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HSWA 94

February 28, 1994

Ms. Diana Webb, LAAO AIP POC
Department of Energy
Los Alamos Operations Office, A316
Los Alamos, NM 87544

XIII

RE: **Review of LANL's November 1993 Installation Work Plan for Environmental Restoration, Revision 3**

Dear Ms. Webb:

The enclosed attachment provides the Department of Energy (DOE) the Agreement-in-Principle's technical comments for the above referenced plan as received by the Hazardous and Radioactive Materials Bureau Technical Compliance Program.

If you have any questions regarding this matter, please contact Ms. Teri Davis of my staff at (505) 672-0448.

Sincerely,

Bruce Swanton, Program Manager
DOE EM/Oversight
Hazardous and Radioactive Materials Bureau

BS/sy
Attachment

- cc: Benito Garcia, HRMB Bureau Chief
- Neil Weber, DOE Oversight Bureau Chief
- Steve Alexander, HRMB
- Barbara Hoditcheck, HRMB
- Tim Michael, HRMB
- Glen Saums, SWQB
- Dennis McQuillan, GWPRB
- Barbara Driscoll, EPA Region VI
- Ted Norris, LANL PPL



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M E M O R A N D U M

TO: Steve Alexander, Program Manager, NMED/RCRA Technical Program

THROUGH: Bruce Swanton, Program Manager, DOE/EM Oversight

FROM: Bruce Swanton, DOE EM Oversight Program Manager
Teri Davis, Supervisor, AIP/LANL
Steve Yanicak, NMED AIP/LANL

DATE: February 28, 1994

SUBJECT: **Review Of LANL's Installation Work Plan for Environmental Restoration, Revision 3 submitted November 1993.**

The Hazardous and Radioactive Materials Bureau (HRMB) Agreement in Principle (AIP) staff have completed the review of LANL's Installation Work Plan for Environmental Restoration, Revision 3. This memo details the comments stemming from the review. For clarity, the memo contains numbered items listing comments that are keyed to a specific section number or figure in the RFI, as well as to the paragraph, eg., Item 2 (4.4.4.4 p2). The AIP program is submitting these comments and technical recommendations to the HRMB's Enforcement/Technical Programs because of eventual New Mexico HSWA authorization.

SPECIFIC COMMENTS

Item

1. (Executive Summary p.iii,b6 and 3.6,p.3-31) In reference to the proposal to integrate RCRA closure and corrective action requirements it is recommended that this specific issue be formally addressed to NMED/HRMB/Permitting Program. RCRA closure requirements may in some instances differ considerably from corrective action procedures.
2. (2.6,p.2-10) It is unclear what the implications are of the statement, "It addresses the regional and installation-wide geologic setting and the hydrogeologic characteristics that affect surface water and groundwater occurrence and movement and their interactions as they relate to the potential for contaminant transport". Is it being proposed that this section serves to satisfy the site-wide hydrogeologic regulatory requirements as outlined in Module VIII of LANL's RCRA Operating Permit (Section P, Task III: Facility Investigation, A. Environmental Setting, 1. Hydrogeology)?
3. (2.6,p.2-10) Why are the Framework Studies not outlined in the IWP? Specific data gaps and needs are identified

explicitly through-out the environmental setting section of the IWP (see sections 2.6.1.2.9,p.2-17p2, 2.6.1.4,p.2-19p2, and 2.6.2.3.2,p.2-29p1). As described in EPA RFI Guidance (530/SW-89-031, Vol.1, May 1989, e.g. sections 2.2, 2.2.3, and 3.4.3), each RFI workplan should specify the procedures which will result in an understanding of the hydrogeological regime beneath each SWMU. The depth to the main aquifer at LANL makes a SWMU-by-SWMU approach to this process unfavorable. As a facility-wide approach will be required to understand the ground-water flow regime beneath LANL adequately for selection of appropriate main and perched-intermediate aquifer monitoring locations, it is recommended that the IWP include the overall, clearly defined objectives and a schedule of projects designed to meet the deficiencies mentioned in the environmental setting section of the IWP. Finally, Task III of the HSWA module of LANL's permit requires such a facility-wide hydrogeological understanding and serves as an additional reason for locating the specific procedures, milestones, etc., of the Framework Studies in the IWP.

With reference to the specific data gaps and needs mentioned above, AIP additionally recognizes the existence of other characterization deficiencies of the environmental setting requirements at LANL. The following fundamental geologic/hydrogeologic issues remain unresolved :

- o The direction of main aquifer and perched-intermediate ground-water flow as influenced by pumping of production wells in the Los Alamos area is unknown. The lack of a site-wide potentiometric map prevents the assessment of direction of ground-water flow within the main aquifer and possibly the perched-intermediate zone(s), as impacted by production wells used at Los Alamos.
- o Individual zones of saturation beneath LANL have not been delineated and the hydrologic connection between these is not understood. A facility-wide description of the hydrogeologic characteristics affecting ground-water flow beneath the facility can not be made without delineation of the perched-intermediate aquifer (s) beneath LANL.
- o The recharge area(s) for the main and perched-intermediate aquifers have not been identified. It is unknown at this time if any significant quantity of

water is recharging the main aquifer through the fracture-fault zones which exist on the Pajarito Plateau. Characterization of these site-wide fault zones with respect to potential pathways for aqueous migration is not complete. It is unknown what effect if any, these zones may have on the direction of ground-water flow and hydraulic gradient of the main and perched-intermediate aquifers.

4. (2.6.2.2.5,p.2-26p3) In reference to the statement concerning Sandia spring, "This spring is fed by water from the main aquifer.", no data exists to support the differentiation between possible perched-intermediate zone discharge points and main aquifer discharge points. This statement should be retracted until conclusive data exists to support this hypothesis.
5. (3.5.4.3.4,p.3-25p3) The IWP states, "Such circumstances may include a determination that concentration levels of certain contaminants must be lowered to protect human health and the environment, that higher concentrations will be permitted because background levels are elevated, and that groundwater is not a potential source of drinking water or is not hydraulically connected to a drinking water source need not meet drinking water standards." This comment raises general technical concerns regarding the future usefulness of groundwater and the presumed lack of hydraulic connection between alluvial, intermediate and main aquifers.
6. (4.1.1,p.4-5p4) Can it be assumed that all sites of deferred investigation status e.g., firing sites, are presently allowed to continue releases of COC's to the environment without inclusion in the operating permit?
7. (4.3.3,p.4-22p4) The statement "Groundwater in the regional aquifer is not currently considered a potential contact medium because of the great depth to the water table and limited transport in the vadose zone" suggests that it is known for a fact that there is no hydraulic connection between systems of alluvial and perched (intermediate) groundwater flow and the main aquifer. In light of recent tritium sampling of the perched intermediate and main aquifer(s) data analysis seems to question this assumed dogma.
8. (4.3.3,p.4-23p7) In this section it states that "For most PRS's located on Laboratory property, continued Laboratory use and eventual release of these lands for tribal (e.g.,

gathering) or recreational use (e.g., camping) will be proposed to stakeholders." In this statement, DOE appears to be promoting the idea that any future Laboratory land released should only be considered for tribal and recreational use.

9. (4.1.2,p.4-8p5) The list of COCs in phase I investigations should not be determined solely by archival information where site analysis data can not provide more definitive information.
10. (Appendix G) It are unclear as to whether the Observational Approach discussed in this section is the approach to be generally used in the ER program or if this is a discussion of the Observational Approach as a tool in itself.
11. (Appendix G, p.G-1b1-3) We agree that the increase in confidence regarding distribution of contaminants at a given site may be disproportionate to the effort invested in protracted investigations and that the highest confidence is likely to be achieved by post-remediation verification sampling. However, this approach seems descriptive of the voluntary corrective action process rather the RFI workplan submittal, review and revision approach. If this is what is intended the IWP should be clear on this point.
12. (Appendix G,p.G-3fG-1) Here too the decision diagram steps numbered 1-7 would seem to describe the VCA process as a standard practice when "there is sufficient data to initiate action". Is this the case?
13. (Appendix G,p.G-6fG-3) The case example describes a MDA in which liquid organic wastes are present. The possibility of groundwater contamination should be included in the conceptual model if only as a deviation from the anticipated site conditions, and the means by which this deviation will be detected should be specified.
14. (Appendix G,p.G-7b7-10) The case model assumes that the volume of liquid in the source term is unknown. On the following page, G-8, in the second set of bullets, bullet 4, the vertical migration of volatile contaminants is to be determined using soil gas surveys. In cases where the unknown volume of liquids in the disposal unit could reasonably be expected to be large, such level II data may not be adequate to determine the extent of vertical migration.

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15. (Appendix G,p.G-10p2) No mention is given to determining the long-range (e.g., 10,000 year) integrity of the unit.
16. (Appendix H,p.H-3b1) What are 'temporal boundaries'?
17. **GENERAL** With regard to the use of SAL's for indication of a release from a unit, as well as regarding their use in determinations of extent of contamination, it should be explicit in the IWP that when more than one COC is present at a site the risk assessment will be conducted using the cumulative hazardous and toxilogical effects of the constituents present, even when the concentrations of individual constituents do not exceed SAL's.
18. (Appendix I,p.I-3fI-1) It is difficult to reconcile this figure with Figure G-1.

General: Apart from the above comment, review of Appendix I will be deferred until such time as the Decision Analysis Process (including deterministic modeling) becomes an actual rather than a hypothetical tool in LANL's ER program.

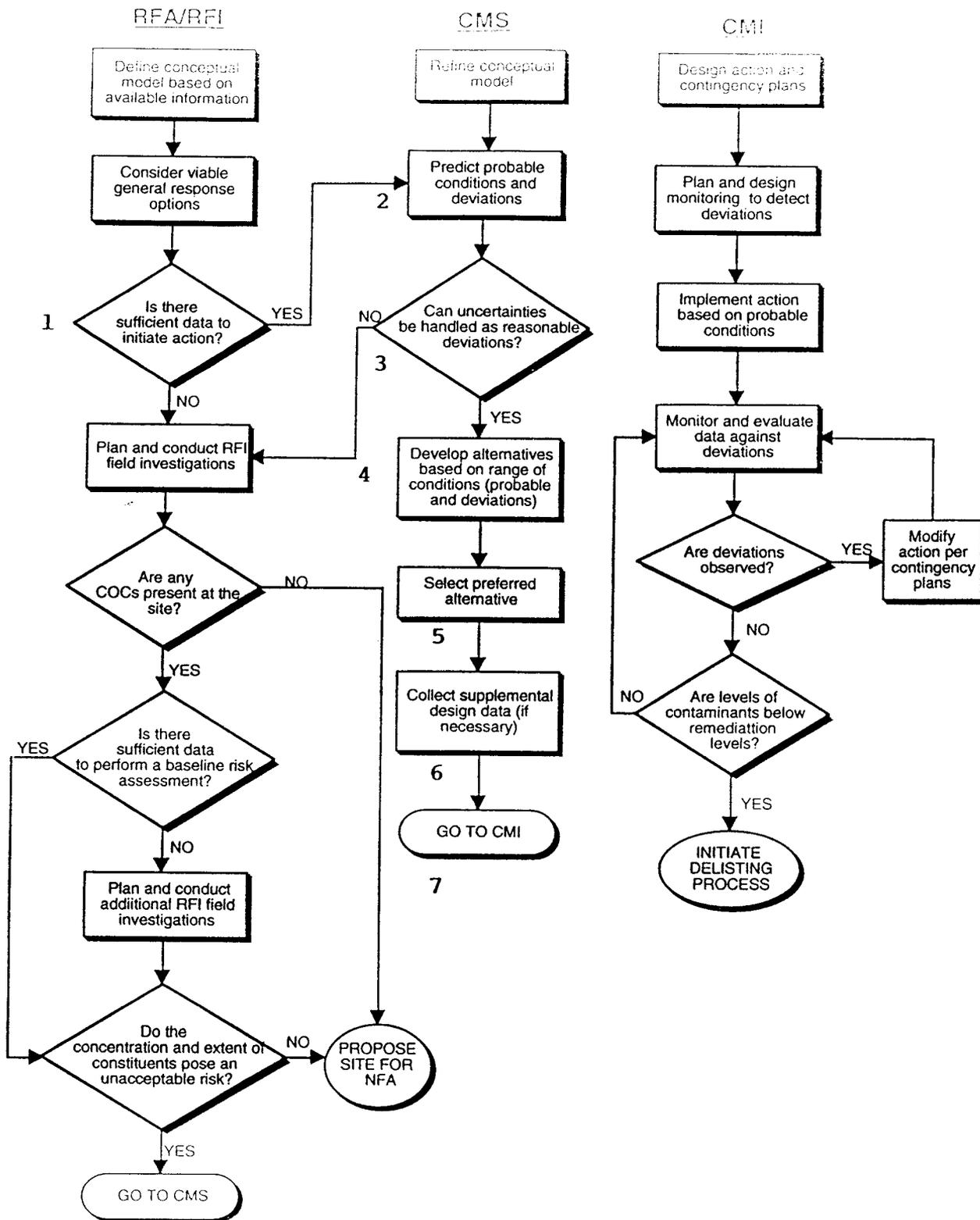


Figure G-1. Generalized decision diagram of the observational approach.