



NEW MEXICO
ENVIRONMENT DEPARTMENT



Resource Protection Division

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

Harold Runnels Building
1190 Saint Francis Drive (87505)
P.O. Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-0419 Fax (505) 827-0310
www.nmenv.state.nm.us

DAVE MARTIN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary
THOMAS SKIBITSKI
Acting Division Director

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 18, 2013

The Honorable Maggie Hart Stebbins
District 3 Commissioner

One Civic Plaza, NW
10th Floor, Suite 10111
Albuquerque, NM 87102

**RE: RESPONSE TO FOLLOW UP QUESTIONS IN LETTER OF JANUARY 25, 2013,
CONCERNING KIRTLAND AIR FORCE BASE BULK FUELS FACILITY
SPILL**

Dear Commissioner Stebbins:

The New Mexico Environment Department (NMED) has received your letter of January 25, 2013, asking for clarification regarding several issues related to the jet fuel contamination associated with the Kirtland Air Force Base Bulk Fuels Facility Spill (Solid Waste Management Units ST-106 and SS-111). The aforementioned issues are related to a presentation given by former NMED Resource Protection Division Director Dr. James Davis at a meeting on November 28, 2012, that was hosted by the Albuquerque Bernalillo County Water Utility Governing Board.

More specifically, four technical issues were discussed in the letter. The issues are related to 1) plume stability of dissolved-phase contamination in groundwater, 2) contaminant source in the vadose zone, 3) which remediation goals have been met and whether they were met on schedule, and 4) a suggestion that NMED document that tetrachloroethylene (PCE) has been ruled out as a contaminant associated with the Bulk Fuels Facility Spill. Each of these issues are addressed below.

Regarding stability of the dissolved-phase contaminant plume in groundwater, Dr. Davis indicated that the plume was moving with the groundwater. NMED continues to believe this to

be true for the northern half of the plume which is characterized by the single contaminant ethylene dibromide (EDB). The northern half of the plume is of the most concern to the NMED and stakeholders because it would constitute the first impact to city water supply wells. Unfortunately data do not allow a determination as to whether this part of the plume is stable because of the large distance (1,400 feet or more) between the monitoring wells deployed in this area. Given that the velocity of the groundwater is estimated at 100-300 feet per year, the plume has not traveled far during the limited time these wells have been in existence. In addition, EDB is not significantly biodegrading or attenuating (as evident by EDB contamination extending twice as far as the other contaminants making up the dissolved-phase plume to the south). The northern half of the plume probably does not appear to be stable. Concentrations of contaminants in a stable plume do not increase at the outer edges of the plume because of natural attenuation processes. Dr. Davis was trying to convey that impacts to the municipal supply wells are not likely because NMED anticipates that KAFB will be implementing remedial measures to restrict contaminant migration. However, time must not be wasted because groundwater remediation is almost never accomplished as quickly as one would hope.

With regard to southern half of the dissolved-phase plume, which contains a number of other fuel contaminants in addition to EDB (such as benzene, toluene, xylenes), current data also do not allow a determination as to whether this part of the plume is stable for the same reason as for the northern half of the plume. However, there is evidence that contaminants (other than EDB) in the southern half of the plume are biodegrading, and thus, natural attenuation will play a role in the remedy of at least a portion of the plume.

Regarding the source remaining in the vadose zone, I believe you understood from Dr. Davis' presentation that the source has been removed and that the dissolved-phase contaminants are contained through natural attenuation processes. To clarify, NMED believes that the majority of the source in the vadose zone has not yet been removed and remains a contributor to groundwater contamination. KAFB recently began operating and testing a new soil vapor extraction (SVE) treatment system which should remove contaminants from the vadose zone at a higher rate than their older system. At this time, NMED does not believe that the SVE treatment system alone will be sufficient to clean up the dissolved-phase contamination in the groundwater. This is why KAFB has been asked to evaluate in-well treatment of groundwater so that the results of this evaluation can be compared to the earlier proposed containment well treatment system. At a minimum, groundwater in the southern half of the plume that contains the highest concentrations of contaminants should be treated with aggressive methods. NMED is working to determine the best possible methods for such aggressive treatment as an interim measure.

NMED is awaiting completion of site characterization by KAFB, modeling being conducted by the U. S. Environmental Protection Agency (EPA), and information on EDB contamination at other sites, to determine what, if any additional, corrective actions might be needed to remediate EDB-contaminated groundwater in the northern half of the plume. NMED anticipates that at least some of this information will become available this spring.

The only interim measure being employed at this time at the Bulk Fuels Facility is the SVE treatment system. With regard to whether remediation goals are being met in a timely manner, and schedules, the majority of work directed by the NMED over the last few years has focused

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on site characterization and installing the SVE treatment system. Much of this work has been completed by KAFB, although not always on time. To be fair, the NMED imposed considerable work on KAFB with respect to site characterization, and given the circumstances, some beyond their control, KAFB was not excessively late in completing the majority of the site characterization work. NMED was disappointed that KAFB did not install and begin to operate the new SVE treatment system in a timely manner, but the system is currently operating. NMED is currently assessing available data to determine what additional steps are necessary to address data gaps related to site characterization and to implement further interim measures (such as expansion of the SVE treatment system and implementing an aggressive groundwater remediation technology at the southern half of the dissolved-phase plume). NMED will continue to work with KAFB to move forward on the project.

Finally, in regard to PCE, the NMED has ruled out PCE as a contaminant associated with the northern half of the plume. There have been detections of PCE in the southern half of the plume which the NMED is evaluating; however, PCE would not be expected from a release from the Bulk Fuels Facility fuel distribution system. The PCE associated with the northern half of the plume originated from equipment that was not adequately decontaminated prior to the use of the equipment at the newest wells installed for the Bulk Fuels Facility Spill project. Such errors, although not common, unfortunately do occur at sites undergoing corrective action. This project is not unique in this regard. KAFB has informed the NMED that it will make an effort to prevent this problem from reoccurring, and NMED will continue its oversight on this matter to ensure that such problems do not become commonplace.

In closing, I also look forward to working with you in your capacities as both a County Commissioner and a member of the Water Utility's Governing Board on the KAFB Bulk Fuels Facility Spill and other environmental issues to ensure protection of public health and the environment.

If you have any questions on this matter or other concerns, please feel free to contact me at (505) 827-2855.

Sincerely,



Thomas Skibitski
Acting Director
Resource Protection Division

cc: J. Kieling, NMED HWB
D. Cobrain, NMED HWB
W. Moats, NMED HWB

cc: (continued)
W. McDonald, NMED HWB

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S. Brandwein, NMED HWB

S. Reuter, NMED PSTB

Col. Kubinec, KAFB

J. Pike, KAFB

L. Bitner, KAFB

B. Gallegos, AEHD

F. Shean, ABCWUA

L. King, EPA-Region 6 (6PD-N)

File: KAFB 2013 and Reading