APPENDIX L

REMEDIAL INVESTIGATION UPDATE MEMORANDUM – DECEMBER 2004 (RI UPDATE MEMO) LANDFILL SECTIONS

L-1 RI UPDATE MEMO SECTION 6.1.3

L-2 RI UPDATE MEMO FIGURES 6-16 THROUGH 6-21

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L-4 FMC MEMO ON SLAG PILE RAIL CARS

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L-1 RI UPDATE MEMO SECTION 6.1.3

Cap Design/Source Material Characterization

Because the P4 tanks have been removed, and P4-containing soils and backfill were removed, there is no need for a cap at RU 6. Therefore, cover source material characterization is not required.

Statistical Comparison of Site Data with RBCs

The soils sampled from the two borings within RU 6 did not exceed the RBCs for the analyzed COPCs (P4 was not analyzed). However, there is only one sample from the 0-2' interval and three samples from the 0-10' interval. These intervals are insufficiently characterized to reject the null hypothesis and accept the alternate hypothesis that concentrations of inorganics are less than RBCs.

The comparison against EMF RI background levels shows that several constituents exceed background levels and several are below the background levels. However, for many constituents, there are insufficient samples collected to support the decision at the 95% confidence level.

Data Gaps

There is a data gap in the 0-10' depth interval for inorganics. Additional samples are needed to perform the statistical tests at the prescribed confidence levels.

There is a potential that spills may have occurred during loading and unloading of railcars with P4. Shallow soil samples near the spur line are needed to evaluate the potential for P4 in the 0-10' depth interval.

Slag was not logged in the two EMF RI soil borings. However, slag was likely used as backfill in the old tank pit and as fill for the rail spur within RU 6. Gamma radiation measurements are needed to address the gamma radiations associated with slag backfill.

6.1.3 Landfills (RU 17, RU 18, and RU 19)

The discussion of landfills within the FMC Plant OU is summarized in Figure 6-16. The following discussion for landfills within the FMC Plant OU discusses all landfills together instead of each RU separately. Because of the similarities of the landfills, separate discussions would be redundant.

Three Remediation Units are known to contain solid waste landfills, RU 17, RU 18, and RU 19, at the FMC Plant OU (Figure 6-17). Given the known contents of the landfills, the agencies recommended that FMC consider application of the EPA's Presumptive Remedy for CERCLA Municipal Landfills. FMC's remedial vision for the three landfills includes capping or soil cover that effectively contains the wastes in these landfills. Key points that support the application of the presumptive remedy are:

- The 1998 ROD did not select a remedy for the operating landfills or the slag pile
- At RU 17 and 18, there is sufficient information to satisfy the EPA's six Technical Areas for RI/FS Data Collection for the presumptive remedy
- All three landfills fail EPA criteria for hotspot removal and treatment
- For RU 19, per the SPM, FMC will discuss potential infiltration/percolation of elemental phosphorus to groundwater and resulting impacts to groundwater quality from the 17 buried railcars (Figures 6-18, 6-19, 6-20, and 6-21). This will require

developing bounding assumptions for a source term and reasonably conservative hydraulic/transport properties to assess the possible impacts to groundwater. The potential source analysis of the sludge-filled railcars will be performed as part of the SRI.

- The landfills within RU 19 and RU 18 might have been disposal areas for solvents and waste oil. Past disposal practices may have allowed some of these materials to be placed in these landfills as a free liquid.
- The CSM recognizes that the former plant landfill, the railcars buried in the slag pile, and the existing plant landfill may be sources of contaminants to groundwater. Given this potential, an objective of the presumptive remedy will be to minimize infiltration through the waste mass in these RUs.

As noted above, the agencies recommended that FMC consider applying the presumptive remedy for the landfills within the FMC Plant OU. At RU 19, the presumptive remedy of containment will be applied to the former plant landfill and other areas of the Slag Pile known to contain process wastes, specifically phosphorus sludge buried in rail cars.

Each of these remediation units are considered in terms of the six Technical Areas defined in EPA's publication "Presumptive Remedies: CERCLA Landfill Caps RI/FS Data Collection Guide" (EPA, 1993). These six Technical Areas are:

1. Waste Area Delineation
2. Slope Stability and Settlement
3. Gas Generation/Migration
4. Existing Cover Assessment
5. Surface Water Run-on/Run-off Management
6. Clay Sources

Technical Area 3, Gas Generation/Migration, is primarily concerned with the migration of methane gases generated during the decomposition of organic materials within the landfill to structures and VOCs that may have been disposed in the landfills. FMC evaluated this Technical Area assuming gas migration could include radon as well as methane and VOCs.

Technical Area 6 can be restated as: Cover Material Characterization for the FMC Plant OU for the following reasons:

1. The FMC Plant OU is located in a semi-arid climate, which is conducive for installing a capillary barrier cap rather than a clay cap.
2. The performance of RCRA capillary barrier caps installed at FMC supports the installation of a capillary barrier cap, rather than the clay cap.
3. FMC has characterized the borrow areas from which cap material will be obtained (Appendix D). These materials have been used effectively at RCRA WMUs within the FMC Plant OU.

A seventh Technical Area was developed for this evaluation. This Technical Area is "Hotspot Removal and Treatment Evaluation".

In order to consider hotspot removal and treatment, the following questions must all be answered in the affirmative (EPA, 1993):

- Is there evidence for the presence and approximate location of waste?
- Is hotspot known to be a principal threat waste?
- Is the waste in a discrete, accessible part of the landfill?
- Is the hotspot known to be large enough that its remediation will reduce the threat posed by the overall site, but small enough that it is reasonable to consider removal (100,000 cubic yards or less)?

EPA recognizes the potential hazards and technical difficulties associated with characterizing wastes in a landfill. EPA states: "Characterization of a landfill's contents is not necessary or appropriate for selecting a response action for these sites except in limited cases; rather, existing data are used to determine whether the containment presumption is appropriate.... It is important to note that the decision to characterize hot spots should also be based on existing information, such as reliable anecdotal information, documentation, and/or physical evidence (see page 6)." (EPA, 1993).

The existing data regarding waste characterization in FMC's landfills are summarized in Table 6-3.

Technical Area 1 – Waste Area Delineation

The delineation of all three landfills has been performed by reviewing historic air photos to confirm that waste management has not occurred outside the current boundaries, and to determine the boundaries of the former plant landfill beneath the slag pile. At RU 17 and RU 18, the landfill areas have been delineated visually by confirming the extent of the disturbed soils and extent of past excavation.

FMC will continue to dispose unrecyclable construction materials in RU 18. FMC will continue operation of the RU 18 landfill until completion of plant dismantling. RU 17 will no longer be used for disposal of construction material. At this time, FMC anticipates there is sufficient space within the current RU 18 boundaries to contain any unrecyclable construction materials generated during plant dismantling.

The Former Plant Landfill within RU 19 has been inactive and buried with over 40 feet of slag since the late 1960's or early 1970's. The timing of burial is difficult to pinpoint, but the 2003 air photo clearly shows the entire former landfill area seen in the 1965 air photo is covered with slag (Figure 6-20).

RU 19 also contains approximately 17 buried rail cars. These rail cars were filled with sludge in 1964 and hauled up to the slag pile (Figure 6-19). The rail cars are an older generation of tank cars, approximately 30 feet long (compared to 50 feet long for later generation tank cars), and 9.5 feet wide. RU 19 also encompasses the former plant landfill (Figure 6-21).

The reason for sludge disposal in surplus rail cars was explained by former FMC personnel. Apparently, in 1962 the plant became "sludge bound", meaning that the process was not efficiently separating pure P4 from particulates (dirt) in the furnace off-gas, causing the dirt content to be too high. The P4, dirt and other material formed a sludge that could not be reclaimed, and there was insufficient capacity in the existing ponds to contain the excess sludge.

To remove the sludge from the plant area, the rail cars were filled and hauled to the slag pile for burial.

Phosphorus sludge present in the buried railcars is an emulsion of P4, water, and "dirt." P4 globules suspended in water will join and form a continuous layer of elemental phosphorus at the bottom of collection sumps and storage tanks. In the presence of high dissolved solids in water, or impurities (i.e., dirt) carried in the furnace gas stream, the P4 globules cannot bind together and form a continuous layer of P4.

Phosphorus sludge formed when the dissolved solids (ions) and suspended dirt "coat" the P4 globules. This coating prevented the coalescing of P4 globules by preventing the globules from contacting each other. As a result, the globules remained in suspension, forming an emulsion with the water.

Ions and charged dust particles adhere to P4 globules in low pH environments, so sludge formation was more prevalent at pH <3, but would also form at higher pH if there was sufficient dust and ions in the water.

Another factor that influenced sludge occurrence is the rate of cooling in the primary condenser. Faster cooling rates led to smaller P4 globules, which would not coalesce as readily as larger globules.

The sludge buried in the railcars was excess sludge generated in 1962 to 1964 when the FMC furnaces and/or condensers were not operating optimally. There were too many impurities in the process not allowing P4 product to adequately settle out. Instead, a significant quantity of P4 globules was emulsified into sludge. Excess phosphorus sludge was temporarily stored in 30 railroad tank cars, specifically purchased for this storage. The contents of these railcars were reprocessed after process improvements had been implemented. FMC personnel emptied all 30 railcars to recover P4 product but left the phosphorus sludge in the railcars for expected removal during subsequent railcar cleaning.

After P4 product recovery was completed and the railcars were no longer needed for storage, nine of the 30 railcars were completely cleaned of phosphorus and phosphorus sludge and these cleaned railcars were sold for scrap. However, several "near miss" safety incidents associated with cleaning of these railcars in 1964 resulted in a decision not to attempt to clean but rather to bury the remaining 21 railcars at the south end of the slag pile (per the configuration of the slag pile in 1964). In the late Fall of 1964, the remaining 21 railcars were removed from their trucks, hauled to the slag pile, and buried with clay, then covered by slag. Subsequently, the railcars were further buried under the east slag pile as it advanced south. The location of the buried railcars is currently covered with a minimum of approximately 50 feet and a maximum of over 100 feet of slag.

The location of these buried railcars is documented in an aerial photo taken in June 1965, which shows seventeen identifiable, partially buried railcars. The tank dimensions are 30' in length by 9.5' in diameter. This yields a volume of 1703 cubic feet per rail car. The aggregate volume of all 21 railcars would be,1,325 cubic yards [(21 x 1703) / 27 cubic ft per cubic yd]. Current FMC personnel familiar with phosphorus reprocessing activities believe that the railcars may have contained phosphorus sludge at 50% to 75% of the railcar capacity. Thus, the amount of buried phosphorus sludge may range from 662 cubic yards (if 50% full) to 1,325 cubic yards (if 100%

full).Due to the P4 and potentially mobile metals in the sludge, FMC proposed to treat the burial area as a landfill and apply the presumptive remedy to this area of RU 19.

Technical Area 2 – Slope Stability and Settlement

Because there are no existing caps at RU 17 and RU 18, slope stability will be a design parameter for the SFS or RD phase of the project. RU 18 does have an existing soil cover with minimal slope over the inactive portions of the landfill. However, the essentially flat-lying nature of this soil cover does not require a slope stability analysis at this time.

Settlement of the waste mass is a concern due to uneven distribution of waste types, varying degrees of volume reduction during decay of the waste, and differential settling of the overburden. FMC has evaluated differential settling at several RCRA ponds that were capped in recent years, and the final caps have had survey monuments installed to monitor ongoing settling of the buried waste. This same approach can be implemented at the plant landfills to ensure differential settling does not lead to cracking of the cover or allow ponding of water on the surface.

At the former plant landfill in RU 19, the slope stability of slag can be confirmed from previous analyses, and the slopes will not exceed 3:1. Differential settling at the former plant landfill is unlikely to be a concern because the landfill has been compacted with over 40 feet of slag overburden in place since the late 1960's or early 1970's (over 35 years). This overburden should have compacted the underlying waste volume to the degree that ongoing settling will be minimal, if present at all. Similarly, the 50 feet of slag overburden on the buried rail cars should have a similar effect, meaning there will be little, if any differential compaction of rail cars and waste.

Technical Area 3 – Gas Generation/Migration

This technical area is primarily concerned with the potential for methane and VOC migration to structures, where it can accumulate. Sufficiently high gas concentrations can lead to explosive conditions, or displace oxygen and produce an oxygen-deficient environment. Another concern related to gas migration from landfills is that the gases can affect vegetation growing in the soil covers. High gas fluxes can displace oxygen from the root zone, and asphyxiate the plants, and some VOCs may be toxic to plants.

The landfills at FMC are located south of the slag pile, in an area of the FMC Plant OU that is considered much less likely to be redeveloped. In addition, the building design requirements to prevent radon buildup that are currently in force as deed restrictions will prevent the buildup of methane and VOCs in any future structures that may be built near the landfills.

There are two key points that affect the decision to collect soil gas measurements to characterize gas migration potential. First, the landfill contents must have a sufficiently high organic content to generate methane. Second, the landfill must contain sufficiently high quantities of VOCs to act as a soil gas source for the diffusion and migration of VOCs as a gas to a structure. At RU 17, there is no evidence to indicate that FMC used this for disposal of VOCs or material that could degrade and produce methane. The materials at RU 17 are characterized as building material (concrete, steel, and wood) and furnace dig-out material generated as waste during construction projects at the FMC plant. These materials do not produce methane in sufficient quantities or rates to be of concern, and therefore, RU 17 is unlikely to act as a source for methane or VOCs.

At RU 18, the plant practice was to store spent solvents and have them hauled off-site for disposal, so the volume of VOCs in the landfill are likely insufficient to produce a soil vapor plume that could impact nearby structures. Methane generation potential at RU 18 is also considered minimal; although it is likely some methane will be generated as paper and cardboard decays. Even if methane or VOCs migrate from the landfill area to a future structure located nearby, the radon control measures required for future buildings within the FMC Plant OU will limit the potential for VOC or methane buildup in these structures.

The former plant landfill in RU 19 is likely to contain a greater volume of spent solvents compared to RU 18, and may be a methane source. Future buildings that may be constructed in this area would have over 40 feet of vertical separation (slag) between the foundation and potential VOC sources within the former landfill, which would provide some degree of attenuation and dilution of gases emanating from the landfill. The buildings would require radon control design features, further reducing any potential intrusion of VOCs and methane into the structure.

Technical Area 4 – Existing Cover Assessment

Assessment of the existing cover is required when considering the presumptive remedy to determine if the existing cover is sufficient to utilize in the final cap design. In other words, if the soil covering a landfill or parts of a landfill is sufficiently thick, and the material is suitable for a cover layer, it can be integrated into the cap. If the existing cover is inappropriate, such as clay prone to cracking during dry periods, then it should not be integrated into the final cap design because it will not serve to reduce the infiltration potential of the cap.

Portions of the Recyclable Material Landfill, RU 17, are covered. The remaining portion does not have an existing cover. Because RU 17 and RU 18 are likely to be expanded to dispose of unsalvageable building material during plant decommissioning, an assessment of the existing cover should be performed after the landfill ceases operation.

Several cells at RU 18 have a soil cover. The soil is native soil excavated from within the footprint of RU 18, and is similar to the soil characterized for the RCRA pond covers. The soil map presented in the RI Report shows that soils in the RU 18 area are the same soil type as the soil from the RCRA cap borrow area. The permeability and sieve analyses from the RCRA cap soils are in Appendix D, and the data are summarized in Table 6-4. The uncovered cell has no cover that can be assessed at this time. It is likely that it, too, will have an initial cover of native soil placed over the waste.

RU 19 is covered by 40 to 60 feet of slag. FMC plans include recontouring the slag pile, with slopes of 3:1 (horizontal:vertical). This recontouring will maintain a minimum of 40 feet of slag over the Former Plant Landfill. Given the overall coarse grading of the slag and its uniform consistency, it will be analyzed as part of the final landfill cover design. In other words, the final cover design will integrate the slag into the landfill cover and be designed to minimize infiltration through the waste.

Technical Area 5 – Surface Water Run-on/Run-off Management

The surface water run-on/run-off effects of the cap configuration at RU 17, 18, and 19 must be considered within the overall FMC Plant OU surface drainage pattern. Remedial action at one RU must not induce ponding over other potential source materials or increase the erosion

potential in other parts of the FMC Plant OU. Surface water management is a design issue that will be addressed in the SFS or RD/RA phase.

Technical Area 6 – Cover Material Characterization

As noted in Technical Area 4, the soil used for RCRA caps at FMC has been characterized, and this same material would be used for the soil covers at the landfills.

The permeability data are summarized in Table 6-4.

Technical Area 7 – Hotspot Removal and Treatment

The criteria used to evaluate the feasibility for hotspot removal within a landfill are summarized against the information for each landfill. Included in this summary are the buried rail cars within RU 19, because the presumptive remedy of containment appears to apply to the sludge contained in the rail cars.

As shown in Table 6-5, the criteria are not met. A negative response means that hotspot remediation should not be considered as part of the presumptive remedy. And all the landfills within the FMC Plant OU should be considered for containment without hotspot removal.

Further supporting a containment remedy for the buried railcars is the fact that they contain P4-containing sludges. The EPA's TIP report concluded that treatment of these sludges is not technically feasible, and a containment remedy is the most suitable alternative. Even if the railcars could be excavated and removed, treatment of the sludges would not be feasible.

Summary

A summary of the RI/FS Technical Areas for the FMC Plant OU landfills is presented in Table 6-6.

FMC has identified an FS data gap associated with radon emission rates through a soil cover on the slag pile. Radon flux measurements will be collected during the SRI to support the SFS.

FMC will also review the existing geochemical and hydrogeologic data as part of the SRI. This review is intended to address uncertainties associated with groundwater flow directions in the area of the slag pile, former plant landfill, and buried railroad cars.

6.1.4 Other Remediation Units

This section discusses the RUs that are not classified as Old Ponds, Landfills, or Former P4 Working Areas. The RUs discussed in this section include:

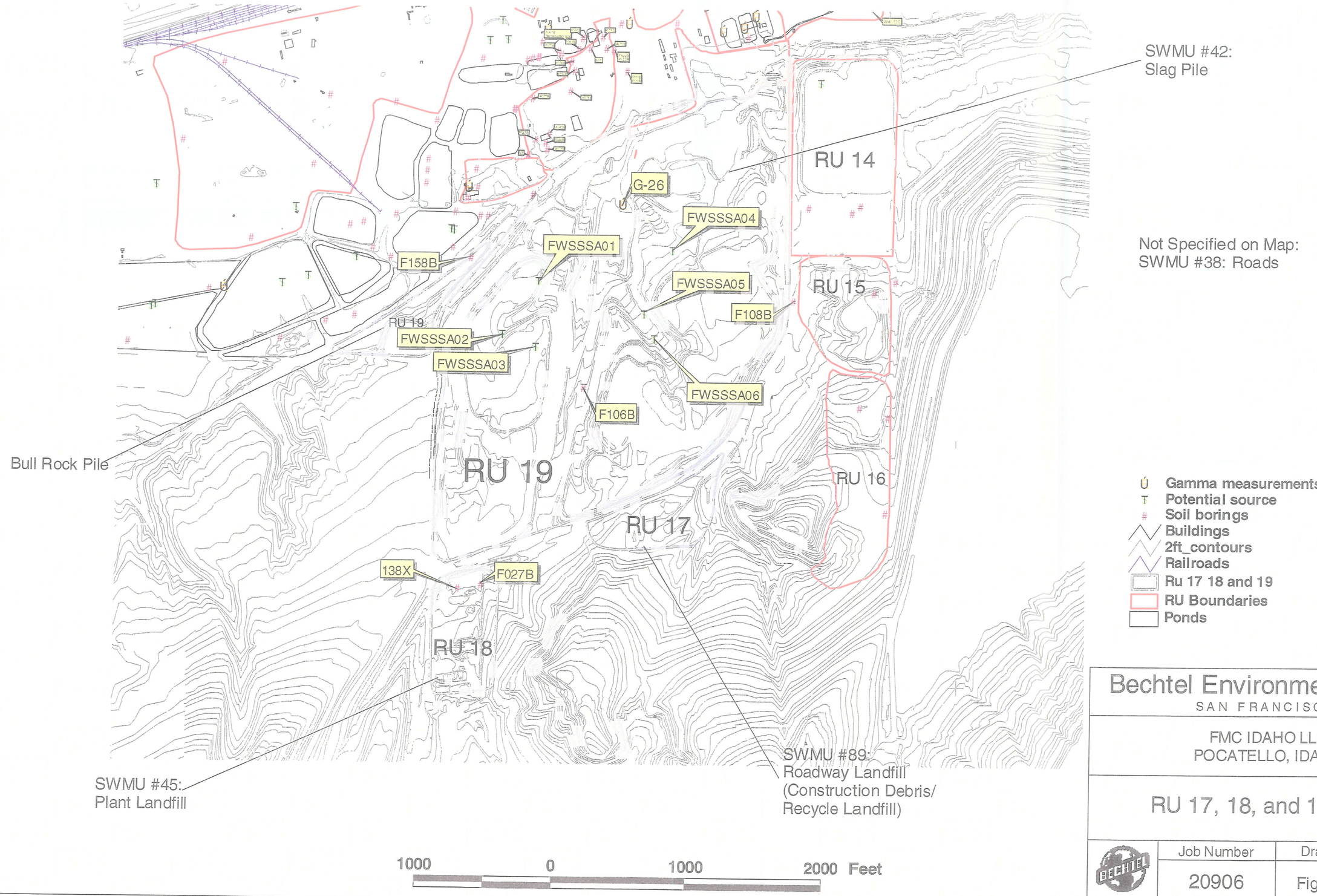
- RU 3 – Receiving Stores, Paint Shop, and P4 Decon
- RU 4 – Office Buildings and Training Center
- RU 5 – Lab and Old Drainfield
- RU 7 – Shale Unload, Crushing and Stockpile
- RU 9 – Silica Stockpiles and Former Kiln Scrubber Overflow Pond
- RU 10 – IWW Pond and Ditch
- RU 11 – Equipment Area South of Calciners
- RU 12 – Former RP&S Area and Mobile Shop

L-2 RI UPDATE MEMO FIGURES 6-16 THROUGH 6-21

RU 17, 18, and 19 Summary	
RU Description	Plant landfills have been used by FMC since operations began in 1949. These landfills received various wastes during their operational history. Wastes include scrapped building materials, filter media, asbestos insulation, furnace dig-out material, and office waste, along with minor amounts of spent solvents and oily residuals.
EMF ROD Remedy	The 1998 ROD selected site-wide institutional controls to prohibit residential use and prevent ingestion of groundwater exceeding MCLs/RBCs. The ROD also selected site-wide institutional controls requiring future structures be constructed with radon control measures.
EMF RI Findings	One boring was drilled through the plant landfill in RU 18. Groundwater was not encountered at depths to 150 feet.
RI Update: Current status; post EMF RI data; additional sources; COPC's	A review of historic air photos and interviews with former plant personnel confirm the presence of approximately 17 sludge-filled railcars beneath the slag pile. RU 17 and RU 18 will continue to receive non-hazardous waste during the plant decommissioning.
Remediation Vision	Implement EPA's Presumptive Remedy for Municipal CERCLA Landfills.
Do existing data support remediation vision in context of updated CSM?	Yes.
Data Gaps	Groundwater source term evaluation for buried rail cars in RU 19. Radon flux emissions at slag pile.
CONCLUSION: Forward RU 17 and RU 18 to SFS. Forward RU 19 to SRI.	

Figure 6-16

RU 17, 18, And 19 Summary



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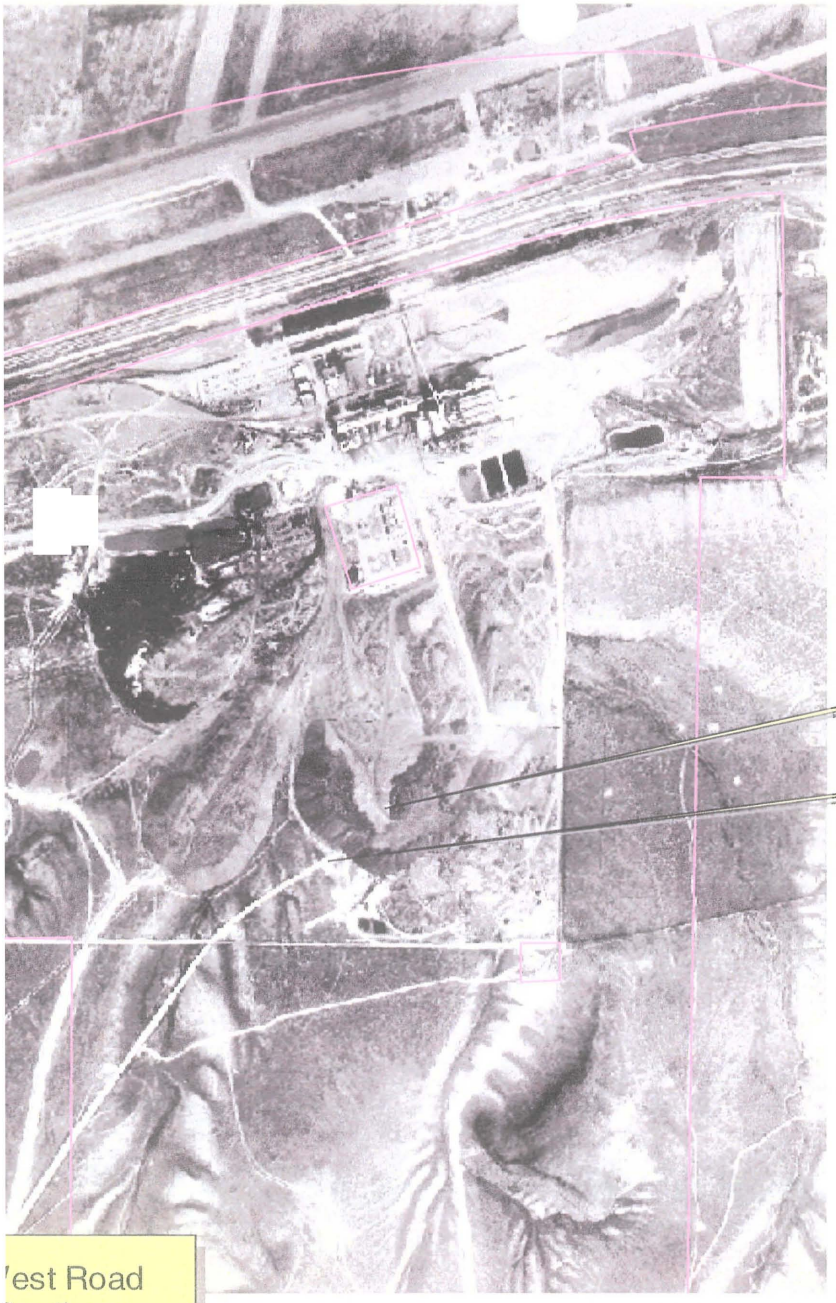
POCATELLO, IDAHO

RU 17, 18, and 19 Map

Job Number	Drawing No.	Rev.
20906	Figure 6-17	



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1965 Air Photo of FMC Facility

Job Number	Drawing No.	Rev.
20906	Figure 6-18	

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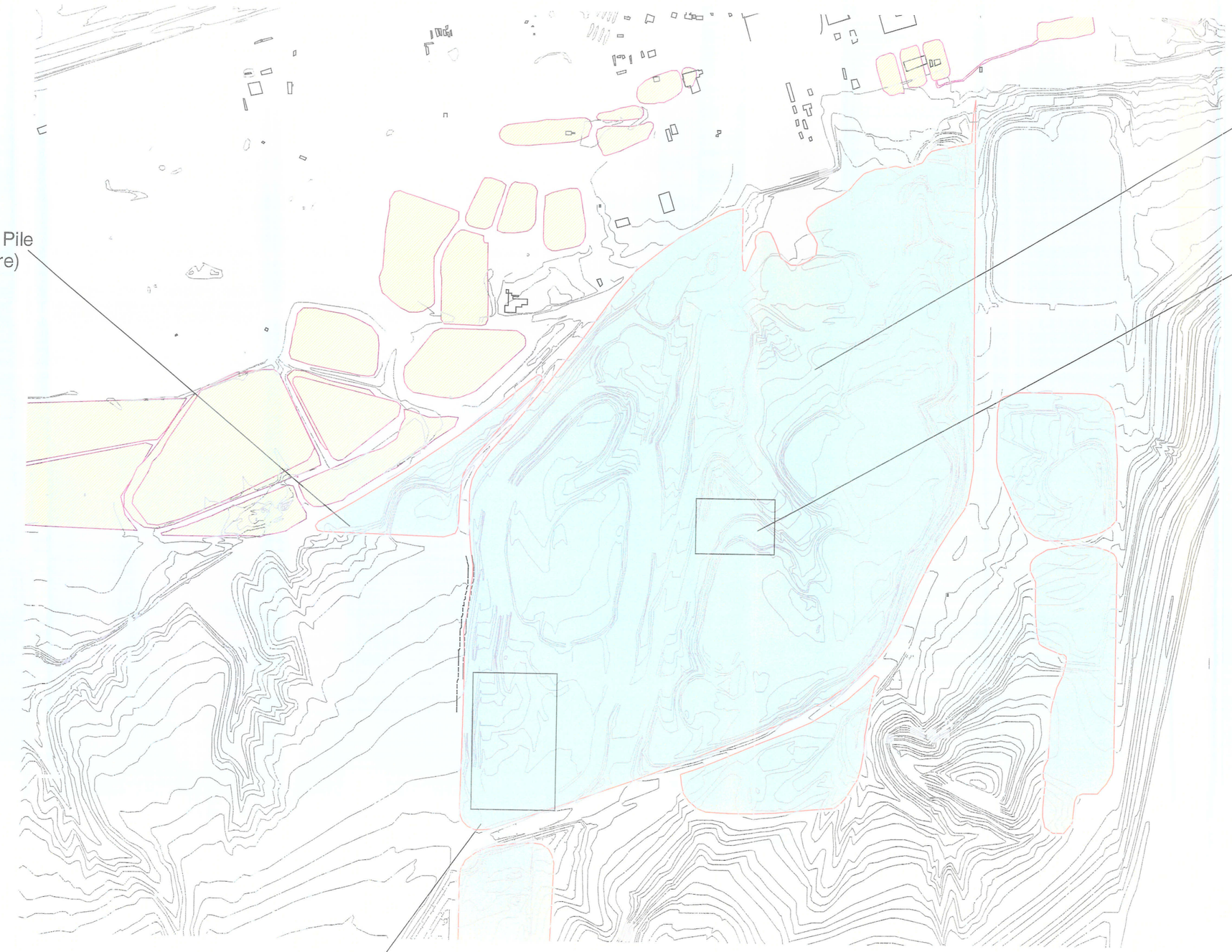
POCATELLO, IDAHO

Blow-Up of Area with Sludge-Filled Railcars at South End of Slag Pile

Job Number	Drawing No.	Rev.
20906	Figure 6-19	

Figure 6-20

2003 Air Photo



Buildings
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Ponds

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Location of Buried Railcars and Former Landfill in RU 19

Job Number	Drawing No.	Rev.
20906	Figure 6-21	

L-3 RI UPDATE MEMO TABLES 6-3 TO 6-6

TABLE 6-3
Landfill Contents

RU # and Name	Office Wastes	Industrial Wastes	Other	Solvents and Lubricants	AFM
RU 17 – Recyclable Material Landfill	No	Excess baghouse dust, furnace rebuild and dig-out material, unsalvageable building material (bricks, wood, sheathing, etc.), cement truck washout	No	No	No
RU 18 – Plant Landfill: Main Cells[1]	Nearly all office-related waste went to this landfill, including; paper, food, packaging material, toner, office equipment, etc.	Tires, personal protective equipment (respirators, clothing, hardhats, etc.), crushed empty drums and metal containers, pallets, baghouse materials (not dust), unsalvageable building materials and equipment including: bricks, wood, fiberglass, carpet, tile (non-asbestos), windows, concrete, refractory material (non-hazardous), HDPE, birdballs, PCDT filter cake (non-hazardous), AFM (non-hazardous)	No	Minor amounts of spent solvents and lubricants[2]	Yes (Cell 1)
RU 18 – Plant Landfill: Dedicated Asbestos Cells (South End)		Asbestos containing materials (insulation, tile, etc.)			
RU 19 – Former Plant Landfill	Paper, food, packaging material, toner, office equipment, etc.	Asbestos insulation, tires, PPE, pallets, empty drums, scale from calciner pallets	Possibly some furnace internals, kiln scrubber pond solids, fluid bed dryer solids, P4-bearing wastes	Spent solvents and oily residuals, non-PCB transformer oil,	Yes

Notes:

[1] FMC will continue to use the RU 18 Landfill for disposal of non-hazardous waste generated during the decommissioning and dismantling of the plant.

[2] FMC's plant practice was to store waste oil for pickup and recycling by a third party. Spent solvents were stored and shipped offsite for disposal as hazardous wastes. However, FMC plant personnel consider it likely that minor amounts were disposed in the landfills through the years.

Table 6-4
Permeability Test Results from Soil Borrow Area

Sample Designation	Lab Permeability (cm/sec)
18-1	1.5 E-05 to 6.6 E-05
18-2	3.3 E-05 to 1.7 E-05
18-3	9.6 E-06 to 4.5 E-04
18-4	3.8 E-05 to 9.3 E-05
18-5	6.9 E-05 to 9.1 E-05
18-6	3.8 E-05 to 8.1 E-05

Table 6-5
Hotspot Criteria Applied to FMC Landfills

Criteria	RU 17 – Recyclable Material Landfill	RU 18 Plant Landfill	RU 19 Former Plant Landfill	RU 19 Buried Rail Cars
Is there evidence for the presence and approximate location of waste?	No	No	No	Yes
Is hotspot known to be a principle threat waste?	No evidence for a hotspot	No	No	Yes
Is the waste in a discrete, accessible part of the landfill?	No evidence for a hotspot	No	No	No (buried by over 50' of slag, not accessible)
Is the hotspot known to be large enough that its remediation will reduce the threat posed by the overall site, but small enough that it is reasonable to consider removal (100,000 cubic yards or less)?	No evidence for a hotspot	No	No	No (No evidence of migration, indications are that most metals will be bound to alkaline soils within vadose zone, if infiltration is controlled)

Table 6-6
Summary of Technical Areas for Landfills at the FMC OU

Technical Area	RU 17 (Recyclable Material Landfill)	RU 18 (Plant Landfill)	RU 19 (Slag Pile/Bull Rock Pile)
Waste Area Delineation	Delineated	Delineated	Delineated
Slope Stability and Settlement	Final cover design will be evaluated in SFS/RD	Final cover design will be evaluated in SFS/RD	Final cover design will be evaluated in SFS/RD
Gas Generation/Migration	Radon control features for future buildings (1998 ROD). Future buildings considered unlikely, low potential for gas generation due to low organic waste content	Radon control features for future buildings (1998 ROD). Low potential for future nearby buildings, low VOC content in waste mass.	Radon control features for future buildings (1998 ROD). Low potential for future nearby buildings, significant thickness of slag between waste mass and any future foundation.
Existing Cover Assessment	No existing cover. No assessment warranted	Existing cover is flat.	30 to 50 feet of slag.
Surface Water Run-on/Run-off Management	Evaluate in SFS/RD	Evaluate in SFS/RD	Evaluate in SFS/RD
Cover Material Characterization	Done.	Done.	Done.
Hotspot Removal and Treatment	No known hotspots	No known hotspots	Buried rail cars. Removal and treatment not applicable.

L-4 FMC MEMO ON SLAG PILE RAIL CARS

Date: July 1, 1981

To: N. H. Sheffield

From: G. H. Scherbel

Subject: Sludge Tank Car Burial

During the years 1962, 1963 and 1964 a total of 30 railroad oil tank cars were purchased for sludge storage. Nearly all had been filled by early 1964. With the addition of the Centrifuge, S.D.U. and lower sludge production they had all been unloaded by November 1964.

Several of the tanks were cleaned by cutting large walk in openings in the ends. However, the internal coils had to be cut out since they were approximately 8" off the bottom and prevented cleaning. Several near miss accidents occurred as a result of P_4 entering leaking coils and burning on cutting causing extreme pressure plus spraying P_4. Cleaned cars were scrapped or sold to McCarty's intact.

Because of safety approximately 21 were removed from their trucks and hauled to the South end of the slag pile and buried with clay, then covered by slag. This was done in late Fall of 1964. The June 1965 aerial photograph in the Maintenance Shop lunch-room shows the partially buried cars and the location.

GHSchorbel