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Pls review & comment to B. Driscoll
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DEC 30 1993

LANL

Barbara Driscoll
RCRA Permits Branch
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Dear Ms. Driscoll:

Enclosed are revised pages to the Work Plan for Operable Unit 1129 in the Environmental Restoration Program at Los Alamos National Laboratory (LANL). The revisions were made in response to the approval with modification of the Work Plan by the U.S. Environmental Protection Agency. Please review the enclosure, and notify me if the revisions are not acceptable.

If you have questions, please call me at 505-665-7203.

Sincerely,

Theodore J. Taylor
Program Manager
Environmental Restoration Program

Enclosure

cc w/ enclosure:

- K. Sisneros, New Mexico Environment Department
- S. Slaten, ESH, LAAO
- T. Taylor, ESH, LAAO
- C. Fesmire, ESH, LAAO
- K. Bitner, ERPO, AL, MS-A906

cc w/o enclosure:

- R. Harris, EM-452, HQ
- T. Baca, ERWM, UC-LANL, MS-J591
- RFP, MS M707



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HSWA LANL 4/1129

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5.0 TECHNICAL APPROACH

The goal of this Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) is to ensure that the environmental impacts associated with past and present activities within Operable Unit (OU) 1129 are thoroughly investigated in compliance with Los Alamos National Laboratory's (the Laboratory's) RCRA Part B (Hazardous and Solid Waste Amendments (HSWA) Module) permit. To accomplish this goal, the nature and extent of contamination must be identified, and risk must be assessed for human and environmental receptors along any reasonable environmental pathways that may lead to exposure. The technical approach used in this Work Plan focuses efforts on meeting required site characterization objectives in a cost-effective manner. This approach uses a health-risk-based decision-making process (consistent with the Laboratory Installation Work Plan [IWP] [LANL 1991, 0553] and proposed Subpart S to 40 Code of Federal Regulations [CFR] 264) for recommending solid waste management units (SWMUs) for no further action (NFA) or for further study of possible remedial actions under a corrective measures study (CMS). As discussed in Chapter 1.0, a decision analysis approach will be employed in the RFI report and CMS to manipulate data gathered as a result of the RFI.

5.1 Summary of the OU 1129 Technical Approach

The basic technical approach for OU 1129 is summarized as follows:

- Archival data is gathered from available sources to help define a basic understanding of the processes and events that produced each SWMU and the contaminants of concern (COCs) that may be present at each SWMU.
- The archival data is evaluated to identify those SWMUs for which no potential hazard exists so that the number of sites that must undergo field investigation can be reduced.
- The SWMUs that require field investigation are assessed on the basis of archival information to determine whether the initial characterization effort will be a broad-based Phase I field investigation or a more detailed Phase II investigation.
- Phase I field investigations are carried out where needed to determine the presence or absence of COCs and to supplement existing information on source terms or site conditions.
- Data gathered during Phase I investigations are used to determine which SWMUs need further characterization and which may be recommended for NFA. For SWMUs that require further study, Phase I data are used and modeled to help design Phase II sampling and analysis plans (SAPs). The RFI Work Plan will be amended and submitted for Environmental Protection Agency (EPA) review and approval when Phase II SAPs are completed for sites requiring Phase II investigation. Interim phase reports will be submitted at least quarterly as characterization work proceeds.

Check EPA to find out if archival data are available to make these determinations. How did EPA evaluate archival data?

- Phase II field investigations are conducted where appropriate to characterize the nature and extent of contamination and to obtain the data necessary for a quantitative assessment of risk posed by COCs. ? how was this determined
- Quantitative risk assessment is conducted for each site once the data needs are satisfied by the field investigation.
- An RFI report is compiled that contains the results of field investigations and recommendations for SWMUs evaluated by the decision process. SWMUs are recommended for CMS when the 95% upper-confidence limit (UCL) on the maximum ~~arithmetic mean~~ concentration of an individual site contaminant exceeds the screening action level (SAL) for that contaminant, or when aggregate risk assessment results exceed the programmatic threshold; the remaining SWMUs are recommended for NFA. Recommendations of NFA will be supported by appropriate criteria, which are discussed in the following text.

The technical approach and decision process used in this Work Plan are discussed in detail in the following sections.

5.2 OU 1129 Decision Process

OU 1129
 TA 4, 5, 35, 42, 48, 52,
 55, 63, 66
 current
 NO RIRIA permitting
 activities.

All SWMUs within OU 1129 are evaluated using the four-step decision process illustrated in Figure 5-1. *Italicized terms used in this diagram are defined in Table 5-1.* Each of the four diamonds in the diagram represents a point at which a decision is or will be made for each SWMU under consideration. To ensure simplicity in the process, each question posed has only two possible answers, "yes" or "no." The process is designed to identify those SWMUs that can be recommended for NFA as early in the process as possible, with the least expenditure of resources. Those SWMUs that cannot be recommended for NFA after Phase I and II investigations and risk assessment are complete will be candidates for a CMS. Candidate SWMUs for voluntary corrective action/interim action will be identified as appropriate within the process.

Module VIII of the HSWA permit establishes Corrective Action Requirements (CARs). Task IV, Investigative Analysis, specifies that the permittee must identify all relevant and applicable standards for the protection of human health and the environment. Task VI, Identification and Development of the Corrective Action Alternative or Alternatives, further specifies that based on the results of the RFI, the permittee must identify, screen, and develop the alternatives for removal, containment, treatment, and/or remediation of contamination on the basis of objectives established for corrective action. Cleanup requirements can be divided into three categories: (1) contaminant-specific requirements that address specific contaminants, (2) location-specific requirements that are based on a specific site setting, and (3) action-specific requirements associated with specific response actions. In the absence of the SWMUs being investigated, the identification of potential CARs at this time would be premature. The full tabulation of potential location-specific, contaminant-specific, and action-specific requirements will be provided in future technical reports as adequate SWMU information is obtained through the RFI process.

5.2.6 Risk Assessment Process

Because health-risk-based assessment is integral to the Laboratory RCRA process, all SWMUs in OU 1129 that undergo Phase II investigation will include an assessment of risk. This assessment will include the total data set, which is obtained through archival review and Phase I and/or Phase II sampling activities, for each SWMU. The risk assessment methodology for OU 1129 will reflect the guidance set out in proposed Subpart S to 40 CFR 264 and the ER Program Office's 1992 IWP. DQOs for Phase II investigations at OU 1129 will include any requirements, as these requirements are available from the Laboratory ER Program Office, specific to the gathering of data for risk assessment not otherwise covered. The risk assessment results will serve as input to Decision Point 4.

5.2.7 Decision Point 4:

Do contaminants of concern at this SWMU exceed action levels or have an aggregate risk above the ER Program threshold value?

Decision Point 4 is the final step in the decision process and functions as a point at which SWMUs that have undergone field investigations will be recommended either for CMS or NFA. The purpose of Decision Point 4 is to evaluate the total set of validated data now available for each SWMU. Concentrations of individual COCs at each SWMU will be compared to the action level for that COC, and the calculated aggregate risk from COCs at the SWMU will be compared to the acceptable aggregate risk values determined by the ER Program Office. Risk assessment methodologies to be adopted by the Laboratory are assumed to reflect the basic concepts of the proposed Subpart S to 40 CFR 264; calculation of risk as additive for sites with multiple contaminants is assumed. A recommendation of NFA at this point in the decision process will be justified for a SWMU if each of the following criteria are met:

- the 95% UCL on the maximum ~~arithmetic mean~~ concentration of an individual site contaminant does not exceed the SAL for that contaminant, and
- the aggregate risk value for the sum of the health-risk-quantified COCs present does not exceed the acceptable risk value set by the ER Program Office.

The analysis of data during the OU 1129 RFI investigation will follow EPA and Laboratory IWP guidance for using a 95% (one-tailed) confidence interval. Uncertainty will be handled according to methods shown in Appendix H of the Laboratory IWP (LANL 1991, 0553) and applicable EPA documents.

A CMS (or an alternative response action) is required for SWMUs in which one or more COC is present at a level that exceeds the risk-based action level specified in 40 CFR 264 Proposed Subpart S for that constituent, or in which the cumulative risk posed by two or more COCs exceeds acceptable levels. For radionuclides, numbers for comparison to analytical values are expected to be published in a future Laboratory IWP or some future EPA guidance document. However, pending further ER Program Office guidance, the need to carry a SWMU into the CMS or for corrective action whenever COCs are detected in concentrations that exceed Subpart S action levels may not be necessary. If further site-specific risk assessment indicates that human health and the environment are not at risk (e.g., if no plausible pathway exists from source to potential receptors), then no further action may be appropriate. The ER Program Office is expected to promulgate criteria for this circumstance.

5.3 Data Quality Objectives

Data must be collected at three stages in the decision process. The first stage involves the initial collection of pertinent archival information. This information serves as data input for Decision Points 1 and 2. The data required to make a decision at Decision Point 3 are collected during Phase I sampling, the second stage of data collection. Phase II sampling is the third stage of data acquisition. The data needs for Decision Point 4 determine the scope of Phase II efforts.

Because these decisions must be technically sound and validated to be defensible, an attempt has been made to collect as much reliable archival information about each site as possible. To ensure that data of appropriate and sufficient type, quantity, and quality are collected during Phase I and Phase II sampling, the DQO process has been applied to the development of the Phase I and Phase II SAPs. These SAPs are presented in Chapter 7.0 of this Work Plan.

The DQO process is a seven-step process developed by the EPA for planning effective and efficient data collection programs (EPA 1987, 0086). A well-planned data collection program will ensure that the right type, amount, and quality of data are collected. Quality environmental data are needed to make defensible environmental decisions.

The DQO process is a valuable tool for the following reasons:

- it provides a logical, iterative structure for study planning and encourages focusing on critical questions,
- it provides a focused method to determine data needs,
- it helps data users plan for uncertainty, and
- it facilitates communication among the technical team members and minimizes the amount of time and money spent collecting data.

The seven steps in the DQO Process are as follows:

1. State the problem to be resolved.
2. Identify the decision to be made (or the question that must be answered).
3. Identify input to the decision (or identify data needs).
4. Specify the domain of the decision.
5. Develop a decision rule (or logic statement).