Section 11

Data Gaps

Contents

11.0 Introduction

Creation of this Description of Current Conditions Report allowed a qualitative review and reassessment of an abundance of environmental information from previous investigations over the last thirty years. New assessment tools including the required Risk Screening document provided in Section 9 and the Source Zone Remedial Evaluation provided in Section 10 assisted in the effort.

11.1 Sources of Data Gaps

Review of historical documents suggests certain data gaps may exist as it pertains to the completeness of information needed to ascertain the breadth and extent of contamination on the BFC. These gaps may arise from a number of difference sources. These sources are as follows:

1) Data Gaps may arise from existing data points (i.e., soil borings and groundwater samples) which may have unexplained contamination that raises questions as to the source of such contamination.
2) Gaps may arise as a result of required environmental assessment activities that are planned but have yet to be performed. For example, the PCB Fate & Transport Study.
3) Data Gaps may arise as a result of the collection of environmental characterization data at a single location from a variety of investigators using different investigation methods and strategies. These disjointed efforts, taken individually, fail to produce a clear path forward as it relates to the completion of Corrective Action at a given site under the Permit.

Although not a data gap, there may be instances where contamination allowed to remain in sensitive areas by previous regulatory agreements might require reevaluation to address the changing use of the site. Prior studies may have addressed certain areas on the BFC under less stringent regulatory requirements than that mandated by Corrective

Action in the BFC Missouri Hazardous Waste Management Facility Permit. Further action may be required to meet these corrective action requirements. Areas of the facility that meet the above criteria are also addressed in the following section that identifies data gaps at the facility.

11.2 Data Gaps at the BFC

The narrative below lists those gaps identified form this Description of Current Conditions Report and the activities proposed to close them.

11.2.1: Groundwater Contamination From an Unknown Source in Department 95

As discussed in Section 5.16 contamination of soil above the water table in the area of Department 95 was minimal based on samples collected. However, unexplained groundwater contamination was noted in groundwater monitoring wells in the area. It was suggested at the time that the TCE Still Area may have been the source for this contamination. Subsequent analysis of groundwater flow from wells installed in the MMB indicates a potential source of contamination unrelated to the TCE Still Area but from a source upgradient (north) of the D/95 area.

Review of the document entitled *Records Search for the Department 95 Area* previously submitted in 1989 and the discovery of a buried sump as a result of fire line break in the MMB north of the former D/95 area in 2012 suggests that an area of the MMB known as the 6 bay addition may be a possible source of contamination to groundwater in the D/95 area. This area of the facility was active only during the Pratt Whitney era when where oil/coolant soaked aluminum shavings or metal turnings may have been sent to the 6 bay addition for processing.

It must be remembered that groundwater in the MMB, including that in the 6 bay area, is currently being effectively captured by building footing tile drains.

<u>Work to Be Performed</u>

A review of the structural integrity of the (west pit) basement area (Fig 11.1) will be performed to determine if it is safe to enter (access to the pit area is extremely limited and

requires confined space entry). If found to be safe for entry, a reconnaissance of the basement pit area will be conducted. Overall integrity of the area will be reviewed and the presence of sumps, pits, piping and other structures in the area will be assessed and recorded to determine areas where investigatory sampling could be conducted. Sampling during the initial reconnaissance will be performed in easily accessible areas. Media will be sampled for chlorinated solvents and petroleum hydrocarbons and total metals in accordance with the approved BFC Sitewide Sampling and Analysis Plan. Results of this initial effort will be reported to MDNR and EPA along with a recommendation for additional action provided, if necessary.

11.2.2: Quantification of PCB Loading to the Blue River and Indian Creek Associated with PCBs in Stormwater Discharges from the BFC.

When many of the original investigations and remedial actions were completed that addressed historic PCB spills the PCB discharge limit in the facilities NPDES Permit was being attained. Since that time the discharge limit in the NPDES Permit has been further reduced. In order to ensure ongoing compliance with the new limit additional understanding of the fate and transport mechanisms associated with contaminated soils that affect stormwater discharges at the BFC is necessary.

Work to Be Performed

As required by the Permit a PCB Fate & Transport Study is to be completed that investigates and models the extent to which PCBs present in stormwater discharges from the BFC affect local receiving streams. Field sampling of environmental media will be performed as a part of this activity.

11.2.3: Insufficient Characterization of the Nature and Extent of Contamination from the Old Landfill.

As discussed in Section 5, work is to be performed in 2013 to address the type, rate and extent of contamination from the Old Landfill. One of the questions which must be

answered is whether contamination from the landfill is entering the Blue River. Also of importance is whether contamination detected in two wells located on the southeast side of Building 2306/2312 is derived from the landfill or from activities that may have occurred from Building operations.

Work to be performed

USACE will be investigating the landfill with EPA and MDNR oversight under a program called the formerly Used Defense Sites (FUDS). This investigation should answer the questions posed above. Should it be confirmed that contamination from the two wells noted above is derived from sources other than the landfill, the Permittees commit to determine the extent of contamination within 120 days of regulatory approval of the Final USACE Report on their investigation of the Old Landfill.

11.2.4: Review, Assimilation and Reporting of Environmental Data Previously Collected In and Around Building 50

As discussed in Section 5.17 investigations of contamination in the Building 50 area have been conducted in a number of phases by a number of different contractors since 2001. The scope of each effort was the same (to determine the source of contamination from the building 50 area) but the methodology employed varied from field effort to field effort.

Work to be Performed

All data collected at the Building 50 area will be organized into a Phase I RFI report and submitted for review by DNR and EPA. The Report will combine all previous sampling performed into a cohesive document that will allow understanding of the contamination in this area. The Phase I report will also outline additional work, if necessary, to address contamination in this area.

11.2.5: Contamination from an Unknown Source in Wells and Soil Borings from the Abandoned Fuel Line Investigation

Investigation of the Abandoned Fuel lines in the Miscellaneous Contaminated Soil RFI noted the presence of contamination in groundwater of unknown origin to the west and north of this investigation area. In addition, groundwater monitoring well OW-1 located in this same general area exhibits chlorinated solvent contamination of an unknown origin that is slowly increasing with time.

Work to Be Performed

Historical data collected in this area will be reviewed and an investigation workplan will be submitted to DNR and EPA for review and approval to address the origin of the contamination noted above.

11.2.6: Nature and Extent of Possible Metal and PAH Contamination in the Area of Building 4.

As noted in Section 5. 17, investigation of the Building 4 area in the PASI concluded that a release of metals and polynuclear aromatic hydrocarbons (PAHs) may have occurred from a source in the vicinity of Building 4. Groundwater flow in the area was not fully defined, but appeared to be toward Indian Creek. Data were insufficient to evaluate whether contaminated groundwater in this area was migrating off the BFC.

Work to be Performed

Data from the PASI will be reviewed for completeness. If sufficient information exists to make a conclusion on the source, rate and extent of contamination in this area a report will be written to document this fact and submitted for review. If insufficient information exists, a workplan for investigatory activities will be submitted for review.

11.3 Nature and Timing of Potential Contaminant Source Reduction Efforts

The effectiveness of contaminant source reduction at three primary contaminant source areas at the BFC was addressed in the Source Zone Remedial Evaluation provided as Section 10. The Permittees commit to review various source reduction technologies and their expected effectiveness in achieving the percentage source reduction needed to meet site groundwater clean-up standards at compliance points indicated in the report. It is recommended that any contaminant source reduction efforts be incorporated into a final remedy for the BFC as a part of a cohesive and coherent remedial strategy that will rely heavily on the quantitative risk assessment to be completed in the next two years. To perform source reduction for the sake of source reduction in the absence of a comprehensive plan approved by MDNR, EPA and stakeholders is not recommended.

11.4 Risk Screening Document

As noted in the Risk Screening document, no data gaps exist that would preclude effective completion of the sitewide Baseline Risk Assessment. However, due to the pending move activities associated with the DOE controlled portions of the BFC, additional indoor air monitoring data will be collected from basement areas of the facility that may be impacted by soil and groundwater contaminants. When areas of the DOE controlled portions of the facility are no longer continuously occupied air exchange rates associated with the HVAC systems will be reduced. In order to ensure the reduced rate of air exchanges does not allow air born transport of soil and groundwater contaminants to migrate into the building at levels of concern additional air monitoring will be performed and included with the BRA.