AQS
2112 Deer Run Drive
South Weber, Utah 84405

(801) 476-1365
www.aqsnet.com

November 20, 209

DCN: NMED-2009-27

Mr. David Cobrain
Hazardous Waste Bureau
2905 Rodeo Park Dr. E/Bldg 1
Santa Fe, NM 87505

RE: Draft Technical Review Comments on the Revised Phase III Resource Conservation and Recovery Act Facility Investigation (RFI) Report for the High Energy Laser System Test Facility (HELSTF) Sites, White Sands Missile Range, New Mexico

Dear Mr. Cobrain:

This serves as a draft deliverable and addresses the technical review of risk assessment portions of the Revised *Phase III RFI Report for HELSTF at White Sands Missile Range*, New Mexico. A formal evaluation of the responses to comments generated from the review of the original version of this report was not conducted. Due to the extensive nature of the comments, the entire report was re-done. It is noted that all of the comments were taken into consideration in the revised report. As such, a request by Ms. Andress (NMED) was made that the revised report be reviewed in its entirety as a new submittal.

The document was a little difficult to review due to the sheer volume of unnecessary text and data tables. The report included several chapters and tables reciting methodology from guidance documents, in particular how screening levels were determined. As the facility did not calculate site-specific screening levels, a simple citation to the document with the generic screening levels would have sufficed.

The overall concern with the sites is that adequate site characterization has not been completed. No Further Action (NFA) has been proposed for many sites, but no surface soil samples have been collected and/or the conclusion is based on minimal sampling. In some cases, it is noted that the features are subsurface and surface soil sampling may not be warranted, however this is not the case for many other sites, which had surface features.

General Comments

1. Conclusions of risk about each of the sites evaluated in this report are presented in terms of the United States Environmental Protection Agency's (USEPA) risk management range of 1E-06 to 1E-04. The conclusions are that if risks are within this range, there is no undue risk. However, NMED enforces a specific target risk level of 1E-05. All calculated risks must be

discussed with respect to the State risk level, not the USEPA risk range. Revise the report to include the specific calculated risk for each receptor at each site.

2. There are several chemicals for which physical, chemical, and toxicological properties are defined in the "generic" summary tables of the risk assessment, however the chemicals are not identified as constituents of potential concern (COPC) for either human health or ecological risk at any of the sites. The inclusion of such unnecessary data is counterproductive to the review of the document. Scrub the report of all excess and unnecessary data.

3. At several sites, explosive compounds were eliminated as a COPC due to lack of historical evidence that explosives were present or used at the site (page 88 of the report). There is some concern that exclusion of the explosive compounds may result in an underestimation of risk. Risks from the explosive compounds must be evaluated separately and addressed as part of the uncertainty analysis. The presence of these explosive compounds may also be the source for some of the unexplained arsenic (common byproduct of propellants used in munitions) detected at some of the sites.

4. Solid Waste Management Unit (SWMU) 25 received spent degreasing solvents and waste oils from the Cleaning Facility area and was also used as a sorting yard for wastes pending characterization. Historical evidence indicates that there was a chromate or chromate additive spill. However, no surface soil or shallow subsurface soil samples from beneath the slab were collected. The only soil data available for SWMU 25 consists of a single boring next to SWMU 25. It is not clear how a determination for No Further Action (NFA) can be made on a site where soil has not been characterized and no samples of the concrete slab were taken. It is recommended that additional soil sampling and/or sampling of the concrete slab be conducted to verify the nature and extent of any potential contamination and ensure all potential exposure pathways have been defined and adequately evaluated in the risk assessment.

5. A conclusion of the report is that SWMU 26 meets the requirements for NFA and should be removed from the Resource Conservation and Recovery Act (RCRA) permit. However, SWMU 26 is underlain by two other SWMUs (142 and 154), where several organic compounds have been detected. The results of the risk assessment for SWMUs 142 and 154 indicate elevated risk levels for the vapor intrusion pathway and the overall recommendation is for continued groundwater monitoring. If SWMU 26 is removed from the permit, it is suggested that some land use controls be placed on the site indicating the potential risk via vapor intrusion from underlying contamination associated with SWMUs 142 and 154. It is also recommended that these land use restrictions should remain until contamination at SWMUs 142 and 154 has been remediated and/or continued monitoring indicates that risks to potential receptors at the surface are below target risk levels.

6. For SWMUs 31 and 32, zinc was determined to be representative of background and excluded as a COPC. After reviewing the data provided in Appendix F, and specifically the Q plots, it appears that zinc is slightly elevated compared to background. However, as the maximum detected concentration (43 milligrams per kilogram, mg/kg) is several orders of

magnitude less that the residential soil screening level, inclusion of zinc in the risk assessment would not have change the overall conclusions. No response to this comment is required.

7. The risk assessment for SWMU 142 concluded that there was excess risk for all future exposure scenarios (residential and construction worker). The report stresses that these future scenarios are unlikely; however, it is not unreasonable to assume that at some time re-development of this area (construction worker scenario) could occur. Risks to an industrial worker were within acceptable levels. The concern lies in how this site will be managed. Xylene, for example, was detected in soil at nine ft bgs. However, because the xylene was assumed to be associated with underlying SWMU 154, xylene was not included in the risk assessment. However, because the detection of xylene is within a reasonable depth that a construction worker could be exposed (less than 10 ft bgs), the excess risk would apply at SWMU 142 regardless of the source of the contamination. It is recommended that additional site controls be placed on SWMU 142 pending remedial actions at and closure of SWMU 154. At a minimum, land use must be limited to non-intrusive industrial work only for SWMU 142.

8. The configuration of SWMU 144 is unclear; is this feature underground? There are no soil samples in the zero to 10 ft bgs interval, with the exception of one sample collected at 10 ft bgs. However, the report concludes that the soils meet the criterion for NFA. Provide additional discussion of SWMU 144 and address whether additional soil sampling to characterize the soil interval of zero – 10 ft bgs is needed.

9. Silver was detected at elevated concentrations at depth at SWMU 146. Given the largevolumes of water that have been discharged into the lagoon over the years, it is reasonable to assume that silver could have migrated to depth. Sufficient discussion/documentation that silver-contaminated water could not have been discharged into the lagoon at some point in time has not been provided. As such, it is recommended that silver be included as an analyte of concern for the groundwater monitoring program.

10. Elevated risks to the hypothetical future adult and child resident were calculated at SWMU 147. The primary driver of the risks is naphthalene. The source of naphthalene has been identified as being SWMU 154. The conclusion of the report is that, since SWMU 147 is not the source of the naphthalene and it is unlikely that the site will be used for residential purposes, SWMU 147 be released for NFA. While the source of naphthalene may be from a spill at a nearby SWMU, the result is that contamination beneath SWMU 147 exists resulting in undue residential risk. As such, it is not clear how the site can be released under NFA status. It is recommended that site controls be placed on SWMU 147 until contamination associated from the spill at SWMU 154 be released. Until it can be shown that SWMU 147 meets all the criteria for NFA, it is also recommended that site controls be placed on the site limiting is use to industrial only.

11. For the groundwater monitoring program, the proposed relevant standards are based upon older versions of screening documents and may not represent current toxicological data. As the monitoring program is to include future evaluations, it is recommended that the standards

to be used as guideline for assessing groundwater contamination be reflective of the most current guidelines and standards (e.g., NMED 2009 SSG for tap water levels). Revise accordingly.

12. For assessing migration to groundwater, screening levels based upon a dilution attenuation factor (DAF) of one (1) were applied. This is a conservative approach, as NMED guidance indicates that use of screening levels based upon a DAF of 20 is acceptable. Since the immediate underlying groundwater is not of drinking water quality, it is not clear why a DAF of 1 was applied. Regardless, groundwater contamination is present and the use of screening levels based on a DAF of 20 would not change the conclusion that groundwater monitoring should be conducted. A response to this comment is not required.

13. The revised report is based upon methodologies and screening data presented in the 2006 NMED Soil Screening Guidance (SSG). As noted in the previous Notice of Disapproval comments, any revisions to the report should be conducted using the new SSG, if available. It is noted that the development of the revised document was most likely done prior to the publication of the August 2009 SSG updates. Therefore, it is reasonable that the 2006 data were applied. A response to this comment is not required.

Specific Comments

1. Section 5.4.2.3 of the report indicates that toxicological data from the National Center for Environmental Assessment (NCEA) were applied. As noted in the notice of disapproval comments, the toxicological hierarchy supported by the Environmental Protection Agency (EPA) and as adopted in the new Regional Screening Levels (RSLs) should be applied. Under this new hierarchy, NCEA data are not recommended, as they have not undergone a full peer-review process. However, in reviewing the toxicological data contained within Appendix E, it appears that NCEA were not applied and that the hierarchy recommended in the RSL guidance was applied. While the technical data appear adequate, in order to avoid confusion and ensure consistency, the text should be modified to reflect the toxicological hierarchy as applied in the risk assessment.

2. The report indicates that there are no applicable regulatory guidelines for evaluating total petroleum hydrocarbon (TPH) data, and as such, no evaluations of TPH data were conducted. The report also indicates that the "New Mexico Environment Department TPH Screening Guidelines, October 2006" were applied. Clarify whether TPH data at each site were compared to New Mexico TPH screening levels.

3. No surface soil or shallow subsurface (zero to ten feet below ground surface, ft bgs) were taken at SWMUs 27 -30. However, based upon previous comments, soil samples will be collected in the future. Note that no conclusions on either the human health risk assessment or the ecological risk assessment may be made at this time. The evaluation of risk will be evaluated once the risk assessments have been updated to incorporate the results of the soil sampling.

4. The report concludes that SWMU 143 should be released for NFA. However, the residential risk assessment resulted in a risk level of 7E-05, which is above the NMED target risk level of 1E-05. While the resulting risk is within the EPA risk range, the overall risk exceeds the

NMED standard. Arsenic in surface soil drives the risk assessment. As the risk assessment uses the maximum detected concentration as the exposure point concentration, it appears that additional sampling may be warranted to further define the exposure point concentrations and to define the extent of arsenic contamination in surface soil. Either conduct additional characterization with respect to arsenic, conduct an interim voluntary removal of impacted soil, or submit the site for restricted release (industrial use only).

5. In Section 6.16.5.1.2 (SWMU 146), the single detection of di-n-butyl phthalate was determined not to be a COPC based on knowledge of site operations and the isolated occurrence. As the site received treated waste water along with several other special discharges, it is likely that the detection is related to historical activities. As the magnitude of the detection is several orders of magnitude less than the NMED residential screening level, it is agreed that exclusion of this detection would not impact the conclusion of the risk assessment. No response to this comment is required.

6. In Section 6.21.5.1.3, it is stated that the TPH detected in soil at concentrations up to 2,600 mg/kg is associated with the diesel spill at SWMU 154. However, the report also concludes that since other organics were within screening levels, the TPH does not represent a risk. In comparing the detected TPH concentration to the risk-based TPH NMED screening levels, the result exceeds the TPH screening levels based on diesel. As such, it is not clear how the conclusion that the TPH in soil presents no risk can be made. Address the TPH in soil and discuss whether additional soil characterization and/or removal actions may be warranted.

If you or any of your staff have questions, please contact me at (801) 451-2864 or via email at paigewalton@msn.com.

Thank you,

Paige Walton

Paige Walton
AQS Senior Scientist and Project Lead

cc: Lane Andress, NMED (electronic)
Joel Workman, AQS (electronic)