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DEPUTY SECRETARY

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

July 17, 2007

David McCoy  
Citizen Action New Mexico  
Post Office Box 4276  
Albuquerque, New Mexico 87196

Dear Mr. McCoy:

New Mexico Environment Department (NMED) Secretary Ron Curry has asked me to respond to your June 13, 2007 *Topics of Discussion* paper presented to him at a meeting he held with some of your colleagues on that same day. The paper presented a summary of 10 items of concern to Citizen Action. The topics, and our responses, are presented below, as enumerated in the paper.

**1. Well Monitoring at Sandia National Laboratories Mixed Waste Landfill**

The paper asserts that problems with groundwater monitoring at Los Alamos National Laboratory (LANL) are similar or identical at Sandia National Laboratories (SNL). The paper does not identify the specific well monitoring problems at SNL. As our response to comments on the SNL Mixed Waste Landfill (MWL) Corrective Measures Implementation (CMI) Plan indicated (response R44), SNL and LANL are two different sites, and because a problem may exist for LANL monitoring wells does not mean that the same problem exists for wells at SNL.

The most significant problem with wells at LANL involves complexly-built wells in complex geology with small multiple screens which were not adequately developed. In contrast, wells at the MWL are simpler, were constructed in relatively simple geology, have larger screens and, except for MW4, have but one screened interval.

See also NMED report by Moats, Mayerson, and Salem, 2006, entitled *Evaluation of the Representativeness and Reliability of Groundwater Monitoring Well Data, Mixed Waste Landfill, Sandia National Laboratories (Evaluation of Groundwater Monitoring Well Data)*. This report has been previously provided to Citizen Action.

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## **2. Defective Well Monitoring Network at the MWL**

Citizen Action makes many assertions in this section regarding problems with monitoring wells at the MWL. Each of the issues identified in the paper has been raised by Citizen Action either through testimony at the 2004 public hearing on the proposed remedy selection for the MWL or through the public comment received on the CMI Plan for the MWL. NMED provided testimony on these issues at the MWL hearing in 2004, and addressed each issue in our response to comments on the CMI Plan and in the *Evaluation of Groundwater Monitoring Well Data*. Citizen Action has been previously provided these documents.

Based on NMED's evaluation, NMED has required replacement of some of the monitoring wells that Citizen Action identifies. You have requested this information in your public information request of July 3, 2007. NMED will respond to that request under separate cover.

## **3. Misrepresentation of Well Monitoring by Sandia National Laboratories**

NMED's explanation of the regulatory framework for groundwater monitoring at the MWL is found in the *Answer Brief of Appellee New Mexico Environment Department* as filed on December 18, 2006 with the New Mexico Court of Appeals (NMED Brief). NMED has also responded to this inquiry in a number of responses to Citizen Action, including those dated January 3, 2007, March 23, 2007, March 26, 2007, April 9, 2007, April 16, 2007, and May 25, 2007.

## **4. The Moats Evaluation Should Be Retracted by NMED**

### ***Peer Review/Public Comment***

NMED stands behind the conclusions in the *Evaluation of Groundwater Monitoring Well Data* (referred to by Citizen Action as the "Moats Evaluation"). Citizen Action complains that the report was not sent out for public comment or peer reviewed. NMED, however, is not required to solicit public comment or peer review such documents. NMED is aware that Citizen Action has requested that the U.S. Environmental Protection Agency (EPA) review the report. NMED has in no way opposed Citizen Action's request, and in fact welcomes the review by EPA.

The purpose of the study done by Moats *et al.* as stated on page 2 is "...to evaluate whether or not groundwater samples from the MWL monitoring wells have produced metals and general chemistry concentration and field parameter data that are reliable and representative of groundwater underlying the MWL." The report is entirely about *water quality*, and more specifically, about water quality as it may be impacted by drilling mud, grout, and organic drilling additives. Citizen Action is correct that the report did not address certain topics, such as

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hydraulic conditions, the flow of groundwater, whether wells have gone dry, the tightness of sediments, or the capabilities of sampling pumps. The authors did not discuss these topics in their report because these topics were not relevant to the stated purpose of the study.

### ***Monitoring Well Locations***

Regarding Citizen Action's comment on well locations, NMED has responded previously on this issue separately in NMED's response to public comment issued for the CMI Plan.

### ***Background Water Quality***

Citizen Action comments that "Moats did not use data from monitoring well BW1" to do comparisons of water quality data and that somehow this is "an admission that reliable and representative background well data did not exist for the MWL from BW1." NMED makes no such admission. The regional groundwater quality data that Citizen Action discounts as a valid substitute for background data from BW1 is very useful for assessing the MWL wells installed with the mud rotary method. The background hydrochemistry of the Kirtland Air Force Base area, where the MWL is located, is well understood (in contrast to the situation at LANL). Furthermore, BW1 is one of three wells installed with the mud rotary method. Moats *et al.* specifically targeted BW1 as one of the mud rotary wells to assess whether drilling mud and organic drilling additives had created conditions in the wells and surrounding aquifer whereby water samples collected from them would not provide reliable and representative data. Given this reason for the study, it would have been illogical to conduct a comparison of water quality data from BW1 with that from the other wells drilled using the same mud rotary method. Instead, comparisons were made with data from other MWL wells completed using different drilling methods (specifically MW1 and MW4) in addition to comparisons with regional background data. As an aside, the *Evaluation of Groundwater Monitoring Well Data* contains and analyzes substantial data for water samples collected from BW1 (see for example Appendix A of the report). BW1, now dry, is considered by NMED to have been an acceptable background well for the MWL during its service life.

### ***Dry Wells***

Regarding the comment that BW1 and MW3 have gone dry, NMED has not decided at this time if the water level in MW3 is low enough to declare MW3 to be dry. However, the study by Moats *et al.* used extant water quality data for both BW1 and MW3.

### ***Well Development***

Citizen Action argues that well development was inadequate for wells MW1 and MW3 and, thus, the wells cannot produce water with acceptable turbidity levels. It is possible that Citizen Action

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is unaware that development efforts were repeated for well MW1 on June 8, 1990, with a final turbidity of 5.5 NTU. The final turbidity of MW3 is not actually known, but likely exceeded 5 NTU as the final clarity of the water was classified as "cloudy." The last turbidity measurement was taken on November 29, 1989. The final effort to develop the well occurred on April 14, 1990, after an additional 722 gallons of water had been removed from the well, and after the well had been flushed with 90 gallons of water. Thus, the final turbidity of MW3 after development may have been less than 1000 NTU.

Although turbidity can be high during and immediately following well development, suspended sediments causing the turbidity will eventually settle to the bottom (sump) of the well. Provided these sediments are not appreciably disturbed in the future, the turbidity of groundwater samples retrieved during the sampling events that follow development can be much lower than that achieved during well development. This has been generally true for the wells at the MWL. For example, sampling records indicate that the median turbidity values of water samples retrieved from wells MW1 and MW3 are 6.6 and 3.0 NTU, respectively. Although 6.6 NTU exceeds the ideal goal of 5 NTU, it is only marginally higher. From a practical standpoint, a value of 10 NTU is generally of little concern even when metals are a subject of interest in a monitoring plan. The turbidity of water samples from MW1 have ranged from 1.38 to 24.2, with 3 of 24 samples exceeding 10 NTU. The turbidity of water samples from MW3 have ranged from 0.4 to 76.2, with 4 of 20 samples exceeding 10 NTU.

### ***Ground Water Flow Systems***

Regarding the comment that each of two groundwater flow systems should be separately monitored, NMED has responded to Citizen Action in the past that the shallower groundwater in the Alluvial Fan sediments is the priority for monitoring at the MWL. Contamination, should any ever occur, would first move through the shallower Alluvial Fan sediments before reaching the deeper Ancestral Rio Grande sediments. Without evidence of contamination in the shallower Alluvial Fan sediments, there is little justification for requiring SNL to install deeper wells.

### ***Low Producing Wells***

Regarding the comment that the wells can produce a continuous flow of water for sampling, in reality the tight strata surrounding the well screens and dropping water levels (with the consequent reduction in total head) are progressively increasing the time it takes to recharge the shallower wells at the MWL. These factors contribute to the low yield of the shallower wells.

### ***Well Pumping Rates***

Contrary to Citizen Action's argument that high pumping rates have damaged the well screens at the MWL, the Bennett pumps used at the MWL are incapable of being operated at a high flow

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rate. Given the depth of the water table at about 460 feet, Bennett pumps will only deliver a maximum pumping rate of about 2 gallons per minute (gpm) or less, which is not a high pumping rate. Additionally, achieving a continuous flow of water at very low pumping rates (such as 0.1 gpm) at such depths is difficult. Bennett pumps are powered by compressed air or nitrogen gas. In practice, the controls that regulate the pumping rate do not allow for the fine adjustments that would be necessary to reduce flow rates to very low levels and still maintain a continuous flow of water.

### ***Stainless Steel Screen Corrosion: Ni and Fe***

NMED continues to disagree with Citizen Action's assertion that nickel is a groundwater contaminant at the MWL. Moats *et al.* acknowledge corrosion of the stainless steel well screen of MW1 on page 7. The report does not claim that water quality data for MW1 is representative of "natural background." Instead, the authors assert that the well produces samples that are reliable and representative of the hydrochemistry of the aquifer beneath the landfill; at the MWL, the aquifer appears to be contaminated with low levels of nitrate from sources other than the MWL. Also, as discussed in the report, corrosion has led to increases in certain metals (Ni and Fe were specifically mentioned). Because of this corrosion and the presence of moderately high levels of nitrate, the groundwater at well MW1 is not representative of background hydrochemistry, at least for a few groundwater constituents (nitrate, chromium, nickel, iron).

### ***Cadmium Masking***

Citizen Action relies on findings by Hewitt to argue that cadmium contamination is present in the groundwater, but is being hidden from detection by corrosion of the stainless steel screen in well MW1. NMED has not reviewed the paper by Hewitt, and a copy of this paper was not provided to NMED by Citizen Action. Thus NMED cannot comment on whether or not it agrees with the findings of Hewitt.

Citizen Action may be unaware of soil data which argues against their assertion that cadmium has contaminated ground water. Low levels of cadmium (< 2 milligrams per kilogram) have been detected in soils beneath the landfill along the west boundary of the landfill. Groundwater flows west-southwest; MW1 is located on the north boundary, near the northeast corner of the landfill and on the opposite side of the landfill from the cadmium release. Cadmium was detected at background levels in borehole BH-7 from a depth of 10 feet to its total depth of 120 feet. BH-7 is located east of the cadmium release and west of MW1. Cadmium was also detected at background levels in soil samples obtained from a depth of 10 feet to a total depth of 546 feet at well MW4, which is located between MW1 and the west boundary of the landfill (the site of the release). This latter information, in particular, demonstrates that the cadmium release never reached the water table at MW4, and thus, it did not reach the water table at MW1 which is located further away and is hydraulically upgradient from the west boundary. Therefore,

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cadmium cannot be a contaminant in the groundwater at either MW1 or MW4. Corrosion of the MW1 well screen would be of no consequence in this case because there is no cadmium contamination to mask from detection.

The groundwater at the MWL is not contaminated with cadmium, as discussed in NMED's testimony during the 2004 hearing held on remedy selection for the MWL.

### ***Less-Than-Detection-Limit Cadmium Concentrations***

Additionally, NMED does not agree that data from groundwater samples from MW1 show a trend of decreasing concentrations of cadmium with time. Much of the cadmium data is reported as less than the detection limit, with generally higher detection limits associated with the earlier data. These data cannot be used in any meaningful attempt to show changes in concentrations over time. As for a median value being "concocted" for non-detect results, assuming a value of one-half the detection limit for a non-detect result is a common practice when working with data sets where some of the data are below the limit of detection. This was stated in the *Evaluation of Groundwater Monitoring Well Data* on page 5.

Furthermore, for most of the data sets, all of the data exceed the detection limit for the analytical method. However, far from being "farcical," the analysis of cadmium was only one of 13 different parameters used by Moats *et al.* to assess the mud rotary wells for adverse impacts due to drilling mud and organic drilling additives. As indicated in the report, the totality of the evidence from these 13 different parameters indicates that the three wells installed with the mud rotary drilling method have yielded reliable and representative water samples.

### **5. Unequal Enforcement by NMED at the SNL MWL and LANL Is Discriminatory and Contrary to Principles of Environmental Justice**

NMED has already addressed the issues that Citizen Action asserts show that NMED is enforcing at SNL differently than at LANL. In NMED's view, NMED's enforcement at SNL is proper.

### **6. Recommended Action NMED Should Take for the MWL**

NMED has responded to Citizen Action's requests for action many times, in testimony at the 2004 public hearing, and in the NMED Brief. As stated previously to Citizen Action, NMED declines to reverse the decision on the final remedy based on the merits of NMED's determination. Moreover, jurisdiction over NMED's final decision now lies with the Court of Appeals.

### **7. Failure to Conduct Adequate Surface Soil Sampling Precluded Risk Analysis for**

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## **Both the Surface Run-Off Pathway and for Airborne Emissions Inhalation Pathway**

NMED provided a response to this item in a May 25, 2007, letter to Citizen Action.

### **8. Refusal of NMED to Provide Access to Public Officials at NMED**

NMED welcomes input from the public on NMED actions. However the tone and content of you and your colleague's comments has been inappropriate, unprofessional, inflammatory, and defamatory. Any dialogue must be professional and civil for it to be productive. Neither NMED nor its personnel are under obligation to meet with any person or organization that behaves in this manner.

### **9. NMED has Refused to Provide the 2006 TechLaw Report on the Basis that it is "Too Personal" or a "Draft"**

NMED stated in its February 12, 2007, letter to Citizen Action:

The TechLaw reports are draft documents and therefore are not subject to the Inspection of Public Records Act. See The Inspection of Public Records Act: A Compliance Guide for New Mexico Public Officials and Citizens, p. 30 (Attorney General's Office, Jan. 2004, 4<sup>th</sup> ed.).

NMED further elaborated in its March 12, 2007, letter to Citizen Action:

"This letter is to respond to your March 2, 2007, letter to James Bearzi in which you inquire into the time period for preserving Citizen Action's right to administratively appeal the decision of the New Mexico Environment Department ("NMED") that a draft report from a NMED contractor, Techlaw, is a draft document and is therefore not a public record subject to inspection under the Inspection of Public Records Act ("IPRA"). Section 14-2-12 of IPRA sets forth the procedure for enforcing IPRA. NMED does not have a separate appeal process for IPRA requests."

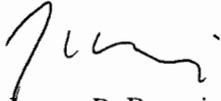
Citizen Action has filed a complaint regarding NMED's non-disclosure of the TechLaw report with the Office of the Attorney General. The Office of the Attorney General enforces IPRA and will make a decision on this matter.

### **10. NMED Cannot Produce a Copy of the Davis Memorandum (1994)**

As stated in its May 25, 2007, letter to you, NMED does not have a copy of this document.

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Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

cc: R. Curry, NMED Secretary  
C. Padilla, NMED Deputy Secretary  
J. Goldstein, NMED WWMD Director  
J. Kieling, NMED HWB  
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