



February 15, 2012

**Subject: Additional Groundwater Monitoring Wells  
Addendum to Groundwater Investigation Work Plan, March 2011  
Bulk Fuels Facility Spill, Solid Waste Management Units ST-106 and SS-111  
Kirtland Air Force Base, New Mexico**

This letter is being submitted as an addendum to the Groundwater Investigation Work Plan, prepared by Shaw Environmental and Infrastructure, Inc. (Shaw) for the U.S. Army Corps of Engineers (USACE) under contract W912DY-10-D-0014, Delivery Order 0002. This letter describes Shaw's proposal to install three additional groundwater monitoring wells in order to address data gaps identified in the characterization of the dissolved-phase groundwater plume as part of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for groundwater.

During the analysis and evaluation of data collected during the Third Quarter 2011 (July – August) sampling event, it was determined that additional data is needed at the downgradient portion of the 1,2-dibromethane (EDB) dissolved phase plume. Concentrations of EDB were greater than the maximum cleanup level (MCL) in the northeastern most groundwater wells (Figure 1).

As part of the evaluation, Shaw conducted an internal review of data which included site-specific data collected as part of the Groundwater Investigation Work Plan. This data includes hydraulic conductivity obtained from 38 monitoring wells from slug test data, bucket sample analyses for the screened interval of each groundwater monitoring well, lithology logs, and the results of the pumping test conducted at the Nitrate Abatement site that were pulled into the model. Shaw has obtained recent, daily pumping rates for Ridgecrest Wells 3 and 5, as well as for KAFB-3 in order to evaluate the influence of the three water supply wells on the movement of the downgradient plume. Additionally, the United States Geological Survey (USGS) has continuous recording water level piezometers in the vicinity of the site and the data from these wells were evaluated. Figure 2 is a plot of the USGS water level contours from 2002 monitoring well data. This map illustrates that the general groundwater flow direction, and therefore the direction of flow for the dissolved phase EDB plume, is north-northeast towards the Ridgecrest 5 water supply well.

The USGS 2002 water level map (Figure 2) was used to inform placement of the additional groundwater monitoring wells. There are no existing monitoring wells in the vicinity of the three water supply wells of interest (Ridgecrest wells 3 and 5 and KAFB-3) and therefore additional data is required to verify groundwater elevations near the wells. Additionally, there is no monitoring well data for EDB in that area and additional data is required to verify the simulated current conditions with regard to the extent of the EDB plume.

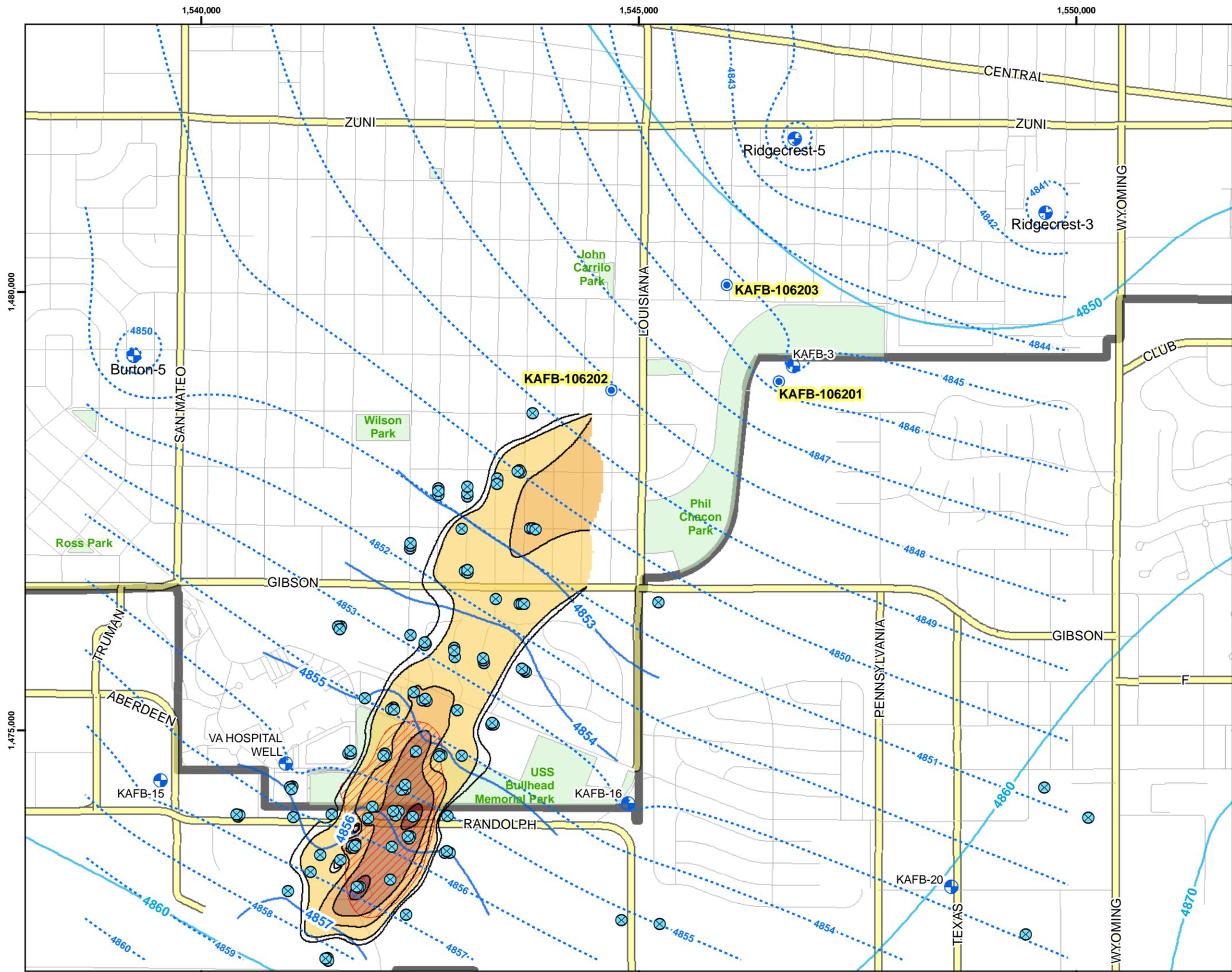
Figure 3 illustrates the proposed locations for three new groundwater monitoring wells (KAFB-106201, -106202, and -106203). Shaw proposes drilling and installing the wells with the same construction as the shallow groundwater monitoring wells, as described in Sections 4.2.3 and 4.2.4 of the Groundwater Investigation Work Plan. The well construction will include the change to a 30 foot screen length as approved in the 24 June 2011 new Mexico Environment Department (NMED) letter. Each of the three wells will also be geophysically logged following Section 4.2.5.

Once installed and developed, the wells will be integrating into the monitoring well program and sampled on a quarterly basis. Dedicated pumps will be installed in the three new wells.

Pneumatic slug testing will be conducted at each of the three new wells, in accordance with Section 5.1.2 of the LNAPL Containment Interim Measures Work Plan Part I – Characterization. The data of the slug tests will be analyzed to determine hydraulic conductivity values.







### Legend

- Detection Piezometer
- Water Supply Well
- Monitor Well
- Groundwater Model Water Level Contour (ft)
- Regional Water Level Contour 2002 (ft)
- Water Level Contour 2011 (ft)
- NAPL Area

EDB Concentration (ug/L)

- 0.05 - 0.1
- 0.1 - 1
- 1.0 - 10
- 10 - 100
- 100 - 370

- Major Road
- Road
- \*Park
- Installation Boundary

SITE LOCATION

Revision Date: 01/26/12

0    600    1,200    2,400

Feet

1 inch = 1,200 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

BULK FUELS FACILITY  
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 3

WELL LOCATION MAP