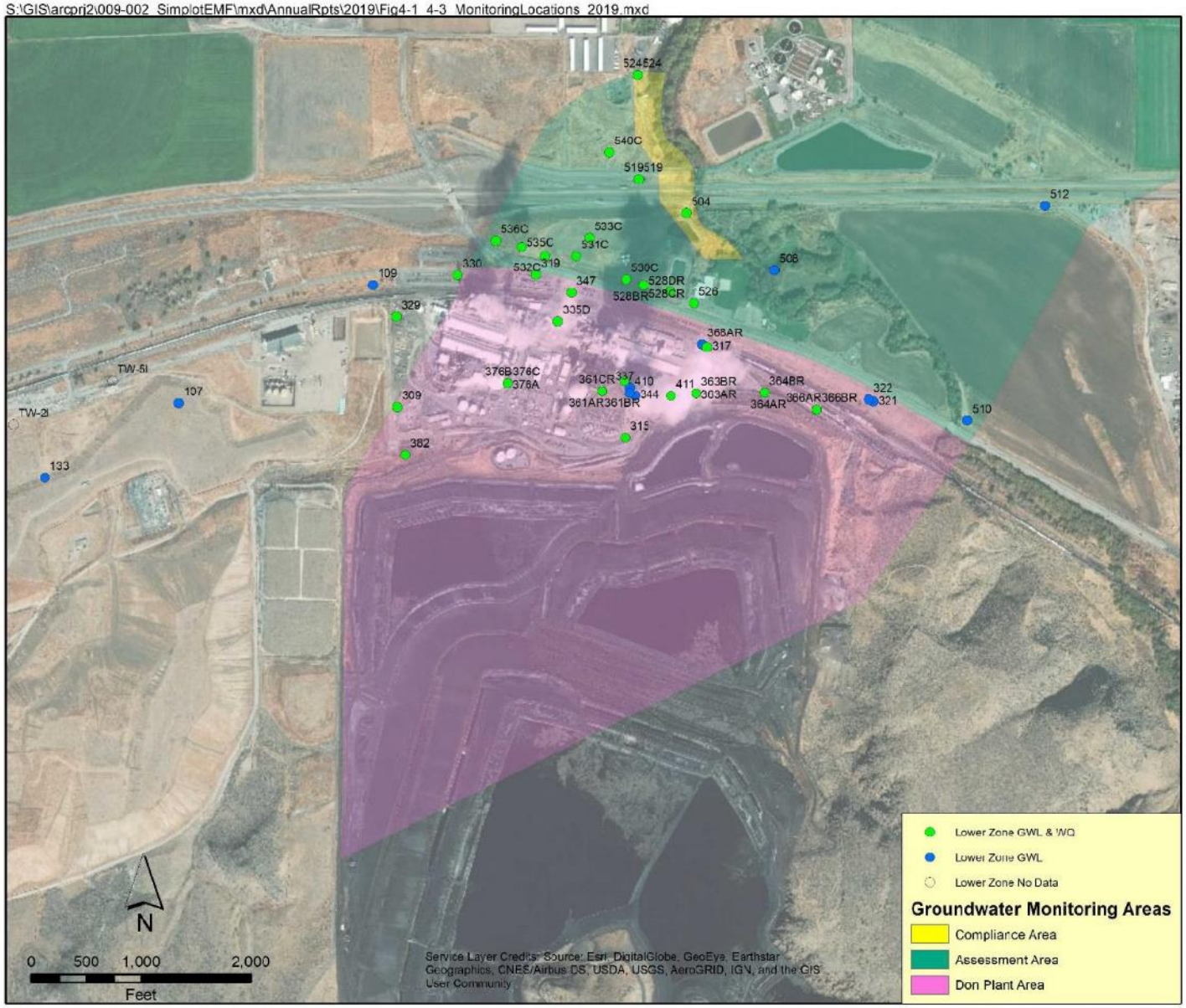
[8] Source: Simplot 2019 Annual Report

Figure D-6: Simplot – Upper Zone Monitoring Well Network[9]



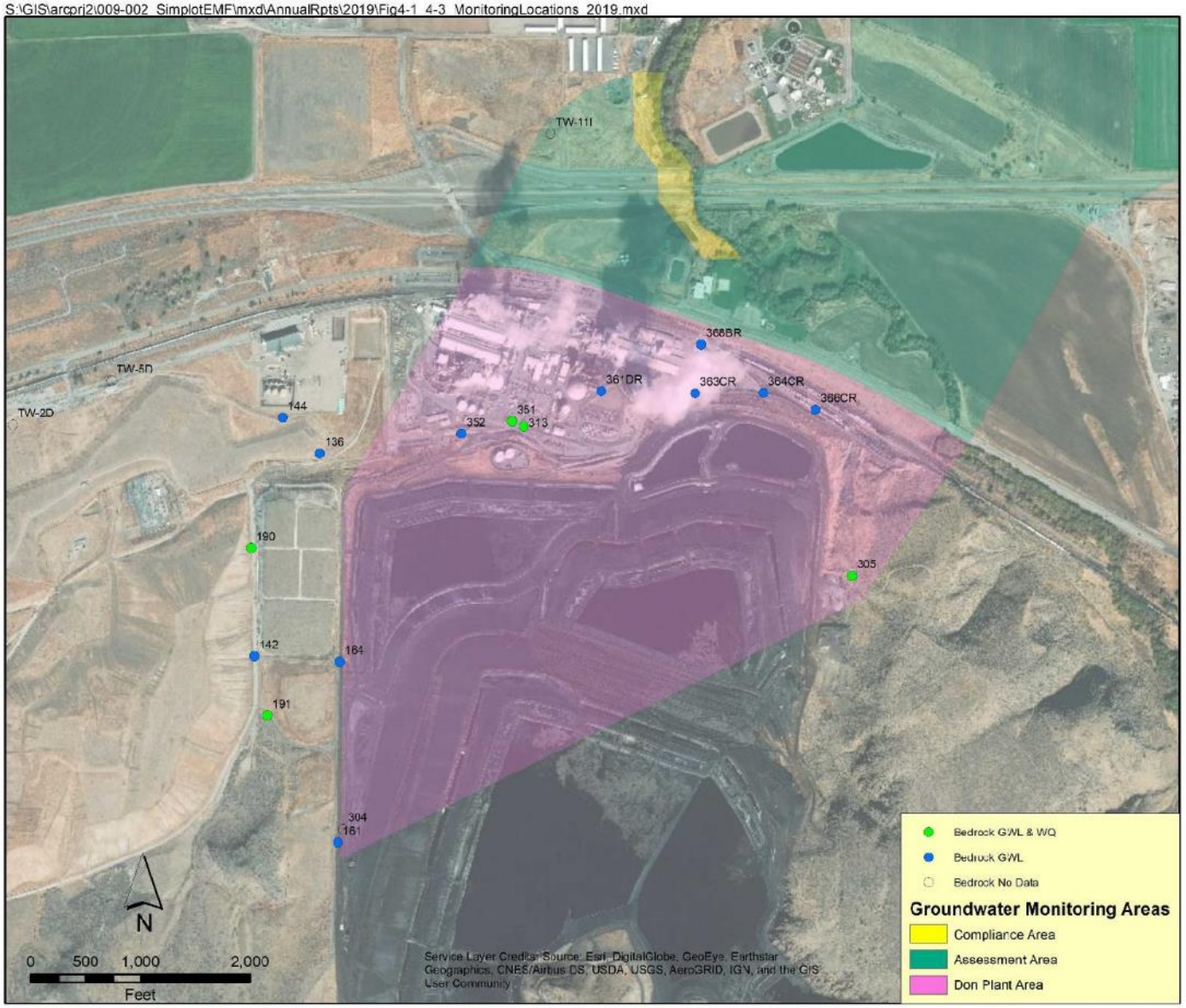
[9] Source: Simplot 2019 Annual Report

Figure D-7: Simplot – Lower Zone Monitoring Well Network[10]



[10] Source: Simplot 2019 Annual Report

Figure D-8: Simplot – Bedrock Monitoring Network[11]



[11] Source: Simplot 2019 Annual Report

Figure D-9: Portneuf River Sampling Locations[12]

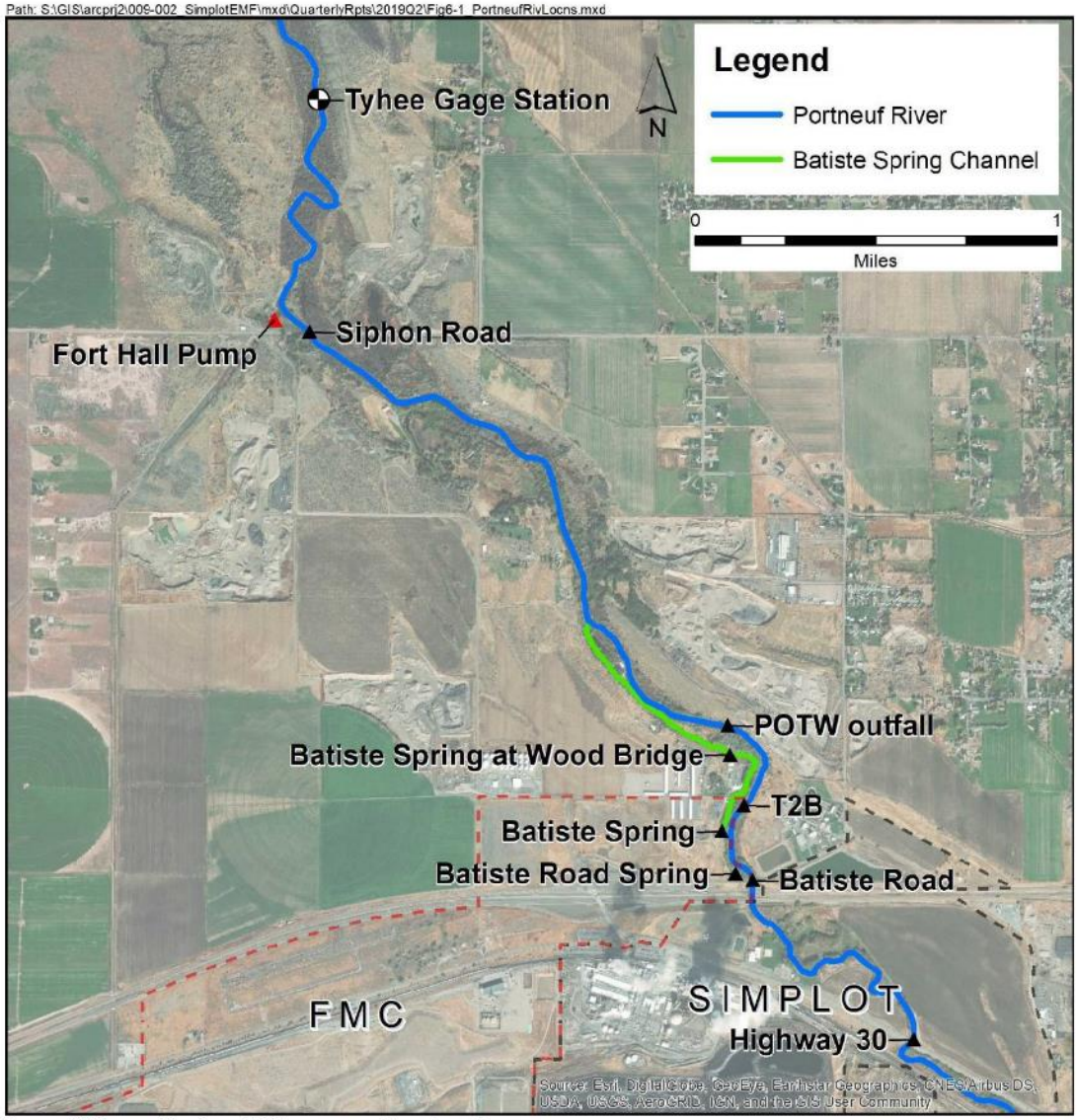


Figure 2-2: Portneuf River sampling locations.

[12] Source: Simplot 2019 Annual Report

APPENDIX E – PRESS NOTICE

EPA United States Environmental Protection Agency

Cleanup Progress to be Reviewed for Eastern Michaud Flats Contamination Pocatello, Idaho.

We Want to Hear from You

As part of the five-year review process at the Eastern Michaud Flats Contamination Superfund Site in Pocatello, Idaho, we like to keep the community informed about site activities. We also would like to hear from you if you have any information or observations about the Site that can help our review team. As part of the review, the EPA will be interviewing stakeholders and community members who have concerns, questions or information about the Site. ***If you would like to participate in an interview or have any comments or questions, please contact the EPA project manager Conor Neal by phone or email****.*

Contact:
Conor Neal
EPA Remedial Project Manager
(206) 553-0603
neal.conor@epa.gov

For More Information

You can find more information about the Site on the EPA's website: www.epa.gov/superfund/eastern-michaud-flats**.**

What and Why

The EPA will be reviewing the status of ongoing environmental cleanup activities at the Site. The EPA must review Superfund sites every five years when contaminants remain on site or when cleanup activities are underway. The purpose of this review is to ensure that response actions are progressing as planned to achieve the requirement to protect human health and the environment.

Background

The 2,530-acre Eastern Michaud Flats Contamination site is located near Pocatello, Idaho. Two on-site phosphate ore processing facilities, the FMC Corporation and the JR Simplot Company, began operations in the 1940s. The J.R. Simplot facility produces solid and liquid fertilizers using phosphate ore, sulfur, air and natural gas. The FMC plant produced elemental phosphorus for use in a variety of products from cleaning compounds to foods before ceasing operation in 2001. Operations at both plants have contaminated groundwater and soil with hazardous chemicals. Site cleanup is underway.

TDD and/or TTY users may call the Federal Relay Service at 800-877-8339. Then please give the operator number (206) 553-0603 to reach EPA project manager Conor Neal.

APPENDIX F – INTERVIEW FORMS

Eastern Michaud Flats SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats	
EPA ID: IDD984666610	
Interviewer name: Conor Neal	**Interviewer affiliation: U.S. EPA**
Subject name: Jonathan Williams	**Subject affiliation: U.S. EPA**
Subject contact information: (206) 553-1369	
Interview date: June 6, 2020	**Interview time:**
Interview location: Seattle, WA	
Interview format (circle one): In Person Phone Mail **[Email]** Other:	
Interview category: EPA Remedial Project Manager and Hydrogeologist	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   FMC OU

   Site regrading and clean soil cap installation are mostly in place. Implementation of the soil remedy Operation, Maintenance, and Monitoring Plan began in December 2018.

   Redevelopment of part of the FMC OU occurred in tandem with the soil RD/RA in 2016-17 to accommodate the Valley Agronomics fertilizer distribution business.

   The 2018 Remedial Design Groundwater Investigation, which included 27 borings through the COC plumes to collect continuous core and depth-discrete groundwater quality samples, has provided FMC with most of the information needed to advance the remedial design.

   Simplot OU

   Remedial Action installation of the waste gypsum stack liner has been completed as designed. This is expected to significantly reduce groundwater contamination over the next several years. Remedial action extraction of contaminated groundwater from historic releases (mostly phosphoric acid) at the Don fertilizer production plant is capturing part of the plume, but nearly half the COC mass is not captured, and discharges to the Portneuf River.

2. What have been the effects of this Site on the surrounding community, if any?

   I suggest contacting others, who have lived in the Pocatello area for a long time, about historic impacts. A summary of current impacts follows.

   FMC OU

   Since 2015, the appearance of the site is now more natural as the over-steepened slag pile has been regraded, clean soil caps installed, and revegetation with native plants is taking hold. The Valley Agronomics fertilizer distribution business, constructed on part of the FMC OU 2016-17, has been appreciated by some community leaders.

The remaining environmental concerns to be addressed are mostly in the subsurface and not readily apparent to the community at large. Technical staff with the Shoshone-Bannock Tribes and Idaho Department of Environmental Quality are providing input to the EPA in the review of RD/RA deliverables.

Simplot OU

The environmental impacts from ongoing Don Plant fertilizer production are being addressed by the Idaho Department of Environmental Quality (IDEQ) under Clean Air Act (CAA), Clean Water Act (CWA), and Resource Conservation and Recovery Act (RCRA) regulation.

The EPA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, a.k.a. Superfund) response actions are focused on remediation of groundwater contaminated by historic Don Plant releases such as the formerly unlined waste gypsum stack and the Phosphoric Acid Plant (PAP) area. The principal environmental impact from contaminated groundwater is the discharge of dissolved phosphorous into the Portneuf River.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities since the implementation of the cleanup?

   Most interest about the ongoing CERCLA response actions, at both the FMC OU and Simplot OU, is from the responsible parties, the Idaho Department of Environmental Quality, and the Shoshone-Bannock Tribes. The EPA provides CERCLA support agency cooperative agreement funding to IDEQ and the Tribes, and thus their technical staff are up-to-date and able to make timely inquiries of the EPA.

4. What is your assessment of the current performance of the remedy in place at the Site?

   FMC OU

   The interim remedy is not yet in place. The soil remedy has been mostly constructed and the groundwater remedy is in the early intermediate design stage.

   The interim soil remedy is mostly constructed. Over the past five years, the remedial design was approved, and remedial action construction has been largely completed. Implementation of the soil remedy Operation, Maintenance, and Monitoring Plan began in December 2018.

   Assessment of the interim soil remedy includes monthly phosphine soil gas sampling which began in December 2018. The data acquired have been below human health limits yet inconsistent with the current conceptual site model (CSM) for phosphine generation, migration, and degradation. In response, the CSM and associated field sampling plan (FSP) are to be modified in 2020 and additional soil gas sampling ports installed for use starting in 2021.

   Simplot OU

   The gypsum stack lining, which occurred in phases, began nearly ten years ago and was completed about two years ago. Groundwater monitoring has documented declining groundwater levels and declining COC concentrations. Full dewatering is expected to take another 5-10 years. Continued groundwater monitoring will be conducted to assess whether dewatering and associated declining COC concentrations will continue, and then remain stable over time.

   The extraction well system down gradient of the Phosphoric Acid Plant (PAP) area is capturing about 60 percent of the COC mass in groundwater; the remainder moves toward the Porteuf River where it discharges as springs, seeps, and underflow. The COC concentrations within the extracted groundwater have been

declining over time, as documented in the annual reports but, at this point, the December 2021 surface water phosphorous concentration compliance level appears to be in jeopardy.

5. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

   Both the FMC and Simplot Operable Units are fenced off and closed to general public access. Existing institutional controls prohibit the drinking of contaminated groundwater.

   At the FMC OU, the soil remedy Institutional Control Implementation Assurance Plan (ICIAP) remains to be finalized. Longstanding jurisdictional disagreement between FMC and the Shoshone-Bannock Tribes has complicated completion of some ICIAP language. The EPA anticipates ICIAP approval later in 2020.

6. Are you aware of any community concerns regarding the Site or the operation and management of its remedy? If so, please provide details.

   No. Most interest about the ongoing CERCLA response actions, at both the FMC OU and Simplot OU, is from the responsible parties, the Idaho Department of Environmental Quality, and the Shoshone-Bannock Tribes. The EPA provides CERCLA support agency cooperative agreement funding to IDEQ and the Tribes, and so their technical staff are up-to-date and able to make timely inquiries of the EPA.

7. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   The FMC OU groundwater remedial design has moved more slowly than anticipated. The 2018 Remedial Design Groundwater Investigation work ended in early 2019 and FMC now has most of the information needed to design a contaminated groundwater extraction/treatment system to meet remedial action objectives (RAOs).

   The Simplot OU contaminated groundwater extraction system is not capturing the entire plume, and contaminated groundwater continues to discharge into the Portneuf River. Since phosphorous concentrations in the river are not declining, it appears, rapidly enough to meet compliance levels, consideration of additional response actions might be necessary.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name: Conor Neal	**Interviewer affiliation: U.S. Environmental Protection Agency**
Subject name: Lee Thomas	**Subject affiliation: U.S. Environmental Protection Agency**
Subject contact information: (206) 553-0837	
Interview date: May 26, 2020	**Interview time:**
Interview location: Seattle, Washington	
Interview format (circle one): In Person Phone Mail **(Email)** Other:	
Interview category: EPA Remedial Project Manager and Hydrogeologist	

8. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   At the FMC site, the groundwater cleanup design has not been completed.
   At the Simplot site, the groundwater cleanup is an extraction system. However, much of the plume is not captured by the extraction system.

9. What have been the effects of this Site on the surrounding community, if any?

   At the FMC site, there are no known effects on the surrounding community.
   At the Simplot site, fisheries important to the Shoshone-Bannock Tribes maybe adversely impacted by the groundwater plume of phosphorus which discharges to the Portneuf River.

10. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities since the implementation of the cleanup?

    At the FMC site, groundwater cleanup has not been implemented.
    At the Simplot site, there have not been complaints from site neighbors that I am aware of.

11. What is your assessment of the current performance of the remedy in place at the Site?

    At FMC, the remedy has not been implemented under the remedial design.
    At Simplot, the groundwater remedy, an extraction system, does not capture the entire plume.

12. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

    Both the FMC and Simplot sites are not accessible to the public. The FMC site has a fence to control access. The Simplot site is an active facility with only limited access to outside personnel.

13. Are you aware of any community concerns regarding the Site or the operation and management of its remedy? If so, please provide details.

    No.

14. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

    At the FMC site, there is a need to develop a remedial design which meets the IRODA RAOs.
    At the Simplot site, the extraction system needs to be expanded to completely capture the plume.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name: N/A	**Interviewer affiliation:**
Subject name: Paul Patchin	**Subject affiliation: IDEQ**
Subject contact information: paul.patchin@deq.idaho.gov	
Interview date: 6/4/2020	**Interview time: emailed**
Interview location: email: emailed	
Interview format (circle one): In Person Phone Mail **Email** Other:	
Interview category: State Agency - IDEQ	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   There has been significant progress towards cleanup at the site during the past 5 years. The largest accomplishment is the completion of the lining of the gypsum stack. Additionally, the facility has made good headway on the repair of the storm drain system beneath the site which should decrease contaminant transport.

2. What is your assessment of the current performance of the remedy in place at the Site?

   I believe the lining of the gypstack has already resulted in an improvement in phosphorus concentrations beneath the site as measured in a number of monitoring wells. It remains to be seen if the TMDL compliance target at the Portneuf River will be met.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

   No.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

   Defer to Margie English (Project Manager) for most of this answer. Personally, I have visited the site to observe gypstack lining, repair/re-lining of the stormwater system and layout of monitoring wells. Project communications have been primarily through Margie.

5. Are you aware of any changes to state or Tribal laws that might affect the protectiveness of the Site's remedy?

   No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

   Yes.

7. Are you aware of any changes in projected land use(s) at the Site?

   I am aware of the potential Blackrock land exchange between Simplot and the BLM. This exchange would expand the property and gypstack operations at the facility. Do not know much of the details.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   I recommend that Simplot continue to work closely with the Agencies to manage and continuously improve the cleanup process to reach environmental compliance objectives.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name: NA - emailed	**Interviewer affiliation:**
Subject name: Margie English	**Subject affiliation: IDEQ**
Subject contact information: margaretha.english@deq.idaho.gov	
Interview date: 06/01/2020	**Interview time: NA - emailed**
Interview location: email	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: State Agency -- IDEQ	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Considerable progress towards cleanup has been made during the past 5 years. Most significantly, completion of lining all ponds on the existing gypstack in 2017 was a major milestone towards improving site-impacted groundwater and surface water quality.

2. What is your assessment of the current performance of the remedy in place at the Site?

   We are seeing measurable improvements in site groundwater as a result of lining the gypstack. Concentrations and loading of phosphorus in the Portneuf River have declined significantly, although the TMDL compliance target is not yet met. In addition, Simplot is completing an infrastructure improvement project that located and repaired broken stormwater drainlines throughout the processing plant; this activity should significantly reduce contaminant transport.

3. Are you aware of any complaints or inquiries regarding site-related environmental or remedial activities from residents in the past five years?

   No.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

   Gypstack lining and environmental monitoring has been conducted pursuant to the 2008 Orthophosphate VCO/CA between Simplot and IDEQ. In addition, the 2016 CO between Simplot and IDEQ requires Simplot, by 2026, to either replace the existing reclaim cooling towers with a low-emission alternative or to reduce by more than 50 percent the fluoride emissions from the existing cooling towers. Also, in 2019-2020 IDEQ (like the EPA) participated as a cooperating agency to the USBLM in the development of the Blackrock Land Exchange Environmental Impact Statement; the land exchange will allow Simplot to expand the existing gypsum stack and build associated infrastructure such as cooling ponds that could allow for replacement of the reclaim cooling towers pursuant to the 2016 CO for fluoride.

5. Are you aware of any changes to state or Tribal laws that might affect the protectiveness of the Site's remedy?

   No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

   Yes.

7. Are you aware of any changes in projected land use(s) at the Site?

   As mentioned in response # 4, The Final EIS for the Blackrock land exchange would exchange 711 A of lands currently under BLM control in exchange for 827 A of Simplot-owned lands that would be conveyed to the BLM. The Final EIS for the Blackrock Land Exchange was filed with the Environmental Protection Agency's (EPA) e-NEPA webpage on May 15. The Final EIS publication will be provided in the EPA's EIS Notice of Availability *Federal Register* on May 22. The Bureau of Land Management (BLM) will publish a Notice of Availability in the *Federal Register* on May 27. The BLM plans to publish the /NOD on July 24. There will be a 45-day protest period following the issuance of the ROD.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   The IDEQ, together with Simplot and the EPA, will continue to look for ways to improve cleanup and the attainment of all compliance targets for the Simplot Don Plant VCO/CA and EMF IRODA.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: Jonathan Bucca	**Subject affiliation:** FMC Corporation
Subject contact information: 2929 Walnut Street, Philadelphia, PA 19104 jonathan.bucca@fmc.com / (215) 299-6358 (O) / (856) 237-6231 (C)	
Interview date: Responded to questions 6/5/2020	**Interview time:** N/A
Interview location: N/A (done over email)	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: Potentially Responsible Party (PRP)	

Preface

FMC's response to these questions is limited to the implementation of the September 2012 Interim Amendment to the Record of Decision (IRODA) for the FMC Operable Unit (OU) pursuant to the June 2013 EPA Unilateral Administrative Order for Remedial Design and Remedial Action (RD/RA UAO) at the FMC OU and EPA-approved deliverables under that UAO and does not address either the Simplot OU or the Off-Plant OU of the Eastern Michaud Flats Superfund Site. In addition, FMC's response excludes actions and requirements related to the RCRA Waste Management Unit closure and post-closure plans, CERCLA Removal Action, Calciner Ponds Remedial Action and Post-Remedial Action and any other requirements unrelated to implementation of the IRODA.

1. What is your overall impression of the remedial activities at the Site?

   Since the first EPA 5-year review in March 2015, the interim soil remedial action, consisting of site-wide grading and construction of the ET and gamma caps, has been completed except for a small area of the Site where Undocumented Subgrade Condition (USCs) are being managed which work is scheduled for completion in 2021. The groundwater remedy is still in the remedial design phase and construction has not yet commenced. The groundwater remedial design is progressing consistent with the RD/RA UAO. Monitoring and maintenance of the soil caps is being performed pursuant to the EPA-approved Operations, Monitoring, and Maintenance Plan (OMMP) and Performance Standards Verification Plan (PSVP) with results indicating that the soil remedy is meeting Remedial Action Objectives (RAOs) and is protective of human health and the environment. The field work outlined in the Intermediate (60%) Design Groundwater Investigation Work Plan has been completed and the reporting phase is on-going. Currently the groundwater Conceptual Site Model (CSM) is being updated and the Long-term Monitoring Plan (LTMP) and 60% remedial design for groundwater are being developed, with documents to be submitted to EPA in the coming months.

2. What have been the effects of this Site on the surrounding community, if any?

   FMC implemented the site-wide grading and capping phases of the interim soil remedial action with no negative impact on the surrounding community. Air monitoring was performed and dust was controlled during the installation of caps pursuant to the EPA-approved Dust Control and Air Monitoring Plan and post-installation phosphine monitoring of the soil caps is

performed pursuant to the OMMP and PSVP that demonstrate continued protectiveness to public health and the environment. The traffic load associated with on-going remedial activities, including occasional off-site shipment of waste from the Site pursuant to the EPA-approved Transportation and Off-Site Disposal Plan, remains much lower than when the FMC plant was in operation. The demand for utilities and public services similarly is the substantially lower than when the FMC plant was in operation.

FMC's implementation of the soil remedy had a positive impact on the community resulting from the creation of approximately 35 local, temporary construction-related jobs. During the operations, maintenance and monitoring phases of the soil remedy, employment of local workers continues. Additionally, in tandem with the interim soil remedy, a portion of the Site was redeveloped and is now occupied by Valley Agronomics, the largest fertilizer distribution facility in Idaho. Valley Agronomics provides critical support to the local agriculture industry and created major new sources of employment and tax revenue. This is a great example of a Brownfield redevelopment directly benefitting the local community and reusing industrial infrastructure and land.

3. What is your assessment of the current performance of the remedy in place at the Site?

   The interim soil remedy is meeting RAOs and is protective of human health and the environment as indicated by the results of monitoring activities. The interim groundwater remedy has not yet been completed and thus is not "in place" for the purpose of assessing its performance.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   The FMC OU is located in an industrial area; the closest residence is approximately 1 mile from the former plant operations. I am not aware of any complaints or inquiries.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

   FMC communicates with EPA and its representatives as well as IDEQ and representatives of the Shoshone-Bannock Tribes on a routine basis as the remedial action progresses. These communications are satisfactory.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   FMC believes that the selected remedies in the IRODA are effective and should be completed as soon as practicable. As the groundwater conditions have been extensively studied and are well-understood, FMC recommends proceeding with completion of the design and installation of the EPA-selected interim groundwater remedy as presented in the IRODA.

7. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes, my name and responses can be included in the FYR report.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: Monty Johnson	**Subject affiliation: JR Simplot Company EMF Alternate Project Coordinator**
Subject contact information:	
Interview date: 21 May 2020	**Interview time: 10:00am**
Interview location: Online/email	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Potentially Responsible Party (PRP)	

1. What is your overall impression of the remedial activities at the Site?

   Simplot began remedial activities at the site before I assumed the EMF Alternate Project Coordinator role in 2007. Groundwater extraction and source control in the operable unit (OU) have dramatically reduced arsenic and phosphorus load migrating to the off-plant OU and toward the Portneuf River. Constituent concentrations in the river have also been reduced since remedial activities began.

2. What have been the effects of this Site on the surrounding community, if any?

   The Simplot Don Plant has been operating for 75 years. Many improvements in air emissions control and contaminant cleanup of groundwater are evidence that the company is a good neighbor to the community. The plant is a major employer in the Pocatello, ID area and cares about the livelihood of its employees, the community, and the environment. Simplot has not wavered in the commitment to meeting cleanup goals of the EMF remedy.

3. What is your assessment of the current performance of the remedy in place at the Site?

   Source control by lining the receiving surfaces of the phosphogypsum stack is unparalleled in our industry. Groundwater measurements of arsenic and phosphorus have shown amazing reductions since the phased lining was initiated in 2010.

   The groundwater extraction system is performing as designed and is effective at reducing contaminant load to groundwater.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   Other than EPA and support agencies' reviews, Simplot rarely receives complaints or inquiries from nearby residents other than from the Shoshone-Bannock Tribes regarding the EMF remedy. The EPA's community outreach has attracted some input from the community; however, I am not aware of any direct complaints about the remedy. For the Shoshone-Bannock Tribes, the water quality of the Portneuf River and general air quality are key areas of interest.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might the EPA convey site-related information in the future?

I am, of course, informed because of my role. A quick internet search will guide anyone searching information about the site, although most of the information readily available to the public is a bit dated. A pdf copy of the 2015 five-year review is the first informational document displayed after searching: "Simplot EMF Superfund". The first link directs the searcher to the EPA's EMF website; where there is much historical information. At this stage of the Superfund remedy for the site, the five-year review report may be adequate.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   Simplot and its contractor, Formation Environmental, have experienced staff managing the various elements of the Site remedy. Together with substantial agency oversight, intermediate and long-term goals have been met.

7. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: Jacob Sloan	**Subject affiliation:** KASE/Warbonnet, Inc.
Subject contact information: 1477 Thunderbolt, Pocatello, ID 83204	
Interview date: Responded to questions 6/5/2020	**Interview time:** N/A
Interview location: N/A (done over email)	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: O&M or Remedial Action Contractor	

Preface

KASE/Warbonnet (KW) responses to these questions is limited to the implementation of the September 2012 Interim Amendment to the Record of Decision (IRODA) for the FMC Operable Unit (OU) pursuant to the June 2013 EPA Unilateral Administrative Order for Remedial Design and Remedial Action (RD/RA UAO) at the FMC OU and EPA-approved deliverables under that UAO and does not address either the Simplot OU or the Off-Plant OU of the Eastern Michaud Flats Superfund Site. In addition, KW's response excludes actions and requirements related to the RCRA Waste Management Unit closure and post-closure plans, CERCLA Removal Action, Calciner Ponds Remedial Action and Post-Remedial Action and any other requirements unrelated to implementation of the IRODA.

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

KW is impressed with FMC's progress with cleanup, maintenance, and reuse activities at the FMC OU of the EMF Superfund Site. FMC has shown a strong commitment to remediation of the Site to meet remedial action objectives and keep the Site safe to human health and the environment.

The interim soil remedial action, consisting of site-wide grading and construction of the ET and gamma caps, has been completed except for a small area of the Site scheduled for completion in 2021 after off-site disposal of the Undocumented Subgrade Condition (USCs) currently in that location. Monitoring and maintenance of the soil caps is being performed by KW pursuant to the EPA-approved Operations, Monitoring, and Maintenance Plan (OMMP) and Performance Standards Verification Plan (PSVP), with results indicating that the remedy is meeting Remedial Action Objectives (RAOs) and is protective of human health and the environment.

FMC has also put a priority on successful redevelopment of the Site. The Valley Agronomics redevelopment project has been very positive for the local community. There are further reuse opportunities that can likely occur on the Site.

2. What is your assessment of the current performance of the remedy in place at the Site?

The interim soil remedy is meeting RAOs and is protective of human health and the environment as indicated by the results of monitoring activities. FMC has demonstrated full commitment to the Operation, Monitoring and Maintenance Plan and the Performance Standards Verification Plan and work required to meet remedial action objectives and performance goals of the interim soil remedy.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

Monitoring data findings show that the Site is meeting the RAOs and will continue to keep the Site protective of human health and the environment.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

In our role as the FMC's Operations and Maintenance contractor, KW has a continuous on-Site presence. KW is responsible for performing inspections and maintenance of the CERCLA remedies currently in place, ensuring the health and safety practices described in the FMC Site-Wide Health and Safety Plan are maintained, maintaining Site security, and acting as the main contact for Site remedy-related inquiries in the Pocatello area.

Although these questionnaire responses are related to CERCLA, as stated in the preface, KW would also point out that we perform the required O&M in the RCRA Pond area of the FMC Site. This work has been ongoing for almost 20 years. FMC has demonstrated ongoing commitment to the work described in the RCRA Post-Closure plans for this area of the Site.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

The interim soil remedial action, consisting of site-wide grading and construction of the ET and gamma caps, has been completed except for the small area of the site where USCs are located. Accordingly, FMC began implementing the Operations, Monitoring, and Maintenance Plan of the soil remedy in 2017. This plan outlines the requirements for maintenance and monitoring of the CERCLA interim soil remedy to keep the Site protective of human health and the environment.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

KW has not encountered any unexpected O&M difficulties or costs at the Site in the last five years. FMC continues to demonstrate full commitment to KW's ongoing effort to perform the work required to meet the remedial action objectives.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

FMC is achieving the remedial action objectives and should be able to proceed with Site management according to the approved plans.

1. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

KW is responsible for performing the requirements of the CERCLA OM&M Plan. Data collected to date meets the remedial action objectives and would suggest that a sampling frequency reduction would be justified in various OM&M inspection activities.

2. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

Yes

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: Andrew Koulermos	**Subject affiliation: Formation Environmental**
Subject contact information: 2500 55th Street Suite 200, Boulder Colorado	
Interview date: June 5, 2020	**Interview time: N/A**
Interview location:	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: O&M or Remedial Action Contractor	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The Simplot OU Superfund remedy represents a significant commitment by Simplot to provide long-term protection of the local environment (there are no human health risk issues associated with the Simplot OU). It is not a typical Superfund project in that it addresses issues associated with an operating industrial facility and it is large scale, and therefore was implemented in multiple phases. Significant additions to the Superfund action also have been made due to changes in environmental requirements (in particular the reduction of the drinking water Maximum Contaminant Level (MCL) for arsenic by the Environmental Protection Agency [EPA] which consequently reduced the target for groundwater cleanup) and the implementation of a Total Maximum Daily Load [TMDL] for phosphorus in the Portneuf River by the Idaho Department of Environmental Quality [IDEQ]). This is important because groundwater from the Site discharges to the Portneuf River. The remedy has been expertly constructed and is expected to provide sustainable protection of the environment while allowing for continued operation of the Don Plant facility, which provides significant economic benefit to the local community.

Reuse is a key element of the remedy; in particular, contaminated groundwater is extracted and reused in the facility process. In 2019, approximately 391 million gallons of groundwater were extracted at an average flow rate of 745 gallons per minute (gpm). The total mass of phosphorus removed from groundwater was approximately 368,000 pounds (an average of 1,008 pounds per day [lbs/day]).

2. What is your assessment of the current performance of the remedy in place at the Site?

The groundwater/surface water remedy is the principal action in the Simplot OU. It has three principal elements: (1) installation of a synthetic liner on the receiving surface of the gypsum stack to reduce the infiltration of contaminated water through the stack into groundwater; (2)

phosphorus source control in the Phosphoric Acid Plant (PAP); and (3) extraction of contaminated groundwater and reuse of that water in the Don Plant process. The lining project was constructed in phases from 2010 to 2017. PAP source control has been implemented since 2010, and the groundwater extraction system was installed in phases, being fully operational in 2010. After lining, the underlying gypsum in the stack drains down, gradually reducing the seepage that reaches groundwater (for example, modeling predicts that seepage is reduced to 10% of the pre-lining condition in 5 and 12 years, depending on the location). Groundwater from beneath the stack migrates to the Portneuf River in about 2 to 5 years (again, depending on location). Thus, a gradual improvement in groundwater and surface water quality is expected and this is being observed in the monitoring data. For groundwater, the interim performance standard is to reduce arsenic concentrations to below the MCL in groundwater discharging to the Portneuf River. Concentrations have been reducing as a result of the remedial actions and the latest data (from the first quarter 2020) show arsenic concentrations above the MCL at just one of one of the 15 applicable groundwater monitoring locations next to the river. EPA has not yet established a remedial goal for phosphorus concentrations in surface water in the Portneuf River. Phosphorus concentrations in the river have reduced significantly as a result of the Simplot OU remedial actions; from a peak in the range of 1.6 mg/L in 2008 to 0.19 mg/L in 2020. Modeling performed under a Voluntary Consent Order/Compliance Agreement with the IDEQ indicates that given the actual remedy implementation schedule, phosphorus concentrations are reducing in the Portneuf River on the expected timeframe.

The remedy is therefore performing as predicted and is expected to reduce COC concentrations in groundwater and surface water to meet Remedial Action Objectives in the shortest practicable timeframe.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

Concentrations of arsenic and phosphorus in groundwater downgradient of the gypsum stack are reducing as a result of reduction of seepage from the gypsum stack as the lining project takes effect. For example, the estimated mass flux of phosphorus in groundwater downgradient of the stack has reduced from a peak of 4,900 pounds per day in 2013 to 1,700 pounds per day in 2019. Phosphorus concentrations in groundwater downgradient of the gypsum stack have also decreased significantly as a result of the PAP source control program (the phosphorus mass flux to downgradient groundwater from the PAP area has reduced from a peak of 1,350 pounds per day in 2013 to around 100 pounds per day today [and this is due to residual contamination rather than on-going releases). As a consequence, concentrations of arsenic and phosphorus in groundwater farther downgradient are also showing a general decreasing trend. Site groundwater discharges to the Portneuf River and phosphorus concentrations in the river are also showing a decreasing trend (from a peak in the range of 1.6 mg/L in 2008 to 0.19 mg/L in 2020). Nitrate concentrations have been more variable downgradient of the facility area in recent years, indicating the presence of active sources. Simplot is in the final stages of completing a major project to inspect and repair drain lines associated with its Wastewater Land Application Permit, which is expected to result in reduced nitrate concentrations in groundwater. Nitrate

concentrations decrease rapidly downgradient of the facility and are below the MCL within the Simplot OU.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

The Don Plant is an operating facility with Simplot engineering staff dedicated to the Superfund project. These personnel perform the required inspections and oversee implementation of required O&M activities (typically using contractors).

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

There have been no significant changes in the past five years.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

O&M issues and costs have been generally consistent with expectations at the end of remedial action construction.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

Simplot submitted a proposal for modification of certain elements of the groundwater monitoring program on February 5, 2020 and received interim approval from EPA to begin collecting samples on a basis consistent with Simplot's proposal, as modified by agency comments. The approach maintains the level of detail and data quality needed to evaluate the remedy performance at approximately two thirds of the cost.

1. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

   No.

2. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination - FMC Operable Unit	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: Scott Miller	**Subject affiliation:**
Subject contact information: scott.miller@deq.idaho.gov	
Interview date: 28 May 2020	**Interview time:**
Interview location:	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: State Agency/Shoshone Bannock Tribe	

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Significant progress on completing the soils remedy has been made with the construction of most caps complete, and the removal and disposal of phosphorous containing materials uncovered during cap construction is progressing and scheduled to be completed this year. The maintenance of site remedies has been in accordance with the approved Operation Monitoring and Maintenance plan. There have been no apparent issues with the fertilizer distribution facility on the eastern side of the FMC OU over the past five years.

   The implementation of the groundwater remedy is moving slower than expected; however, good information has been collected in the past couple of years and progress made up-dating the conceptual site model related to groundwater COCs, providing a better understanding of the subsurface and contaminant plumes.

2. What is your assessment of the current performance of the remedy in place at the Site?

   The FMC OU soil remedy is near completion, with only a small area remaining to be capped. The gamma and ET caps appear to be functioning as designed to prevent human contact and reduce gamma emissions. It is not clear at this time how well the ET caps are performing for the reduction of infiltration through the underlying materials. Arsenic concentrations are decreasing at some locations; however, it is not clear what role, if any, the ET caps are playing in those trends. Further, more detailed analyses are needed. The FMC OU groundwater remedy is progressing slowly and likely has several years before it is fully functioning.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

   No.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

   The Idaho Department of Environmental Quality has assisted the EPA in providing oversight for site remedial activities when the EPA contractors were unavailable. The presence of State and Tribal personnel has allowed remedial activities to progress with government oversight. The agency actively participated in site visits during groundwater remedy investigation (boring) activities and remedial meetings.

5. Are you aware of any changes to state or Tribal laws that might affect the protectiveness of the Site's remedy?

   No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

   Yes, for those currently in place.

7. Are you aware of any changes in projected land use(s) at the Site?

   No.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

   No.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name: Conor Neal	**Interviewer affiliation: EPA**
Subject name: Hannah Sanger, MS MA	**Subject affiliation: City of Pocatello**
Subject contact information: hsanger@pocatello.us	
Interview date: 06/11/2020	**Interview time: 1pm Mountain**
Interview location: By Phone	
Interview format (circle one): In Person (Phone) Mail Email Other:	
Interview category: Local Government	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Somewhat aware. I do not have in depth awareness but probably more than the average resident.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might the EPA convey site-related information in the future?

   Not really, every now and then I see something about it. I could not communicate clearly to others about the remedial progress. It is not something I am trying to stay on top of. It is a complicated issue. For information, I generally go to the Tribe's website, I would look at the EPA website and also a lot of word of mouth through other environmental groups I am involved in with as my role with the City.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

   Not that I am aware of.

4. Are you aware of any changes to state or Tribal laws, or local regulations that might affect the protectiveness of the Site's remedy?

   I am not up to date enough about what is happening at the site to know for sure, but the City doesn't have anything that is changing that would be related.

5. Are you aware of any changes in projected land use(s) at the Site?

   Just the Simplot land exchange that is happening to swap land between BLM and Simplot that is out of the scope of the Superfund Site.

6. Has the EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can the EPA best provide site-related information in the future?

   Yes, sort of. Most people are not aware of what is going on. Has the EPA kept them involved? I think the EPA has provided info, but has it been effective? Not really.

The EPA could share site information that could then come out through local city and county governments to effectively share information. Power County is probably very interested. Most of my information is coming from the Tribes because they have been the most engaged with getting public participation and input. Our local watershed group, the Portneuf Watershed Partnership, would benefit from a presentation and would appreciate hearing where things are at and what is happening. For the general public, a simple fact sheet or website is probably plenty. No one really comes to open houses during this time of COVID. But doing a virtual forum or presentation would be helpful and good.

It would be good if there was a website with progress updates that could be quickly digested, as opposed to environmental reports. Most residents are just not interested in the particulars of actions on the FMC site. So, figuring out what the hook is would be important. For many community members this is not an issue that affects their day to day life. The site and any of its environmental impacts are not visible in most of Pocatello. Out on the reservation, there is a lot more community engagement regarding the FMC site and its environmental impacts. For Pocatellans, the differentiation between what is happening at Simplot verse FMC is important to the story, and confusing to many residents who often conflate these sites. They both have mandated remediation activities and are very different. The community might engage with a clear simple story regarding what is happening at each of these sites.

7. Do you have any comments, suggestions or recommendations regarding the project?

   No, I have not been very engaged in the remediation activities.

   The other place we seem to get information from is FMC, through its consultants such as Paul Yokum, who used to be a site manager. This is probably how a lot of elected officials are getting information, in addition to the EPA publications. FMC has expressed interest in Pocatello taking its wastewater.

8. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name:	**Subject affiliation:**
Subject contact information:	
Interview date:	**Interview time:**
Interview location:	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Local Government	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future?

   FMC has kept Power County well informed of the company's remedial activities at the site, but Power County has had minimal communication from the EPA and would like to have more direct communication from the EPA either in person or in writing regarding the site's ongoing remedial efforts.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

   We are not aware of specific issues that Power County has dealt with. However, we are aware of conflict between Tribal members and/or government regarding access to the location by businesses attempting to utilize the location.

4. Are you aware of any changes to state or Tribal laws, or local regulations that might affect the protectiveness of the Site's remedy?

   No.

5. Are you aware of any changes in projected land use(s) at the Site?

We are not aware of any specific changes in projected land use. However, Power County would like to see the site and its improvements to some productive use that benefits the community.

6. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?

   See response to question #2. To the extent this question seeks information from parties and persons other than Power County, we have no additional information at this time.

7. Do you have any comments, suggestions or recommendations regarding the project?

   Please see the response to question #5.

8. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

   Yes.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: Devin Hillam	**Subject affiliation:** City of Chubbuck
Subject contact information: dhillam@cityofchubbuck.us; 208-239-3239	
Interview date: 5/27/20	**Interview time:**
Interview location: Chubbuck, ID	
Interview format (circle one): In Person Phone Mail (Email) Other:	
Interview category: Local Government	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date? Yes and somewhat.

2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future? Not really. I believe that groundwater remediation was supposed to have commenced but haven't heard anything about it. The only information that I am aware of generally on this Site comes from media reports on various topics.

3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing? Not that I am aware of

4. Are you aware of any changes to state or Tribal laws, or local regulations that might affect the protectiveness of the Site's remedy? No

5. Are you aware of any changes in projected land use(s) at the Site? No

6. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future? While EPA may be informing those directly adjacent to the Site on a regular basis, the City of Chubbuck does not receive regular information. Annual information of report and activity summaries may be helpful to parties in the vicinity.

7. Do you have any comments, suggestions or recommendations regarding the project? No

8. Do you consent to have your name included along with your responses to this questionnaire in the FYR report? Yes

Eastern Michaud Flats (EMF) Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name:	**Interviewer affiliation:**
Subject name: (b) (6) **, Chair PRC**	**Subject affiliation: Portneuf Resource Council (PRC)**
Subject contact information: (b) (6) (b) (6)	
Interview date:	**Interview time:**
Interview location:	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Community Organization – Portneuf Resource Council	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

- PRC has collective knowledge of the Environmental Issues at the Site and insight into cleanup activities.
- Many PRC members and (we believe) the public at large have only vague knowledge of the issues and past activities. There are many residents who have moved here in the last ten years who do not know there is a superfund site just a few miles northeast of Pocatello and that there are related local environmental concerns and issues.
- PRC's position:
    - There has not been full disclosure with the public regarding the ongoing problems and issues with the Eastern Michaud Flats (EMF) Superfund Site and its associated contaminants.
    - There has not been adequate attention and respect to environmental justice issues associated with lower income populations in Chubbuck and on the Fort Hall Indian Reservation.
    - Without full disclosure to the public and adequate impact studies, local governments and agencies have allowed economic development in the area affected by the EMF Site and associated active facilities, including schools (Connor Academy), businesses, and elderly and low-income housing development.
    - PRC opposes local, federal and state government actions that are actively pursuing approval for the Simplot Don Plant to expand the land area around the current waste piles for more phosphogypsum disposal, a byproduct of Don Plant processing. These waste piles qualify as hazardous waste under non-phosphate processing rules.
        - Phosphogypsum mountains adjacent to the Don Plant contain toxic metals and radionuclides that occurred naturally in the phosphate ore but are concentrated in the leachable phosphogypsum process waste.
        - These phosphogypsum "stacks" are principally responsible for the arsenic, phosphorous, and radionuclide (and other) contamination detectable in groundwater, surface water and soils. These are the contaminants that resulted in designation of the Superfund Site in 1990.
    - P4, elemental (white) phosphorous, is a hazardous material once produced by the FMC facility.
        - When the FMC plant was closed in 2001 and dismantled, tons of P4 were left behind at the site in buried piping (and other industrial plant infrastructure), in capped waste ponds, and in the waste slag piles (including 22 buried railway cars containing an unknown amount of P4).
        - Phosphine gas, produced from buried wastes containing elemental phosphorus at the site, is produced. Several of the capped waste ponds at the site are actively producing

phosphine gas now. At one pond, the gas is collected and disposed offsite. The other ponds are monitored for phosphine production levels in soil gas and in the pores of the soil caps.

- In addition, slag from elemental phosphorus production contains other toxic metals and radionuclides that occurred naturally in the phosphate ore material.
  - For decades (1940's, at least, to 2001) radionuclides were concentrated in the slag waste and emitted into the air during processing at FMC.
  - And for decades (1950's to 1990), local governments, industries, and private entities used crushed slag from FMC as road base, gravel to cover parking lots, and gravel on urban and rural roads, perhaps even in construction of structures.
  - There is so much slag in the roads in Pocatello and Chubbuck that an aerial radiation survey (1986 – 1988, published in 1990) accurately defined the local road networks just from their radiation signature.
  - **This is unacceptable and has not been adequately communicated to the local community.**
- The EPA issued an Interim Record of Decision Amendment (IRODA) in September 2012 for the FMC Operable Unit (OU) and a Unilateral Administrative Order (UAO) in June 2013 directing FMC to implement the remedy specified in the IRODA.
  - Both the EPA and the companies (FMC and Simplot) are acting as though this interim ROD is a final remedy. It is not. The Tribes did not agree that this was an acceptable remedy, nor did the local communities at large.
  - At this point in the project, there are significant differences from the conditions of the IRODA and there have been significant findings since the IRODA that all warrant an Explanation of Significant Differences (ESD) and warrant negation of the 2012 IRODA.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

- The project and cleanup/reuse and remediation activities have been inadequate and poorly communicated. Although the EPA-prescribed steps in the CERCLA process have mirrored the EPA guidelines, there are significant points in the process which have failed to recognize Tribal concerns and local community concerns.
  - FMC drove development of the State of Idaho parcel of land that lies between the Simplot and FMC facility locations, allowing Valley Agronomics to build and operate on the EMF property. Neither the EPA nor the State of Idaho tried to stop this process and allowed this use of EMF property before final remedial decisions were made.
  - FMC is leaving behind hundreds of tons of buried white phosphorous at the FMC site and is just covering it up with small amounts of soil and hoping to walk away with no further responsibility. The Tribes requested from Argonne National Laboratory an evaluation of current and reasonable technologies to remove the buried white phosphorous, which FMC maintains is not removable. This report, provided to the EPA and the companies, detailed that there were methods to safely remove white phosphorous from soil interstices and from buried infrastructure. The EPA has not responded to this report.

3. What have been the effects of this Site on the surrounding community, if any?

The effects of the EMF Site on the surrounding community are severe.

- The Simplot Don Plant, still in operation, continues to exceed the fluoride standard in vegetation within a 2-mile radius of the plant and in their air emissions. The State of Idaho Voluntary Consent Order that requires them to reduce fluoride emissions over the next 10 years is inadequate. The Don Plant is over 80 years old and Simplot expects to process ore there for the next 100 years, provided ore is available from Southeast Idaho or some other phosphate source. Expansion of this facility is unacceptable in the

Pocatello area with a downwind population of over 70,000 people primarily confined within an enclosed basin.

- Air emissions from Simplot are frequently entrapped by climate conditions and often fill in the northern part of the Pocatello/Chubbuck airshed basin, especially in winter. In addition, during dryer times of the year, particulate material blows off the phosphogypsum stack and into the valley. These air emissions and dust, both containing contaminants of concern from the Superfund Site including radionuclides, affect many residential, commercial, and school properties in the northern end of the Pocatello valley.
- The communities, counties, cities, federal and state agencies have allowed the construction and operation of schools (e.g. Connor Academy) within the radius of influence (approximately one mile downwind) of the EMF and associated facilities.
- The local government allow the real estate and development industry continue to sell properties and develop properties without fair and full disclosure to residents that they are within the radius of influence for contamination from the EMF and associated facilities (air, groundwater, surface water, and soil).
- Although the practice of using crushed slag material (which in some cases includes particles of elemental phosphorus) on public roads and parking lots has ceased (that we know of), the practice occurred for decades in Southeast Idaho. This radioactive Superfund waste is spread all over Pocatello and Chubbuck. The EPA has chosen to ignore this fact and has refused to address the effects on the community or to require removal of the material from local roads and parking lots.
- Contaminated groundwater from the EMF discharges to the Portneuf River through springs and underflow. These discharges are not regulated or enforced except by a Voluntary Consent Order with the State of Idaho. Recently, April 2020, the Supreme Court ruled that the Clean Water Act applies to some pollutants that reach the sea and other protected waters indirectly through groundwater. In a 6-to-3 ruling, the court rejected arguments by a county in Hawaii and the Trump administration that only pollution discharged directly into navigable waters requires permits. Contaminants in groundwater from FMC and Simplot that enter the Portneuf River clearly meet the same condition as the Hawaii case as the Portneuf River discharges into the Snake River which discharges into the Columbia River and then into the Pacific Ocean. It is only a matter of time before this issue is litigated.
- The Final Environmental Impact Statement (FEIS) for the Blackrock Land Exchange, currently open for public comment, recommends approval of an exchange of land between Simplot and the BLM to allow expansion of the phosphogypsum waste piles around the Simplot Don Plant so that processing of phosphate ore can continue “for the next 100 years”.
    - Simplot wants federal lands south and east of the current phosphogypsum stack for expansion of their waste disposal in exchange for Simplot-owned land in the Blackrock Area east of Pocatello near Inkom, Idaho.
    - The Blackrock FEIS fails to adequately evaluate the impacts of this action. Instead, the BLM-hired subcontractor (paid for by Simplot) merely compiled data and information from existing documents about the area. Some data in the report are more than a decade old and their use in the FEIS is inappropriate and misleading.
    - It is highly likely that the expansion of the phosphogypsum stack and associated cooling ponds will result in additional spread of contamination over time, even if mitigation measures are taken such as using membrane liners underneath phosphogypsum stack material. The functional lifetime of synthetic materials used as barriers to infiltration is limited relative to the presence and leachability of the waste material. Additional contamination of groundwater and surface water will continue in perpetuity, regardless of what Simplot does, short of completely removing all phosphogypsum from the area.
- The Simplot Don Plant and the former FMC plant have, since their construction, been visual eyesores for the community.
    - People arriving in Pocatello either by interstate or by air travel are visually greeted by a large, smoking industrial complex surrounded by mountain-sized waste piles. (Personal account from M. Engle, Director Technology Development of ON Semiconductor *retired*: on occasion, Director and VP new hire candidates for positions with AMI Semiconductor and/or ON Semiconductor would be flown into SLC, driven to Pocatello through the gap to prevent the dirty FMC/Simplot sites being the first impression of the community).

    - Recent economic and residential development in the Pocatello and Chubbuck area, the Northgate Project, "will be a walkable (master planned) community adding thousands of jobs, as well as homes, a technology park and a shopping district," says Mayor Brian Blad. The location of this Project is on the low hills' northeast of Pocatello. This hillside slopes to the west giving the Northgate Project and the new Church of Jesus Christ of Latter-day Saints Temple a view of the Simplot Don Plant. This will be an economic disincentive if the Blackrock Land Exchange is approved and the phosphogypsum stacks and slag piles grow further
- For the viability of their hundred-year plan, the Simplot company should consider moving processing operations from Pocatello and Chubbuck to Soda Springs, nearer the locations of their mines and in an area less populated than Pocatello and Chubbuck. It is a likely occurrence that an expansion of the phosphogypsum stack and associated evaporative cooling ponds will result in expansion of the area of the EMF Superfund Site as contamination from the stack and ponds will spread, regardless of efforts to contain it.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

- PRC is not aware of vandalism nor trespassing incidences at the Site.
- However, because of the industrial nature of activities at the active Simplot Don Plant there have been other unusual or unexpected activities:
    - Failure of a water containment dam/berm on top of the phosphogypsum stack that contains wastewater from the facility as an evapotranspiration pond. The failure occurred at the edge of the pond that abutted Bureau of Land Management property. Water leaked out of the pond and down between the mountainside on the BLM land and the mass of the phosphogypsum stack creating a potential slide risk of the waste material.
    - Various other failures of water containment structures on the phosphogypsum pile caused slurry slides and mass wasting of the pile, some slides reaching to the back door of the Simplot facility. Repairs of these slides is common.
    - There have been massive underground leaks of contaminated fluid from the acid production plant.

5. Has the EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can the EPA best provide site-related information in the future?

- The EPA and the companies party to the EMF site have failed to keep local environmental groups and citizens informed of activities at the Site.
- Currently, there is no active mechanism for transmitting up-to-date information to the public regarding remedial activities at EMF.
- Since the EPA community-based position that was once located in Pocatello was eliminated in 2011, there is no longer an EPA presence here nor a coordinated understanding of all environmental media, cross program coordination, multi-jurisdiction coordination and public involvement.
- With the turnover of seasoned EPA staff since 2016, there is a loss of visibility both within the agency and across the regional community regarding site history, ongoing concerns/needs, cross-governmental jurisdictions (EMF is in Power County, Bannock County and within the Fort Hall Reservation boundary), and IDEQ concerns/jurisdiction.
- PRC requests further public communication on the EPA remediation, the State's Consent Order with Simplot on water quality, the State's air permit for Simplot and what risks exist for the community in perpetuity.
- Full transparency is needed between jurisdictions, local authorities and impacted communities to effectively communicate and inform the public regarding environmental concerns and status such as air emissions, dust, surface and groundwater quality, closed hazardous waste pond management, hazardous waste management and administrative controls management.

6. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

    - The EPA Remedial Project Manager (RPM) and staff of technical experts should meet regularly with (quarterly or semiannually) and should give presentations to:
        - Regularly scheduled City Council meetings in Pocatello
        - Regularly scheduled City Council meetings in Chubbuck
        - Regularly scheduled Tribal Council meetings
        - Regularly scheduled presentations to local groups including the Portneuf Resource Council, the League of Women Voters, the Sierra Club, the Idaho Conservation League, and the Greater Yellowstone Coalition, etc.
        - Record the presentation at the local TV stations and post on the station website for citizens to access,
        - Publish an update in the local newspaper at least once a year.
    - EMF Site is managed as though it were two independent and unrelated Superfund Sites. However, both sites are very much related. Most of the contaminants of concern are the same between the two facilities, even though the processes extracting economic minerals from the ore are different. At present, there are discrepancies and disagreements between the conceptual groundwater flow models for FMC and Simplot. The RPM has not rectified these differences allowing the companies to move in potentially conflicting directions. It is very likely that FMC's arsenic, phosphorous, elemental phosphorous, radionuclides, and other toxic metals are in groundwater beneath both their site and this contaminated groundwater flows east to mingle with the contaminated groundwater beneath the Simplot facility and then discharges into the Portneuf River at springs along the river channel and by underflow into the river.
    - **The discrepancies and disagreements between the conceptual groundwater flow models for FMC and Simplot must be rectified.** The RPM needs to champion rectifying these differences, clearly identify the implications for public health, and get both companies moving in the same direction.

7. Do you consent to have your name and organization's name included along with your responses to this questionnaire in the FYR report?

    Yes. As a final comment, PRC is concerned about the EPA as an agency, budget and staff cuts, and the rule changes to National Environmental Policy Act, Clean Water Act, Clean Air Act and Endangered Species Act.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name: EPA	Interviewer affiliation: EPA
Subject name: (b) (6)	Subject affiliation: Portneuf Resource Council
Subject contact information: (b) (6) Pocatello, ID 83201. (b) (6)	
Interview date: comments submitted 6/10/2020	Interview time: na
Interview location: na	
Interview format (circle one): In Person Phone Mail Email Other:	
Interview category: Community organization - Portneuf Resource Council Policy Analyst/Member	

1. **Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?**

Yes, I am more than aware. I am an environmental hydrogeologist with over 30 years of work experience with CERCLA cleanup at hazardous waste sites: 21 years at the Idaho National Laboratory, over 7 years with the Idaho State Department of Environmental Quality, and over 4 years with the Shoshone-Bannock Tribes Environmental Waste Management Program. I have lived in Pocatello over 33 years.

There has not been full disclosure with the public regarding the ongoing problems and issues with the EMF Site and its associated contaminants. Nor has there been adequate attention and respect to environmental justice issues associated with lower income populations in Chubbuck and on the Fort Hall Reservation. In addition, local governments and agencies have allowed economic development in the area affected by the EMF and associated active facilities, including schools, businesses, and elderly and low-income housing development. And finally, local federal and state government are actively pursuing approval for the Simplot Don Plant to expand the land area around the current waste piles (that also would qualify as hazardous waste under non-phosphate processing rules) as additional land for phosphogypsum disposal. a byproduct of Don Plant processing. The existing phosphogypsum mountains adjacent to the Don Plant contain toxic metals and radionuclides that occurred naturally in the phosphate ore but are concentrated in the leachable phosphogypsum process waste. These phosphogypsum "stacks" are principally responsible for the arsenic, phosphorous, and radionuclide (and other) contamination detectable in groundwater, surface water and soils that resulted in designation of the Superfund Site in the first place.

P4, elemental (white) phosphorous, is a hazardous material once produced by the FMC facility. When the FMC plant closed and was dismantled, tons of P4 was left behind at the site in buried piping and other industrial plant infrastructure, in capped waste ponds, and in the waste slag piles (including 22 buried railway cars containing an unknown amount of P4).

Phosphine gas, produced from buried wastes containing elemental phosphorus at the site, is produced. Several of the capped waste ponds at the site are actively producing phosphine gas now. At one pond, the gas is collected and disposed offsite. The other ponds are monitored for phosphine production levels in soil gas and in the pores of the soil caps. Current information from the project indicates that phosphine gas is being produced from elemental phosphorus-containing materials buried at the site.

In addition, slag from elemental phosphorus production contains other toxic metals and radionuclides that occurred naturally in the phosphate ore material. For decades, radionuclides were concentrated in the slag waste and emitted into the air during processing at FMC. And for decades, local governments, industries, and private entities used crushed slag from FMC as road base, gravel to cover parking lots, and gravel on rural roads, perhaps even in construction of structures. There is so much slag in the roads in Pocatello and Chubbuck that a one-time aerial radiation survey accurately defined the local road networks just from their radiation signature. This is unacceptable and has not been adequately communicated to the local community.

I am aware that the EPA issued an Interim Record of Decision Amendment (IRODA) in September 2012 for the FMC Operable Unit (OU) and a Unilateral Administrative Order (UAO) in June 2013 directing FMC to implement the remedy specified in the IRODA. Both EPA and the companies (FMC and Simplot) behave as though this interim ROD is a final remedy. It is not. The Tribes did not agree that this was an acceptable remedy at all, nor did segments of the local community. At this point in the project, there are significant differences from the conditions of the IRODA and there have been significant findings since the IRODA that all warrant an Explanation of Significant Differences (ESD) and warrant negation of the 2012 IRODA.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The project and cleanup/reuse and remediation activities have been an embarrassment and frustration. Although the EPA-prescribed steps in the CERCLA process have mirrored the EPA guidelines, there are significant points in the process in which have totally failed to make any sense other than the companies running over the EPA or the EPA failing to recognize Tribal concerns and community concerns. For example, as the former Remedial Project Manager, Kira Lynch, negotiated the IRODA, there came a point at which her communication with the Tribes and the community failed so badly that the Tribes told EPA that she would never be allowed to step foot on the Fort Hall Reservation again. Either in retaliation to or as a precursor to this action, she forced the IRODA through the process in a manner that was disrespectful and offensive to the Tribes and community.

In another example, FMC (Paul Yochum, former FMC Plant manager, in particular) ramrodded development of the State of Idaho parcel of land that lies between the Simplot and FMC facility locations, allowing Valley Agronomics to build and operate on the EMF property. Neither EPA nor the State of Idaho tried to stop this process and allowed, under duress, this use of EMF property before final remedial decisions were made.

FMC is leaving behind, hundreds of tons of buried white phosphorous at the FMC site and just covering it up with small amounts of soil and hoping to walk away with no responsibility. The Tribes requested from Argonne National Laboratory an evaluation of current and reasonable technologies to remove the buried white phosphorous, which FMC maintains is not removable. This report, provided to EPA and the companies, detailed that there were methods to safely remove white phosphorous from soil interstices and from buried infrastructure. However, EPA has ignored this report. Because the buried white phosphorous is within the boundaries of the Fort Hall Indian Reservation, this is an environmental justice issue that should be litigated.

3. What have been the effects of this Site on the surrounding community, if any?

The effects of the EMF Site on the surrounding community are severe. The Simplot Don Plant, still in operation, continues to exceed the fluoride standard in vegetation within a 2-mile radius of the plant and in their air emissions. The State of Idaho refuses to force compliance, with the exception of a Voluntary Consent Order requiring them to reduce emissions over the next 10 years. This is unacceptable. They should be fined and emissions should be cleaned up much sooner. The Don Plant is over 80 years old and Simplot expects to process ore there for the next 100 years, as long as ore is available from Southeast Idaho or some other phosphate source. Applying "band aids" to an 80-year old facility is unacceptable in an area with a population of over 70,000 people that are primarily confined within a partially enclosed basin like the Pocatello area. Although groundwater contamination from Simplot and FMC does not have an effect on the drinking water sources for Pocatello or Chubbuck, air emissions from Simplot are frequently entrapped by climate conditions and often fill in the northern part of the Pocatello/Chubbuck airshed basin, especially in winter. In addition, during dryer times of the year, particulate material blows off of the phosphogypsum stack and into the valley. These air emissions and dust, both containing contaminants of concern from the Superfund Site, affect many residential, commercial, and school properties in the northern end of the Pocatello valley.

The communities, counties, cities, federal and state agencies have allowed the construction and operation of schools within the radius of influence (approximately one mile downwind) of the EMF and associated facilities. The local real estate and development industry continue to sell properties and develop properties without fair and full disclosure to residents that they are within the radius of influence for contamination from the EMF and associated facilities (air, groundwater, surface water, and soil). This is a criminal act of irresponsible government.

Although the practice of using crushed slag material (which in some cases includes particles of elemental phosphorus) on public roads and parking lots has ceased, that we know of, the practice occurred for decades in Southeast Idaho. As mentioned above, the slag is measurably radioactive. This radioactive Superfund waste is spread all over Pocatello and Chubbuck. EPA has chosen to ignore this fact and has refused to address the affects of this on the community or to require removal of the material from local roads and parking lots. Also, this is an unacceptable and unfortunate legacy of FMC in this community and I fully

believe that someday it will become an issue that will have to be addressed. It is certainly a litigious issue. It affects not only the residents of the community but also the economic development of the area, as does the EMF Site.

As mentioned above, contaminated groundwater from the EMF discharges to the Portneuf River through springs and underflow. These discharges are not regulated or enforced except by another Voluntary Consent Order with the State of Idaho. Recently, April 2020, the Supreme Court ruled that the Clean Water Act applies to some pollutants that reach the sea and other protected waters indirectly through groundwater. In a 6-to-3 ruling, the **court** rejected arguments by a county in Hawaii and the Trump administration that only pollution discharged directly into navigable waters requires permits. Contaminants in groundwater from FMC and Simplot that enter the Portneuf River clearly meet the same condition as the Hawaii case as the Portneuf River discharges into the Snake River which discharges into the Columbia River and then into the Pacific Ocean. It is only a matter of time before this issue is pursued in court.

The Final Environmental Impact Statement (FEIS) for the Blackrock Land Exchange, currently open for public comment, recommends approval of an exchange of land between Simplot and the BLM to allow expansion of the phosphogypsum waste piles around the Simplot Don Plant so that processing of phosphate ore can continue "for the next 100 years". Simplot wants federal lands south and east of the current phosphogypsum stack for expansion of their waste disposal in exchange for Simplot-owned land in the Blackrock Area east of Pocatello near Inkom, Idaho. The Blackrock FEIS fails to adequately evaluate the impacts of this action. Instead, the BLM-hired subcontractor (paid for by Simplot) merely compiled data and information from existing documents about the area. Some data in the report are more than a decade old and their use in the FEIS is inappropriate and misleading. As mentioned before in this testimony, it is highly likely that the expansion of the phosphogypsum stack and associated cooling ponds will result in additional spread of contamination over time, even if mitigation measures are taken such as using membrane liners underneath phosphogypsum stack material. The functional lifetime of synthetic materials used as barriers to infiltration is very limited relative to the presence and leachability of the waste material. Additional contamination of groundwater and surface water will continue in perpetuity, regardless of what Simplot does, short of completely removing all phosphogypsum from the area.

The Simplot Don Plant and the former FMC plant have, since their construction, been visual eyesores for the community. People arriving in Pocatello either by interstate or by air travel are visually greeted by a large, smoking industrial complex surrounded by mountain-sized waste piles. After the FMC plant closed and above-ground infrastructure deconstructed, the view improved very slightly. However, as Simplot continues to operate, their waste stacks grow in height and area. Recent economic and residential development in the Pocatello and Chubbuck area, the Northgate Project, "will be a walkable (master planned) community adding thousands of jobs, as well as homes, a technology park and a shopping district," says Mayor Brian Blad. The location of this Project is on the low hills northeast of Pocatello. This hillside slopes to the west giving the residents and workers of the Northgate Project a spectacular view of the sunset through the air emissions of the Simplot Don Plant (a Simplot

Sunset!). In addition, as the phosphogypsum stack grows in height and area, particularly if the Blackrock Land Exchange is approved, the view to the west from the Northgate Project and the new Church of Jesus Christ of Latter-day Saints Temple (currently under construction) will be increasingly marred by the dark gray phosphogypsum stack. Who in their right mind would build a multimillion-dollar home with this view out of their west facing picture windows? And, what clean and high-tech company would build in this area, expecting their employees and families to move here?

The Simplot Don Plant should be closed. The Simplot company should move processing operations from Pocatello and Chubbuck to Soda Springs, nearer the locations of their mines and in an area less populated than Pocatello and Chubbuck. It is a likely occurrence that an expansion of the phosphogypsum stack and associated evaporative cooling ponds will result in expansion of the area of the EMF Superfund Site as contamination from the stack and ponds will spread, regardless of efforts to contain it. The Simplot company mentality is to do the job poorly and cheaply the first time, ask for forgiveness when they make a mess, and then drag their feet on cleanup. They spend a lot of their money whining to federal and state agencies that they are unable to afford doing the job right.

4. **Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?**

I am not aware of emergency response, vandalism, or trespassing incidences at the Site, however, I have no doubt that there may have been occurrences because of the industrial nature of activities at the active Simplot Don Plant.

Other types of occurrences of which I am aware include: 1) failure of a water containment dam/berm on top of the phosphogypsum stack that contains wastewater from the facility as an evapotranspiration pond. The failure occurred at the edge of the pond that abutted Bureau of Land Management property and water leaked out of the pond and down through the contact between the mountainside on BLM land the mass of the phosphogypsum stack, representing a potential slide risk of the waste material mass; 2) various other failures of water containment structures on the phosphogypsum pile that caused slurry slides and mass wasting of the pile, some slides reaching to the back door of the Simplot facility. Repairs of these slides are not uncommon; and 3) massive underground leaks from the acid production plant.

5. **Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future?**

EPA and the companies party to the EMF site have done a very poor job keeping local environmental groups and citizens informed of activities at the Site after EPA eliminated the place-based position that was here for several years. Currently, there is no active mechanism for transmitting up-to-date information to the public regarding remedial activities at EMF. Although the Idaho State Department of Environmental Quality is involved in the projects, they are also less than forthcoming about what is being done at the site, other than outdated information on their website.

Since the EPA community-based position that was once located in Pocatello was eliminated, there is no longer an EPA presence here nor a coordinated understanding of all environmental media, cross program coordination, multi jurisdiction coordination and public involvement. In addition, with the turnover of seasoned EPA staff since 2016, there has been a loss of education both within the agency and outside locally regarding local history, needs, jurisdictions (EMF is in Power County, Bannock County and within the Fort Hall Reservation boundary), Tribal concerns and jurisdiction, IDEQ concerns and jurisdiction. It is known for certain that there is marginal communication and notification among these entities regarding cross-coordination about all environmental media such as air emissions, dust, surface and groundwater quality, closed hazardous waste pond management, hazardous waste management and administrative controls management. This is a very complex site with complex cross jurisdictional needs where full transparency is needed between jurisdictions, local authorities and impacted communities.

6. **Do you have any comments, suggestions or recommendations regarding any aspects of the project?**

Yes. First, I would recommend requiring that the EPA Remedial Project Manager and his staff of technical experts meet regularly with (quarterly or semiannually) and give presentations to: 1) a regularly scheduled City Council meeting in Pocatello. 2) a regularly scheduled City Council meeting in Chubbuck. 3) a regularly scheduled Tribal Council meeting, 4) a regularly scheduled presentation to local groups including the Portneuf Resource Council, the League of Women Voters, the Sierra Club, the Idaho Conservation League, and the Greater Yellowstone Coalition, etc., 5) record the presentation at the local TV stations and post on the station website for citizens to access, 6) write an exposé for the local newspaper at least once a year.

The current EPA Remedial Project Manager and his administration walk a thin line. They are beholden to the EPA administration, the US Government, and the State.... all who care nothing about getting this cleanup done in a manner that is technically safe, thorough, and in the best interest of the marginalized residents of the surrounding community, particularly the population on the Fort Hall Reservation. These government entities also kowtow to industry, no matter what they say, especially Simplot because it is an Idaho-based industry with close ties to State Government for decades.

The current RPM, Jonathan Williams, manages the EMF Site as though it were two independent and unrelated Superfund Sites. However, things could not be more different. In particular, most of the contaminants of concern are the same between the two facilities, even though the processes extracting economic minerals from the ore are different. For FMC, arsenic, phosphorous, elemental phosphorous, radionuclides, and other toxic metals are in groundwater beneath the facility. And, according to the current groundwater model, this contaminated groundwater flows east to mingle with the contaminated groundwater beneath the Simplot facility and then discharges into the Portneuf River at springs along the river channel and by underflow into the river. For Simplot, much of the contamination in groundwater occurs because toxic metals, phosphorous, and radionuclides have leached out

of and flow underneath the phosphogypsum mountains, also ending up mingling with FMC groundwater and also discharging into the Portneuf River. At present, there are many discrepancies and disagreements between the conceptual groundwater flow models for FMC and Simplot. The RPM does nothing to rectify these differences and allows the companies to move in somewhat conflicting directions. How can one determine remediation actions for the FMF site when you have conceptual models of groundwater flow, source areas, and hydraulic material properties that differ? The RPM does not have full control of the project and appears to lack the will and ability to effectively deal with two very strong-willed companies.

7. **Do you consent to have your name and organization's name included along with your responses to this questionnaire in the FYR report?**

   YES.

Eastern Michaud Flats Contamination SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Eastern Michaud Flats Contamination	
EPA ID: IDD984666610	
Interviewer name: Conor Neal	**Interviewer affiliation: EPA**
Subject name: Resident	**Subject affiliation: Resident**
Subject contact information:	
Interview date: 6/26/2020	**Interview time: 3pm MDT**
Interview location: Phone	
Interview format (circle one): In Person (Phone) Mail Email Other:	
Interview category: Resident	

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes – I was really aware up through 2011 and since then it has been hit or miss, it has been through folks I know that still work on the site, or maybe when the EPA comes to town I might get some updates. I often hear things through the "grapevine". I think there is a definite need to be more transparent about incidents occurring out there at Simplot. In some cases, the EPA may not even be aware because the state is the lead. The short answer is there is a real lack of information and knowledge of what the EPA is doing out there. There is vegetation now on the slag pile and folks see the agricultural products facility out at FMC. A lot of people trust that the EPA is doing everything they should to make sure the companies are doing what they should out there. But there are a lot of new people moving to town and they do not know there is a Superfund site out there. There is a real need for more information and regular information. Because of the turnover of elected officials here, something like an annual meeting with local city, county and tribal elected officials would be helpful.

   In terms of the Blackrock land exchange, the mayor had not been told that the [environmental impact statement] had a different preferred alternative than the one he was eventually told about.

   I am sure communication is worse due to Covid-19, but there is a need for more info. Our realtors may or may not disclose that there is a Superfund site upwind of where they are buying. The realtors may not even be aware.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   There is not a lot of information out there about the site. One of the things that is problematic is that if you come into Pocatello airport you have to drive by the site and there are certain weather conditions when the smells are stronger than other times. This can make it hard to recruit folks to move here. A lot of people have not come here because they do not want to expose their family to that stuff.

   One thing I really want to make you aware of is the lack of outreach to the elected officials. The [National Environmental Policy Act] people should be made aware that the [Environmental Impact Statement] preferred alternative [for the Blackrock land exchange] was a Canyon area that would not be viewed from the valley floor. Alternative B is going to bring the impacts of Simplot to Chubbuck and Pocatello. That has the potential of being problematic because no one has reached out to the community to let them know that their view will turn from natural hillside to industrial. From the Superfund perspective, this will allow the footprint of contamination to expand. There has got to be more public outreach. How can a Superfund site be allowed

to expand the footprint of contamination? It is bringing the gypstack closer to where people live. If you are in Bannock county you won't find things in the Bannock county recorder. The folks in Power county don't think of these things.

In the last 4 or 5 years they constructed a charter school within a mile of Simplot. There is also low-income housing being planned close to the industrial area.

Simplot is going to build two cooling ponds that will be visible from the valley floor. This is a dramatic change for folks moving to Idaho for the views, recreation and the accessibility to natural areas. Expanding that viewshed, as well as the contamination [in the Blackrock land exchange], toward the population center is something that should probably be looked at in a FYR. The Bureau of Land Management comment period on the proposed land exchange ends July 21st. If the final decision is changed enough, they should expand the comment period and community involvement period. It is a hot issue because the deadline is looming.

3. What have been the effects of this Site on the surrounding community, if any?

   Air emissions are huge. One thing that is problematic with Simplot is that there is a voluntary consent order for the ground water and surface water transmission area. There is a river vision plan with the city of Pocatello, and they are opening up sections of the river for recreation. We are getting more people in floating craft on the Portneuf. I assume there is going to be more interest from folks in the site and this is also a new opportunity to talk about the ground water to surface water issues. There is a huge amount of vegetative growth in the area. That is a popular fishing area and it will probably grow from Batiste downward. There is also a float area closer to Simplot.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

   I don't know about vandalism or trespassing. I know over 15 years ago people tried to dig through the cap to get the materials.

   The failure on the backside of the gypstack on Simplot was intriguing to me. I look at the whole the gypstack and scratch my head about seismic activity. Expanding the gypstack and making it taller concerns me, what if there was something that happened on the backside? But in the usual realm of things you don't hear anything. Occasionally, if there is something related to the air permit for Simplot, that may make the paper, but that is usually in terms of the phosphate fertilizer industry. The gypstack is double exempt. In this area we do get material blown off the gypstack that "doses" whoever is close. We had huge dust storms this spring and it can be tough for folks with pre-existing conditions. I understand that is a DEQ issue because of the air permit. The emissions go out of the stack during an inversion and go right to the valley floor. We are having warmer winters with fewer inversions, but this is still an issue and problematic. Everyone expects the EPA to keep DEQ honest.

5. Has the EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can the EPA best provide site-related information in the future?

   Some of the surrounding neighbors were interviewed before the IROD and I think a well was sampled north of Simplot. They also sampled some gardens and soils and things.

   I think a big effort with lots of interviews is needed. The EPA could reach out to cities, counties and Tribes to see if they would partner and sponsor meetings with the EPA. On Blackrock, the preferred alternative was dropped because of tribal resources. That is good, but it needs to be carefully addressed so it doesn't devolve into Tribes vs city population. The airport was supposed to revert to the Tribe after it was used for World War II, but then it went to the city. Racial bias issues will potentially make these things harder. There are newly

activated discussions here related to indigenous folks. This has the potential to bring us together as we are all neighbors, but this is a new door opening and a possible way to start some healing about the history here.

6. Do you own a private well in addition to or instead of accessing city/municipal water supplies? If so, for what purpose(s) is your private well used?

   I am on city water.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

   In terms of the Blackrock land exchange, the National Environmental Policy Act people need to get with public involvement.

   The road slag issue, what did the EPA ever do about the slag in the roads here. It used to be popular to use this slag in homes and alleys. These alleyways have deteriorated and these people that live near the alleyways may have a gamma exposure that hasn't been looked at. There used to be websites in the 1990's with the guidelines for use of slag from phosphorus/acid plants. That information is still the default of how to address slag in concrete in your homes. It included things like, don't have bedrooms in your basement and discussed safety issues because of the gamma issues.

APPENDIX G – SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Eastern Michaud Flats Contamination – FMC OU and Off-Plant OU	**Date of Inspection:** 06/23/2020
Location and Region: Pocatello, ID 10	**EPA ID: IDD984666610**
Agency, Office or Company Leading the Five-Year Review: EPA	**Weather/Temperature:** Sunny and 75 degrees farenheit

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☒ Other: groundwater monitoring sitewide, gas monitoring program at the FMC OU capped ponds.

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** Jacob Sloan (Name) KASE/Warbonnet, Inc (Title) 06/05/2020 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☒ Report attached: E-mail

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____
   See section XX and Appendix F of the current report for additional interviews that are site-wide.

4. **Other Interviews** (optional) ☒ Report attached: See section XX and Appendix F of the current report for additional interviews that are site-wide.

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☒ O&M manual	☒ Readily available	☒ Up to date	☐ N/A
☒ As-built drawings	☒ Readily available	☒ Up to date	☐ N/A
☒ Maintenance logs	☒ Readily available	☒ Up to date	☐ N/A

Remarks: _____

2.

Site-Specific Health and Safety Plan	☒ Readily available	☒ Up to date	☐ N/A
☒ Contingency plan/emergency response plan	☒ Readily available	☒ Up to date	☐ N/A

	Remarks: _____			
3.	**O&M and OSHA Training Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: _____			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
6.	**Settlement Monument Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: _____			
7.	**Groundwater Monitoring Records**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: _____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☒ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
10.	**Daily Access/Security Logs**	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: _____			

IV. O&M COSTS

1.	**O&M Organization**	
	☐ State in-house	☐ Contractor for state
	☐ PRP in-house	☒ Contractor for PRP
	☐ Federal facility in-house	☐ Contractor for Federal facility
	☐ _____	
2.	**O&M Cost Records**	
	☐ Readily available	☐ Up to date
	☐ Funding mechanism/agreement in place	☒ Unavailable
	Original O&M cost estimate: _____ ☐ Breakdown attached	
3.	**Unanticipated or Unusually High O&M Costs during Review Period**	
	Describe costs and reasons: _____	

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: Fencing surrounds the property. Around the main access points the fence is approximately 8 feet tall. At the rear of the property anad between FMC and Simplot OUs the fencing is ranch style fencing. All fencing was in good condition and appeared well and regularly maintained.

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☐ N/A

Remarks: There are signs indicating the property is private and there is no trespassing.

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by): Self reporting

Frequency: Quarterly

Responsible party/agency: PRP

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☒ Yes ☐ No ☐ N/A

Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☒ No ☐ N/A

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☒ ICs are inadequate ☐ N/A

Remarks: At the FMC OU, groundwater institutional controls have not been implemented for all FMC parcels and there are not institutional controls protecting the remedy components.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☐ N/A

Remarks: Valley Agriculture is now located on site.

3. **Land Use Changes Off Site** ☐ N/A

Remarks: There is new residential development in the off-plant OU, north of the FMC OU.

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads Damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on site map ☒ Settlement not evident
   Area extent: _____ Depth: _____
   Remarks: _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
   Lengths: _____ Widths: _____ Depths: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Area extent: _____ Depth: _____
   Remarks: _____

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
   Area extent: _____ Depth: _____
   Remarks: _____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established
   ☐ No signs of stress ☐ Trees/shrubs (indicate size and locations on a diagram)
   Remarks: Vegetation is appropriate for an arid climate in June. PRPs actively vegetate and work towards establishing the proper cover. There were some bare areas noted but there was a fair amount of healthy vegetation also noted. Vegetation on gamma and ET caps are monitored to ensure plant density does not decrease to the extent that it affects cap integrity and function. Per requirements in the OM&M Plan, each cap surface is divided into plots (10 acres or less) and visually inspected annually at the end of the growing season and compared to the performance standard (two-thirds of the surface must meet or exceed the minimum target density of 0.5 plants per square foot). If the performance standard is not met, reseeding is conducted. No plots required maintenance in 2019. The 2020 evaluation has not yet occurred.

6. **Alternative Cover** (e.g., armored rock, concrete) ☐ N/A
   Remarks: An alternative cover is bering used in the parking area at Valley Agricutlure.

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
   Area extent: _____ Height: _____
   Remarks: _____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Area extent: _____
   ☐ Ponding ☐ Location shown on site map Area extent: _____
   ☐ Seeps ☐ Location shown on site map Area extent: _____
   ☐ Soft subgrade ☐ Location shown on site map Area extent: _____
   Remarks: _____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map
   ☒ No evidence of slope instability
   Area extent: _____

Remarks: _____

B. Benches ☐ Applicable ☒ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

C. Letdown Channels ☒ Applicable ☐ N/A

(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ No evidence of settlement
   Area extent: _____ Depth: _____
   Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☒ No evidence of degradation
   Material type:_____ Area extent: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☒ No evidence of erosion
   Area extent: _____ Depth: _____
   Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☒ No evidence of undercutting
   Area extent: _____ Depth: _____
   Remarks: _____

5. **Obstructions** Type: _____ ☒ No obstructions
   ☐ Location shown on site map Area extent: _____
   Size: _____
   Remarks: _____

6. **Excessive Vegetative Growth** Type: _____
   ☒ No evidence of excessive growth
   ☐ Vegetation in channels does not obstruct flow
   ☐ Location shown on site map Area extent: _____
   Remarks: _____

D. Cover Penetrations ☒ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A
   Remarks: _____

2. **Gas Monitoring Probes**
   ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A

Remarks: _____

4. **Extraction Wells Leachate**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A

Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☒ N/A

Remarks: _____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

F. Cover Drainage Layer ☐ Applicable ☒ N/A

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

H. Retaining Walls ☐ Applicable ☒ N/A

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Area extent: _____ Depth: _____

Remarks: Small amounts of soil sediment was seen in some of the Smart Ditches. This was not enough to impede flow and the PRP contractor indicated they clean them out as needed.

2. **Vegetative Growth** ☐ Location shown on site map ☒ N/A

☐ Vegetation does not impede flow

Area extent: _____ Type: _____

Remarks: _____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident

Area extent: _____ Depth: _____

Remarks: _____

4. **Discharge Structure** ☒ Functioning ☐ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

The interim groundwater remedy is expected to be completed during the next FYR period (2020-2025). In the interim, FMC has been monitoring groundwater quality.

A. Groundwater Extraction Wells, Pumps and Pipelines ☐ Applicable ☒ N/A

B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☒ N/A

C. Treatment System ☐ Applicable ☒ N/A

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).

The interim soil remedy is mostly completed with only one small area remaining in RA-F. O&M has started for the soil remedy and the first year of O&M was completed in 2019 which including soil gas monitoring. The interim groundwater remedy is expected to be completed during the next FYR period (2020-2025). In the interim, FMC has been monitoring groundwater quality.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

FMC OU entered the O&M phase for the soil remedy in 2019. The first year of O&M generally indicated that the remedy is functioning as intended. The soil gas monitoring showed widespread detection of phosphine gas. While below the action level, these widespread detections are inconsistent with the Conceptual Site Model and additional work is planned to refine the soil gas monitoring program. The PRP uses contracotrs to assist with remedial action work.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None.

FMC OU and Off Plant OU Site Visit participants
Doug Tanner, IDEQ
Ralph Oborn, IDEQ
Paul Yochum, FMC
Jake Sloan, KASE/Warbonet
Mark Smith, KASE/Warbonet
Kelly Wright, Shoshone-Bannock Tribes
Susan Hanson, Shoshone-Bannock Tribes
Treat Suomi, Skeo

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Eastern Michaud Flats Contamination – Simplot OU	**Date of Inspection:** 07/22/2020
Location and Region: Pocatello, ID 10	**EPA ID: IDD984666610**
Agency, Office or Company Leading the Five-Year Review: EPA	**Weather/Temperature:** Mid 70's, overcast

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other: _____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** Monty Johnson (Name) | Senior Environmental Engineer (Title) | 06/03/2020 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) | _____ (Title) | _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

	Agency	Contact Name	Title	Date	Phone No.
	IDEQ	Margi English	Project Manager	06/03/2020	_____
	IDEQ	Paul Patchin	Hydro-geologist	06/04/2020	_____
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____

Problems/suggestions ☐ Report attached: _____

Name	Title	Date	Phone No.
Problems/suggestions ☐ Report attached:_____			

4. **Other Interviews** (optional) ☐ Report attached: _____

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☒ O&M manual	☒ Readily available	☒ Up to date	☐ N/A
☒ As-built drawings	☒ Readily available	☒ Up to date	☐ N/A
☒ Maintenance logs	☒ Readily available	☒ Up to date	☐ N/A

Remarks: _____

2. **Site-Specific Health and Safety Plan** ☒ Readily available ☒ Up to date ☐ N/A

☒ Contingency plan/emergency response plan ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

3. **O&M and OSHA Training Records** ☒ Readily available ☐ Up to date ☐ N/A

Remarks: _____

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	☐ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☐ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☐ N/A
☐ Other permits: _____	☐ Readily available	☐ Up to date	☐ N/A

Remarks: The current operating plant has permits for a variety of operations but does not have any permits related to Superfund action. There is a stormwater discharge permit with IDEQ for land application of stormwater from the OU. There is also a waste water disposal permit for current operations.

5. **Gas Generation Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

6. **Settlement Monument Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

7. **Groundwater Monitoring Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

8. **Leachate Extraction Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

9. **Discharge Compliance Records**

☐ Air	☐ Readily available	☐ Up to date	☒ N/A
☐ Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

10. **Daily Access/Security Logs** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for state

☐ PRP in-house ☒ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

☐ _____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place ☒ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: Fencing observed in good condition

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☐ N/A

Remarks: The facility is a secure plant with restricted access that operates 24 hours a day, 365 days a year.

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by): Site visit during FYR

Frequency: Every 5 years

Responsible party/agency: EPA

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☒ Yes ☐ No ☐ N/A

Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A

Violations have been reported ☐ Yes ☐ No ☒ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks: See the institutional control section of this FYR report for more details.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

Remarks: _____

3. **Land Use Changes Off Site** ☒ N/A

Remarks: _____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads Damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on site map ☒ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident

Lengths: _____ Widths: _____ Depths: _____

Remarks: _____

3.	**Erosion**	☐ Location shown on site map	☒ Erosion not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	**Holes**	☐ Location shown on site map	☒ Holes not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
5.	**Vegetative Cover**	☐ Grass	☐ Cover properly established
	☐ No signs of stress	☐ Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: Simplot will continue to expand the gypstack as part of continuing operations, therefore no vegetative cover is present.		
6.	**Alternative Cover** (e.g., armored rock, concrete)		☒ N/A
	Remarks: _____		
7.	**Bulges**	☐ Location shown on site map	☒ Bulges not evident
	Area extent: _____		Height: _____
	Remarks: _____		
8.	**Wet Areas/Water Damage**	☒ Wet areas/water damage not evident	
	☐ Wet areas	☐ Location shown on site map	Area extent: _____
	☐ Ponding	☐ Location shown on site map	Area extent: _____
	☐ Seeps	☐ Location shown on site map	Area extent: _____
	☐ Soft subgrade	☐ Location shown on site map	Area extent: _____
	Remarks: _____		
9.	**Slope Instability**	☐ Slides	☐ Location shown on site map
	☒ No evidence of slope instability		
	Area extent: _____		
	Remarks: _____		
B. Benches		☒ Applicable	☐ N/A
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☒ N/A or okay
	Remarks: _____		
2.	**Bench Breached**	☐ Location shown on site map	☒ N/A or okay
	Remarks: _____		
3.	**Bench Overtopped**	☐ Location shown on site map	☒ N/A or okay
	Remarks: _____		
C. Letdown Channels		☒ Applicable	☐ N/A
	(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill		

cover without creating erosion gullies.)

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ No evidence of settlement
   Area extent: _____ Depth: _____
   Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☒ No evidence of degradation
   Material type:_____ Area extent: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☒ No evidence of erosion
   Area extent: _____ Depth: _____
   Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☒ No evidence of undercutting
   Area extent: _____ Depth: _____
   Remarks: _____

5. **Obstructions** Type: _____ ☒ No obstructions
   ☐ Location shown on site map Area extent: _____
   Size: _____
   Remarks: _____

6. **Excessive Vegetative Growth** Type: _____
   ☒ No evidence of excessive growth
   ☐ Vegetation in channels does not obstruct flow
   ☐ Location shown on site map Area extent: _____
   Remarks: _____

D. Cover Penetrations ☐ Applicable ☒ N/A

1. **Gas Vents** ☐ Active ☐ Passive
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☒ N/A
   Remarks: _____

2. **Gas Monitoring Probes**
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

4. **Extraction Wells Leachate**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks: _____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs maintenance
Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs maintenance
Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs maintenance ☐ N/A
Remarks: _____

F. Cover Drainage Layer ☒ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☒ Functioning ☐ N/A
Remarks: _____

2. **Outlet Rock Inspected** ☒ Functioning ☐ N/A
Remarks: _____

G. Detention/Sedimentation Ponds ☒ Applicable ☐ N/A

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A
☒ Siltation not evident
Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____
☒ Erosion not evident
Remarks: _____

3. **Outlet Works** ☒ Functioning ☐ N/A
Remarks: _____

4. **Dam** ☐ Functioning ☒ N/A
Remarks: _____

H. Retaining Walls ☒ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☒ Deformation not evident
Horizontal displacement: _____ Vertical displacement: _____
Rotational displacement: _____

Remarks: _____

2. **Degradation** ☐ Location shown on site map ☒ Degradation not evident

Remarks: _____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

☐ Vegetation does not impede flow

Area extent: _____ Type: _____

Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Area extent: _____ Depth: _____

Remarks: _____

4. **Discharge Structure** ☐ Functioning ☐ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Performance Monitoring** Type of monitoring: _____

☐ Performance not monitored

Frequency: _____ ☐ Evidence of breaching

Head differential: _____

Remarks: _____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing and Electrical**

☒ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A

Remarks: _____

2. **Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☒ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

B. Surface Water Collection Structures, Pumps and Pipelines ☒ Applicable ☐ N/A

1. **Collection Structures, Pumps and Electrical**

   ☒ Good condition ☐ Needs maintenance

   Remarks: _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances**

   ☒ Good condition ☐ Needs maintenance

   Remarks: _____

3. **Spare Parts and Equipment**

   ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided

   Remarks: _____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (check components that apply)

   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

   ☐ Air stripping ☐ Carbon adsorbers

   ☐ Filters: _____

   ☐ Additive (e.g., chelation agent, flocculent): _____

   ☐ Others: _____

   ☐ Good condition ☐ Needs maintenance

   ☐ Sampling ports properly marked and functional

   ☐ Sampling/maintenance log displayed and up to date

   ☐ Equipment properly identified

   ☐ Quantity of groundwater treated annually: _____

   ☐ Quantity of surface water treated annually: _____

   Remarks: _____

2. **Electrical Enclosures and Panels** (properly rated and functional)

   ☐ N/A ☒ Good condition ☐ Needs maintenance

   Remarks: _____

3. **Tanks, Vaults, Storage Vessels**

   ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs maintenance

   Remarks: _____

4. **Discharge Structure and Appurtenances**

   ☐ N/A ☒ Good condition ☐ Needs maintenance

   Remarks: _____

5. **Treatment Building(s)**

   ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair

   ☐ Chemicals and equipment properly stored

   Remarks: _____

6. **Monitoring Wells** (pump and treatment remedy)

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☒ N/A

Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).

Source control actions were implemented during this FYR period, including lining of the gypstack and storm drain and sump repair work, and are reducing concentrations of phosphorus (and other COCs) in downgradient groundwater. These actions will take time to become fully effective (for example, to drain down seepage in the gypsum stack after lining) and for the effects to manifest at the Portneuf River (due to transport time in groundwater). The extraction system is not capturing the entire plume, with only 60% capture in 2018 and 2019. Operation of the groundwater extraction system is expected to continue to progress toward remedial goals, but it is unclear if the current system is capable of attaining the target concentrations in the river. The effectiveness of the groundwater extraction in attaining the TMDL in the Portneuf River downgradient of the Site should be evaluated and additional response actions considered.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Simplot conducts O&M activities for the groundwater extraction system and the gypstack in accordance with the 2012 and 2017 O&M plans, respectively.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

No unexpected issues were observed, however the extraction system is not capturing the entire plume, with only 60% capture in 2018 and 2019. Operation of the groundwater extraction system is expected to continue to progress toward remedial goals, but it is unclear if the current system is capable of attaining the target concentrations in the river. The effectiveness of the groundwater extraction in attaining the TMDL in the Portneuf River downgradient of the Site should be evaluated and additional response actions considered.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None at this time.

Simplot OU Site Inspection Team Roster

Simplot

- Monty Johnson, CERCLA Project Manager
- John Hewson, Don Plant Environmental Manager
- Sean Gumm, Gyp Stack Operator

Shoshone Bannock Tribes

- Susan Hansen

IDEQ

- Doug Tanner, Regional Remediation Manager

APPENDIX H – SITE INSPECTION PHOTOS

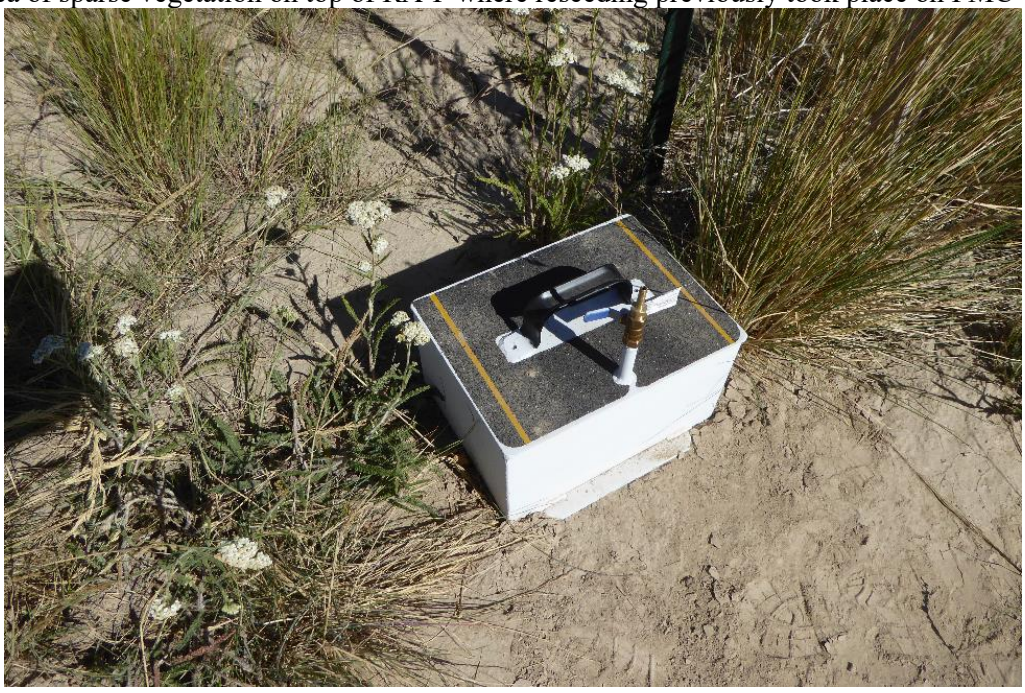
FMC OU Log-in center and locked gate

ValleyAg and capped parking area on FMC OU

Temporary storage area for drums containing segregated material from remaining soil remedy area on FMC OU

Soil depth indicator on top of RA-F on FMC OU

Area of sparse vegetation on top of RA-F where reseeding previously took place on FMC OU



Soil gas probe on top of RA-F at FMC OU

Fence around RCRA ponds and drainage ditch with minor sedimentation at FMC OU

Ranch style fencing along southern boundary at FMC OU

Simplot OU monitoring well along Frontage Road

FMC OU locked monitoring well at Batiste Spring

Simplot Don Plant Facility


New construction in the Off-Plant area on Cumberland Lane with gypstack in background

Siphon Road Bridge

Batiste Spring with gypstack in background

Gypstack

Northern Properties

Photographic Documentation

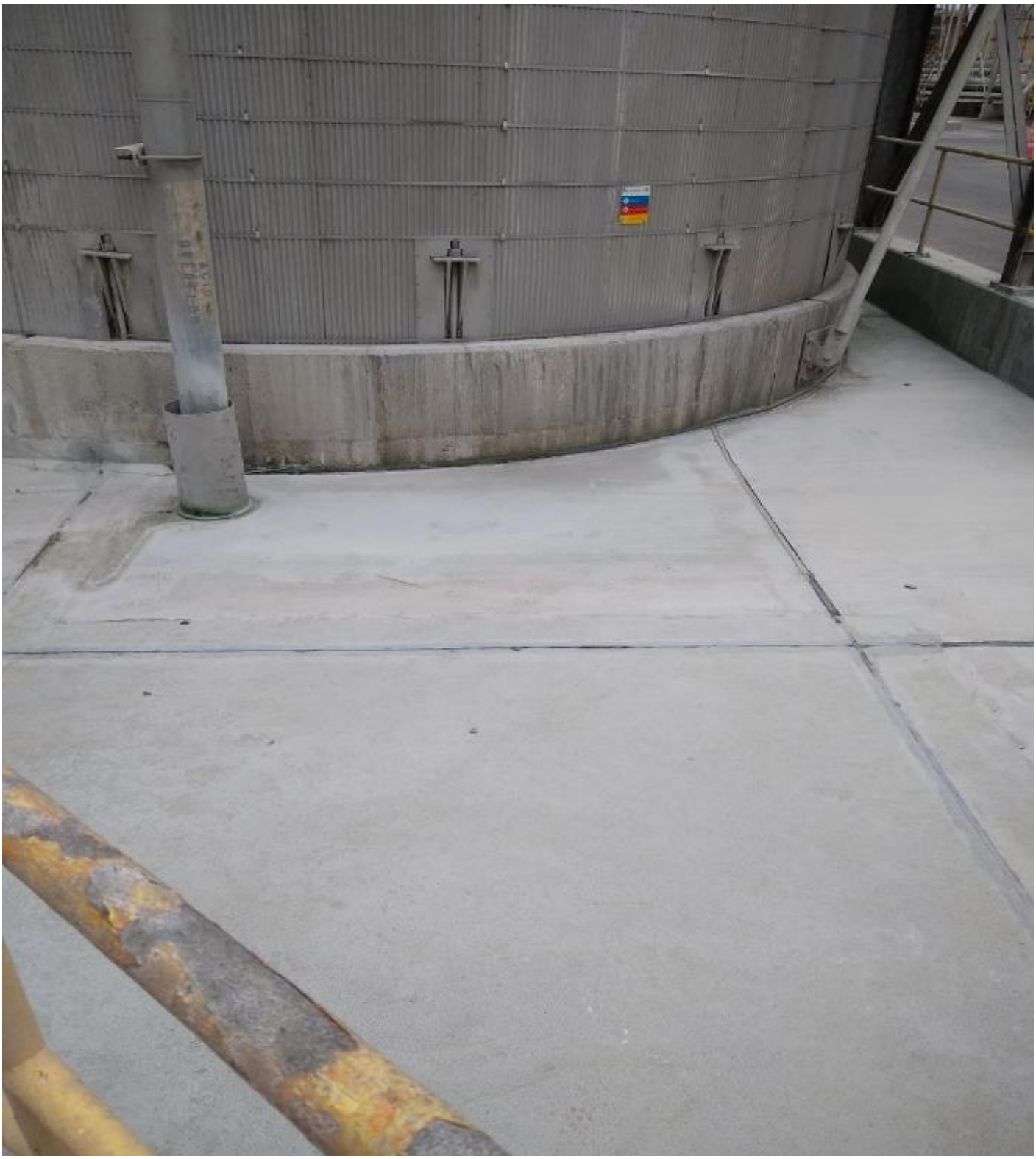
Name of Facility: Simplot Operable Unit

Inspector(s): Doug Tanner IDEQ; Susan Hansen SBT; Monty Johnson Simplot; John Hewson Simplot; Sean Gumm Simplot

Inspection Date: Wednesday, July 22, 2020

Purpose of Inspection: Five Year Review of the Eastern Michaud Flats CERCLA Site

Table of Photographs:



Photograph 1 - IMG_20200722_091547415: Phosphoric acid Plant; phosphoric acid tank sump pad repair, acid brick and mortar replaced by cement a impervious acid/heat resistance coating

Photograph 2 - IMG_20200722_091551584: Phosphoric acid Plant; phosphoric acid tank sump pad repair, acid brick and mortar replaced by cement a impervious acid/heat resistance coating

Photograph 3 - IMG_20200722_091607849: Phosphoric acid Plant; acid tank sump pad repair, expansion joints and floor and wall abutments

Photograph 4 - IMG_20200722_091755211_HDR: Phosphoric acid Plant; signage for Sump #7

Photograph 5 - IMG_20200722_091812963 (1): Sump #7; sump water

Photograph 6 - IMG_20200722_091812963: Sump #7; sump water (duplicate photo)

Photograph 7 - IMG_20200722_091848626_HDR: Sump #7; #1 secondary sump monitoring port, monitors between sump pad and within the interstitial

Photograph 8 - IMG_20200722_092110928: Sump #7; #2 secondary sump monitoring port, monitors below the interstitial containment and sump the su

Photograph 9 - IMG_20200722_092750527: Former Well #423 Treatment Facility; explanation of well 423 pump operation, bottom half is motor, middl area is well screen

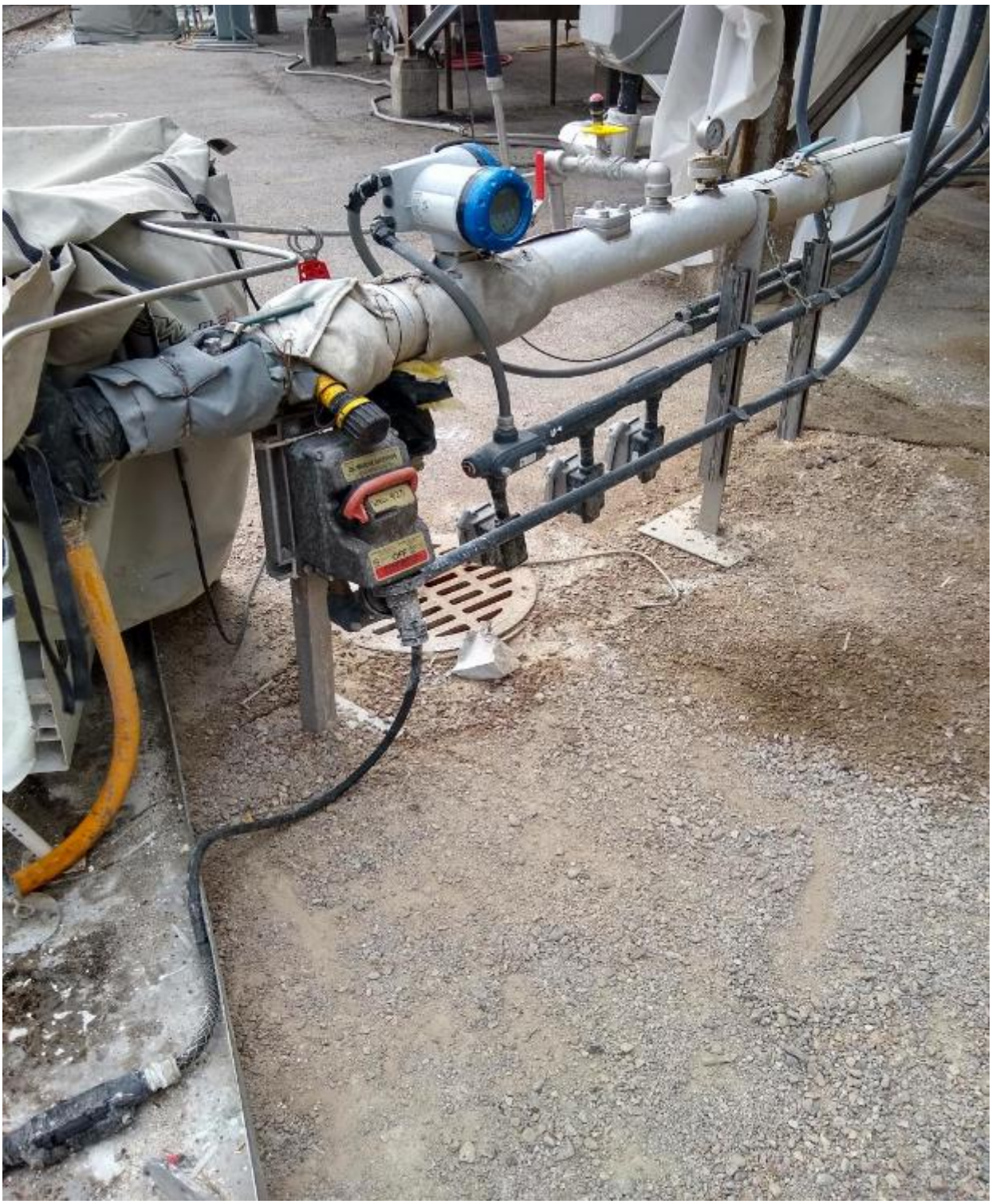
Photograph 10 - IMG_20200722_092754060: Former Well #423 Treatment Facility; explanation of well 423 pump operation, bottom half is motor midd area is well screen

Photograph 11 - IMG_20200722_093642710: Former Well #423 Treatment Facility: former mixing tank, new use, sign holder for RCRA satellite accum area

Photograph 12 - IMG_20200722_093654388: Inside former Well #419/423 Treatability Study Pilot tent; former milk of lime storage tank

Photograph 13 - IMG_20200722_094015451_HDR: Phosphoric Acid Plant; well #423; protective covering; winch used to set well pump; yellow hose co to pump at proper depth

Photograph 14 - IMG_20200722_094058503_HDR: Phosphoric Acid Plant; well #419. Setup is similar to well #423.



Photograph 15 - IMG_20200722_094154799_HDR: Well #419; piping and instrumentation used to route pumped water to the plant process

Photograph 16 - IMG_20200722_094812999_HDR: Well #419; flow meter in operation

Photograph 17 - IMG_20200722_102934849_HDR: Gypsum Stack; overlooking phase I lining area, equipment harvesting gypsum for future projects

Photograph 18 - IMG_20200722_102938195_HDR: Gypsum Stack; overlooking phase I lining area, equipment harvesting gypsum for future projects

Photograph 19 - IMG_20200722_102940227_HDR: Gypsum Stack; overlooking phase I lining area, equipment harvesting gypsum for future projects

Photograph 20 - IMG_20200722_103243135: Gypsum Stack; phase 7C, looking straight down slope, ballast rock at 50' bench for extension liner from P compartment

Photograph 21 - IMG_20200722_103247945_HDR: Gypsum Stack; phase 7C, looking straight down slope, ballast rock at 50' bench for extension liner f
Phase I compartment

Photograph 22 - IMG_20200722_103257013_HDR: Gypsum Stack; facing south toward Phase 4 (Slope lining project 7C)

Photograph 23 - IMG_20200722_103352893: Gypsum Stack; middle of picture, road 50' above phase I, phase I will grow to connect with Phase 4

Photograph 24 - IMG_20200722_103706566_HDR: Gypsum Stack; exposed liner in seepage collection ditch [Note: Exposed liner in decant ditches is n operation.]

Photograph 25 - IMG_20200722_105512907_HDR: Gypsum Stack; lateral piezometer, measures water under the liner

Photograph 26 - IMG_20200722_110213630_HDR: Gypsum Stack; upper 3/4 of picture, cross section of EMF Road 3

Photograph 27 - IMG_20200722_110220197: Gypsum Stack; upper 3/4 of picture, cross section of EMF road 3 (duplicate photo)

Photograph 28 - IMG_20200722_110802997: Gypsum Stack; survey monument for settlement measurement

Photograph 29 - IMG_20200722_110920856: Gypsum Stack; vertical piezometer, measures seepage through the liner

Photograph 30 - IMG_20200722_111509989_HDR: Gypsum Stack; decant ponds

Photograph 31 - IMG_20200722_111719935_HDR: Gypsum Stack; stake with orange tape, such as in foreground indicate no dig area as liner is less th below

Photograph 32 - IMG_20200722_114247955_HDR: Compliance Area; well 538, locked with bollard protection

Photograph 33 - IMG_20200722_115112768: Compliance Area; access to Batiste spring sample location was blocked, outflow of water north of sample

Photograph 34 - IMG_20200722_115116497_HDR: Compliance Area; access to Batiste spring sample location blocked by stinging nettle

Photograph 35 - IMG_20200722_120846331_HDR (1): Assessment Area; southern assessment area well clusters

Photograph 36 - IMG_20200722_121003167_HDR: Assessment Area; northern section; holding ponds for land application of non-process waters and stormwater

APPENDIX I – DATA TABLES

Table I-1: Simplot Extraction Well Operation Summary, 2015 to 2019

Extraction Well Area and Zone	Time Online (excluding scheduled downtime)	Annual Extraction Rates		
		Maximum (gallons per minute [gpm])	Average (gpm)	Total Extraction (million gallons)
Fenceline Area – Entire Zone (Target Extraction Rate range from 25 gpm to 45 gpm)				
2015	93.6%	67.4	46.9	24.7
2016	96.7%	169.5	51.6	27.2
2017	93.3%	82.1	37.2	19.6
2018	94.8%	76.1	36.6	19.3
2019	95.8%	84.9	30.7	16.2
Central Plant Area – Upper Zone (Target Extraction Rate ranges from 10 gpm to 35 gpm)				
2015	65.6%	33.1	14.5	7.6
2016	68.1%	36.0	18.2	9.6
2017	78.4%	38.9	16.4	8.7
2018	80.2%	31.3	13.4	7.0
2019	87.0%	32.1	15.2	8.0
East Plant Area – Upper Zone (Target Extraction Rate is 15 gpm)				
2015	93.7%	16.4	9.4	4.95
2016	95.6%	14.9	10.0	5.25
2017	75.1%	15.1	6.9	3.61
2018	90.6%	8.9	6.6	3.49
2019	92.0%	9.3	6.0	3.19
East Plant Area – Lower Zone (Target Extraction Rate ranges from 100 gpm to 400 gpm)				
2015	94.3%	216.0	141.2	74.4
2016	98.8%	219.7	131.6	69.3
2017	98.2%	233.3	101.5	53.5
2018	98.9%	279.6	131.8	69.5
2019	98.2%	288.8	117.2	61.7

Table I-2: Phosphorus Mass Flux in Groundwater – Central Plant Area

Quarter	Total P Mass Flux in Groundwater Downgradient of the PAP (lb/day)	Total P Mass Flux Decrease Relative to Q3 2013	Mass Extracted by Groundwater System (lb/day)	Fraction P Mass Removed	Mass Flux Migrating Downgradient in Groundwater (lb/day)
2013	1,364	34%	91	7%	1,273
2014	991	52%	276	28%	715
2015	464	77%	93	20%	371
2016	143	93%	93	65%	50
2017	137	93%	78	57%	60
2018	119	94%	72	61%	47
Q1 2019	346	83%	315	91%	32
Q2 2019	107	95%	66	62%	41
Q3 2019	105	95%	58	55%	47
Q4 2019	121	94%	87	72%	34

Notes:
Source: Table 10-4, 2019 Annual Monitoring Report
lb/day = pounds per day

Table I-3: Water level elevation data from vertical piezometers at the Lower Compartment of the gypsum stack

Date	P-1S & P-1D water level elevation corrected for settlement (feet)				P-2S & P-2D water level elevation corrected for settlement (feet)				P-3S & P-3D water level elevation corrected for settlement (feet)			
	P-1S	P-1D	gradient	direction	P-2S	P-2D	gradient	direction	P-3S	P-3D	gradient	direction
1/11/2013	4,606.6	4,576.9	0.80	↓	4,592.3	4,561.5	1.20	↓	4,591.3	4,570.2	0.90	↓
3/1/2013	4,604.8	4,575.8	0.78	↓	4,591.0	4,559.9	1.22	↓	4,589.1	4,568.4	0.89	↓
6/5/2013	4,603.7	4,574.0	0.80	↓	4,588.5	4,558.5	1.18	↓	4,587.3	4,567.5	0.86	↓
9/3/2013	4,603.6	4,573.9	0.81	↓	4,587.3	4,558.3	1.15	↓	4,585.6	4,566.7	0.82	↓
12/3/2013	4,603.5	4,573.4	0.82	↓	4,586.8	4,557.7	1.16	↓	4,584.6	4,566.4	0.80	↓
3/5/2014	4,603.4	N/A	N/A	N/A	4,585.3	4,558.2	1.09	↓	4,582.1	N/A	N/A	N/A
6/2/2014	4,603.3	N/A	N/A	N/A	4,584.3	4,556.6	1.12	↓	4,581.0	N/A	N/A	N/A
9/2/2014	4,604.3	N/A	N/A	N/A	4,587.6	4,558.4	1.18	↓	4,582.1	N/A	N/A	N/A
12/1/2014	4,604.9	N/A	N/A	N/A	4,590.5	4,559.8	1.25	↓	4,585.6	N/A	N/A	N/A
3/2/2015	4,603.2	N/A	N/A	N/A	4,589.4	4,560.4	1.18	↓	4,586.2	N/A	N/A	N/A
6/3/2015	4,603.1	N/A	N/A	N/A	4,587.1	4,558.6	1.17	↓	4,584.5	N/A	N/A	N/A
9/1/2015	4,608.4	N/A	N/A	N/A	4,585.4	N/A	N/A	N/A	4,582.9	N/A	N/A	N/A
12/2/2015	4,606.8	N/A	N/A	N/A	4,583.3	N/A	N/A	N/A	4,581.1	N/A	N/A	N/A
3/3/2016	4,603.1	N/A	N/A	N/A	4,582.2	N/A	N/A	N/A	4,579.7	N/A	N/A	N/A
6/1/2016	4,603.0	N/A	N/A	N/A	4,580.7	N/A	N/A	N/A	4,578.2	N/A	N/A	N/A
9/1/2016	4,603.0	N/A	N/A	N/A	4,579.6	N/A	N/A	N/A	4,578.1	N/A	N/A	N/A
12/2/2016	4,602.9	N/A	N/A	N/A	4,578.1	N/A	N/A	N/A	4,578.0	N/A	N/A	N/A
3/6/2017	4,602.8	N/A	N/A	N/A	4,577.4	N/A	N/A	N/A	4,578.0	N/A	N/A	N/A
6/1/2017	4,602.8	N/A	N/A	N/A	4,577.3	N/A	N/A	N/A	4,578.0	N/A	N/A	N/A
9/7/2017	4,602.7	Abandoned	N/A	N/A	4,577.3	Abandoned	N/A	N/A	4,578.0	Abandoned	N/A	N/A

Notes:
Source: Table 4-2, 2019 Annual Monitoring Report

Table I-4: Water Level Elevation Data from Replacement Vertical Piezometers at the Lower Main Compartment of the Gypsum Stack

Date	RP-1S water level elevation corrected for settlement (feet)			RP-1D water level elevation corrected for settlement (feet)			RP-2S water level elevation corrected for settlement (feet)		
	Baseline Elevation	Pressure (psi)	Water Elevation (FT)	Baseline Elevation	Pressure (psi)	Water Elevation (FT)	Baseline Elevation	Pressure (psi)	Water Elevation (FT)
8/7/2017	4,655.83	9.227	4572.11	4,655.83	1.660	4519.66	4,656.88	1.985	4576.46
8/30/2017	4,655.83	8.836	4571.21	4,655.83	2.356	4521.26	4,656.88	0.049	4571.99
9/18/2017	4,655.83	8.835	4571.21	4,655.83	2.418	4521.40	4,656.88	0.010	4571.90
10/9/2017	4,655.83	8.487	4570.40	4,655.83	2.201	4520.90	4,656.88	0.036	4571.96
11/22/2017	4,655.83	8.130	4569.58	4,655.83	2.018	4520.48	4,656.88	-0.057	4571.75
12/13/2017	4,655.83	7.946	4569.16	4,655.83	1.974	4520.38	4,656.88	-0.163	4571.50
1/17/2018	4,655.83	7.740	4568.68	4,655.83	1.906	4520.23	4,656.88	-0.130	4571.58
2/14/2018	4,655.83	7.847	4568.93	4,655.83	2.175	4520.85	4,656.88	-0.085	4571.68
3/5/2018	4,655.83	7.536	4568.21	4,655.83	1.929	4520.28	4,656.88	-0.129	4571.58
4/6/2018	4,655.83	7.678	4568.54	4,655.83	2.188	4520.88	4,656.88	-0.006	4571.87
5/7/2018	4,655.83	7.510	4568.15	4,655.83	2.080	4520.63	4,656.88	0.070	4572.04
6/4/2018	4,655.83	7.390	4567.87	4,655.83	2.050	4520.55	4,656.88	-0.020	4571.84
7/10/2018	4,655.83	7.170	4567.38	4,655.83	1.960	4520.35	4,656.88	0.010	4571.90
8/6/2018	4,655.83	7.046	4567.08	4,655.83	1.909	4520.23	4,656.88	-0.030	4571.81
9/10/2018	4,655.83	7.033	4567.05	4,655.83	1.996	4520.43	4,656.88	-0.026	4571.82
10/4/2018	4,655.83	6.960	4566.89	4,655.83	2.000	4520.44	4,656.88	-0.040	4571.78
11/9/2018	4,655.83	6.530	4565.90	4,655.83	1.670	4519.69	4,656.88	-0.160	4571.50
12/10/2018	4,655.83	6.470	4565.75	4,655.83	1.680	4519.70	4,656.88	-0.180	4571.46
1/15/2019	4,655.83	6.380	4565.54	4,655.83	1.686	4519.72	4,656.88	-0.195	4571.43
2/12/2019	4,655.83	NM	NM	4,655.83	1.700	4519.75	4,656.88	-0.157	4571.52
3/15/2019	4,655.83	NM	NM	4,655.83	1.537	4519.38	4,656.88	-0.162	4571.51
4/8/2019	4,655.83	6.220	4565.18	4,655.83	1.750	4519.87	4,656.88	-0.070	4571.72

5/18/2019	4,655.83	6.130	4,564.97	4,655.83	1.770	4519.91	4,656.88	-0.110	4571.62
6/11/2019	4,655.83	5.890	4,564.42	4,655.83	1.600	4519.51	4,656.88	-0.080	4571.69
7/15/2019	4,655.83	5.920	4564.50	4,655.83	1.720	4519.80	4,656.88	-0.060	4571.75
8/9/2019	4,655.83	5.860	4564.34	4,655.83	1.710	4519.78	4,656.88	-0.060	4571.75
9/16/2019	4,655.83	5.910	4564.46	4,655.83	1.870	4520.14	4,656.88	-0.020	4571.82
10/14/2019	4,655.83	5.660	4563.89	4,655.83	1.680	4519.70	4,656.88	-0.110	4571.63
11/10/2019	4,655.83	5.540	4563.60	4,655.83	1.620	4519.58	4,656.88	-0.140	4571.56
12/16/2019	4,655.83	5.200	4562.83	4,655.83	1.350	4518.95	4,656.88	-0.220	4571.37
Notes: Source: Table 4-3, 2019 Annual Monitoring Report									

Table I-5: Settlement monument data collected at the Lower Compartment of the gypsum stack

Date	SM-1 measured elevations (feet)		SM-2 measured elevations (feet)		SM-3 measured elevations (feet)	
	elevation	settlement	elevation	settlement	elevation	settlement
12/21/2012	4,659.39	0.00	4,658.29	0.00	4,659.06	0.00
3/1/2013	4,659.27	0.12	4,658.14	0.15	4,658.93	0.13
6/5/2013	4,659.11	0.28	4,657.94	0.35	4,658.74	0.32
9/3/2013	4,658.98	0.41	4,657.78	0.51	4,658.61	0.45
12/3/2013	4,658.89	0.50	4,657.67	0.62	4,658.51	0.55
3/5/2014	4,658.78	0.61	4,657.54	0.75	4,658.41	0.65
6/2/2014	4,658.67	0.72	4,657.40	0.89	4,658.26	0.80
9/2/2014	4,658.59	0.80	4,657.28	1.01	4,658.15	0.91
12/1/2014	4,658.54	0.85	4,657.22	1.07	4,658.12	0.94
3/2/2015	4,658.46	0.93	4,657.12	1.17	4,658.02	1.04
6/3/2015	4,658.37	1.02	4,657.00	1.29	4,657.92	1.14
9/1/2015	4,658.32	1.07	4,656.94	1.35	4,657.88	1.18
12/2/2015	4,658.30	1.09	4,656.89	1.40	4,657.84	1.22
3/3/2016	4,658.23	1.16	4,656.81	1.48	4,657.78	1.28
6/1/2016	4,658.16	1.23	4,656.72	1.57	4,657.70	1.36
9/1/2016	4,657.91	1.48	4,656.66	1.63	4,657.63	1.43
12/2/2016	4,657.91	1.72	4,656.66	1.71	4,657.63	1.50
3/6/2017	4,657.51	1.88	4,656.50	1.79	4,657.51	1.55
6/1/2017	4,657.38	2.01	4,656.44	1.85	4,657.44	1.62
9/7/2017	4,657.27	2.12	4,656.38	1.91	4,657.39	1.67
12/21/2017	4,657.10	2.29	4,656.25	2.04	4,657.27	1.79
3/21/2018	4,657.10	2.29	4,656.26	2.03	4,657.30	1.76
7/10/2018	4,657.33	2.06	4,656.49	1.80	4,657.54	1.52
9/10/2018	4,657.30	2.09	4,656.43	1.86	4,657.50	1.56
12/19/2018	4,657.25	2.14	4,656.39	1.90	4,657.44	1.62
3/20/2019	4,657.22	2.18	4,656.39	1.90	4,657.42	1.64
6/21/2019	4,657.22	2.17	4,656.33	1.96	4,657.41	1.65
9/16/2019	4,657.16	2.23	4,656.31	1.98	4,657.37	1.69
12/16/2019	4,657.12	2.27	4,656.23	2.06	4,657.32	1.74

Notes:

Source: Table 4-1, 2019 Annual Monitoring Report

Table I-6: Horizontal piezometer data collected at the lower compartment of the gypsum stack

Date	P-1L calc. pressure (feet)	P-2L calc. pressure (feet)	P-3L calc. pressure (feet)	P-4UW calc. pressure (feet)	P-5UW calc. pressure (feet)	P-6UW calc. pressure (feet)	P-7UW calc. pressure (feet)	P-8UE calc. pressure (feet)	P-9UE calc. pressure (feet)	P-10UE calc. pressure (feet)	P-11LE calc. pressure (feet)	P-12LE calc. pressure (feet)	P-13LE calc. pressure (feet)
8/1/2013	0.97	0.15	0.14	0.29	0.35								
9/3/2013	0.80	0.06	0.00	0.27	0.33								
10/1/2013	0.79	0.07	-0.01	0.21	0.31								
11/4/2013	0.83	0.09	0.02	0.17	0.30	0.24	0.04						
12/2/2013	1.16	0.29	0.33	0.36	0.38	0.80	0.50						
1/2/2014	0.74	-0.03	-0.05	0.19	0.26	0.46	0.05						
2/3/2014	0.98	0.18	0.16	0.25	0.33	0.62	0.09						
3/3/2014	0.69	0.00	-0.10	0.17	0.32	0.18	-0.39						
4/1/2014	1.06	0.19	0.20	0.29	0.38	0.87	0.44						
5/2/2014	0.85	0.04	0.01	0.31	0.34	-0.02	-0.50						
6/2/2014	0.78	0.01	0.00	0.28	0.38	0.29	-0.22						
7/1/2014	0.65	-0.08	-0.11	0.24	0.34	-0.02	-0.57						
8/4/2014	0.78	-0.01	-0.03	0.22	0.35	0.03	-0.49						
9/2/2014	0.82	0.02	0.01	0.29	0.39	0.30	-0.19						
10/1/2014	0.68	-0.06	-0.12	0.14	0.35	0.23	-0.30						
11/5/2014	0.54	-0.17	-0.22	0.17	0.32	-0.44	-1.00						
12/1/2014	0.70	-0.03	-0.07	0.18	0.35	0.21	-0.42						
1/5/2015	0.66	-0.09	-0.11	0.16	0.34	-0.20	-0.79	-0.18					
2/3/2015	0.83	0.04	0.02	0.21	0.37	0.32	-0.27	-0.08					
3/2/2015	0.92	0.14	0.18	0.39	0.44	0.95	0.33	-0.01					0.01
4/1/2015	0.75	-0.02	-0.11	0.13	0.36	0.31	-0.34	-0.21				0.30	
5/1/2015	0.75	-0.01	-0.06	0.20	0.40	0.58	-0.14	-0.01					
6/2/2015	0.73	-0.07	-0.08	0.16	0.39	0.46	-0.30	-0.18					
7/1/2015	0.71	-0.11	-0.11	0.22	0.41	0.27	-0.51	-0.1					
8/4/2015	0.71	-0.04	-0.11	0.19	0.4	0.32	-0.47	-0.1			0.30	0.32	
9/1/2015	0.82	0.05	0.01	0.29	0.44	0.62	-0.21	0.04					
10/5/2015	0.65	-0.10	-0.16	0.17	0.41	0.51	-0.33	-0.11					
11/2/2015	1.00	0.16	0.10	0.36	0.48	0.99	0.12	0.18			0.22	0.32	0.03
12/2/2015	0.50	-0.24	-0.27	0.17	0.32	-0.06	-0.93	-0.17			-0.06	-0.10	-0.26
1/4/2016	0.85	-0.02	0.04	0.36	0.42	0.61	-0.28	0.09			0.21	0.30	0.03
2/2/2016	0.61	-0.13	-0.21	0.20	0.36	0.5	-0.37	-0.14			-0.05	-0.12	-0.24
3/3/2016	0.78	-0.06	-0.07	0.25	0.4	0.32	-0.44	0.06			0.07	0.08	-0.08
4/1/2016	0.36	-0.29	-0.37	0.18	0.33	0.28	-0.68	-0.14			-0.13	-0.27	-0.36
5/2/2016	0.41	-0.43	-0.28	0.13	0.37	0.23	-0.69	-0.04			-0.06	-0.14	-0.27
6/1/2016	0.62	-0.16	-0.12	0.24	0.42	0.54	-0.49	0.05			0.02	0.02	-0.16
7/5/2016	0.72	-0.10	-0.12	0.19	0.42	0.61	-0.4	-0.06			-0.06	-0.06	-0.23

Date	P-1L calc. pressure (feet)	P-2L calc. pressure (feet)	P-3L calc. pressure (feet)	P-4UW calc. pressure (feet)	P-5UW calc. pressure (feet)	P-6UW calc. pressure (feet)	P-7UW calc. pressure (feet)	P-8UE calc. pressure (feet)	P-9UE calc. pressure (feet)	P-10UE calc. pressure (feet)	P-11LE calc. pressure (feet)	P-12LE calc. pressure (feet)	P-13LE calc. pressure (feet)
8/1/2016	0.60	-0.16	-0.19	0.00	0.42	0.56	-0.47	-0.17			-0.15	-0.18	-0.32
9/1/2016	0.76	-0.09	-0.02	0.22	0.43	0.62	-0.43	-0.02			0.02	0.06	-0.12
10/3/2016	1.03	0.21	0.14	0.35	0.43	0.99	0.05	0.06			-0.03	0.11	-0.14
11/2/2016	0.20	-0.46	-0.47	-0.10	0.32	0.02	No reading	-0.28			-0.19	-0.32	-0.37
12/2/2016	0.31	-0.36	-0.41	-0.10	0.34	0.31	-0.82	-0.29			-0.25	-0.33	-0.38
1/6/2017	0.35	-0.34	-0.40	-0.07	0.31	0.44	No reading	No reading			-0.24	-0.29	-0.40
2/15/2017	0.49	-0.24	-0.21	0.18	0.35	0.24	-1.00	No reading			24.01	-0.18	-0.37
3/15/2017	0.70	-0.08	-0.07	0.30	0.48	0.54	-0.65	0.06			-0.12	-0.05	-0.23
4/13/2017	1.08	0.31	0.30	0.65	0.85	No reading	-0.01	No reading			0.78	0.38	0.19
5/1/2017	0.47	-0.21	-0.31	0.10	0.40	0.60	-0.58	-0.07			-0.23	-0.14	-0.31
6/4/2017	0.79	0.00	-0.01	0.39	0.45	1.13	-0.22	0.18			-0.02	0.12	-0.11
7/10/2017	0.89	0.12	0.08	0.48	0.58	0.85	-0.40	0.24			0.05	0.16	-0.03
7/27/2017									0.23	0.15			
8/9/2017	0.72	-0.01	-0.04	0.26	0.53	0.67	-0.57	0.06			-0.09	0.00	-0.09
9/18/2017	0.92	0.11	0.03	0.41	0.50	-3.83	-0.11	0.18			0.01	0.17	-0.04
10/9/2017	0.52	-0.18	-0.24	-0.02	0.46	0.42	-0.64	-0.21			-0.35	-0.35	-0.34
11/22/2017	0.33	-0.36	-0.32	-0.08	0.31	0.39	-1.01	-0.29	No reading	No reading	-0.32	-0.35	-0.34
1213/2017	0.45	-0.38	-0.34	0.31	0.34	0.01	-1.40	0.10	-0.17	-0.37	-0.15	0.03	-0.16
1/17/2018	0.28	-0.44	-0.44	-0.15	0.14	0.05	-1.28	-0.39	-0.06	-0.28	-0.44	-0.35	-0.44
2/14/2018	0.65	-0.11	-0.14	0.21	0.31	0.88	-0.46	-0.07	0.05	-0.12	-0.17	-0.03	-0.19
3/5/2018	0.16	-0.53	-0.55	-0.35	0.11	0.58	-0.85	-0.62	-0.19	-0.38	-0.66	-0.67	-0.64
4/6/2018	0.79	0.03	0.00	0.41	0.46	1.17	-0.14	0.11	0.24	0.01	-0.14	0.03	-0.12
5/7/2018	0.84	0.09	0.09	0.29	0.43	1.20	-0.12	-0.02	0.18	-0.02	-0.11	0.09	-0.04
6/4/2018	0.75	0.00	-0.02	0.40	0.45	1.07	-0.30	0.12	0.26	0.02	-0.16	0.04	-0.12
7/10/2018	0.70	-0.03	-0.04	0.32	0.44	0.85	-0.49	0.03	0.24	0.02	-0.25	-0.06	-0.19
8/6/2018	0.61	-0.12	-0.15	0.13	0.36	0.82	-0.57	-0.16	0.13	-0.10	-0.30	-0.18	-0.25
9/10/2018	0.84	0.04	-0.02	0.42	0.46	1.09	-0.23	0.09	0.22	0.00	-0.18	0.03	-0.13
10/4/2018	0.79	0.06	-0.05	0.38	0.42	1.31	-0.03	0.04	0.19	-0.02	-0.22	0.00	-0.17
11/9/2018	0.24	-0.47	-0.45	-0.15	0.11	0.42	-1.12	-0.47	-0.11	-0.32	-0.47	-0.39	-0.43
12/10/2018	0.37	-0.38	-0.36	-0.03	0.06	0.37	-1.14	-0.41	-0.16	-0.33	-0.53	-0.34	-0.47
1/15/2019	0.43	-0.34	-0.34	0.10	0.14	0.60	-0.81	-0.28	-0.09	-0.43	-0.51	-0.27	-0.45
2/12/2019	0.27	-0.44	-0.48	-0.13	0.13	0.96	-0.45	-0.51	-0.15	-0.34	-0.58	-0.49	-0.49
3/15/2019	0.04	-0.63	-0.57	-0.27	0.08	0.42	-0.97	-0.67	-0.40	-0.47	-0.61	-0.55	-0.53
4/8/2019	0.56	-0.15	-0.19	0.20	0.38	1.04	-0.46	-0.20	0.04	-0.15	-0.31	-0.15	-0.23
5/18/2019	0.53	-0.21	-0.31	0.18	0.30	1.32	-0.07	-0.27	-0.07	-0.21	-0.56	-0.36	-0.45
6/11/2019	0.37	-0.40	-0.30	0.12	0.29	0.64	-0.83	-0.31	-0.03	-0.16	-0.47	-0.22	-0.36
7/15/2019	0.58	-0.15	-0.20	0.29	0.42	1.08	-0.39	-0.15	0.10	-0.06	-0.42	-0.19	-0.28
8/9/2019	0.60	-0.11	-0.19	0.28	0.41	1.08	-0.37	-0.30	-0.02	-0.19	-0.41	-0.19	-0.29

Date	P-1L calc. pressure (feet)	P-2L calc. pressure (feet)	P-3L calc. pressure (feet)	P-4UW calc. pressure (feet)	P-5UW calc. pressure (feet)	P-6UW calc. pressure (feet)	P-7UW calc. pressure (feet)	P-8UE calc. pressure (feet)	P-9UE calc. pressure (feet)	P-10UE calc. pressure (feet)	P-11LE calc. pressure (feet)	P-12LE calc. pressure (feet)	P-13LE calc. pressure (feet)
9/16/2019	0.96	0.18	0.04	0.65	0.60	1.48	0.01	0.18	0.43	0.18	-0.21	0.15	-0.11
10/14/2019	0.56	-0.18	-0.29	0.29	0.42	1.06	-0.36	-0.19	0.09	-0.16	-0.53	-0.22	-0.40
11/10/2019	0.59	-0.19	-0.25	0.31	0.33	0.83	-0.64	-0.15	0.13	-0.06	-0.42	-0.10	-0.31
12/16/2019	-0.11	-0.77	-0.81	-0.46	-0.02	0.33	-1.01	-0.94	-0.62	-0.70	-1.03	-0.92	-0.86

Notes:
Source: Table 4-4, 2019 Annual Monitoring Report

APPENDIX J – DETAILED ARARS REVIEW TABLES

Groundwater ARARs

The ROD and IRODAs for the FMC and Simplot OUs include a RAO to restore groundwater to meet RBCs or chemical-specific ARARs, the federal MCL established under the EPA's Safe Drinking Water Act or site-specific background levels if RBCs or ARARs are more stringent than background. The cleanup level for arsenic in groundwater was revised in the 2010 and 2012 IRODAs to be consistent with the MCL. As indicated in Tables J-1 and J-2, no MCLs have changed since the IRODAs were issued. As stated in the IRODAs, when a final remedy is implemented, any additional ARARS are to be fully complied with unless a formal waiver is invoked at or before the completion of the remedial actions.

Table J-1: Groundwater ARARs for FMC OU

COC	FMC OU Groundwater Cleanup Levels[a]	Current MCL[b]	ARAR Change
Antimony	0.006	0.006	None
Arsenic	0.01	0.01	None
Beryllium	0.004	0.004	None
Boron	1.36	NA	NA
Cadmium	0.005	0.005	None
Chromium	0.1	0.1	None
Fluoride	4	4	None
Manganese	0.0777	NA	NA
Mercury	0.002	0.002	None
Nickel	0.1	NA	NA
Nitrate	10	10	None
Phosphorus[c]	TBD	NA	NA
Phosphorus (elemental)	0.00073	NA	NA
Radium-226	5 pCi/L	5 pCi/L	None
Selenium	0.05	0.05	None
Thallium	0.002	0.002	None
Tetrachloroethene	0.005	0.005	None
Trichloroethene	0.005	0.005	None
Vanadium	0.108	NA	NA
Zinc	3.92	NA	NA
Gross Alpha	15 pCi/L	15 pCi/L	None
Gross Beta	4 mrem/yr	4 mrem/yr	None

COC	FMC OU Groundwater Cleanup Levels[a]	Current MCL[b]	ARAR Change

Notes:
pCi/g = picocuries per gram
pCi/L = picocuries per liter
mrem/yr = millirems per year
TBD = To be determined
NA = no MCL established for this COC
a. Presented in mg/L unless otherwise specified.
b. EPA's National Primary Drinking Water Regulations (https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf, accessed on 5/18/2020).

Table J-2: Groundwater ARARs for Simplot OU

COC	Simplot OU Groundwater Cleanup Levels[a]	Current MCL[b]	ARAR Change
Antimony	0.006	0.006	None
Arsenic	0.01	0.01	None
Beryllium	0.004	0.004	None
Cadmium	0.005	0.005	None
Chromium	0.1	0.1	None
Fluoride	4	4	None
Mercury	0.002	0.002	None
Nickel	0.1	NA	NA
Nitrate	10	10	None
Phosphorus[c]	TBD	NA	NA
Radium-226	5 pCi/L	5 pCi/L	None
Selenium	0.05	0.05	None
Thallium	0.002	0.002	None
Tetrachloroethene	0.005	0.005	None
Trichloroethene	0.005	0.005	None
Vanadium	0.108	NA	NA
Zinc	3.92	NA	NA
Gross Alpha	15 pCi/L	15 pCi/L	None
Gross Beta	4 mrem/yr	4 mrem/yr	None

Notes:
pCi/g = picocuries per gram
pCi/L = picocuries per liter
mrem/yr = millirems per year
TBD = To be determined
NA = no MCL established for this COC
a. Presented in mg/L unless otherwise specified.
b. EPA's National Primary Drinking Water Regulations (https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf, accessed on 5/18/2020).

Surface Water ARARs

The 1998 ROD, the 2010 Simplot IRODA and the 2012 FMC IRODA identify surface water quality criteria developed consistent with 40 CFR Part 131 and the Idaho Surface Water Quality Standards as ARARs. In addition, the FMC and Simplot IRODAs identify the Portneuf River TMDL: Waterbody Assessment and Total Maximum Daily Load and Addendum as a TBC value. The TMDL developed loading limits for constituents discharged to the Portneuf River, including the groundwater impacted from releases at the FMC and Simplot OUs. The TMDL was revised and amended in 2010. The TMDL endpoints will be considered in developing the EPA-approved risk-based surface and groundwater cleanup levels for phosphorus pursuant to the Simplot IRODA. This risk based cleanup level, when developed, will be used at both the Simplot and FMC OUs.

Soil ARARs

No ARARs have been identified for soil COCs at the Site. However, the Tribes have promulgated soil cleanup standards for contaminated properties as regulations under their Waste Management Act. On December 3, 2010, the Tribes sent a letter to the EPA requesting that these standards be designated as ARARs for the FMC OU. As stated in the FMC IRODA, when a final remedy is implemented, any additional ARARS, including the Tribes' Soil Cleanup Standards (to the extent the Soil Cleanup Standards are determined to be ARARs), are to be fully complied with unless a formal waiver is invoked at or before the completion of the remedial actions.

APPENDIX K – SCREENING-LEVEL RISK REVIEW

The 2012 IRODA for FMC specified risk-based cleanup goals for groundwater COCs that did not have promulgated MCLs. This FYR conducted a screening level risk assessment using the EPA's current residential tapwater RSLs. Based on the results, the risk-based groundwater cleanup goals have a HQ less than 1 and remain protective with the exception of elemental phosphorus which slightly exceeds a HQ of 1 (Table K-1). The EPA should review the groundwater cleanup goal for elemental phosphorus and update the cleanup goal if necessary based on the current toxicity.

Table K-1: Review of FMC Risk-Based Groundwater Cleanup Goals

COC	Groundwater Cleanup Levels (mg/L)	Residential Tapwater RSL[a] (mg/L)		Screening-level Risk Evaluation	
		10^{-6} Risk	HQ = 1	Risk[b]	HQ[c]
Boron	1.36	--	4	--	0.3
Manganese[d]	0.077	--	0.430		0.2
Phosphorus[e]	0.00073	--	0.0004	--	**2**
Vanadium	0.108	--	0.086	--	1
Zinc	3.92	--	6	--	0.7

Notes:
-- = EPA has not finalized toxicity values for this compound.
Bold = Exceeds HQ of 1
a. EPA tapwater RSLs, dated May 2020, are available at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables (accessed June 2, 2020).
b. Risk calculated using the following equation, based on the fact that RSLs are derived based on 1 x 10^{-6} risk: risk = (cleanup goal / cancer-based RSL) x 10^{-6}.
c. Noncancer HQ calculated using the following equation: HQ = cleanup goal / noncancer-based RSL.
d. RSL for Manganese (Non-diet)
e. RSL for Phosphorus, White

The 2012 IRODA for FMC specified risk-based cleanup goals for soil based on commercial/industrial use. This FYR conducted a screening level risk assessment using the EPA's current composite worker RSLs. Based on the results, the risk-based soil cleanup goals are within the EPA's acceptable risk range of 1 x 10^{-6} to 1 x 10^{-4} for cancer and HQ less than 1 for non-cancer and remain protective of industrial/commercial use (Table K-2).

Table K-2: Review of FMC Risk-Based Soil Cleanup Goals

Soil COC	FMC OU Soil Cleanup Levels 2012 IRODA (mg/kg)	Composite Worker Soil RSL[a] (mg/kg)		Screening-level Risk Evaluation	
		10^{-6} Risk	HQ = 1	Risk[b]	HQ[c]
Arsenic	150	3	480	5 x 10^{-5}	0.3
Cadmium	39	9,300	980	4 x 10^{-9}	0.04
Fluoride	49,000	--	47,000	--	1
Lead-210[d]	67 pCi/g	--	--	--	--
Radium-226[d]	3.8 pCi/g	--	--	--	--

Notes:
-- = EPA has not finalized toxicity values for this compound.
a. EPA soil RSLs, dated May 2020, are available at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables (accessed June 2, 2020).
b. Risk calculated using the following equation, based on the fact that RSLs are derived based on 1 x 10^{-6} risk: risk = (cleanup goal / cancer-based RSL) x 10^{-6}.
c. Noncancer HQ calculated using the following equation: HQ = cleanup goal / noncancer-based RSL.
d. Cleanup goals for radionuclides are site-specific and based on risk to workers. There are no current EPA RSLs for lead-210 or radium-226.

APPENDIX L – OFF-PLANT OU HUMAN HEATH IMPLEMENTATION STUDY

IMPLEMENTATION ACTIONS – HUMAN HEALTH REMEDY
Off-Plant OU, EMF[1]
June 2020

Post ROD Monitoring and Assessment

Remedial Action Objective
The overall objective of the selected remedy for the EMF Superfund Site is "to provide an effective mechanism for protecting human health and the environment from risks associated with contaminated site soils and ground water".

The following cleanup/remedial action objectives (RAOs) were developed to address potential human health risks from exposures at the Off-Plant OU:

> *Prevent future consumption of homegrown produce grown in areas of the Site where soil constituents' levels result in a potential noncarcinogenic risk exceeding a hazard quotient (HQ) of 1.*
>
> *Prevent external exposure to radium-226 in soils at levels that pose cumulative estimated excess risk above 1 x 10^{-4}.*

The Selected Remedy
To address potential impacts to human health, the EPA selected the following remedy.

> *Implement legally enforceable land use controls and monitoring in the Off-Plant area to restrict property use due to potential exposure to radionuclides in soils and inform future property owners of the potential human health risks associated with consumption of homegrown fruits and vegetables*. (ROD, Declaration)

Additional detail is provided in Section 10 of the ROD.

> *<u>Areas subject to land use controls</u> - These are areas where soil contaminant levels exceed a HQ of 1 for cadmium (RME case) and/or which poses a 1 in 10,000, or greater, excess risk from radium-226 as shown in Figures 27 and 28. These areas include the Interstate 86 Right-of-Way (51 acres); Chevron Tank Farm (20 acres); City of Pocatello Property (326 acres); a portion of the land owned by a private party named R. Rowland, and a portion of BLM lands to the SW of the FMC facility. In this area the PRPs shall implement legally enforceable land use controls (purchase of a recorded easement with accompanying deed restriction) restricting the use of agricultural products grown thereon for human consumptions due to the presence of cadmium in soils. For those areas contaminated with radium-226 legally enforceable land use controls shall be implemented to prevent future residential use.*
>
> *<u>Areas Subject to Company Monitoring for Residential Development</u> - This area is shown in Figure 29 and was not found to exceed the criteria established for the imposition of Land Use Controls but was either close enough to the threshold, or adjacent to lands that exceeded the threshold, to warrant notification to current and future property owners if residential use is likely to occur. In this area the PRPs shall monitor property use for residential development and inform residential property owners of potential human health risks*

[1] Jeremy Jennings, Remedial Project Manager, Superfund and Emergency Management Program, EPA Region 10. Seattle, WA. June 2020.

associated with consumption of homegrown fruits and vegetables due to the presence of cadmium in soils. Similar restrictions on use of agricultural products could be implemented on such areas, as necessary.

In conjunction with this monitoring and land use controls described above, the PRPs shall develop a test program to evaluate actual uptake into produce which may be grown by residents in the affected off-plant areas. A monitoring plan including a quality assurance program plan and a sampling plan shall be submitted for the EPA's approval during the remedial design. Cadmium concentrations in the soil and produce shall be measured over multiple growing seasons. The results of the test program will be used to determine if monitoring and land use controls are still required or if any additional action is necessary to prevent potential health risks associated with consumption of homegrown fruits and vegetables.

[Figures 27, 28 and 29 have been reproduced as Figures 2, 3 and 4.]

Implementation of the Remedy

In late 2001, FMC closed the Pocatello facility, thus removing the primary source of cadmium and radium-226 to the Off-Plant OU. In 2009, soil samples were collected to evaluate post-closure conditions and determine where land use controls were required or warranted.

2009 Soil Sampling Event

In 2009, soils in the Off-Plant OU were sampled consistent with the *Eastern Michaud Flats Superfund Site Off-Plant OU Supplemental Surface Soil Radionuclide Investigation Work Plan,* approved by the EPA on October 2, 2009 (MWH, 2009). A total of 10 multi-increment soil samples were collected from each of eight Decision Units (DU) (Figure 5*)*. Consistent with the Conceptual Site Model that identified air emissions as the primary source, the eight DUs were selected in areas nearest to the plants and downwind of emission sources. Initially the samples were analyzed for three radionuclides – lead-210, radium-226 and uranium-238. Later, the same samples were analyzed for cadmium, fluoride, thallium and vanadium.

Cadmium Results

The cadmium concentrations measured in the 2009 soil samples are identified in a May 3, 2010 letter to the EPA (FMC, 2010) and are summarized in Table 1. Cadmium concentrations collected from the top two inches of soil were higher than those collected at greater depths at all sites except DU3. [At DU3, the sample collected from 2-6 inches had a slightly higher concentration than the surface sample (mean = 4.8 vs 4.6 mg/kg).] The highest concentrations of cadmium were found in DU2 where the 95% upper confidence level (UCL) was reported at 10.8 mg/kg, less than the 16.9 mg/kg threshold concentration.

Radionuclide Results

The radionuclide data from the 2009 sampling event were reported in the *Off-Plant OU Supplemental Surface Soil Radionuclide Investigation Report* (MWH, 2010) and are summarized in Table 2. Radionuclide activities were found to be highest in DUs 2 and 8 (immediately north of the FMC and Simplot plants) and at or near background in the other DUs. As with the cadmium concentrations, radionuclide activities decreased with distance from the sources and with soil depth.

Results for Fluoride and Other Contaminants of Potential Concern (COPCs)

Fluoride, thallium and vanadium concentrations were measured, and the uranium concentration estimated for each DU for use in a comprehensive reevaluation of human health risks at the OU. The data were presented in the *Comprehensive Letter Report Documenting Potential Human Health Risks for Site COCs in the Off-Plant OU* (Hanna, 2011) and is summarized in Table 3. All reported values were below the established risk thresholds.

In-Situ Gamma Ray Measurements

To further assess radium-226, a series of in-situ gamma-ray measurements and soil moisture samples were collected from soils located within 1.4 and 2.4 miles of the former FMC and current Simplot plants. Sampling was conducted by the EPA and analyzed by the EPA Office of Radiation and Indoor Air in Las Vegas, Nevada.

Sampling locations were chosen, in part, based on recommendations from the Shoshone-Bannock Tribes. Tribal representatives were present during the sampling.

The analysis indicated radium-226 activities to be slightly lower in the areas north of the plants as compared to areas to the south. The variability appeared to be due to either the higher rate of development, and thus ground disturbance, in the northern area or geological differences between the two areas. A statistical analysis indicated that the in-situ gamma-ray measurements were comparable to the in-situ background measurements taken during the FMC Supplemental Remedial Investigation (MWH, 2010). The analysis found it unlikely that the differences were due to windblown particulate, fertilizer or placement of FMC's slag on area roads. Based on the data and analysis, it was determined that airborne deposition of radium-226 released in air emissions had not affected the levels of radium-226 in the Off-Plant OU.

Reevaluation of Cadmium Uptake Rate
Cadmium ingested via homegrown fruit and produce has been identified as one of the routes of potential exposure to residents. Due to uncertainties in data, the human health remedy required monitoring of land use and residential development and, if changes occur, develop a test program to evaluate actual cadmium uptake into produce. areas with cadmium levels close to the thresholds or adjacent to land use additional test program to determine if further monitoring or land use controls were required.

During the 2009 growing season the companies monitored several garden plots to determine cadmium levels in soils and produce and used the data to calculate an uptake rate for use in the human health risk assessment (FMC, Dec 8, 2009). Based on the results of that assessment, it was determined that land use controls were not needed to prevent health risks associated with consumption of homegrown produce in the Off-Plant OU.

Human Health Risk Reassessment
A *Comprehensive Letter Report Documenting Potential Human Health Risks for Site COCs in the Off-Plant OU* (Hanna, 2011) was developed to quantify potential human health risks using data and analysis generated since the RI. Initially, the assessment only addressed radionuclides and the results presented in the *Supplemental Surface Soil Radionuclide Investigation Report for the Off-Plant OU* (MWH, 2010). However, following review of that report, a comprehensive evaluation was developed to assess total risks for residents and industrial/commercial workers in the OU.

The new data were first compared to the risk-based screening Comparative Values (CVs) identified in the risk assessment recently completed for the FMC-owned Northern Properties (MWH, 2010). Where the mean contaminant concentration exceeded the CV, a quantitative risk assessment was completed. Cadmium, radium-226 and lead-210 were the only contaminants identified at levels greater than the residential CV while none of the contaminants exceeded the industrial/commercial worker CVs. Potential risks were calculated for the DUs where the CVs were exceeded. These units are presented in Table 4.

Noncarcinogenic Risks
Using a residential scenario, hazard quotients (HQ) were calculated for total, incremental and background risks in DU 1-5, 7 and 8. These are presented in Table 5.

The incremental HQ for each DU was either 0.6 or 0.7, both below the noncarcinogenic risk threshold of HQ=1 identified in the ROD. The primary noncarcinogenic risk driver was found to be exposure to cadmium through ingestion of homegrown produce was identified as the primary noncarcinogenic risk driver. All HQs were lower than those derived during the 1996 baseline risk assessment, consistent with what would be expected following the removal of a source. This downward trend is expected to continue in the future. Thus, the EPA finds that no further actions, including monitoring, are required to prevent human health risks from noncarcinogens found in surface soils in the Off-Plant OU.

Carcinogenic Risks
Using a residential scenario, hazard quotients (HQ) were calculated for total, incremental and background risks for radium-226 and lead-201 in DU 2 and radium-226 in DU 8. The results are summarized in Table 6.

In both DU 2 and DU 8, the total risks were calculated to be $1x10^{-4}$ (1 in 10,000). However, background concentrations accounted for 75 to 80% of the total potential risk. When considering only risks from sources originating from FMC and Simplot sources (the scope of this remedial action), an incremental carcinogenic risk of $3x10^{-5}$, was calculated for DU 2 and 8, below the $1x10^{-4}$ threshold established in the 1998 ROD. Thus, the EPA finds that no further actions, including monitoring, are required to prevent human health risks from carcinogens found in surface soils in the Off-Plant OU.

Native American Risk Scenario
The Tribes requested a Native American Risk Scenario be completed as part of the human health risk assessment. In the absence of further information regarding tribal exposure pathways (e.g. specific species gathered, grown and ingested), the EPA reviewed the exposure assumptions used for the residential scenario and found them to be conservative in comparison to a likely Native American exposure.

Consumption of cadmium in homegrown produce was identified as the major pathway of concern. Potential residential risks were calculated using the 95th percentile consumption rate for produce (5% of the US population would consume greater than this rate). Since this value assumes that all produce consumed was harvested from gardens within the individual decision units. The traditional gathering habits of the local tribes, it would be expected that plants would be gathered from a variety of ecological settings. Thus, the EPA considers this assumption and the risk calculation conservative for both the residential and Native Americans or subsistence use scenarios. Thus, the EPA finds that no further action to prevent human health risks to Native Americans or subsistence users in the Off-Plant OU.

Summary of Supplemental Findings
In summary, the supplemental sampling and assessment indicate:

- Noncarcinogenic human health risks associated with soils in the Off-Plant OU have a hazard quotient of less than 1 (HQ<1). Cadmium is the primary noncarcinogen of concern. Fluoride in soils do not pose an unacceptable human health risk.

- The incremental carcinogenic risks, where quantified, were $3x10^{-5}$, less than the $1x10^{-4}$ threshold established in the ROD. Radium-226 and, to a lesser extent, lead-210 are the primary carcinogens of concern. Background sources of radionuclides are far more significant than sources that originated from the FMC and Simplot operations.

- Elevated levels of cadmium, radium-226 and lead-210 detected in soil samples collected in the Off-Plant OU decrease with distance from the two plants and with soil depth. Site-related air deposition is the primary source of these contaminants. Air emissions from the now-closed FMC Plant are the only source of the COCs to the Off-Plant OU. 2009 concentrations of all COCs were less than those reported in the RI.

Implementation of Land Use Controls and Residential Notification
The soil remedy selected in the ROD for the Off-Plant OU was presented in two parts: Areas Subject to Land Use Controls and Areas Subject to Company Monitoring for Residential Development.

Areas Subject to Land Use Controls
Cadmium
The 1998 ROD required legally enforceable land use controls be implemented in all areas of the Off-Plant OU where the HQ > 1. As discussed above, supplemental sampling and a risk assessment have been conducted to evaluate conditions following the closure of the FMC Plant and thus, removal of the source. The supplemental

sampling confirmed that cadmium was the only noncarcinogen that exceeded the human health screening level. Hazard quotient of 0.6 and 0.7 were calculated for DUs where the maximum soil concentrations exceeded the CV, below the threshold (HQ=1) identified in the ROD. Fluoride and other noncarcinogens were not found at levels that warrant a quantitative human health risk evaluation. The primary source of cadmium, air emissions from FMC stacks, was removed when in 2001 when the FMC plant closed. Since there is no longer an active source, cadmium levels are likely to continue to decrease.

Based on this review, the EPA finds that, for cadmium, no land use controls, or further monitoring are required. In addition, since the primary site source has been removed, the EPA finds that no land use controls are likely to be needed in the future. Thus, the EPA finds that the cleanup/remedial objectives for cadmium in soils have been attained.

Radium-226
The 1998 ROD requires legally enforceable land use controls in areas of the Off-Plant OU that pose a 1×10^{-4} or greater excess cancer risk from radium-226. As discussed above, supplemental sampling and a risk assessment have been conducted to further delineate the specific areas where control actions were required. The supplemental sampling confirmed that radium-226 and iron-210 were the only carcinogens present at levels of potential concern. In addition, the supplemental human health risk assessment did not identify any areas in the Off-Plant OU where the potential risks from carcinogens were greater than 1 in 10,000, the threshold established in the ROD. Furthermore, air emissions were identified as the primary site source of both radium-226 and lead-210 and the primary site source of these two contaminants was identified as the air emissions from FMC stacks. This source was eliminated with the closure of the FMC plant in 2001.

Based on this review, the EPA finds that the remedy does not require any land use controls to be implemented in the Off-Plant OU to address potential risks from radium-226 or other carcinogens. In addition, since the primary site source has been eliminated, the EPA finds that no additional controls are likely to be needed in the future. Thus, the EPA finds that the cleanup objectives for radium-226 in soils have been attained.

Areas Subject to Company Monitoring for Residential Development
The selected remedy required notification to residential property owners "close enough to the threshold" to "warrant notification" or "adjacent to lands that exceeded the threshold". As discussed above, the human health thresholds were not exceeded under the 2009 scenario. The EPA finds that this is not close enough to the threshold of HQ=1 to warrant any additional monitoring or notification to landowners. Without ongoing emissions, the level of cadmium in, or risks from, surface soils are not expected to increase in the future. Based on these findings, the EPA finds that no additional monitoring or notification of residential property owners is warranted.

The provision also required notification on properties "adjacent to lands that exceeded the threshold". As discussed above, the supplemental sampling and risk analysis did not identify any area within the Off-Plant OU that exceeded the noncarcinogenic threshold (HQ=1). In addition, supplemental studies completed in 2009 and 2010 on the FMC Northern Properties immediately adjacent to the southern edge of the Off-Plant OU indicated the boundary parcels did not exceed the noncarcinogenic threshold (MWH, 2010b). As such, the EPA has not identified no properties where notification is required.

Document Summary
This document provides the documentation of the information used to delineate where additional land use controls to address human health risks in the Off-Plant OU are required.

Based on this information, an updated human health risk assessment indicates that risks presented by cadmium, radium-226 and other contaminants are less than the thresholds identified in the ROD. The evaluation shows that no land use controls are required under the remedy to address human health concerns and no further notification of nearby residents is warranted. For purposes of CERCLA, no hazardous substances, pollutants or contaminants that may impair human health remain above levels that could prevent unlimited use and unrestricted exposure to humans.

Table 1. Cadmium Concentrations Measured in Soils
2009 Off-Plant OU Sample Event

Decision Unit	Mean Concentration 0-2" depth (mg/kg)	95% UCL Concentration (mg/kg)
1	4.8	5.1
2	10.3	10.8
3	4.6	5.0
4	5.2	5.6
5	5.3	5.6
6	2.1	2.3
7	3.3	4.6
8	6.5	8.0

Risk Threshold =16.9

Table 2. Summary of COPC Concentrations (mg/kg) in Soils (0 to 2 inches)
2009 Off-Plant OU Sample Event

Decision Unit	Fluoride		Thallium		Uranium		Vanadium	
	Mean	**95% UCL**	**Mean**	**95% UCL**	**Mean**	**95% UCL**	**Mean**	**95% UCL**
Background	--	302	--	0.13	--	0.66	--	19.6
1	318	382	0.21	0.22	3.0	3.3	18	18
2	480	634	0.25	0.27	2.9	3.5	30	34
3	353	412	0.19	0.20	3.4	3.7	23	24
4	370	441	0.19	0.20	3.2	3.5	24	25
5	326	376	0.20	0.21	3.4	3.6	25	27
6	203	247	0.15	0.15	3.1	3.3	13	13
7	198	233	0.17	0.18	3.0	3.7	14	15
8	608	773	0.18	1.20	3.9	4.7	24	26

Table 3. Radionuclide Activities (pCi/g) in Soils (0 to 6 inches)
2009 Off-Plant OU Sample Event

Decision Unit	Radium-226		Lead-210		Uranium-238	
	Mean	95% UCL	Mean	95% UCL	Mean	95% UCL
Background	--	1.21	--	1.46	--	0.96
1	1.21	1.30	1.42	1.47	1.03	1.14
2	1.64	1.73	1.99	2.22	1.16	1.31
3	1.03	1.14	1.36	1.43	1.15	1.23
4	0.98	1.13	1.30	1.36	1.01	1.08
5	1.04	1.16	1.46	1.52	1.19	1.29
6	0.93	1.04	1.32	1.39	0.96	1.02
7	1.00	1.14	1.37	1.52	1.16	1.46
8	1.50	1.73	1.67	1.93	1.26	1.45

Table 4. Contaminants and Decision Units Quantitatively Assessed
Human Health Risk Assessment, Off-Plant OU

Contaminant	Background Concentration (95% UCL on the Mean)	Residential CV	DUs where Risks Quantified	Non-Carcinogen	Carcinogen
Radium-226	1.21	1.22	2, 8	--	X
Lead-210	1.46	1.91	2	--	X
Uranium-238	0.96	1.74	--	--	--
Cadmium	0.72	3.1	1-5, 7, 8	X	--
Fluoride	302	772	--	--	--
Thallium	0.13	0.64	--	--	--
Uranium	0.66	5.3	--	--	--
Vanadium	19.6	58.64	--	--	--

Table 5. Quantitative Results of Human Health Risk Assessment for Noncarcinogens Off-Plant OU

Decision Unit	Hazard Quotient for RME Residential Exposure Scenario*			Primary Exposure Route
	Total	Background	Incremental	
1	0.8	0.1	0.6	Homegrown Produce
2	0.8	0.1	0.7	Homegrown Produce
3	0.8	0.1	0.6	Homegrown Produce
4	0.8	0.1	0.6	Homegrown Produce
5	0.8	0.1	0.6	Homegrown Produce
6	--	--	--	Below screening level
7	0.8	0.1	0.6	Homegrown Produce
8	0.8	0.1	0.7	Homegrown Produce

* Due to the rounding of all values to nearest tenth of a unit, in some instances the total HQ appears to be greater than the sum of the background plus incremental.

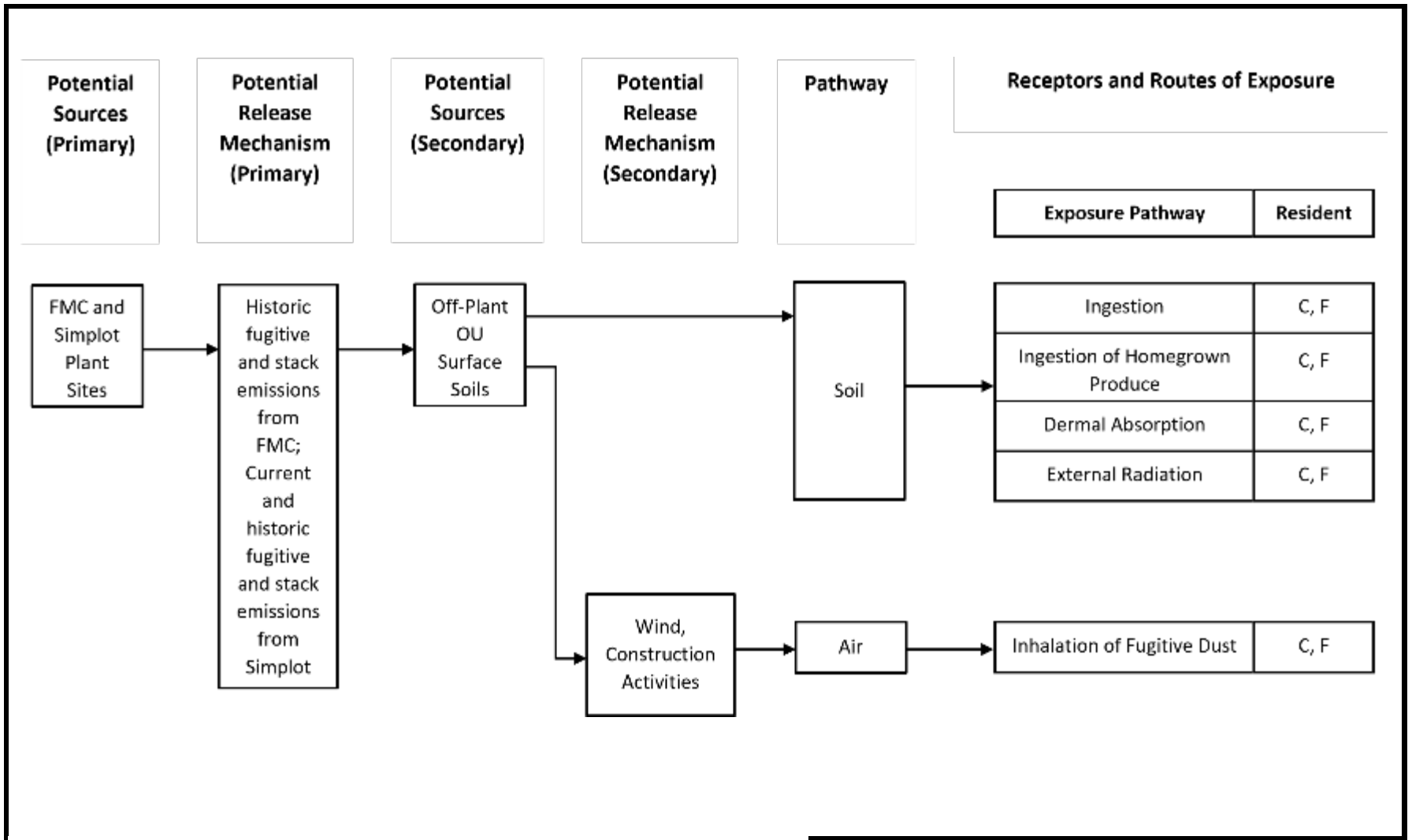
Table 6. Quantitative Results of Human Health Risk Assessment for Carcinogens Off-Plant OU

Decision Unit	Carcinogenic Risks for RME Residential Exposure Scenario*			Primary Risk Drivers
	Total	Background	Incremental	
2	1×10^{-4}	1×10^{-4}	3×10^{-5}	Radium-226, Lead-210
8	1×10^{-4}	9×10^{-5}	3×10^{-5}	Radium-226

* Due to the rounding of all values to nearest tenth of a unit, in some instances the total HQ appears to be greater than the sum of the background plus incremental.

Figure 1

EASTERN MICHAUD FLATS SUPERFUND SITE

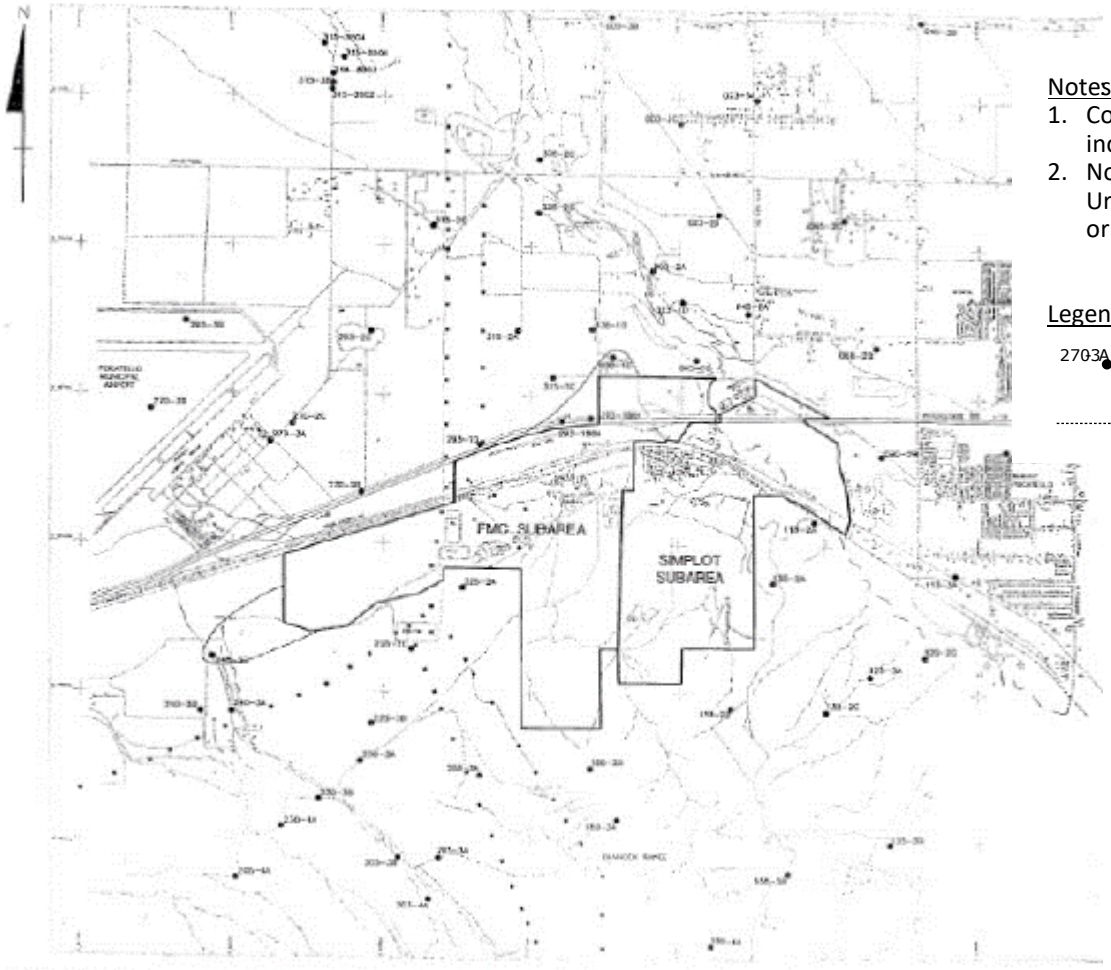


C = Complete path under 1998 conditions.

F = Complete path under future conditions

Figure 2

CONCEPTUAL SITE MODEL FOR POTENTIAL HUMAN EXPOSURE TO COPCs/ROPCs IN THE OFF-PLANT OU



Notes

1. Contours shown correspond to incremental cancer risk of 10^{-4}
2. No areas exceed 10^{-4} risk for Uranium-238, Polonium-210, or Lead-210.

Legend

2703A ● Soil sampling location and designation

..... Radium-226

Figure 3

OFF-SITE SUBAREA AREAS WHERE RADIONUCLIDE ACTIVITIES IN SURFACE SOILS EXCEED THE 10^{-4} INCREMENTAL CANCER RISK LEVELS

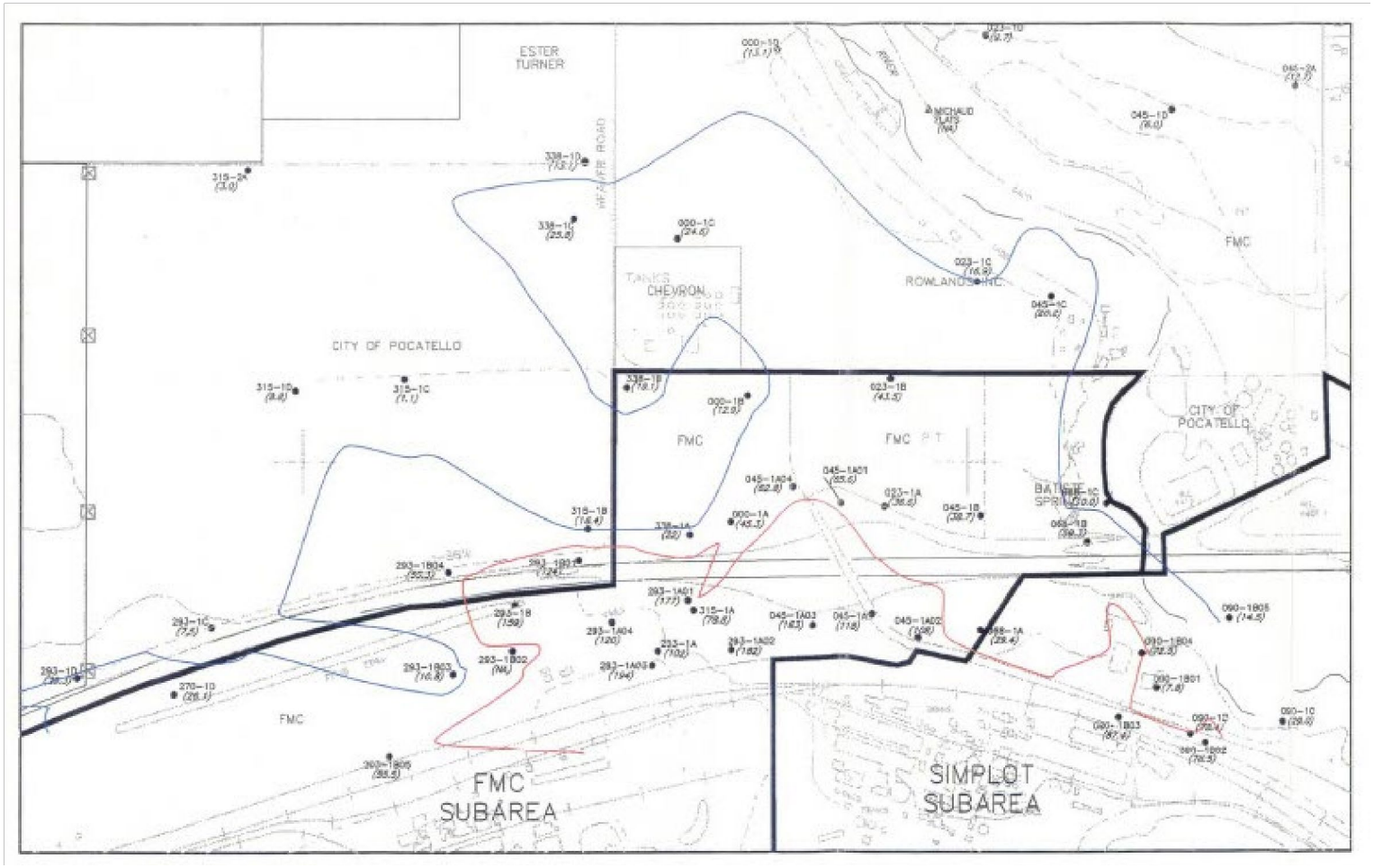


Figure 4

OFF-SITE SUBAREA AREAS WHERE CADMIUM CONCENTRATIONS IN SURFACE SOIL EXCEED LEVELS EQUIVALENT TO A HAZARD QUOTIENT OF ONE

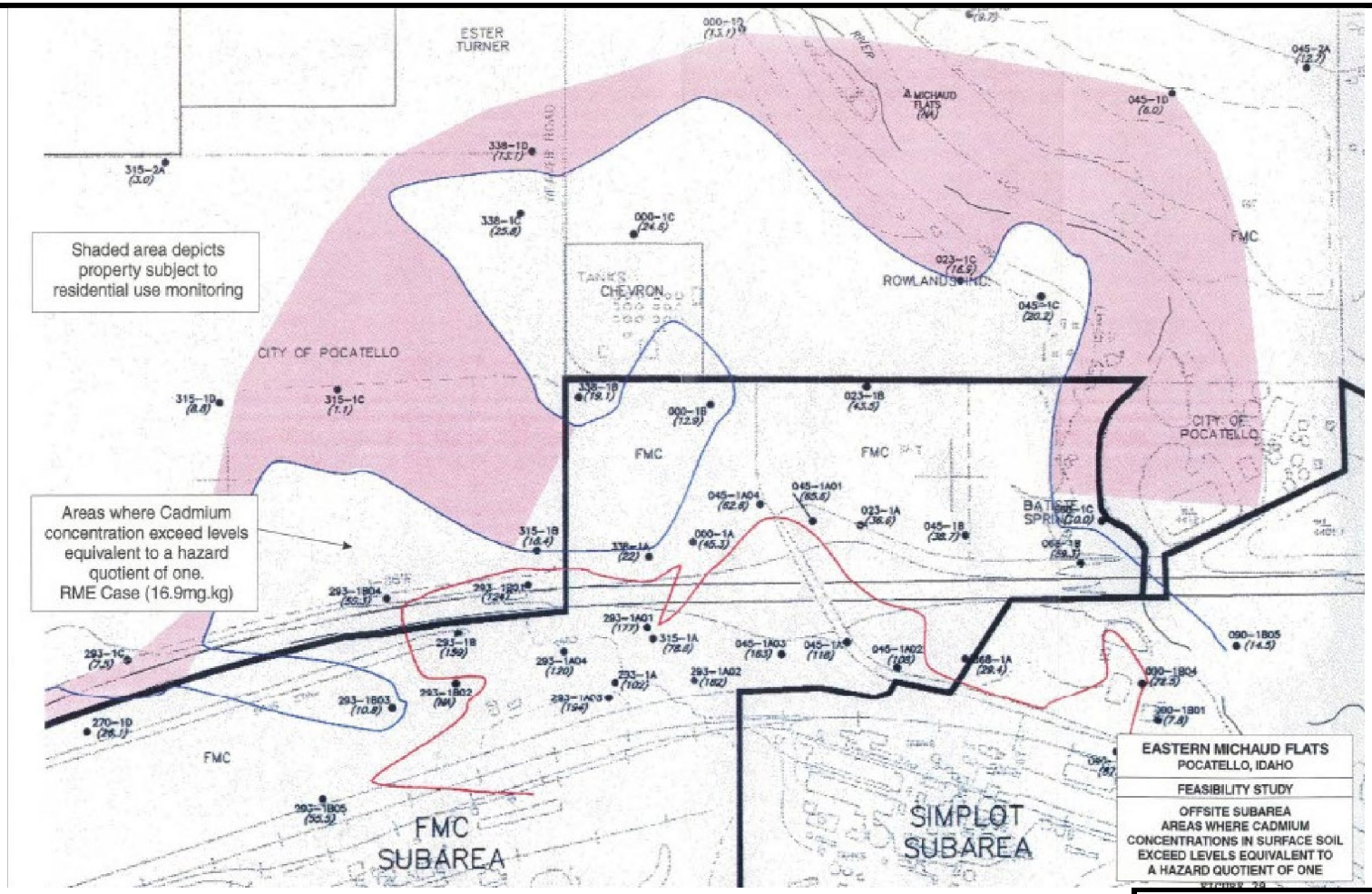


Figure 5

OFF-SITE SUBAREA AREAS WHERE CADMIUM CONCENTRATIONS IN SURFACE SOIL EXCEED LEVELS EQUIVALENT TO A HAZARD QUOTIENT OF ONE

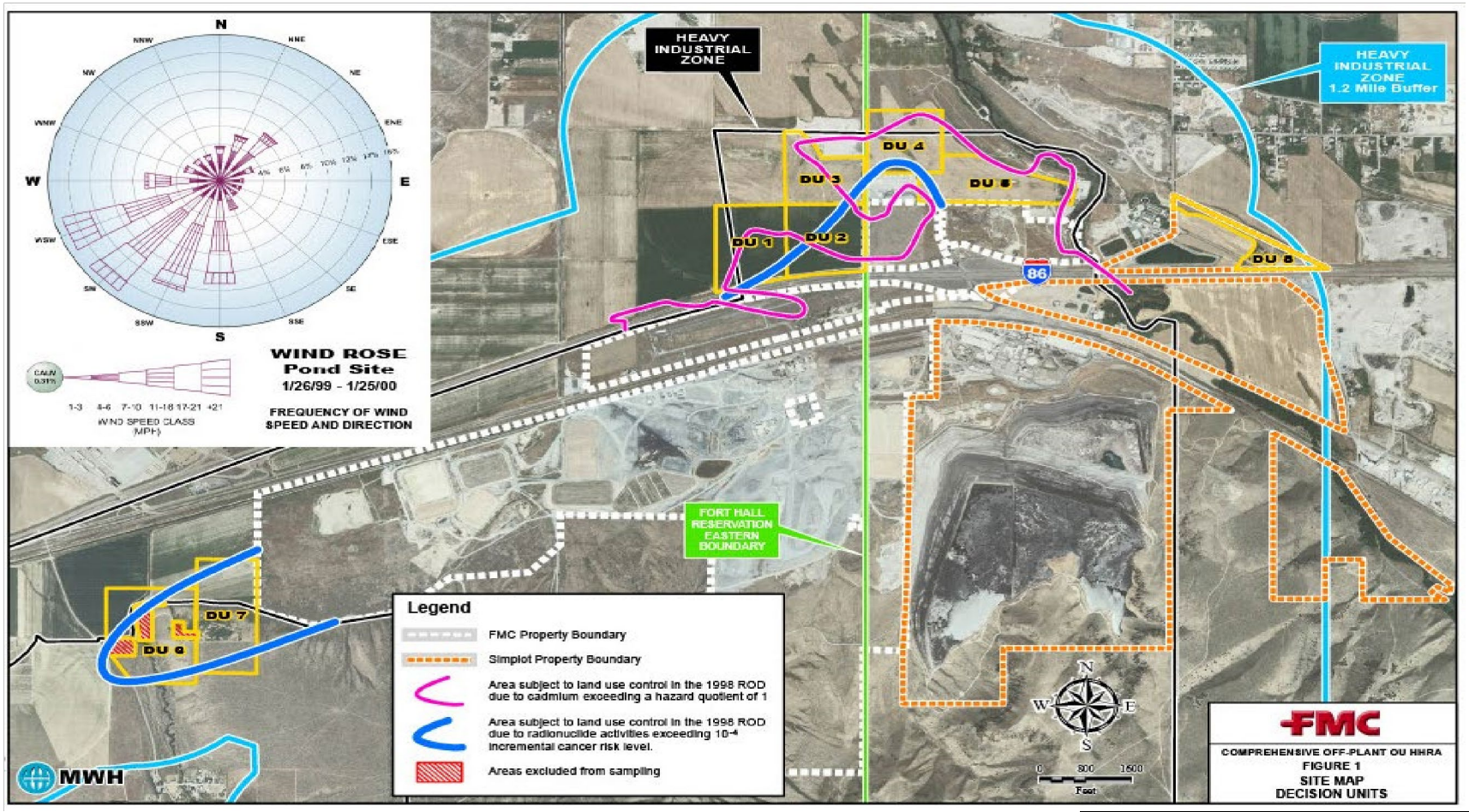


Figure 6

DECISION UNITS FOR SUPPLEMENTAL OFF-PLANT OU SOILS SAMPLING AND ANALYSIS

APPENDIX M – OFF-PLANT OU ECOLOGICAL ASSESSMENT

IMPLEMENTATION ACTIONS – FLUORIDE REMEDY
Off-Plant OU, EMF[1]
JUNE 2020

On June 8, 1998, the US Environmental Protection Agency signed a Record of Decision that selected remedial actions for the Eastern Michaud Flats Superfund Site. The remedy was developed in accordance with the requirements of CERCLA and the NCP. The ROD divides the site into two operable units and the Off-Plant Area. The Off-Plant Area was defined in the ROD as "all land surrounding the FMC and Simplot plants with contamination originating from the plants". The Off-Plant Area later became known as the Off-Plant OU (OU 3).[2]

The selected remedy for the Off-Plant OU, as presented in the 1998 ROD, is presented as three actions – Fluoride Monitoring, Soils, and Groundwater Monitoring. This report speaks only to the Fluoride Monitoring portion of the remedy. The objective of the remedy is to prevent potential risks from fluoride to ecological receptors in the Off-Plant OU.

The fluoride monitoring remedy requires monitoring fluoride near the FMC and Simplot plants, evaluation of the data and, if unacceptable risks are indicated, identification of appropriate source control or other actions. If a source is an ongoing release and subject to state or federal rules, any further control actions are to be deferred to the appropriate state or federal authority (ROD 10.1.5, 10.2.4). The primary source of fluoride has been identified as ongoing air emissions from the Simplot Don Plant. This source is an ongoing release and is permitted by DEQ.

Background
The EMF Superfund Site is located about 2.5 miles northwest of the Pocatello, Idaho, and is partially located within the Fort Hall Indian Reservation. The Off-Plant OU is comprised of "all land surrounding the FMC and Simplot Plants with contamination origination from the Plants". The Bottoms Area, a tribally significant area located in the delta formed as the Portneuf River flows into American Falls Reservoir, is located two to six miles north of the Site. Current land use in the Off-Plant OU include light industrial/commercial, agricultural, residential and tribal traditional and cultural uses.

Contamination at the EMF Superfund Site was generated by releases from the processing of phosphate ore at two facilities. The first, the J.R. Simplot Company, has produced fertilizer at the Don Plant since 1944. In general, the CERCLA remedy for the Simplot OU addresses historic releases from the Don Plant while current operations are regulated under other federal, state and local programs. The second facility, the FMC elemental phosphorous plant, produced elemental phosphorus from phosphate ore from 1949 through 2001. Between 2002 and 2006, the FMC plant was closed, and the facilities were demolished. The remedy selected for the FMC OU addresses historic releases from the FMC facility.

Particulates associated with air emissions from operations at the Simplot and FMC facilities have settled on nearby surface soils and vegetation. The Remedial Investigation (Bechtel, 1996) identified fluoride as the only COC with potential ecological risks above the EPA's CERCLA risk thresholds. The source was identified as air emissions from current Don Plant operations, a source that was, and continues to be, regulated under a State air permit.

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[1] Jeremy Jennings, Remedial Project Manager, Superfund and Emergency Management Program, EPA Region 10. Seattle, WA. June 2020.

[2] Pursuant to an agreement between FMC and Simplot to allow for creation of two Remedial Design/Remedial Action Consent Decrees, the 1998 ROD presented the actions for the Off-Plant Area as part of both the FMC OU and the Simplot OU. Following review of comments received during public comment, the two Consent Decrees were never finalized in this form and the actions identified for the Off-Plant Area were addressed as a separate OU, the Off-Plant OU.

The 1995 human health risk assessment found that fluoride concentrations in soils and plants were at levels below human health screening values. Therefore, human health risks from fluoride were not quantified and the remedy identified in the ROD did not address human health risks from site sources of fluoride.

The 1995 ecological risk assessment found that potential risks to some plants, mammals and birds in some areas of the Off-Plant OU exceeded the EPA's risk threshold (HQ=1). The risks were driven by fluoride exposure through consumption of leafy-green vegetation, that dies off each winter and reemerges in the spring. The highest risks were identified for sage grouse in the Michaud Flats (HQ=3.29). However, widespread or significant ecological effects at the population and community levels were not expected.

> *Potential risks of adverse effects of fluoride on resident plant and wildlife species of the sagebrush steppe ecosystem were identified. The estimated risks of fluoride are only marginally above the threshold for toxic effects and by inference the species at risk may be marginally but not severely affected. Because the potential risks were quantified for effects on individual organism using conservative assumptions to account for uncertainty, and because the upland species most likely to be impacted occur commonly throughout the region, widespread or significant ecological effects at the population and community levels are not expected.*
>
> *Given the ongoing air emissions and cumulative toxicity of fluoride, the potential for impacts is expected to increase over time with continued air deposition. A reduction in fluoride loadings could allow for a reduction in the potential for harmful effects on the ecosystem in the future, as well as a reduction in current risks.* (ROD, Section 6.2)

Remedial Action Objective

The overall objective of the selected remedy for the EMF Site is "to provide an effective mechanism for protecting human health and the environment from risks associated with contaminated site soils and ground water".

The cleanup/remedial action objective (RAO) for ecological risks and fluoride is:

> *Prevent the potential for future impacts to ecological receptors by monitoring fluoride at the Site and surface water at springs. If monitoring data indicate that fluoride levels in the environment are increasing beyond that observed during the RI sampling and the potential for an unacceptable ecological risk is indicated, additional actions, including source controls, may be required.* (ROD, Section 7.2)

The Selected Remedy

To address potential impacts to ecological receptors, the EPA's selected remedy includes the following provisions for fluoride.

> *Monitor fluoride levels around the Site in order to determine the levels of fluoride present and to evaluate the potential risk to ecological receptors. If levels which are measured indicate a risk may exist, further evaluation would occur followed by source control or other action, if necessary. (ROD, Declaration)*

Additional detail is provided in Section 10 of the ROD.

> *In order to determine the levels of fluoride present and to evaluate the potential risk to ecological receptors a fluoride monitoring program will be implemented. The monitoring shall occur within a three-mile radius of the FMC and Simplot Plants (there may be specific areas outside the three-mile radius which may contain sensitive species or be of particular ecological or cultural value where sampling should also occur) and shall include sampling of vegetation, soils, and appropriate biomonitors. A monitoring plan including a quality assurance program plan and a sampling plan shall be submitted for the EPA's approval during the remedial design. An evaluation of monitoring data will be conducted annually to determine the fluoride levels and spatial and temporal trends in the environment. If levels which are measured indicate a risk may exist, further evaluation will occur followed by source control or other action, if necessary.*

One of the challenges in developing the RI was the presence of both historic and ongoing releases to the environment. Congress enacted CERCLA to address historic releases that were not addressed by other Federal environmental authorities. It was intended to augment, not replace, other Federal and State authorities. Therefore, no actions specific to control of air emissions from ongoing operations are included in the ROD.

> *Except as expressly stated in CERCLA, the NCP, or this ROD, the ROD is not designed to address FMC's or Simplot's ongoing operations, or to preclude, or in any way affect, the need for the Companies' ongoing operations or future closure activities to comply with other environmental laws or regulations. (Declaration)*

> *With respect to air quality Superfund is not the appropriate authority to address the ongoing air emissions from an operating facility, and therefore no action specific to control of air emissions is included in this ROD. (9.3.2)*

> *Air emissions from the Plants are to be controlled by other Federal and State regulatory programs however, the final remedy for the site requires a periodic reevaluation of the air pathway to ensure that the remedy remains effective and is protective of human health and the environment. (11.1)*

Further explanation is provided in the ROD's Response to Comments (pages B-4, B-6, B-21 and B-22).

Implementation of the Remedy

In 1998, discussions on an enforcement agreement to implement the remedial design and remedial action were initiated and a draft RD/RA Scope of Work (SOW) was written for the Off-Plant OU. While neither of these documents were finalized, consistent with the ROD, the following fluoride monitoring and assessment activities were conducted. A more detailed summary is presented in *Supplemental Fluoride Monitoring and Ecological Risk Assessment* (EPA, July 2019).

All data and draft work products produced were distributed to the Companies, the EPA, DEQ and the Tribes for review and comment. Comments were discussed with the group and, in most cases, resolved prior to finalizing reports. When written comments were submitted, a written response was generally prepared.

<u>Fluoride Monitoring and Assessment</u>

> *Monitor fluoride levels around the Site in order to determine the levels of fluoride present and to evaluate the potential risk to ecological receptors. (ROD, Declaration)*

In initial RD/RA discussions, Simplot asserted that the air emissions monitoring required under their State air permit fulfilled Simplot's obligations for fluoride monitoring. The EPA never provided a direct response. In the absence of other direction, Simplot continued to monitor their emissions pursuant to the requirements in their state permit.

In 2008, the EPA met with Simplot and FMC (the Companies), Idaho Department of Environmental Quality (DEQ) and the Shoshone-Bannock Tribes (Tribes) (technical team) to discuss implementation of the remedy. The parties reviewed implementation actions to date, identified perceived data gaps and discussed how the data gaps would be addressed. As a first step, the Companies agreed to develop a report summarizing historical fluoride data and analyses collected within three-miles of the Don Plant. At the same time, the EPA agreed to work with the Tribes to identify specific areas outside the three-mile radius where sampling may be appropriate due to the presence of sensitive species or their ecological or cultural value. A gap analysis was used to identify uncertainties and develop appropriate means to address each gap. This analysis served as the basis for supplemental activities conducted over the next several years.

Supplemental actions included soil and vegetation sampling; evaluating data trends; updating the ecological risk assessment using updated the EPA methodologies and new data; sampling flouride in forage and soils in the Bottoms Area; reviewing potential impacts to bison, honey bees and other potential ecological receptors; comparing flouride data to the Idaho Fluoride in Forage standards; and reassessing potential human health risks

from fluoride. All sampling was performed under QA/QC Plans approved by either the EPA or DEQ. In some instances, independent analyses were performed by the EPA and the Companies to assist in resolving outstanding concerns.

The major findings from the supplemental sampling and analysis are as follows:

- Fluoride levels present in soils and vegetation in the Off-Plant OU as well as human health and ecological risks associated with fluoride have been well characterized.

- All significant potential risks to ecological receptors were evaluated in the ecological risk reassessment.

- The primary source of fluoride present in Off-Plant soils and vegetation are air emissions from ongoing operations at the Simplot Don Plant. The emissions are regulated under a DEQ air permit.

- Fluoride is deposited on the surface of soils and vegetation near the plant. Fluoride concentrations in soil appear to be limited to the uppermost surface and do not appear to be transferred to vegetation. Most of the vegetation consumed by ecological receptors is deciduous, losing its leaves each fall and reemerging each spring. Thus, fluoride on vegetation do not accumulate over time.

- No seasonal, annual or long-term or statistically increasing trends were identified in the fluoride data. However, in most areas, fluoride levels measured in 2009 were generally slightly lower than those measured during the RI.

- Fluoride in forage grown in some portions of the Off-Plant OU have exceeded the fluoride end points contained in Idaho's forage standards. The source is permitted by the State of Idaho and regularly monitored.

- Fluoride levels in some vegetation adjacent to the Don Plant have the potential to impact ecological receptors at the individual level. However, widespread or significant ecological impacts at the community or population level are not expected.

- Fluoride levels in forage and soils collected from the Bottoms Area are consistent with background conditions.

- Fluoride levels do not present human health risks above CERCLA risk thresholds.

- Fluoride levels in springs downgradient of the Site do not exceed the MCL of 4 ug/L.

In summary, supplemental monitoring and analyses has provided a comprehensive characterization of potential ecological risks from exposure to fluoride in soils and vegetation at the Off-Plant OU. Fluoride in air emissions from Simplot's Don Plant are deposited on the soils and vegetation near the source. Fluoride concentrations on some vegetation have a potential to impact ecological receptors at the individual level. However, widespread or significant ecological impacts at the community or population level are not expected, the level of impact used in evaluating CERCLA actions.

Evaluation of Need for Further Action

> *If levels which are measured indicate a risk may exist, further evaluation would occur followed by source control or other action, if necessary.* (Declaration, 10.1.5.1, 10.2.4)
>
> *With respect to air quality Superfund is not the appropriate authority to address the ongoing air emissions from the operating facility, and therefore no action specific to control of air emissions is included in this ROD. (9.3.2)*

Supplemental monitoring and analyses indicated that the deposition of fluoride released as part of air emissions from the Don Plant has resulted in some risk to ecological receptors. Thus, further evaluation of the sources and the need for action specific controls was initiated. Based on the data and analysis summarized above, the EPA has determined that the fluoride comes from a single source, air emissions from the Don Plant. Available information shows that this is an ongoing release that is permitted by the State of Idaho. Therefore, consistent with the ROD, any further control actions fall under the authority of state and federal air programs, not CERCLA. Since there are no other known sources of fluoride, no further risk management decisions or other actions are required under CERCLA.

In reaching this conclusion, the EPA considered the following:

- Monitoring - All the monitoring required by the ROD has been conducted. All specific elements identified in the selected remedy, including sampling of vegetation, soils and appropriate biomonitors, have been sampled. All samples were collected and analyzed consistent with QA/QC Plans.

- Data Analysis - The data has been evaluated to address all end points identified in the selected remedy. Fluoride levels, spatial and temporal trends and other end points have been evaluated. The ecological risk assessment has been updated and used to evaluate potential risks to ecological receptors.

- Fluoride is deposited on soils and vegetation near the Don Plant at levels that present a potential risk to individual ecological receptors, however, widespread or significant ecological impacts at the community or population level are not expected.

- The vegetation of concern is perennial and does not accumulate from one year to the next.

- Source Identification – The fluoride of concern is derived from a single source, air emissions from the Don Plant. The Don Plant is an operating facility with ongoing air emissions that are regulated under a state permit.

- Required Action – CERCLA defers to other state and federal programs to address permitted sources. Any evaluation of further source controls or other actions should be completed under other environmental regulations.

In summary, the EPA's evaluation of available information finds that, additional source control actions, if necessary, fall under the regulatory authority of the State. The EPA has no CERCLA authority to implement additional action.

Remedy Complete
The Fluoride Monitoring remedy identified in the 1998 ROD for the Off-Plant Operable Unit, Eastern Michaud Flats Superfund Site is complete. No further CERCLA actions are required under this part of the remedy.

- All elements of the CERCLA remedy have been addressed.

- All monitoring and assessment required under CERCLA are complete.

- All decisions relative to ecological risks and source control actions under CERCLA are complete.

- No institutional controls for fluoride were identified in the ROD.

- Ecological risks associated with historic releases are below the EPA's CERCLA action levels.

- The remedial action objective for ecological risks at the Off-Plant OU has been attained.

The EPA is not required to conduct additional Five-Year Reviews for this OU. As documented above, the RAOs for the remedy have been achieved. In addition, there are no hazardous substances, pollutants or contaminants from historic releases that remain above the thresholds identified in the 1998 ROD and, thus, above levels that could prevent Unlimited Use and Unrestricted Exposure (UU/UE) as defined under CERCLA.

Attachments: Site Map
Supplemental Fluoride Monitoring and Ecological Risk Assessment

APPENDIX N – OFF-PLANT OU SUPPLEMENTAL FLOURIDE MONITORING AND ECOLOGICAL RISK ASSESSMENT

Supplemental Fluoride Monitoring and Ecological Risk Assessment
EMF Off-Plant Operable Unit[1]
June 2020

The Ecological Risk Assessment (Ecology and Environment, 1995) completed as part of the Remedial Investigation of the Eastern Michaud Flats Superfund Site found some ecological risk to individual receptors in the Off-Plant Operable Unit. However, since widespread or significant ecological impacts at the community or population level were not expected, the level of risk was determined to be within the EPA's CERCLA acceptable risk range. Air emissions from the Simplot Don Plant were identified as the only source for fluoride deposited on vegetation consumed by grazing mammals.

Given the ongoing air emissions and the potential for cumulative toxicity of fluoride, the 1998 ROD included a Remedial Action Objective to prevent the potential for future impacts to ecological receptors by monitoring fluoride at the Site. The remedy called for additional monitoring followed by an evaluation of risks and, if necessary, identification of source controls or other actions. If excess risks were generated by an ongoing source, the EPA was to work with the State and Tribes to identify the appropriate source controls. While specific controls were not defined in the ROD, the document did state that permitted sources were to be addressed outside of CERCLA.

In 2008, the EPA met with Simplot and FMC (the Companies), Idaho DEQ and the Shoshone-Bannock Tribes (Tribes) (the technical team) to determine a path forward for the fluoride monitoring and evaluation described in the 1998 ROD. A data gap analysis was conducted, identifying the outstanding uncertainties and the concern of all members of the technical team. The spreadsheet prepared during this analysis served as a workplan for the project. A copy can be found in the EPA's Site File.

Also, in 2008, the EPA met with the Tribes to identify areas where items of ecological or cultural significance may have been adversely impacted by deposition of fluoride contained in Simplot's emissions. Based on the Tribes' request, the EPA conducted additional soil and vegetation sampling in the Bottoms Area.

All draft work products were reviewed by, and discussed with, the technical team. At several points, identified concerns resulted in additional evaluation by the Companies and/or Booze Allen Hamilton (BAH), the EPA's contractor. In most cases, written responses were prepared for all comments submitted.

The following summarizes the supplemental investigations of fluoride and assessments of ecological risks in the Off-Plant OU performed since the Remedial Investigation and the key findings. All documents cited have undergone previous review by the technical team and may be found in the EPA's Site File.

Fluoride Summary Report

In August 2008, the Companies summarized the historical data and analyses related to fluoride in vegetation and soils on or near the Off-Plant OU.[2] Based on their review, the Companies found:

- There is sufficient data to limit the area of potential concern to areas immediately downwind of the Simplot Don Plant. Elevated fluoride levels were not observed beyond a three-mile radius of the Site.

[1] Jeremy Jennings, Remedial Project Manager, Superfund and Emergency Management Program, EPA Region 10. Seattle, WA. June 2020.

[2] NewFields, 2008. *Fluoride Summary, Off-Plant Area, Eastern Michaud Flats Superfund Site*. Prepared for J.R. Simplot Company. August.

- Fluoride concentrations in vegetation and soils rapidly decrease with distance from the Simplot plant.
- There are no discernable trends in data collected between 1997 and 2004.
- Ongoing air emissions from the Simplot are the principle source of fluoride.
- Fluoride enters the leaf tissue by diffusion through the leaf stomata and absorption through roots. Due to the high pH and calcium levels in local soils, fluoride has a low mobility in soils and thus, soil pore concentrations and root uptake rates are low.
- Fluoride concentrations in vegetation decrease with increased plant biomass/growth. Thus, concentrations fluctuate during the growing season in response to weather, irrigation cycles, and fertilization.
- Due to the seasonal growth patterns of the grazed vegetation, fluoride levels in forage do not accumulate from year to year.

Based on these findings, the Companies concluded that fluoride had been extensively characterized, including identification of sources, the spatial extent of elevated fluoride levels in soils and vegetation, dispersion and deposition patterns and potential risks. Furthermore, they concluded that fluoride levels in the Off-Plant OU presented marginal ecological risks at levels below the EPA's thresholds for CERCLA action so no further action was required under CERCLA.

While the EPA generally concurred with the Companies' findings, concerns regarding the adequacy of previous assessments were raised, citing revisions to the EPA's ecological risk assessment guidance and potential changes to toxicological variables. The state and Tribes also raised concerns. In response, the Companies and the EPA, with concurrence of the state and Tribes, agreed to implement a phased work plan for additional sampling and assessment of ecological risks in the Off-Plant OU.

Sampling of Fluoride in the Off-Plant OU

Prior to conducting further sampling or assessment, the Companies used the data collected since the RI and the EPA's revised methodology to run a preliminary risk assessment.[3] The results were used to help identify locations and media where additional sampling may be warranted. A Sampling and Analysis Plan that included a Quality Assurance Program Plan was developed by the Companies and approved by the EPA.[4] Supplemental sampling, completed in 2009, focused on the areas shown to have the highest fluoride levels during the RI. Media sampled included soil, vegetation, invertebrates and small mammals.

Concurrent with the above, the Companies and the EPA's contractors conducted literature reviews to identify potential toxicological effects and endpoints of fluoride on honey bees, bison and other potential ecological receptors.[5] Based on the reviews, the EPA concluded that effects on bison would be like those experienced by cattle (cattle were included in the assessment) and further assessment of potential effects to honey bees and other receptors was not warranted.

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[3] NewFields, 2008. *Draft Reassessment of Ecological Risk from Fluoride – Phase I*. Prepared for J.R. Simplot Company.

[4] NewFields, 2009. *Sampling and Analysis Plan for Reassessment of Ecological Risk from Fluoride. Off-Plant Operable Unit, Eastern Michaud Flats Superfund Site*. Prepared for J.R. Simplot Company, FMC Corporation. September.

[5] NewFields, 2006. EMF Superfund Site, *Summary Review of Potential Effects of Fluoride on Bees*. Prepared for J.R. Simplot Company. August.

NewFields, 2006. *EMF Superfund Site, Summary Review of Potential Effects of Fluoride on Bison.* Prepared for J.R. Simplot Company. August.

BAH, 2008. *Draft Potential Risks to Honey Bees from Fluoride Exposure at the EMF Site.* Prepared for US Environmental Protection Agency as Appendix A, Response to Comments. Region 10, Seattle, WA. Booz Allen Hamilton. May 6.

BAH, 2008. *Draft Potential Risks to Bison from Fluoride Exposure Related to the EMF Site.* Prepared for US Environmental Protection Agency as Appendix B, Response to Comments. Region 10, Seattle, WA. Booz Allen Hamilton. May 6.

Ecological Risk Reassessment

A *Reassessment of Ecological Risk from Fluoride for the Off-Plant OU – Phase IV* [6] was finalized in June 2010. Ecological receptors considered included coyote, deer mice, horned owl, red-tailed hawks and cattle. Potential risks were calculated using both the NOAEL (no adverse effect level) TRV (toxicity reference value) and the LOAEL (lowest observed adverse effect level). Approximately 10% of the hazard quotients (HQ) calculated for individual receptors using the NOAEL were found to exceed the EPA's risk threshold (HQ=1). The highest values reported were 4.7 and 4.4 with most being less than 2. However, using the LOAEL, the only risks that exceeded that threshold were the horned lark (HQ=1.1) and the coyote (HQ=1.7) in an exposure unit (EU) adjacent to the Don Plant. The EPA's independent reevaluation of the ecological risk reassessment provided similar results.

The EPA's *Ecological Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (1997) recommends that ecological risks be assessed at the community and population level, not the individual level, and that Superfund actions are only warranted when those risks are significant and widespread. Consistent with the guidance, the Companies used the LOAEL to assess the need for further action. They concluded that, since both the horned lark and the coyote (the two receptors with a LOAEL HQ>1) forage over areas much larger than the area impacted by Simplot's emissions, significant risks at a community or population level were not expected. Thus, even though fluoride may present risk to individual receptors, no further actions were required under CERCLA. The EPA did not concur or non-concur with the Companies' conclusions.

The Companies provided a draft risk reassessment report to the technical team for review in January 2010. The EPA comments pointed out that the incorporation of bioavailability factors may have been inappropriate for mammals and requested the risks be reassessed using alternative TRV and bioavailability factors. The EPA also requested BAH to independently quantify ecological risks to birds and mammals using alternative TRVs and bioavailability factors. Major differences between the two analyses were discussed, leading to an agreement on the set of values used for the risk calculations. A technical memorandum containing the BAH analysis is included as Appendix A of the *Final Technical Memorandum: Proposed Action Level and Monitoring for Fluoride For the Off-Plant Operable Unit*.[7]

Evaluation of Fluoride Toxicosis Risks to Grazing Animals Using Soil and Forage Thresholds

The Tribes requested that livestock and bison be included in the risk re-assessment due to the economic importance of grazing livestock and their sensitivity to fluoride. Laboratory-derived TRVs for fluoride exposure of large grazing mammals were not available. Consequently, the re-evaluation used thresholds for the effect of dental fluorosis in cattle based on fluoride concentrations in vegetation and soil as effect benchmarks to assess risks to large grazing mammals.[8] The literature recognizes dental fluorosis as the most sensitive endpoint of concern for exposure of livestock to dietary sources of fluoride, and cattle are recognized as the most sensitive grazer to the effects of fluoride. Thus, the degree of dental fluorosis was used as an early indicator potential

[6] Formation Environmental, 2010. *Reassessment of Ecological Risk from Fluoride – Phase IV. Final. Off-Plant Operable Unit*. Eastern Michaud Flats Superfund Site. June.

[7] BAH, 2013. *Final Technical Memorandum. Proposed Action Level and Monitoring for Fluoride for the Off-Plant Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho*. Prepared for U.S. Environmental Protection Agency Region 10, under RCRA Enforcement, Permitting, and Assistance (REPA) Contract. REPA5 Work Assignment R0101, REPA5-0101-002. March 8. Appendices include: *Risk Calculations for Fluoride Toxicosis at the Off-Plant Operable Unit, Eastern Michaud Flats Superfund Site, using Sampling Data from 2009*; *Ecological Risk-Based Threshold Concentrations for Fluoride, Eastern Michaud Flats Superfund Site, Off-Plant Operable Unit; Summary of Historical and Recent Monitoring Data for Fluoride in Vegetation at Off-Plant Areas;* and *Maps of Past Fluoride Data Collection Locations*

[8] Dental fluorosis is a change in the tooth enamel caused by ingestion of excessive fluoride during enamel formation. It appears as a range of visual changes in enamel causing degrees of intrinsic tooth discoloration, and, in some cases, physical damage to the teeth. The severity of the condition is dependent on the dose, duration, and age of the individual during the exposure.

adverse health effects from fluoride exposure. The literature also suggests that cattle may serve as a surrogate for bison and large wildlife grazers important to the Tribes. The evaluation is documented in Appendix A of the 2013 *Final Technical Memorandum*.

The fluoride thresholds were translated into a no-observed effect concentration (NOEC), low-observed effect concentration and effect concentrations (ECs) for moderate and severe effects and compared to the 2009 vegetation data. The results indicated that, at some exposure units, risks to grazing mammals from fluorosis exceeded the EPA's risk threshold of HQ=1 at all ECs. A similar evaluation using soil thresholds indicated that, using a high ingestion rate and bioavailability, the LOAEC-HQs exceeded 1.0 at several exposure units. The greatest potential risks were identified at exposure units closest to the Simplot facilities. This evaluation indicated that fluoride concentrations in environmental media at the Off-Plant OU would likely present risks to livestock that exceed the risk threshold, HQ=1.

Comparison of Fluoride Levels in Vegetation to Idaho's Fluoride in Forage Standards

Independent of federal air regulations, the State of Idaho has promulgated Fluoride in Forage Standards (IDAPA 58.01.01) to prevent fluorosis in grazing animals, mainly cattle. The regulation specifies that the total fluoride content in vegetation used for feed and forage should not exceed 40 ppm (parts per million) annually, 60 ppm for any two consecutive months or 80 ppm in any one month. Due to the presence of fluoride in Simplot's current air emissions and the potential use of vegetation grown downwind of the facility for feed and forage, Simplot's air permit includes provisions implementing this requirement. Requirements include monitoring of forage in the area where fluoride from the air emission is deposited on vegetation used as feed for cattle.

While permitted releases are beyond the scope of CERCLA and compliance with terms and conditions of Simplot's air permit is the responsibility of DEQ, the Companies agreed to compare historical forage data to the 80 ppm monthly and 40 ppm annual endpoints in Idaho's standards and include the information in the *Fluoride Summary Report*. Concentrations above the annual, bi-monthly and monthly end points were frequently reported at several sampling locations. While the geographical extent of elevated fluoride remained consistent, no seasonal or annual patterns were found in the data.

Independently, BAH compared the 2009 data to the same endpoints and found the 2009 concentration exceeded 40 ppm at three exposure units and 80 ppm endpoint at one exposure unit. As with the Companies findings, these results indicated that there were areas of the Off-Plant OU where levels of fluoride on vegetation was presenting risks to ecological receptors. The results are presented in the 2013 *Final Technical Memorandum*.

Risk-Based Concentration Thresholds for Ecological Receptors

The EPA does not have a set of risk-based concentrations (RBCs) that correspond to thresholds of acceptable risk in environmental media for ecological receptors. However, using the methodology used in the *Final Phase IV Reassessment of Ecological Risks from Fluoride*, the EPA developed a set of RBCs for receptors of concern at the Off-Plant OU. The RBC's developed were sets of risk thresholds equivalent to a total HQ=1 for the combined exposure pathways for each ecological receptor. As such, fluoride at or below the identified concentrations would be protective of wildlife that reside or feed at the Off-Plant OU.

The lowest NOAEL and LOAEL RBC calculated for forage were 14 ppm (equivalent to mg/kg dry weight) and 65 ppm, respectively. Idaho's equivalent endpoint is 40 ppm. For soil, the lowest NOAEL RBC was 149 ppm while the lowest LOAEL was 685 ppm. For comparison purposes, New Zealand uses an endpoint of 326 ppm to access potential effects on sheep and cattle with high ingestion rates and high bioavailability of the fluoride[9]. Based on this analysis, BAH found that a fluoride concentration of 40 ppm in forage, as used in Idaho, would be protective of ecological receptors and grazing animals such as cattle and bison at the Off-Plant OU. The

[9] Cronin, S,J., V. Manoharan, M.J. Hedley, and P. Loganathan. 2000. Fluoride: A review of its fate, bioavailability, and risks of fluorosis in grazed pasture systems in New Zealand. New Zealand J. Agric. Res. 43:295-321.

evaluation is documented in *Ecological Risk-Based Threshold Concentrations for Fluoride*[10] and is also included as Appendix B of *the 2013 Final Technical Memorandum*.

Identification of Potential Monitoring Program, Including Potential Sample Locations

Based on the preliminary analysis indicating some unacceptable risk may be present for individual cattle and bison in some areas of the Off-Plant OU, the EPA requested BAH to develop a draft fluoride monitoring program that would be able to evaluate the effectiveness of changes with regards to protection of ecological receptors and cattle potentially exposed to fluoride in the Off-Plant OU. The analysis and recommendations are included in the 2013 *Final Technical Memorandum*. A summary of the historical and recent monitoring data for fluoride and maps of past fluoride data collection locations are included as Appendices C and D of that report.

BAH first identified potential monitoring locations based on a spatial evaluation of recent and historical data at monitoring stations where the maximum fluoride in forage concentration reported was greater than 40 mg/kg. The data were ranked into categories of High, Medium and Low based on the level of the exceedance and then mapped. Based on the ranking and spatial distribution, a proposed list of 35 monitoring locations distributed within approximately a 3-mile radius of the facility. The draft plan suggested that monthly samples be collected throughout the growing season from the stations currently monitored and two additional locations where spatial gaps were identified. It was further recommended that samples be collected and analyzed consistent with the procedures used for monitoring under their air permit. The EPA's analysis was provided to DEQ for consideration in overseeing the current air permit.

Fluorosis Study Scoped but Not Conducted

During scoping of potential uncertainties in the data and analysis for the Off-Plant OU, the Tribes requested a site-specific fluorosis study to determine the level of fluorosis currently present in the Off-Plant OU, whether fluorosis is expected to occur in the future and, if so, develop site-specific soil and/or vegetation TRVs for fluorosis. As discussed previously, the degree of dental fluorosis in cattle is often used as an early indicator of potential adverse health effects from fluoride exposure. In response, the EPA requested the Companies develop a fluorosis study work plan.

In 2010, the Companies prepared a draft *Fluorosis Study Design* and provided it to the technical team for review in comment.[11] However, citing the EPA's ecological risk assessment guidance, they questioned whether a fluorosis study was appropriate under CERCLA given that the study would address a domesticated animal and fluorosis is not linked to reproduction, mortality or growth of the receptor. Furthermore, they asserted that a study could not be developed that would be reproducible, of a quality required under CERCLA and assist with making risk-based, CERCLA decisions. Following extensive discussions, the EPA decided not to require a fluorosis study.

Supplemental Sampling of the Bottoms Area[12]

The ROD specified that fluoride monitoring should "generally occur within a three-mile radius of the FMC and Simplot Plants" but may also occur at "specific areas outside the three-mile radius, which may contain sensitive species or be of particular ecological or cultural value." Based on the request of the Tribes, during the summer of 2011, the EPA sampled fluoride levels in soil and vegetation in a study unit located in the Bottoms. The Bottoms is a wetland dominated area located two (2) to six (6) miles north of the Site. The area is used by tribal members for hunting, fishing and gathering and is of cultural significance to the Tribes.

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[10] BAH, 2012. *Ecological Risk-Based Threshold Concentrations for Fluoride, Eastern Michaud Flats Superfund Site, Off-Plant Operable Unit.* Prepared for U.S. Environmental Protection Agency Region 10, under RCRA Enforcement, Permitting, and Assistance (REPA) Contract. REPA4 Work Assignment R2101, REPA4-2101-020_rev. April.

[11] Formation Environmental, 2010. *Eastern Michaud Flats Superfund Site, Off-Plant Operable Unit, Fluorosis Study Design.* May 21.

[12] *Final Report of Investigation and Sample Results for the Fluoride Sampling in soil and vegetation in the Bottoms Area of the Fort Hall Reservation near the Eastern Michaud Flats Superfund Site (BAH, 2013).*

The Tribes were invited to participate in all planning and implementation efforts, including selection of the study site, sampling events and discussions concerning QA issues raised during the sampling. All draft work products were shared with the Tribes for their review and comment.

Six (6) composite soil and vegetation samples (plus appropriate quality assurance/quality control samples) were collected from a two-acre exposure unit during four sampling events conducted between June and September 2011. The fluoride concentrations measured in soils ranged from 270 to 890 ug/g dry weight (dw) while concentrations in vegetation ranged from 9.7 to 12 ug/g dw. These levels were found to be consistent with background concentrations and thus, do not appear to be significantly impacted from Site sources.

All samples were collected and analyzed consistent with a Quality Assurance Project Plan (QAPP). Data was validated prior to use. Concerns were raised during the validation of the first-round data. Among other things, it was noted that the fluoride levels reported for soil samples were roughly two orders of magnitude lower than any prior measurements while the levels in vegetation were roughly an order of magnitude greater. Following the initial review of the data, duplicate samples were sent to two other labs for testing using two different analytical methods. The data from these later analyses met QA objectives. The review indicated the concentrations reported in the original sample were likely linked to the analytical method and were not representative of concentrations in the field. Therefore, it was decided that soil samples from the three remaining sampling events would be split and sent to the three labs for analysis using the three different analytical methods.

Following completion of the sampling, all three data sets were evaluated. Inconsistencies in the data generated using the original method were found for all four sampling events. Data from the other two methods, however, passed all QA tests and were consistent both internally and with the other. Both indicated that fluoride levels in the samples collected from the Bottoms Area were at levels consistent with background conditions.

The primary findings of the Bottoms Area investigation are:

- Fluoride levels in soil in the Off-Plant OU are consistent with background levels.
- Fluoride in forage was 9.7 – 12 ug/g dw. The proposed screening level in the Off-Plant monitoring report and the limit in DEQ's air permit is 40 ug/g dw.
- There were some problems experienced with the initial method used to analyze forage samples which resulted in unexpectedly high reported concentrations. While the exact reason for these "false positive" results is not known, it may be that concentrations were very close to the detection level. Regardless of the cause, all samples from round 1 were reanalyzed by a second method. The second method was confirmed by a third method during the final round of sampling and found to be consistent with that. Thus, results from second method are assumed correct and the high levels of fluoride in the one round of samples has been determined to be in error.

Throughout the study, the EPA shared data and solicited input from the Tribes, DEQ and Simplot. It should be noted that the Tribes expressed considerable concern about data quality. Their technical staff never agreed with the EPA's finding that fluoride levels in vegetation in the Bottoms Area were at levels consistent with background or with the EPA's view that the data indicated that the Bottoms were not significantly impacted from Site sources (e.g. emissions from the Don Plant.

Monitoring Fluoride in Springs

To ensure that all media were considered in the fluoride monitoring program, fluoride levels at three springs downgradient of the Don Plant have been regularly monitored as part of the Groundwater and Surface Water Monitoring Plan for the Simplot OU.[13] Fluoride levels in the water samples are analyzed and reported in the

[13] Formation Environmental, 2016. Groundwater and Surface Water Monitoring Plan, Revision 1, Simplot Operable Unit, Eastern Michaud Flats Superfund Site, Pocatello, Idaho. November.

quarterly and annual monitoring reports submitted to the EPA. Recent data indicate that fluoride concentrations are below the MCL. Thus, no CERCLA action is required.

Reassessment of Potential Human Health Risks from Exposure to Fluoride

The 1995 human health risk assessment indicated fluoride did not present human health risks above the EPA's thresholds. The EPA requested the Companies use the 2009 fluoride data to reevaluate potential human health risks from fluoride. On April 25, 2011 the Companies submitted a *Comprehensive Letter Report Documenting Potential Human Health Risks for Site COCs in the Off-Plant OU*.[14] The analysis indicated that the levels of fluoride present in the Off-Plant OU would not result in any exceedances of residential or worker screening human health risk-based comparative values (CVs) at any of the decision units and, thus, no further quantification or investigation of human health risks from fluoride was needed. Following review by the technical team, the EPA concurred with the Companies' findings.

Summary of Findings

In summary, the additional sampling and evaluation activities found:

- Fluoride levels present in soils and vegetation, as well as human health and ecological risks associated with fluoride, have been well characterized.
- The primary source of fluoride present in Off-Plant soils and vegetation are air emissions from ongoing operations at the Simplot Don Plant. The emissions are currently regulated under a DEQ air permit.
- No seasonal, annual or long-term patterns were identified in the fluoride data.
- All significant potential risks to ecological receptors were evaluated in the ecological risk reassessment.
- The fluoride levels in some vegetation adjacent to the Don Plant have the potential to impact ecological receptors at the individual level. However, widespread or significant ecological impacts at the community or population level are not expected.
- Fluoride in forage grown in some portions of the Off-Plant OU have exceeded the fluoride end points contained in Idaho's forage standards. The source is permitted by the State of Idaho.
- Fluoride levels in forage and soils collected from the Bottoms Area are consistent with background conditions.
- Fluoride levels in springs downgradient of the Site do not exceed the MCL of 4 ug/L.
- Fluoride levels do not present human health risks above CERCLA risk thresholds.

[14] Hanna Associates, Inc. 2011. *Comprehensive Letter Report Documenting Potential Human Health Risks for Site COCs in the Off-Plant OU; Eastern Michaud Flats (EMF) Superfund Site, Pocatello, Idaho. April 25.*

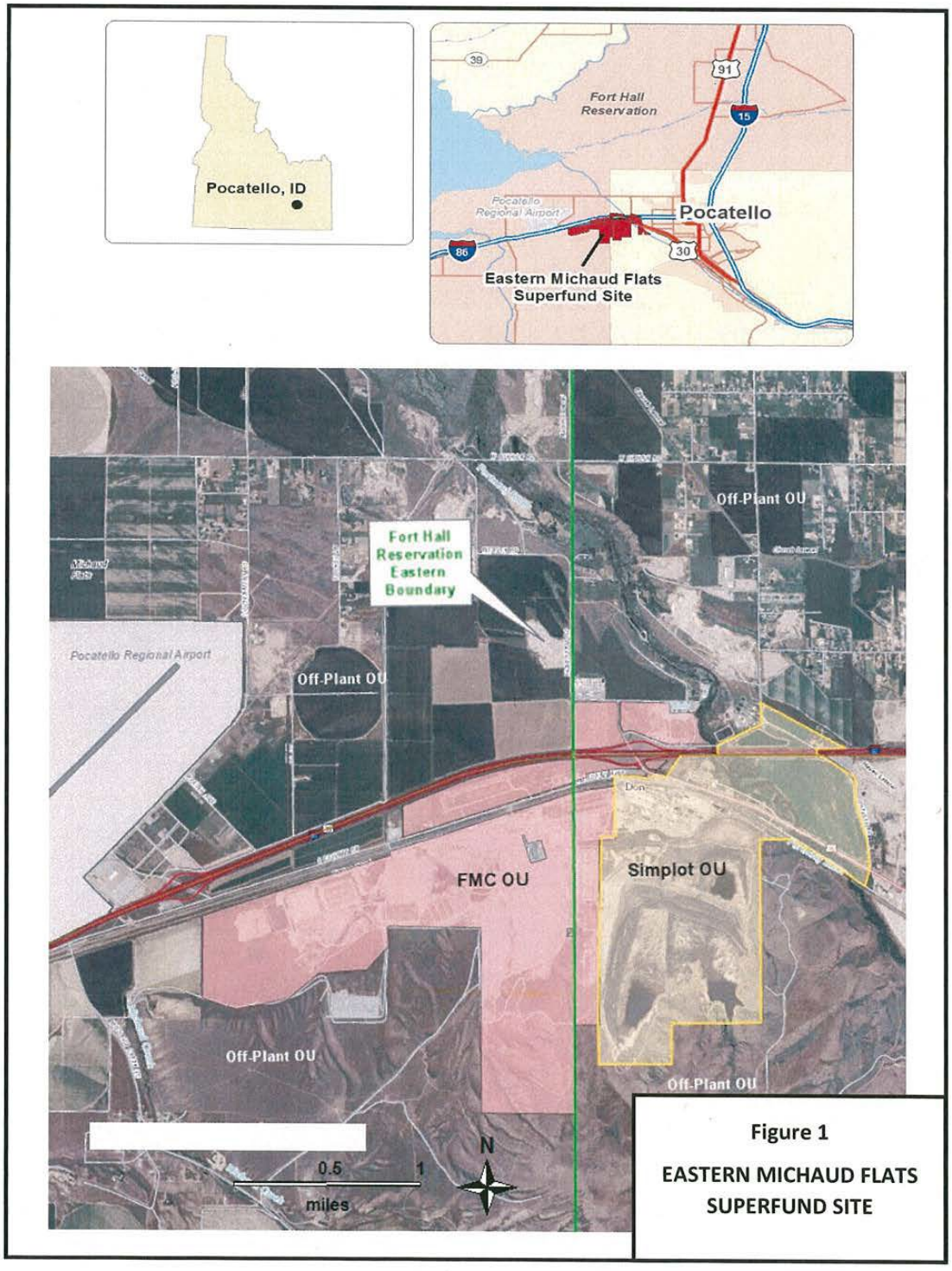

Figure 1

EASTERN MICHAUD FLATS SUPERFUND SITE

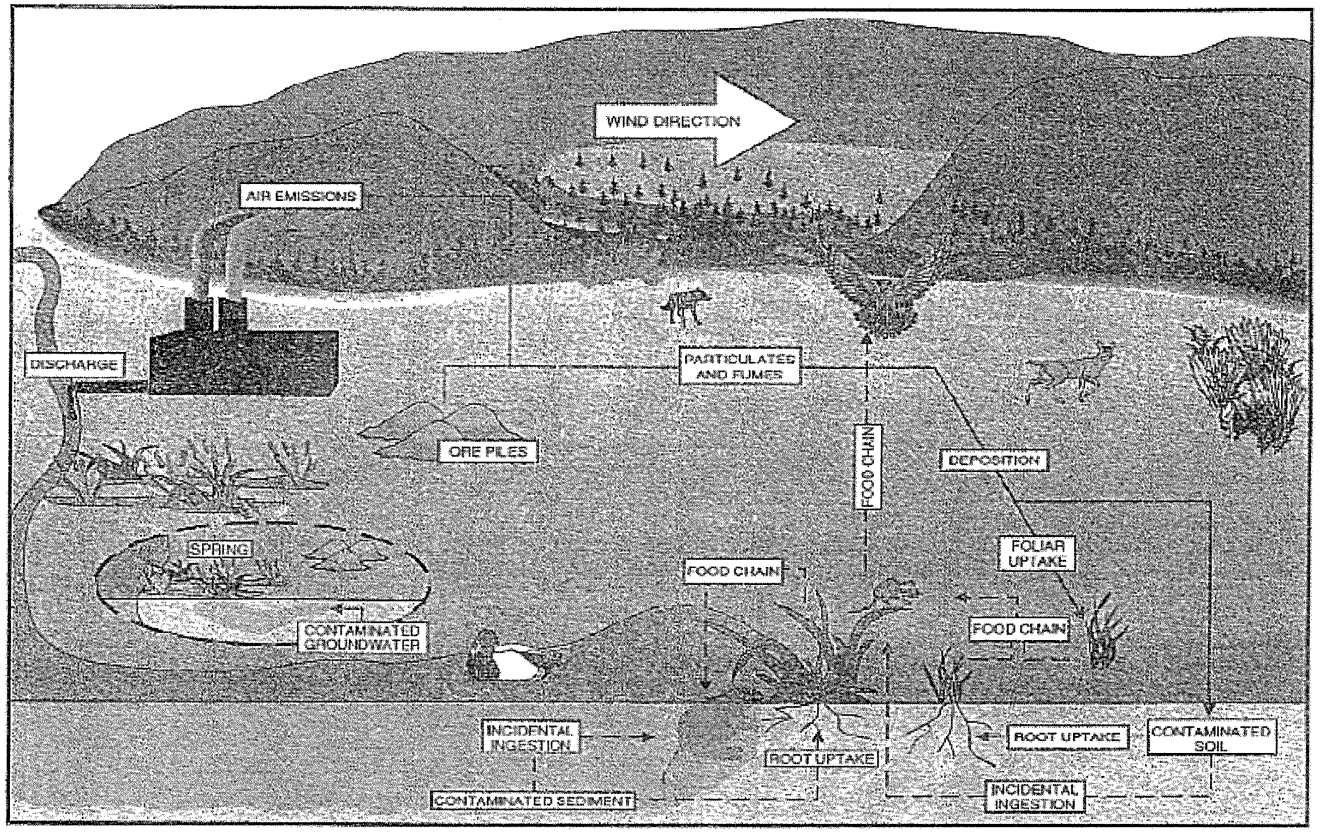

Figure 2

CONCEPTUAL SITE MODEL FOR POTENTIAL ECOLOGICAL EXPOSURE, OFF-PLANT OU, EMF

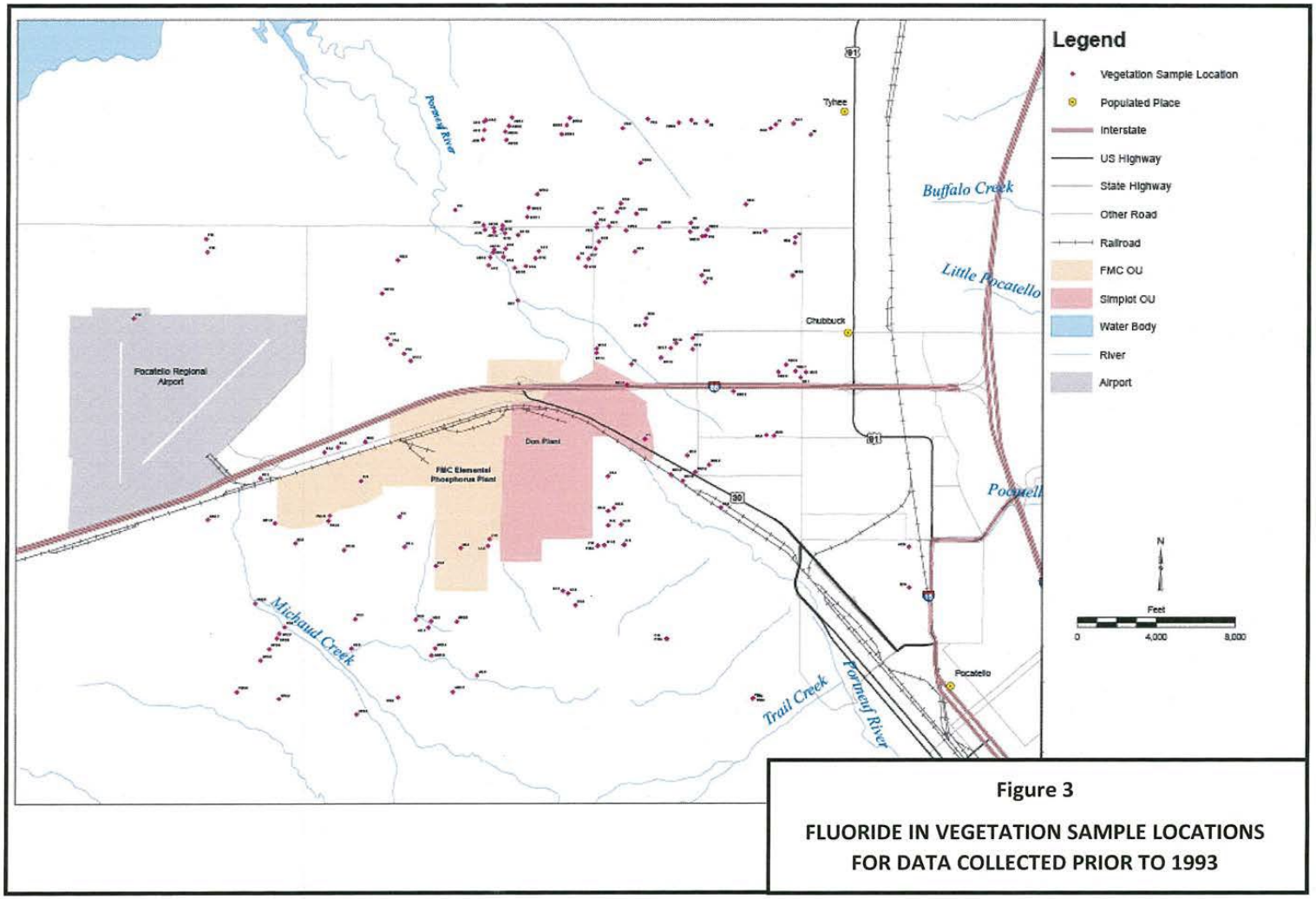

Figure 3

FLUORIDE IN VEGETATION SAMPLE LOCATIONS FOR DATA COLLECTED PRIOR TO 1993

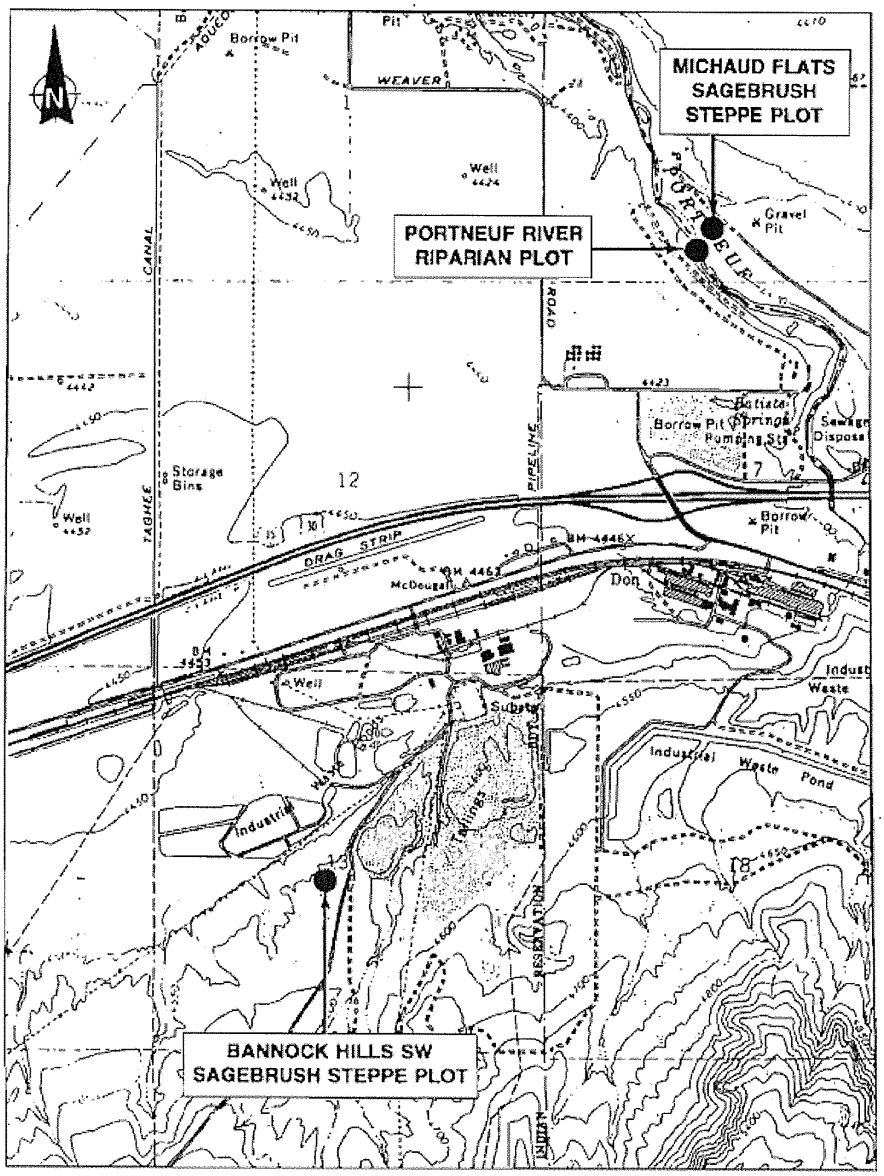

Figure 4

SAMPLING SITES, 1994 ECOLOGICAL RISK ASSESSMENT, OFF-PLANT OU, EMF

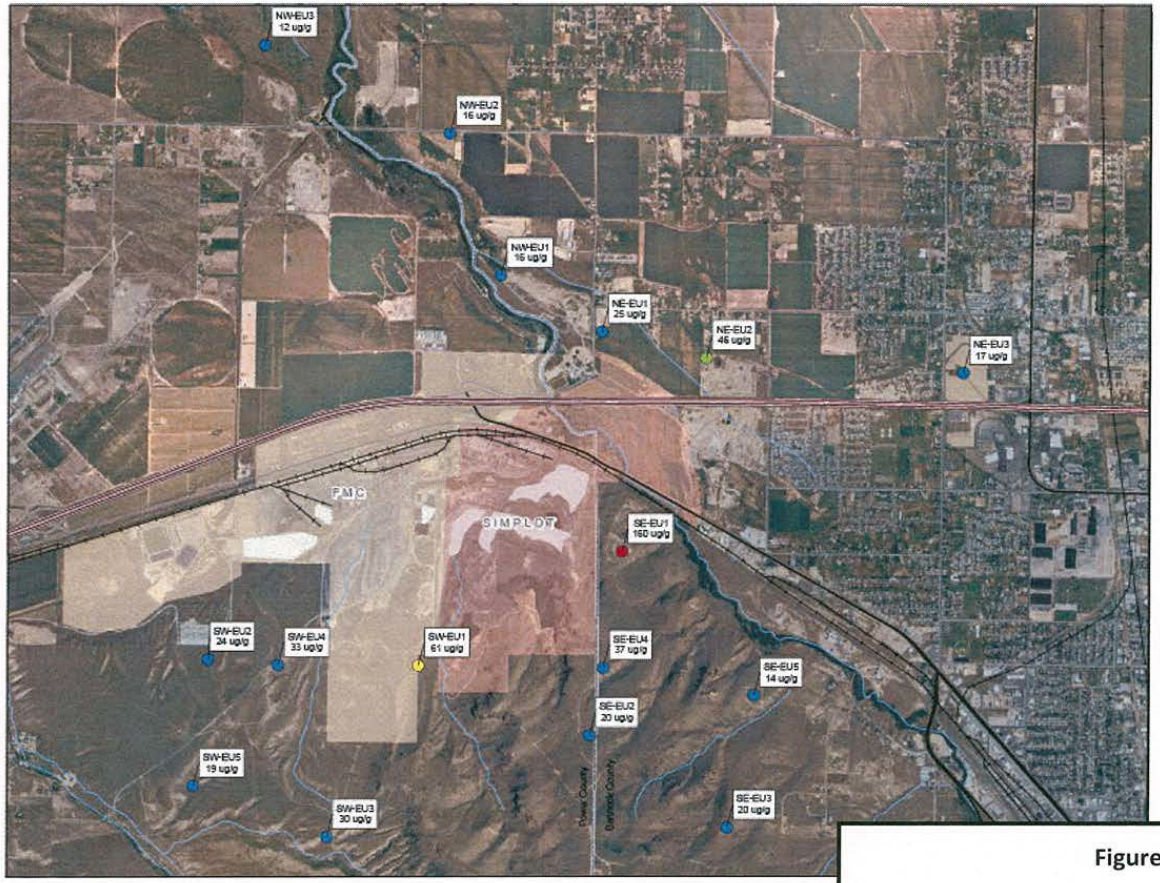

Figure 5

FLUORIDE IN FORAGE SAMPLING LOCATIONS, 1998 ECOLOGICAL RISK REASSESSMENT

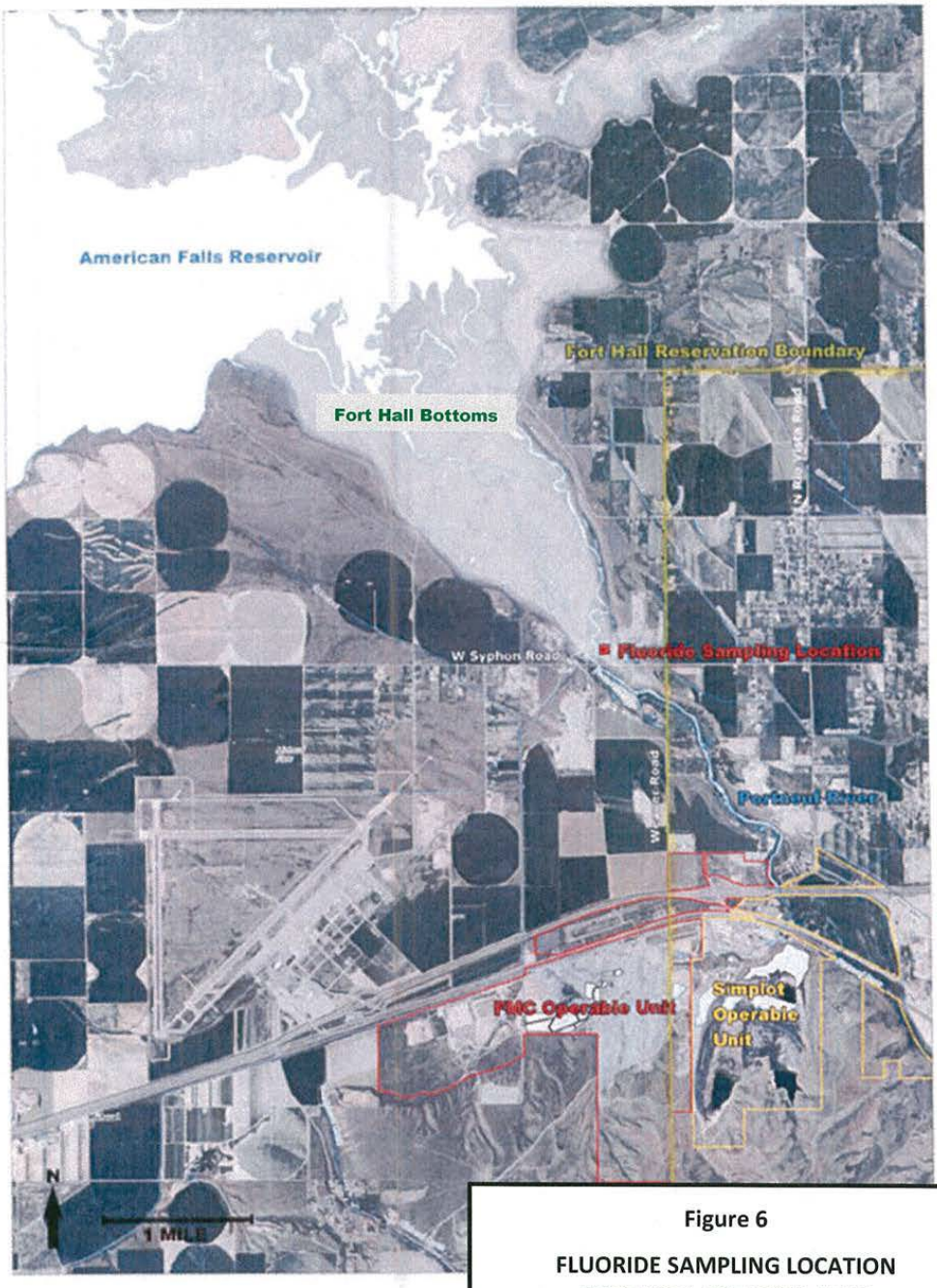

Figure 6

FLUORIDE SAMPLING LOCATION
FORT HALL BOTTOMS AREA

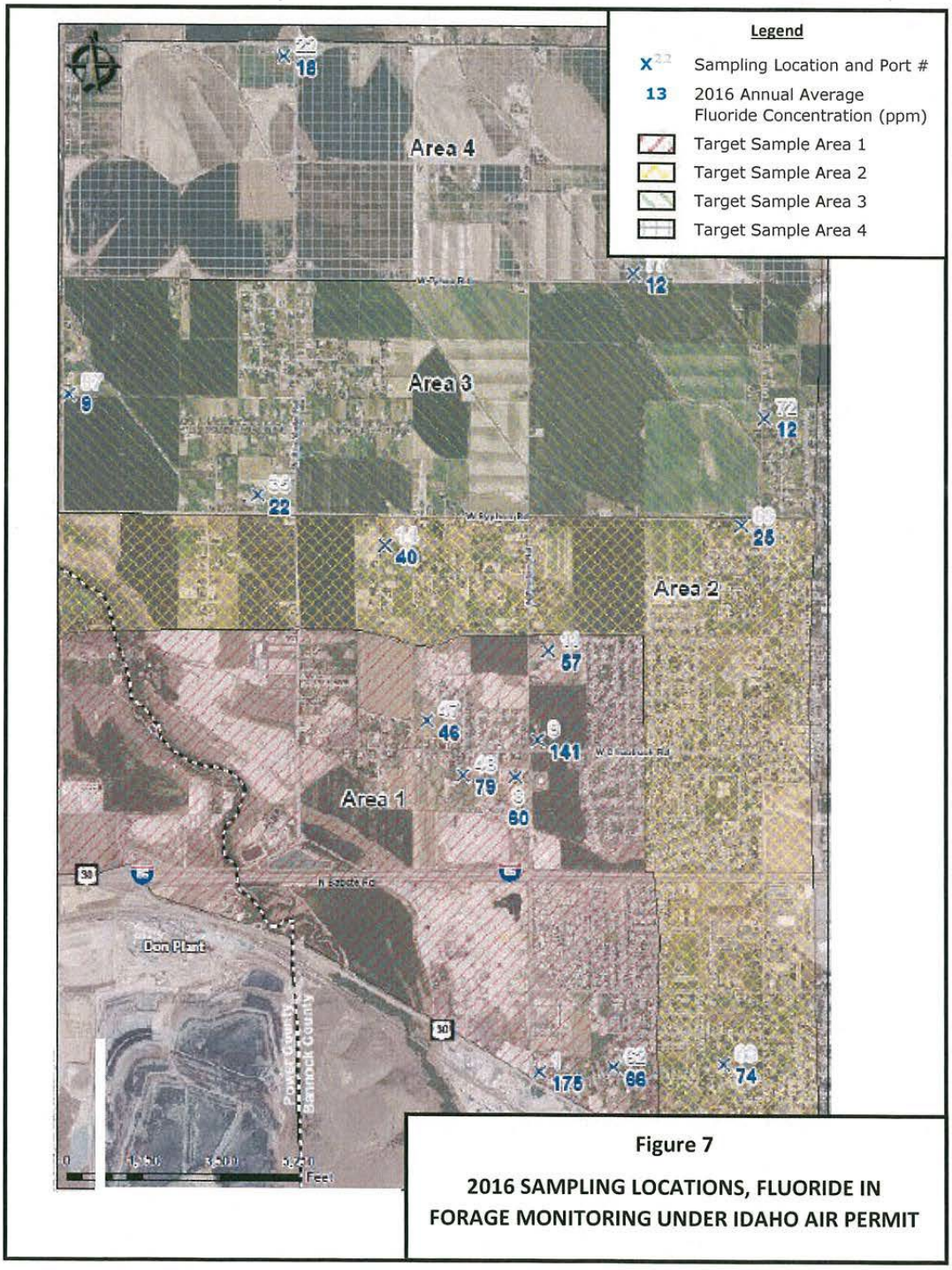

Figure 7

2016 SAMPLING LOCATIONS, FLUORIDE IN FORAGE MONITORING UNDER IDAHO AIR PERMIT