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## MEMORANDUM

**DATE:** November 4, 2002

**TO:** John Parker, Chief  
DOE Oversight Bureau

**THRU:** Roger Kennett, Manager  
SNL Oversight Office

**FROM:** Lance Voss  
SNL Oversight Office

**SUBJECT: Comments on Draft Corrective Action Order for Sandia National Laboratories**

The following are the Oversight Bureau's technical comments on the Draft Corrective Action Order for Sandia National Laboratories.

- 1) Introduction, paragraph 2, states, "This Order contains the investigation and cleanup, or corrective action requirements for Sandia National Laboratories." As written, the CAO does not appear to state requirements in any detail but appears to serve to manage the process by establishing schedules and process deliverables. It contains no detail regarding the technical strategy, scope, or scale of environmental investigations to be carried out.
- 2) Introduction, paragraph 3, states in part, "Section IV sets forth the requirements for a detailed, comprehensive investigation of environmental contamination at the Facility." The text of Section IV however, is not very detailed, and it could be argued, doesn't describe any "comprehensive investigation". At a minimum the requirements for a detailed, comprehensive investigation of any environmental site should include a specific conceptual site model, site decision/information needs, and Data Quality Objectives specified to meet those needs. It is recommended to either modify the referenced sentence to reflect the contents of Section IV, or modify Section IV to contain the suggested requirements. Paragraph 3 also states that Section IV is divided into seven subsections. The text should be modified to reflect that there are eight subsections.
- 3) Introduction, paragraph 3, states in part, "Section VII establishes screening and cleanup levels for contaminants at the Facility." There is no clear description of cleanup levels or a process to derive them except for the discussion of soil screening levels. Soil screening levels are intended

to be used as risk screening levels to decide if a site can be NFA'd when no risk is present and in the absence of a site specific risk assessment. They should not be designated as cleanup levels.

4) Section II.A.6, Technical Area V, paragraph 1. The discussion should note the number of SWMUs within the area. As written, the on-going operations appear to be responsible for the contamination, but are not subject to the Order.

5) Section II.A.6, Technical Area V, paragraph 2. Nitrate would be better described as a septic system "contaminant" rather than a septic system "effluent".

6) Section IV.A, paragraph 2. This paragraph states that, "Respondents have established a groundwater monitoring network for the purpose of hydrogeologic characterization and groundwater sampling." Suggest modifying the last sentence of the paragraph to read that the, "network has been determined by the Department to be adequate for the purpose of establishing background groundwater-quality, and understanding the general hydrogeologic system beneath the Facility." The sentence implies that no further wells for general or site specific characterization are needed. Is that true?

7) Section IV.B, list of requirements for areas of groundwater contamination. SNL has several areas of groundwater contamination that are associated with multiple SWMUs. Item 8 seems to indicate that all SWMUs located over an area of groundwater contamination will have to be re-investigated for contaminant concentrations in soils, rock, sediment, vapor, and water beneath each SWMU to groundwater. Is this intended?

8) Section IV.D, Chemical Waste landfill, paragraph 3 states, "at least two groundwater monitoring wells are required to investigate potential chromium contamination and vertical migration of contaminants into deeper parts of the saturated zone. The specific location and screened intervals of these wells shall be approved by the Department." In addition, Section VI.A, Investigation Workplan states, "The Respondents shall submit to the Department for approval an investigation work plan for those SWMUs and AOCs needing further investigation." The development and approval of a groundwater investigation workplan supporting the installation of these wells has been overlooked in the Order. Due to the magnitude and expense of this deep well installation and groundwater investigation project, the Department should require the development of a detailed work plan including the specification of a site-specific hydrologic model, and DQOs with associated decision needs for the project.

9) Section IV.H, Long Term Environmental Stewardship Plan. The plan should be developed, reviewed and in place for implementation prior to the scheduled end of the ER project. The body of directives and guidance on LTES (National Academy of Sciences, for example) stress the importance that stewardship functions and capabilities be incorporated in current and ongoing decision making for ER sites. Necessary post closure measures should be specified in all ER decision documents. Sandia should be required to establish processes and infrastructure to support LTES activities sooner rather than later.

10) Section VI.A, Investigation Work Plan states, "The Respondents shall submit to the Department for approval an investigation workplan or plans for those SWMUs and AOCs needing further investigation." It is agreed that detailed planning should be required for all environmental investigations or corrective actions occurring under NMED authority. Suggest adding language that development of work plans should include a DQO process with problem definition, data need assessment, decision identification and acceptable uncertainty specification.

These requirements should also be reflected in Section X.B.

11) Section VII.C.1, Risk Analysis states, "Respondents shall either remove contaminants entirely... or attain cleanup goals outlined in the Department's Position Papers: Assessing Human Health Risk Posed by Chemicals: Screening Level Risk Assessment (March, 2000)." The cited position paper states, "This guidance is intended as an initial risk-screening tool...". Generally guidance such as that cited is conservative and intended to identify sites that, if they pass, clearly require no further corrective action. As the position paper clarifies, "If an estimated risk/hazard falls within target /hazard values, a regulatory authority may, without further investigation, conclude that a site does not pose an unacceptable risk. An estimated risk that exceeds these targets, however, would not, by itself indicate that the proposed action is not safe or that it presents an unacceptable risk. Rather, a site risk calculation that exceeds a target value triggers further evaluation and/or investigation." Screening level risk values are not intended and should not universally be used as remediation goals or remedial action objectives as indicated in the Order.

In addition, the screening level risk assessment position paper states, "The development of data quality objectives is a prerequisite activity for completion prior to screening." The Order should clearly designate the use, development, and assessment of DQOs in any planning or reporting documents required.

12) Section VII.C.2.a, Conceptual Site Model. While the specified information is required for a credible risk assessment, the development and presentation of a physical conceptual site model must occur and should be an integral part of project workplan and RFI report documents. An accurate and functional Conceptual Site Model is required to interpret and assess the adequacy of characterization data prior to risk assessment. While the model proposed in this section is an integral part of the risk assessment process and should contain a clearly stated, rational risk exposure model representing specific media, pathways, and exposed populations to be addressed; the proposed model (i.e., risk exposure model) and a conceptual site model are not equivalent. This distinction should also be addressed in Section X.

13) Section VII.D.3, Cleanup Standards. It is unclear what "cleanup standards or goals" are outlined in Section VII of the Order. The only apparent designation of standards is found in Section VII.C.1 that states respondents shall remove entirely or attain screening level risk assessment goals. As stated in comments 3 and 11, screening level risk standards are not necessarily intended as cleanup levels. Similar language to VII.D.3 appears in the Order developed for Los Alamos National Laboratory. In the LANL Order, Section VII.D.3 refers to cleanup standards and goals outlined in Section VIII, entitled "Cleanup and Screening Levels. No analogous section is found in the SNL Order and no similar detailed discussion of cleanup and screening levels is presented. Suggest including a section similar to Section VIII in the LANL Order.

14) Section VII.D.4.a, Threshold Criteria. The use of the terms "threshold criteria" and "evaluation criteria" in this Section is confusing. If there is a difference in the terms, the difference should be clarified.

15) Section IX.B, Well Purging. This section states that micropurging methods shall not be employed for any compliance purpose. The statement seems redundant since the position paper defines and precludes "micropurging" as a sampling method.

16) Section X.A, paragraph 1. From a quality assurance perspective it is suggested that NMED specify the format and software required for electronic deliverables.

17) Section X.B, Investigation Workplan. Any RCRA environmental investigation implemented under NMED authority should include explicit DQO planning activity. This should include, but not be limited to, the development of a conceptual site model, problem definition, and decision specification. This requirement should be specifically stated in this discussion and identified in relation to item 7, Scope of Activities. Applicable regulatory criteria requirements should also be identified (to the extent practicable) for consideration in planning documents.

18) Section X.E, Risk Assessment Report, paragraph 1. The text implies that risk assessment reports will be written only for sites requiring corrective action. However, a risk assessment may also be used to establish that corrective action is not required at a given site. Recognition of this case should be noted.

19) Table XI-2, Deliverable Description. The terms "Meets Industrial Risk", "combined with site 1", and "Active Site" do not seem appropriate for the column heading "Deliverable Description". The terms would be better placed in the site "Description" column, and replaced by a descriptor more consistent with deliverables.