8/16/13 HAB Draft Presentation
KAFB BFFS-ST-106 and ST-111
Senior Night presentation outline for
ABCWUA - Bernalillo City Water Utility
Authority ~~Governing~~ Governing
Board mtg 8/21/13

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OUTLINE OF KAFB BFFS PRESENTATION

I. The Kirtland Air Force Base (KAFB) Bulk Fuels Facility Spill (BFFS) is a release of aviation gasoline and jet fuel that occurred over decades.

II. The fuels release resulted in the contamination of soils and groundwater beneath and in the vicinity of the bulk fuels loading facility and also in impacts to groundwater that has migrated north of the location of the former bulk fuels facility. The constituents of concern related to the soil and groundwater contamination includes:

   i. Volatile organic Compounds VOCs) - benzene, toluene, ethylbenzene and xylenes (BTEX) and ethylene dibromide (EDB).

   ii. Diesel- and gasoline-range organics associated with jet fuel and aviation gasoline

III. The cleanup project involves two Solid Waste Management Units (SWMUs). The units are listed in the KAFB RCRA Permit as SWMU ST-106 and SWMU SS-111.

1. Interim Measures

In order to immediately address the soil and groundwater contamination, three interim measures will be implemented to both remove and contain the contamination. The interim measures will target contamination in the unsaturated zone soils beneath the former bulk fuels facility to remove the ongoing source of contamination of groundwater and the most contaminated groundwater in the vicinity of the former facility. In addition, interim measures will be evaluated to target EDB in groundwater that has migrated north of the Kirtland Air Force Base boundary. Interim measures anticipated to be implemented in the near 18 months consist of three primary elements.

a) Soil Vapor Extraction (SVE) to be conducted in the unsaturated zone above the water table in the vicinity of the Bulk Fuels Facility. The SVE treatment targets contamination in the unsaturated zone, and to a lesser extent, floating fuel product on the water table most of which is currently submerged due to rising water levels.

b) Source area dissolved and separate-phase (also referred to as non-aqueous phase liquids or NAPL) hydrocarbons remediation. The primary hydrocarbon constituents include benzene, ethylbenzene, toluene and xylenes and EDB.

c) Remediation of EDB dissolved in groundwater that has migrated beyond the source area.

The interim measures are anticipated to become part of a final remedy to remediate soil and groundwater contamination that resulted from the fuels release.

2. Site Characterization

Data acquired to date will be presented in two RCRA Facility Investigation (RFI) reports to be submitted within the next six months. These data will be used in conjunction with the additional information

gathered during implementation of the interim measures to prepare a Corrective Measures Evaluation (CME) report that will review remedial alternatives to select final remedies for the release. .

a) The SWMU ST-106 RFI Report will address characterization of contamination in the unsaturated (Vadose) zone in the vicinity of the former Bulk Fuels Facility.

b) The SS-111 RFI Report will address characterization of groundwater contamination.

The selection of any final remedy by NMED based in the CME Report will include public participation that consists of the opportunity to provide comment on the selection and the opportunity to request a hearing on the proposed remedy.

3. SVE Treatment System

Expansion of soil vapor extraction (SVE) at the Bulk Fuels Facility Spill project site has been identified as a number one priority for increasing interim remediation of the fuel plume. Expansion includes:

a) Pilot testing of 12 to 14 existing vapor monitoring wells.

b) The results of the testing is anticipated to result in the selection up to eight additional extraction points to increase both the volume of hydrocarbon removal and the radius of influence of vapor removal in the subsurface.

c) Adding extraction wells will also result in increased air treatment capacity from

Removal of vapor phase volatile organic compounds removes contamination from the vadose zone and to some extent accelerates the volatilization of separate-phase hydrocarbons floating on the water table, where present. SVE will reduce the volume of hydrocarbons partitioning into groundwater from the unsaturated zone.

In addition, KAFB plans to connect four or five existing Soil vapor monitoring and Pnuelog wells to the existing treatment system to increase the treatment area prior to adding more extraction wells based on the pilot testing.

4. Dissolved and Separate Phase (NAPL) Hydrocarbons Removal and Treatment

Extraction and Treatment of dissolved and non-aqueous- or separate phase (NAPL) hydrocarbons is being evaluated to determine the efficacy of the installation of a groundwater pump and treat system. Extraction and treatment of contaminated groundwater has the potential to address two issues.

i. Removal of both dissolved and separate-phase hydrocarbons from groundwater.

ii. Prevention of the migration of dissolved volatile organic compounds, primarily EDB.

The characterization will include:

a) Development and aquifer testing of the existing groundwater extraction well located in Bullhead Park. The well is located in the vicinity of the northern edge of the submerged NAPL plume.

b) The aquifer test results will be used to evaluate the potential use of a groundwater extraction and treatment system to remediate NAPL and dissolved contamination in groundwater and to contain and locally reverse migrating dissolved EDB.

The separate phase (NAPL) plume beneath the source area does not appear to be migrating; however locally rising water table levels has submerged most of the NAPL making it less accessible to remediation by soil vapor extraction.

5. Dissolved Phase EDB Treatment

EDB present in the unsaturated zone in the vicinity of the former bulk fuels facility and in the NAPL is the primary source of the dissolved phase EDB plume. Mass reduction of EDB in the high concentration areas of the plume will result in removal of the source of EDB migrating off site to the north of the Air Force Base.

There are two primary technologies being considered by Kirtland AFB and the NMED for treatment of EDB in the groundwater:

a) Treatment of EDB is a remediation focus area is considered a priority for addressing for interim remediation.

b) Two treatment options are under consideration to remediate EDB. The options are air sparging in the source area and pump and treat to address EDB that has migrated from the source area.

c) Additional characterization is necessary to evaluate the pump and treat option.