



Department of Energy
 Albuquerque Operations
 Los Alamos Area Office
 Los Alamos, New Mexico 87544

EPA REGION VI
 HAZARDOUS WASTE
 RCRA PERMITS BRANCH
 1991 DEC -6 PM 3:20

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

7250
 TA 21

Mr. William K. Honker, Chief
 RCRA Permits Branch
 U.S. Environmental Protection Agency
 Region VI
 1445 Ross Avenue
 Dallas, TX 75202

Dear Mr. Honker:

RE: NOTICE OF DEFICIENCY (NOD) PERTAINING TO RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY INVESTIGATION (RFI) WORK PLAN FOR THE TECHNICAL AREA (TA) -21 OPERABLE UNIT (OU)

Enclosed is our response to your NOD dated October 30, 1991, and received November 5, 1991. This NOD detailed deficiencies pertaining to the schedule for implementation of RFI field work contained in the TA-21 OU RFI Work Plan. Our response to those deficiencies is addressed in the attached addendum. Our response to NOD comments addressing townsite solid waste management unit (SWMU) work plans and risk are addressed in this transmittal letter.

The attached addendum addresses the identified deficiencies by presenting a revised schedule for implementation of the TA-21 OU RFI Work Plan that increases the number of SWMUs addressed in FY92 as required in the NOD. As detailed in the addendum, it replaces information originally provided to the Environmental Protection Agency (EPA) in the May 23, 1991, submittal of the TA-21 OU RFI Work Plan. The schedules in this addendum assume that EPA will approve this RFI Work Plan and the attached addendum by January 1992 so the RFI field work can begin in March 1992. The schedules in the addendum are contingent upon timely EPA approval of this document and upon required Department of Energy (DOE) funding in FY93 and subsequent years to meet these schedules.

The NOD also recommended that Los Alamos National Laboratory (the Laboratory) initiate an accelerated schedule for completion of work plans addressing the Townsite OUs. These work plans are scheduled to be completed by May 1992 as required in the Hazardous Solid Waste Amendments (HSWA) module of the Laboratory's RCRA permit. As you may know, the Laboratory's FY92 Environmental Restoration budget request in the Five Year Plan of approximately \$60 million was not provided; only \$40 million was allocated for FY92. Within this current constrained budget, the Laboratory cannot substantially accelerate townsite OU work plans without modification of HSWA module schedules for other deliverables, or increased funding from DOE. With limited budgets, the Laboratory's priority is to meet all HSWA module permit requirements. However, because we are committed to addressing the

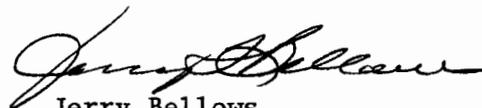


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townsite SWMUs as soon as possible, we are reprogramming \$500,000 from existing funds to begin field work in the townsite this FY and will attempt to submit the townsite work plan ahead of the permit schedule. Accelerating field work in the townsite will also then be dependent on timely approval of this Work Plan by EPA. In addition, we are requesting supplemental funding from Department of Energy (DOE) Headquarters for FY92 to further accelerate townsite investigations. Without those additional funds, this will not be possible.

The NOD contained a general comment paragraph addressing risk. In reference to those general comments, the Laboratory has not carried out a detailed prioritization of SWMUs at the Laboratory. However, the results of the DOE Environmental Survey (1987-1989) ranked the liquid waste disposal areas as having the highest risk to the public, equivalent to a lifetime adverse effect of 5×10^{-5} . The most significant of these areas is MDA T at TA-21. This technical area is immediately adjacent to the community, and several of the SWMUs are accessible to the public. The DOE survey incorporated other areas around and near the townsite as potentially, inadequately cleaned up areas with a cumulative risk equivalent to about 1 chance of an adverse effect of much less than 1 in a million. These estimates were developed using the Multi-Media Environmental Pollutant Assessment System model for radiological and non-radiological contaminants and using conservatively cautious transport dynamics parameters. In addition, to have addressed the townsite SWMUs ahead of TA-21 would not have allowed us to investigate the number of SWMUs required in Tables A and B of the HSWA Module. The Townsite SWMUs are being addressed in the early stages of our program as are the SWMUs in areas on the periphery of Laboratory property.

We believe the contents of this letter and the supporting material address the concerns in the NOD. If you have any questions, please contact me or have your staff contact Steve Slaten of my staff at (505)665-5050.



Jerry Bellows
Area Manager

5BR-003

Enclosure

Mr. William Honker

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cc:

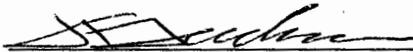
J. Ahiquist, DOE-HQ
R. Sena, DOE-AL
K. Bitner, DOE-AL
S. Slaten, LAAO
A. Tiedman, ADO, MS A120
T. Gunderson, EM-DO, MS K491
J. Shipley, ET-AETO, MS F643
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R. Vocke, EM-13, MS M992
M. Devaurs, EM-13, MS M992
K. Hargis, EM-8, MS K490
S. Brown, LC-General, MS A187

CERTIFICATION

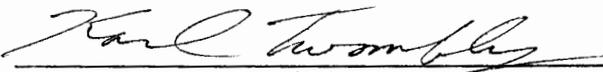
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Document Titles:

November 1991 Addendum to TA-21 Operable Unit RFI Work Plan for Environmental Restoration, May 1991, LA-UR-91-962

Name: 
James F. Jackson
Deputy Director
Los Alamos National Laboratory

Date 12/4/91

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Karl J. Twombly, Chief
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Los Alamos Area Office - DOE

Date 12/4/91

ADDENDUM TO

TA-21

OPERABLE UNIT RFI WORK PLAN

FOR

ENVIRONMENTAL RESTORATION

DECEMBER 1991

LOS ALAMOS NATIONAL LABORATORY

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1. SUMMARY

This addendum to the TA-21 Operable Unit (OU) Work Plan for Environmental Restoration (LANL 1991) has been prepared by the Los Alamos National Laboratory (the Laboratory) to address comments received in a Notice of Deficiency from the U.S. Environmental Protection Agency (EPA). A copy of the Notice of Deficiency is included as Attachment A.

This addendum supplements the work plan, supersedes it as noted herein, and provides the Laboratory's responses to EPA's comments. In summary, EPA's comments specific to the TA-21 OU Work Plan are:

- Increase the number of SWMU's investigated during the first year following approval of the work plan.
- Clarify the number of SWMU's addressed during initial investigations.
- State the estimated number of SWMU investigations addressed in each technical memorandum.
- Estimate the number of Corrective Measures Studies initiated by each technical memorandum.

In the following sections, tables are presented to provide the information requested by EPA. Changes to the originally proposed schedule have been made to respond to the first comment listed above, and to address changes in DOE budget projections. The constraints on these changes are discussed, including:

- Priorities for SWMU investigations and OU-wide characterization.
- Limited funding available from DOE.
- Completion of the RFI, RFI Report, and CMS Plan for TA-21 by 23 May 2000.

2. REVISED INVESTIGATION SCHEDULE

EPA requests the Laboratory to increase the number of SWMU's investigated during the first year following the approval of the work plan.

Increasing the number of SWMU's addressed in the first year of the RFI requires a re-assessment of the priorities adopted in the TA-21 OU Work Plan. The previously proposed rationale was given in Chapter 21 of the Work Plan (Section 21.1.1 Technical Implementation Rationale). In re-assessing the priorities, the Laboratory gave consideration to:

- Limiting risk to human health and the environment.
- Accelerating the evaluation of SWMU's having the potential for contaminant dispersal.
- Providing efficiency in conducting the investigations
- Working within the constraints of available funding.

The following sections give a revised statement of the rationale supporting the schedule changes which have allowed the Laboratory to address more SWMU's in the first year of investigation, present the estimated budget for the RFI, and present the revised schedule.

2.1 REVISED INVESTIGATION PRIORITIES

(This section supersedes the priorities spelled out in the last three paragraphs of Work Plan Section 21.1.1, Technical Implementation Rationale.)

Based on available information (TA-21 OU Work Plan, Chapters 5 and 6), there is little potential for contaminant migration or population exposure due to any SWMU's at TA-21. While the most environmentally available and dispersible contaminants would be those associated with surface soil contamination, the greatest source term is associated with the liquid waste disposal areas (MDA's T, U, and V). If the focus is to be put on early investigation of many SWMU's, then it should be the surface soil contamination units that are accelerated.

The revised statement of the rationale behind the investigation priorities has three elements:

- Priority will be given to investigation of surface soil contamination SWMU's because these represent the greatest potential for human

exposure to contaminants and for dispersal of contaminants in the environment.

- Basic information and data obtained from the OU-wide characterization are needed as a basis for comparison and must be available before evaluations can be made of the SWMU-specific data.
- While investigations at the MDA's are the most likely to require extensive subsequent investigations, potential health risks from these SWMU's are considered to be more limited because of the subsurface nature of the contaminant releases. Thus these investigations are secondary in priority.

When budget constraints and the time needed for subsequent investigations are considered, the lower priority assigned to the MDA investigations requires extending the period of RFI field work beyond the five-year period identified in the Laboratory's Installation Work Plan (IWP) (LANL 1990) and used in the originally proposed schedule. The required extension of the period of RFI field work is discussed below.

The schedule that was presented in the TA-21 OU Work Plan included a large group of surface contamination SWMU's in the first Technical Memorandum -- those due to deposition of airborne releases described in Work Plan Chapter 13, Surface Soil Contamination from Airborne Emissions (18 SWMU's). EPA's request that more SWMU's be investigated early in the RFI is best addressed by moving forward investigations of the SWMU's described in Work Plan Chapter 15, Outfalls Description and Sampling Plan (25 SWMU's).

2.2 BUDGET CONSTRAINTS

(This section supersedes the text of Work Plan Section 21.4, Budget)

The budget for conducting the RFI at TA-21 is constrained in at least three ways.

- The DOE budget cycle from which the Laboratory's Environmental Restoration Program receives its funding results in the setting of budget requests two years in advance. Thus funding available for the TA-21 RFI is constrained to the existing budget requests for FY92 and FY93.
- Within the DOE complex, available funds are being allocated according to estimates of the hazards associated with SWMU's at various installations across the country. Although TA-21 ranks highest at the Laboratory, in the DOE's ranking of hazards the Laboratory as an installation ranks relatively low and requested budgets may be reduced accordingly. The probability of significant increases in future funding from DOE is low.

- TA-21 has been given emphasis by the Laboratory to comply with Module VIII (HSWA Module) of the RCRA Operating Permit (EPA 1990). The TA-21 Operable Unit represents 10 percent of the SWMU's identified in the HSWA Module (Module Table A), and 20 percent of the Module's priority SWMU's (Module Table B). The RFI Work Plan and the RFI for TA-21, by addressing these percentages of SWMU's meets specific requirements of the HSWA Module. However, increased priorities for other operable units at the Laboratory (notably the "Townsites" operable units) may reduce the funds available for advancing the RFI efforts at TA-21.

For FY92 the budget allocation for the TA-21 OU RFI is \$4.051 million (including capping studies at MDA B). Approximately the same level of funding may be available in FY93. Beyond FY93 funding increases are highly dependent on DOE priorities and budget requests, and congressional allocations.

Table 2.2-1 summarizes the budget requirements to meet the schedule presented below. The FY92 budget is constrained to the available funding of \$4.051 million. The budget for FY93 was kept within 10 percent of the FY92 funding level. The budgets for each of the following years were allowed to increase as necessary to complete the RFI, RFI report and CMS plan by 23 May 2000. That date is required by the HSWA Module as the completion date for CMS plans for all SWMU's at the Laboratory (10 years after the effective date of the HSWA module). The investigation "sequences" noted in the table are described further in the next section. The investigations included in each sequence are specifically listed in the tables of Chapter 3, below.

2.3 REVISED SCHEDULE

(This section supersedes Work Plan Section 21.2, Schedule)

The schedule for the RFI at TA-21 given in the TA-21 OU Work Plan as Table 21.2-1 adhered to the schedule set in the IWP (LANL 1990). The IWP's Program Management Plan (Annex I, Table I-3) and Appendix S, Projected Schedule and Cost for the Corrective Action Process at Los Alamos National Laboratory, detailed the schedule through the completion of the final CMS report. That schedule called for the completion of the RFI in December 1996, approximately five years after it started.

The currently proposed schedule is presented in Figures 2.3-1 and 2.3-2. This schedule is based on the revised investigation priorities and budget constraints presented above. Completion of the RFI is scheduled for 2 November 1998, approximately 7 years after it starts. Also shown on the schedule are the periods for preparation of the RFI Report and

the CMS Plan. (The cost of these two activities is not included in the budget estimate given above.) The CMS Plan is completed prior to 23 May 2000, as required.

The schedule for the first year's work was reviewed to determine if the first Technical Memorandum could be delivered earlier. The first year's schedule is dominated by the time required for sample analysis and data validation, and could not be shortened. The time allowed for those activities is very conservative: six weeks turn-around for sample analysis, and two hours per sample for data validation. Table 3.2-1 shows the first Technical Memorandum is scheduled for 24 June 1993. This date is the same as originally proposed in the Work Plan, even with investigations at 25 additional SWMU's included. (This is an indication that the schedule is not controlled by the amount of field work scheduled. In fact, the first year's schedule makes efficient use of the entire field season from March through September.)

The schedule is presented in separate figures for "near-surface" (Figure 2.3-1) and "subsurface" (Figure 2.3-2) investigations. The field work is represented as a series of ten investigation sequences. Sequences 2 through 5 are "near-surface" investigation sequences; sequences 6 through 10 contain "subsurface" investigations. Sequence 1 contains activities that occur continuously or year-around (operable unit management, MDA B capping studies, surface water sampling), and is not shown in the schedules. Both "initial" and "subsequent" investigation sequences are shown. The subsequent investigations are shown for SWMU's where they have been identified in the Work Plan. (Tables in Chapter 3, below, identify the specific SWMU's investigated in each sequence via a listing for each Technical Memorandum).

Each investigation sequence begins with a mobilization task, passes through field work and laboratory analysis stages for each investigation, includes one or more data assessment tasks for logical groups of information, and concludes with the preparation of a Technical Memorandum/Work Plan Modification.

In the figures, the box representing the preparation of a Technical Memorandum includes a short time period marked by light, dashed lines. This represents the period for EPA review and approval of the Technical Memorandum/Work Plan Modification. The date on which EPA is scheduled to receive each Technical Memorandum is specified in the tables of Chapter 3. A six week period following EPA review has been scheduled to allow revisions in the event EPA requires changes to the proposed Work Plan Modification prior to approving it.

Implementation of the TA-21 OU RFI according to this schedule is contingent upon several assumptions, including:

- The schedule assumes approval of the amended TA-21 OU RFI Work Plan will be given by 6 January 1992.
- The proposed schedule assumes available funding at the levels identified above.
- It is assumed that the Laboratory will have contracts in place for analytical services by 1 March 1992.
- Turn-around of sample analysis results has been assumed to require six weeks in all schedules.
- The schedule assumes that EPA review, Laboratory revision, and EPA approval of Technical Memoranda/Work Plan Modifications will be accomplished in a period of 2.5 months. Of this, one month is allowed for EPA review and comment, and one and a half months is allowed for Laboratory revisions.
- Certain tasks (e.g., mesa top characterization) may be initiated before regulatory approval is granted.
- The schedule assumes that an adequate number of support personnel (e.g., H&S technicians, trained drilling contractors) and support services (laboratory analytical services, drilling equipment) will be available even as additional OU's begin RFI activities and compete for these resources at the Laboratory.
- Where possible, field work has not been scheduled between November 15 and March 15 each year, to allow for weather.

TABLE 2.2-1 ESTIMATED BUDGET FOR TA-21 OU RFI

Investigation Sequence	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Seq. 1	\$1,003,156	\$1,186,866	\$1,373,747	\$1,401,903	\$1,402,403	\$1,402,403	\$1,273,939	\$305,363
Seq. 2	\$2,700,161	\$974,632	\$77,520	\$0	\$0	\$0	\$0	\$0
Seq. 3	\$0	\$0	\$2,224,583	\$915,184	\$11,745	\$0	\$0	\$0
Seq. 4	\$0	\$0	\$0	\$708,285	\$517,208	\$0	\$0	\$0
Seq. 5	\$0	\$0	\$0	\$0	\$1,636,418	\$288,864	\$0	\$0
Seq. 6	\$347,244	\$1,970,137	\$38,760	\$0	\$0	\$0	\$0	\$0
Seq. 7	\$0	\$0	\$2,095,303	\$1,176,745	\$17,618	\$0	\$0	\$0
Seq. 8	\$0	\$0	\$0	\$1,801,172	\$928,805	\$8,222	\$0	\$0
Seq. 9	\$0	\$0	\$0	\$0	\$2,245,492	\$877,840	\$9,396	\$0
Seq. 10	\$0	\$0	\$0	\$0	\$0	\$2,329,194	\$1,525,505	\$25,840
FY TOTAL (FY92 \$)	\$4,050,561	\$4,131,636	\$5,809,913	\$6,003,289	\$6,759,690	\$4,906,523	\$2,808,841	\$331,203
FY TOTAL (Escalated @ 5.5% per year)	\$4,050,561	\$4,358,875	\$6,466,579	\$7,049,311	\$8,374,070	\$6,412,630	\$3,872,950	\$481,793
GRAND TOTAL (Escalated)	\$41,066,769							

FIGURE 2.3-1. TA-21 OU RFI SCHEDULE: NEAR-SURFACE INVESTIGATIONS

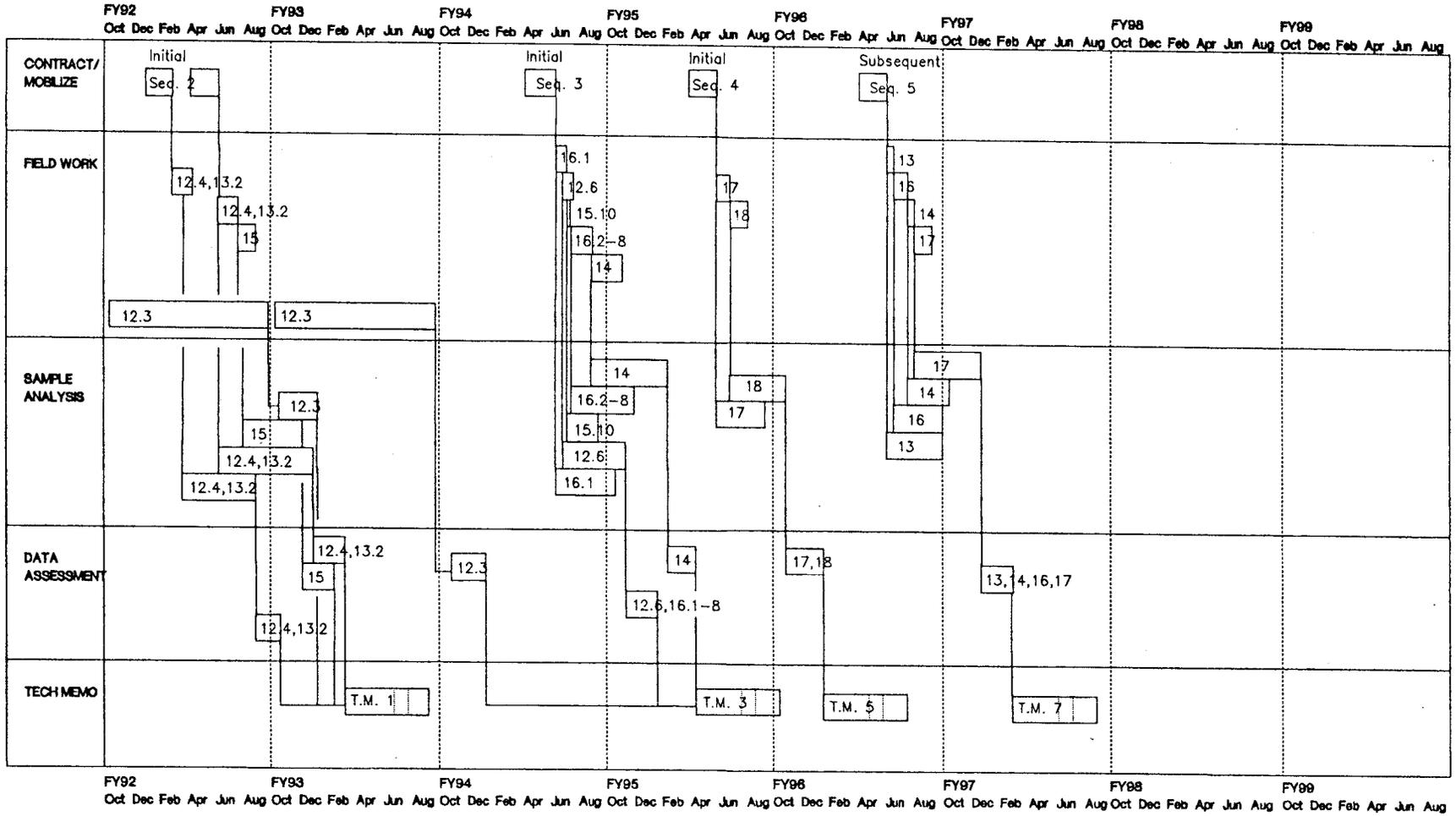
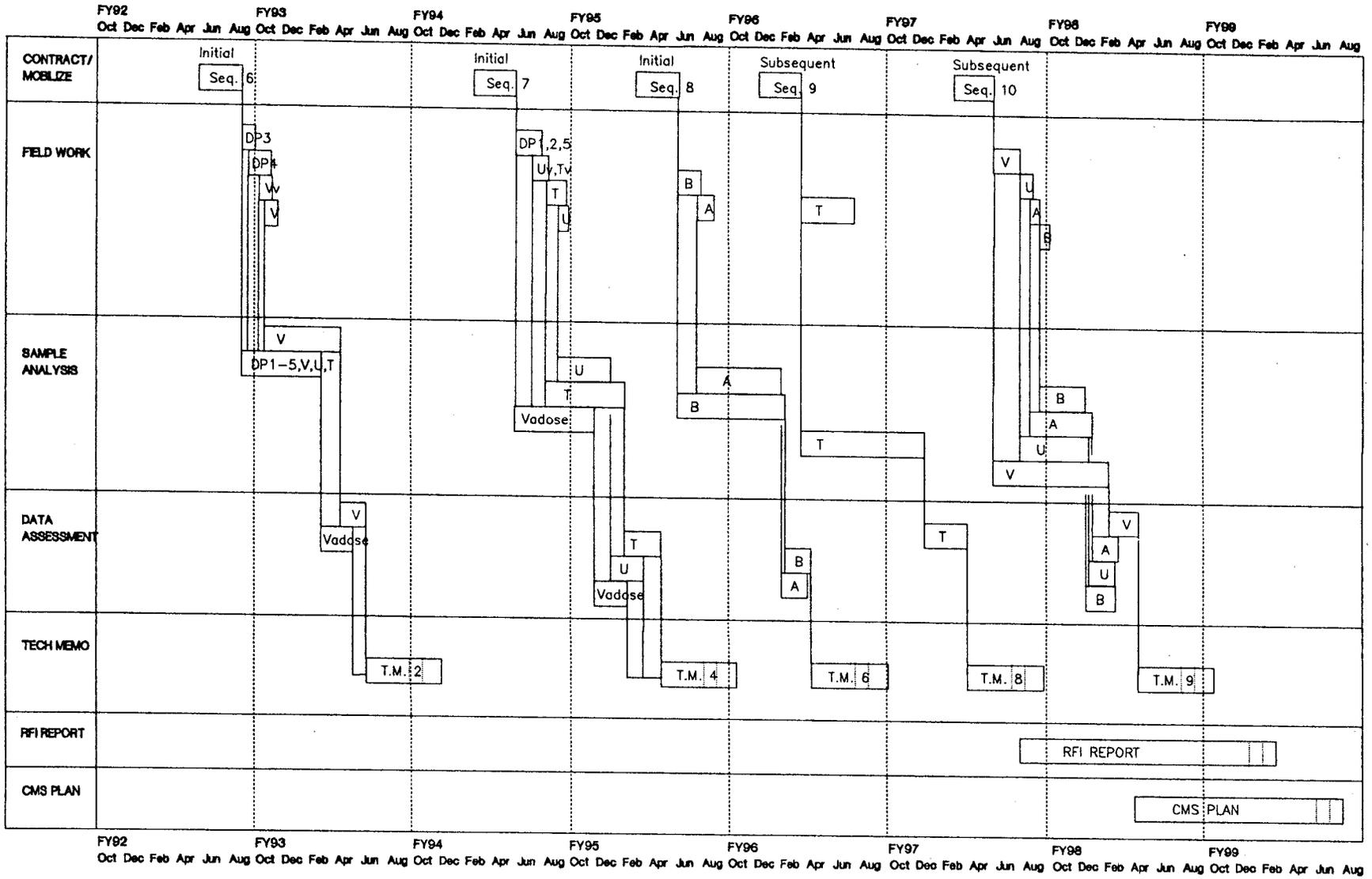


FIGURE 2.3-2. TA-21 OU RFI SCHEDULE: SUBSURFACE INVESTIGATIONS



3. TECHNICAL REPORTS

EPA has requested that the Laboratory clarify the number of SWMU's addressed during initial investigations, and estimate the number of SWMU investigations addressed in each technical memorandum.

EPA has a responsibility to ensure that the Laboratory maintains its planned progress in accomplishing the RFI at TA-21. Three reporting mechanisms will be used by the Laboratory to provide EPA with suitable information to allow it to fulfill its responsibility. First, Monthly Progress Reports will be issued for the ER Program. Second, Quarterly Technical Reports will be used to provide timely technical updates on progress. Third, Technical Memoranda/Work Plan Modifications will be issued to summarize completed investigations, to assess the results, to describe follow-on plans, and to obtain EPA's concurrence with those plans. The latter two types of reports are described further below.

3.1 QUARTERLY TECHNICAL REPORTS

(The information in this section supplements that given in Work Plan Section 21.3.1, Quarterly Technical Progress Reports, and Section 1.3.1, Periodic Reports.)

The quarterly technical reports required by the HSWA Module will be used to provide timely information sufficient to allow EPA to measure RFI progress against the schedule. Technical data acquired from investigations at TA-21 will be reported as they are received. This will provide EPA with a means for reviewing the data prior to the formal assessment, interpretation, and evaluation by the Laboratory in a Technical Memorandum.

Based on the schedule described above, Table 3.1-1 identifies the expected information to be reported in each quarterly technical report during the period of the RFI. Also included in sequence in this table is a summary of the topics covered by each Technical Memorandum. This table lists the reports by Fiscal Year, gives the date the report is to be received by EPA, shows the time period covered by the report, and lists the information and data that are currently expected to be available for inclusion in the report.

3.2 TECHNICAL MEMORANDA/WORK PLAN MODIFICATIONS

(The information in this section supersedes that given in Work Plan Tables 21.3-1 and 1.3-1. The associated text of the Work Plan is not altered.)

Technical Memoranda incorporating a Work Plan Modification were proposed in the TA-21 OU Work Plan as a means for reporting the results and conclusions from RFI investigations to the EPA, and for acquiring EPA's approval for subsequent field investigations. As described in Chapter 21 of the Work Plan (Section 21.3.2, Technical Memoranda/Work Plan Modifications), these documents serve as the equivalent of Phase I RFI Reports and Phase II RFI Work Plans. Thus EPA concurrence with each Work Plan Modification is desired.

This approach was taken because the general schedule given in the IWP did not schedule the final RFI Report until completion of the RFI field work. Although the TA-21 OU Work Plan describes follow-on (subsequent) investigations that may be required at a number of SWMU's, it is likely that significant deviations from those plans may be necessary. The Technical Memorandum/Work Plan Modification provides a formal mechanism for such changes.

Based on the schedule described above, Table 3.2-1 identifies all of the investigations that will be reported in each of the planned Technical Memoranda. This table gives the title of each planned Technical Memorandum, the planned date on which it will be received by EPA, a cross-reference to the Chapter/Section in the Work Plan which describes the investigation, the specific SWMU's addressed by the investigation, and the brief title of the investigation.

Both SWMU-specific and OU-wide investigations are identified in the table. The investigations have been grouped into "near-surface" and "subsurface" categories based on the use of different sample collection techniques. "Near-surface" investigations are conducted with hand tools or a small drilling rig. "Subsurface" investigations require more extensive drilling support and larger rigs. A count of the SWMU's included in the technical memoranda will not equal the 112 identified SWMU's since both "near-surface" and "subsurface" investigations are conducted at some SWMU's (e.g., the MDA's), causing them to be listed in two technical memoranda.

The deliverable dates for the first two Technical Memoranda have not changed from those originally proposed in the Work Plan. However, due to the lengthening of the period over which the RFI is conducted, other Technical Memoranda have been re-scheduled throughout the remaining period of the RFI. The currently proposed schedule includes one additional Technical Memorandum.

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI

Report Type	Date	Content
FY 92 Reports		
Quarterly Technical Report	15 Feb 92	Oct-Dec 91 - Project initialization
Quarterly Technical Report	15 May 92	Jan-Mar 92 - Progress: mobilization for 1st surface grid sampling - Progress: geologic mapping
Quarterly Technical Report	15 Aug 92	Apr-Jun 92 - Progress: field work, 1st grid sampling - Progress: mobilization for 2nd surface grid/outfalls sampling - Progress: geologic mapping, stratigraphy, geomorphology, faults/fractures study
FY 93 Reports		
Quarterly Technical Report	15 Nov 92	Jul-Sep 92 - Raw Data: 1st surface grid sampling - Progress: field work, 2nd grid sampling - Progress: field work, outfalls characterization - Progress: geologic mapping, stratigraphy, geomorphology, faults/fractures study - Progress: mobilization for first round of vadose zone investigation and MDA V characterization
Quarterly Technical Report	15 Feb 93	Oct-Dec 92 - Raw Data: half of 2nd surface grid sampling - Raw Data: outfalls characterization - Progress: data assessment for 1st half surface grid sampling - Progress: data assessment for first year of geologic mapping, stratigraphy, geomorphology, faults/fractures study; - Progress: field work, vadose zone investigations - Progress: field work MDA V investigations

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI

Report Type	Date	Content
Quarterly Technical Report	15 May 93	Jan-Mar 93 <ul style="list-style-type: none"> - Raw Data: second half of 2nd surface grid sampling - Progress: data assessment for outfalls, 2nd surface grid sampling - Progress: geologic mapping, stratigraphy, geomorphology, faults/fractures study; - Raw Data: first round vadose zone investigation
TECHNICAL MEMORANDUM 1	14 Jun 93	Surface Grids and Outfalls
Quarterly Technical Report	15 Aug 93	Apr-Jun 93 <ul style="list-style-type: none"> - Progress: geologic mapping, stratigraphy, geomorphology, faults/fractures study - Progress: preparation of Tech Memo 1 - Raw Data: MDA V initial subsurface investigations - Progress: data assessment for MDA V initial subsurface investigation - Progress: data assessment for first round of vadose zone investigation
FY 94 Reports		
TECHNICAL MEMORANDUM 2	29 Sep 93	Vadose Zone/MDA V
Quarterly Technical Report	15 Nov 93	Jul-Sep 93 <ul style="list-style-type: none"> - Progress: geologic mapping, stratigraphy, geomorphology, faults/fractures study - Status: completion of Tech Memo 1 - Progress: preparation of Tech Memo 2
Quarterly Technical Report	15 Feb 94	Oct-Dec 93 <ul style="list-style-type: none"> - Progress: data assessment for completion of geomorphology, faults/fractures, and mineralogy studies - Status: completion of Tech Memo 2
Quarterly Technical Report	15 May 94	Jan-Mar 94 <ul style="list-style-type: none"> - Progress: mobilization for initial subsurface investigations at MDA T and MDA U, and second round of vadose zone investigation (Seq. 7)

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI (CONTINUED)

Report Type	Date	Content
Quarterly Technical Report	15 Aug 94	Apr-Jun 94 <ul style="list-style-type: none"> - Progress: mobilization for initial near-surface investigations at MDA'a and non-MDA SWMU's - Progress: field work, second round of vadose zone investigation
FY 95 Reports		
Quarterly Technical Report	15 Nov 94	Jul-Sep 94 <ul style="list-style-type: none"> - Progress: field work, initial near-surface investigations at a first set of non-MDA SWMU's - Progress: field work, initial near-surface investigations at MDA's - Progress: field work, MDA T and MDA U initial subsurface investigations
Quarterly Technical Report	15 Feb 95	Oct-Dec 94 <ul style="list-style-type: none"> - Raw Data: initial near-surface investigations for MDA's - Progress: data assessment for initial near-surface investigations at MDA's - Raw Data: MDA U initial subsurface investigations - Raw Data: vadose zone second round of investigation - Progress: data assessment for initial subsurface investigations at MDA U - Progress: data assessment second round of vadose zone investigations
Quarterly Technical Report	15 May 95	Jan-Mar 95 <ul style="list-style-type: none"> - Raw Data: initial near-surface investigations of a first group of non-MDA SWMU's - Progress: data assessment for first set of non-MDA SWMU's initial near-surface investigations - Progress: mobilization for initial subsurface investigations at MDA B and MDA A - Raw Data: MDA T initial subsurface investigations - Progress: data assessment for initial subsurface investigations at MDA T and MDA U - Progress: data assessment second round of vadose zone investigations
TECHNICAL MEMORANDUM 3	28 Jul 95	Near-surface investigations at MDA and non-MDA SWMU's
TECHNICAL MEMORANDUM 4	4 Aug 95	MDA T and MDA U initial subsurface investigations

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI (CONTINUED)

Report Type	Date	Content
Quarterly Technical Report	15 Aug 95	<p>Apr-Jun 95</p> <ul style="list-style-type: none"> - Progress: mobilization for near-surface investigations of a second set of non-MDA SWMU's (Seq. 4) - Progress: field work, near-surface investigations at second set of non-MDA SWMU's - Progress: preparation of Tech Memo 3 <ul style="list-style-type: none"> - Progress: mobilization for initial subsurface investigations at MDA B and MDA A - Progress: field work, MDA B initial subsurface investigations - Progress: preparation of Tech Memo 4
FY 96 Reports		
Quarterly Technical Report	15 Nov 95	<p>Jul-Sep 95</p> <ul style="list-style-type: none"> - Status: completion of Tech Memo 3 <ul style="list-style-type: none"> - Progress: field work, MDA A initial subsurface investigation - Status: completion of Tech Memo 4
Quarterly Technical Report	15 Feb 96	<p>Oct-Dec 95</p> <ul style="list-style-type: none"> - Raw Data: second set of non-MDA SWMUs initial near-surface investigations - Progress: data assessment for second set of non-MDA SWMUs initial near-surface investigations <ul style="list-style-type: none"> - Progress: mobilization for MDA T subsequent subsurface investigations (Seq. 9)
TECHNICAL MEMORANDUM 5	24 Apr 96	Near-surface investigations at non-MDA SWMU's
Quarterly Technical Report	15 May 96	<p>Jan-Mar 96</p> <ul style="list-style-type: none"> - Progress: data assessment for initial investigations at second set of non-MDA SWMU's - Progress: preparation of Tech Memo 5 <ul style="list-style-type: none"> - Progress: mobilization for MDA T subsequent subsurface investigations (Seq. 9) - Raw Data: MDA B and MDA A initial subsurface investigations - Progress: data assessment for initial subsurface investigations at MDA B and MDA A
TECHNICAL MEMORANDUM 6	24 Jul 96	MDA B and MDA A initial subsurface investigations

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI (CONTINUED)

Report Type	Date	Content
Quarterly Technical Report	15 Aug 96	<p>Apr-Jun 96</p> <ul style="list-style-type: none"> - Progress: mobilization for subsequent near-surface investigations at non-MDA SWMU's (Seq. 5) - Progress: field work, subsequent near-surface investigations at non-MDA SWMU's - Status: completion of Tech Memo 5 <ul style="list-style-type: none"> - Progress: field work, MDA T subsequent subsurface investigations - Progress: preparation of Tech Memo 6
FY 97 Reports		
Quarterly Technical Report	15 Nov 96	<p>Jul-Sep 96</p> <ul style="list-style-type: none"> - Progress: field work, subsequent near-surface investigations at non-MDA SWMU's - Status: completion of Tech Memo 6
Quarterly Technical Report	15 Feb 97	<p>Oct-Dec 96</p> <ul style="list-style-type: none"> - Raw Data: non-MDA SWMU's subsequent near-surface investigations - Raw Data: MDA T subsequent subsurface investigations
Quarterly Technical Report	15 May 97	<p>Jan-Mar 97</p> <ul style="list-style-type: none"> - Progress: data assessment for subsequent near-surface investigations at non-MDA SWMU's - Progress: data assessment for subsequent subsurface investigations at MDA T
TECHNICAL MEMORANDUM 7	20 Jun 97	Subsequent near-surface investigations at MDA's and non-MDA SWMU's
TECHNICAL MEMORANDUM 8	25 Jul 97	Subsequent subsurface investigations at MDA T
Quarterly Technical Report	15 Aug 97	<p>Apr-Jun 97</p> <ul style="list-style-type: none"> - Progress: preparation of Tech Memo 7 - Progress: mobilization for subsequent subsurface investigations at MDA V, MDA U, MDA A, and MDA B (Seq. 10) - Progress: field work, subsequent subsurface investigations at MDA V - Progress: preparation of Tech Memo 8

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI (CONTINUED)

Report Type	Date	Content
FY 98 Reports		
Quarterly Technical Report	15 Nov 97	Jul-Sep 97 - Status: completion of Tech Memo 7 - Progress: field work, subsequent subsurface investigations at MDA U, MDA B, MDA A - Progress: preparation of RFI Report - Status: completion of Tech Memo 8
Quarterly Technical Report	15 Feb 98	Oct-Dec 97 - Raw Data: MDA B, MDA U, MDA A subsequent subsurface investigations - Progress: Data Assessment for MDA B subsequent subsurface investigations - Progress: preparation of RFI Report
Quarterly Technical Report	15 May 98	Jan-Mar 98 - Raw Data: MDA V subsequent subsurface investigations - Progress: Data Assessment for MDA V, MDA U, MDA A, and MDA B subsequent subsurface investigations - Progress: preparation of RFI Report
TECHNICAL MEMORANDUM 9	14 Aug 98	Subsequent investigations at MDA V, MDA U, MDA A, and MDA B
Quarterly Technical Report	15 Aug 98	Apr-Jun 98 - Progress: preparation of Tech Memo 9 - Progress: preparation of RFI Report - Progress: preparation of CMS Plan
FY 99 Reports		
Quarterly Technical Report	15 Nov 98	Jul-Sep 98 - Progress: preparation of RFI Report - Progress: preparation of CMS Plan - Status: completion of Tech Memo 9

TABLE 3.1-I. SUMMARY OF TECHNICAL REPORTS FOR THE TA-21 OPERABLE UNIT RFI (CONTINUED)

Report Type	Date	Content
Quarterly Technical Report	15 Feb 99	Oct-Dec 98 - Progress: preparation of RFI Report - Progress: preparation of CMS Plan
Quarterly Technical Report	15 May 99	Jan-Mar 99 - Progress: preparation of CMS Plan - Status: completion of RFI Report
Quarterly Technical Report	15 Aug 99	Apr-Jun 99 - Status: completion of CMS Plan

TABLE 3.2-I. SPECIFIC SWMU'S ADDRESSED IN EACH TECHNICAL MEMORANDUM

Technical Memoranda	Date	RFI Chapter	SWMU	Description	
1. Near-Surface Investigations (Seq. 2) Mesa Top and Outfalls (Initial Investigations) 43 SWMU's Addressed	14 Jun 93	12.3	--	Geologic Mapping	
			--	Fractures/Faulting	
			--	Geomorphology	
		12.4	--	Stratigraphy	
			--	OU-Wide Surface Soils	
		13.2	21-020(a,b)	Airborne Emissions	
			21-007	Airborne Emissions	
			21-008	Airborne Emissions	
			21-019(a-m)	Airborne Emissions	
			21-021	Airborne Emissions	
			15.2	21-023(c)	Outfalls of Undetermined Location
				21-027(c,d)	Outfalls of Undetermined Location
				21-024(a,g,l)	Outfalls of Undetermined Location
			15.3	21-024(b-e,i)	Outfalls with Septic Tank
				15.4	21-011(k)
		21-022(h)	Direct Discharge Outfalls		
		21-024(n,o)	Direct Discharge Outfalls		
		21-026(d)	Direct Discharge Outfalls		
		21-027(a)	Surface Drainage South of TA21-3		
15.6	21-024(j,k)	Septic Tanks			
15.7	21-024(m)	Surface Drainage South of TA21-155			
	21-027(b)	Surface Drainage South of TA21-155			
15.8	21-004(d)	Surface Drainage North of TA21-155			
	21-024(h)	Surface Drainage North of TA21-155			
15.9	21-006(b)	Special Cases			
	21-024(f)	Special Cases			
2. Subsurface Investigations (Seq. 6) Vadose Zone and MDA V (Initial Investigations) 2 SWMU's Addressed	29 Sep 93	12.5	--	OU-Wide Vadose Zone	
			--	Perched Aquifers	
		16.7	21-018(a,b)	MDA-V	

TABLE 3.2-I. SPECIFIC SWMU'S ADDRESSED IN EACH TECHNICAL MEMORANDUM (CONTINUED)

Technical Memoranda	Date	RFI Chapter	SWMU	Description	
5. Near-Surface Investigations (Seq. 4) Non-MDA SWMU's (Initial Investigations) 14 SWMU's Addressed	24 Apr 96	17.2	21-006(b)	Underground Seepage Pits	
		17.3	21-009	Waste Treatment Laboratory	
		17.4	21-012(b)	Dry Wells	
		17.5	21-022(a,f)	Acid Waste Lines and Sumps	
		17.6	21-005	Acid Pit	
		18.8	21-022(b-e,g)	Acid Waste Sumps	
		18.9	21-022(h-j)	South of Plutonium Processing	
6. Subsurface Investigations (Seq. 8) MDA B, MDA A (Initial Investigations) 2 SWMU's Addressed	24 Jul 96	16.2	21-015	MDA-B	
		16.8	21-014	MDA-A	
7. Near-Surface Investigations (Seq. 5) MDA and Non-MDA SWMU's (Subsequent Investigations) 40 SWMU's Addressed	20 Jun 97	13.2	21-020(a,b)	Airborne Emissions	
		16.4	21-010(a-h)	Liquid Waste Treatment facility (4 of 8)	
		16.5	21-011(a-j)	New Industrial Waste Treatment (5 of 10)	
		16.6	21-017(a-c)	MDA-U	
		16.7	21-018(a,b)	MDA-V	
		16.8	21-014	MDA-A	
		16.2	21-015	MDA-B	
		16.3	21-016(a-c)	MDA-T	
			21-028(a)	MDA-T	
			21-011(c)	MDA-T	
		14.2	21-003	PCB Container Storage Area	
		14.6	21-002(b)	Inactive Container storage Area	
		14.7	21-013(b-g)	Surface Disposal Areas (3 of 6)	
		17.2	21-006(b)	Underground Seepage Pits	
		17.3	21-009	Waste Treatment Laboratory	
17.5	21-022(a,f)	Acid Waste Lines and Sumps			
8. Subsurface Investigations (Seq. 9) MDA T (Subsequent Investigations) 5 SWMU's Addressed	25 Jul 97	16.3	21-028(a)	MDA-T	
				21-011(c)	MDA-T
				21-016(a-c)	MDA-T

TABLE 3.2-I. SPECIFIC SWMU'S ADDRESSED IN EACH TECHNICAL MEMORANDUM (CONTINUED)

Technical Memoranda	Date	RFI Chapter	SWMU	Description
3. Near-Surface Investigations (Seq. 3) MDA and Non-MDA SWMU's (Initial Investigations) 49 SWMU's Addressed	28 Jul 95	12.6	--	Alluvial Aquifers
		16.1	--	Mesa Top Drainages
		15.10	--	NPDES EPA-02A129
		--	--	NPDES EPA-03A035
		--	--	NPDES EPA-03A036
		--	--	NPDES EPA-03A037
		--	--	NPDES EPA-04A142
		16.4	--	Area of Concern C-21-034
		--	--	Area of Concern C-21-035
		--	--	Area of Concern C-21-036
		--	--	Area of Concern C-21-037
		--	21-010(a-h)	Liquid Waste Treatment Facility
		16.5	21-011(a-j)	New Industrial Waste Treatment
		--	21-001	New Industrial Waste Treatment
		16.7	21-018(a,b)	MDA-V
		16.8	21-014	MDA-A
		16.6	21-017(a-c)	MDA-U
		16.2	21-015	MDA-B
		16.3	21-028(a)	MDA-T
		--	21-011(c)	MDA-T
--	21-016(a-c)	MDA-T		
14.2	21-003	PCB Container Storage Area		
14.3	21-004(a-c)	Aboveground Tanks and Drain Lines		
14.4	21-028(d,e)	Active Container Storage Areas		
14.5	21-029	DP Tank Farm		
14.6	21-002(b)	Inactive Container Storage Area		
14.7	21-013(b-g)	Surface Disposal Areas		
14.8	21-013(a)	Surface Disposal Areas		
--	21-026(a-c)	Sewage Treatment Plant		
4. Subsurface Investigations (Seq. 7) MDA T, MDA U (Initial Investigations) 8 SWMU's Addressed	4 Aug 95	12.5	--	OU-Wide Vadose Zone
		16.3	21-016(a-c)	MDA-T
		--	21-028(a)	MDA-T
		--	21-011(c)	MDA-T
		16.6	21-017(a-c)	MDA-U

TABLE 3.2-I. SPECIFIC SWMU'S ADDRESSED IN EACH TECHNICAL MEMORANDUM (CONTINUED)

Technical Memoranda	Date	RFI Chapter	SWMU	Description
9. Subsurface Investigations (Seq 10)	14 Aug 98	16.7	21-018(a,b)	MDA-V
MDA V, MDA U, MDA A, MDA B		16.6	21-017(a-c)	MDA-U
(Subsequent Investigations)		16.8	21-014	MDA-A
7 SWMU's Addressed		16.2	21-015	MDA-B

4. CORRECTIVE MEASURES

EPA has requested that the Laboratory estimate the number of Corrective Measures Studies initiated by each Technical Memorandum.

The schedule for TA-21 given in Figure 2.3-2 identifies the preparation of the Corrective Measures Study (CMS) Plan, scheduled for delivery to EPA on 10 Jun 1999. Minimal discussion of the potential need for Corrective Measures Studies was given for specific SWMU's in the TA-21 OU Work Plan because of the long lead-time, the extensive RFI investigations in the intervening years, and the numerous decisions remaining to be made during preparation of the RFI report. Work Plan Chapter 10, Preliminary Identification of Potential Response Actions, discussed the range of corrective measures potentially applicable to each SWMU (see Table 10-1), but did not focus on the timing of CMS decisions.

4.1 ESTIMATED NUMBERS OF SWMU'S FOR CMS

It is difficult to foresee the outcome of the RFI characterizations and to predict which SWMU's will require no further action, a subsequent phase of RFI, or a corrective measures study. However, an attempt to make such predictions is represented by Table 4.1-1.

No further action may be recommended at a significant number of SWMU's where the presence of contaminants is suspected only on the basis of vague historical information. Following initial investigations and data assessment, SWMU's for which no evidence of contaminant release is found will be proposed for no further action (NFA) in a Technical Memorandum/Work Plan Modification. Approval by EPA will result in the delisting of those SWMU's through a formal request for a permit modification that will be made as part of the annual IWP update.

A subsequent investigation will be proposed for SWMU's where the initial investigation results are insufficient to adequately define contaminant levels or extent. For the purpose of this document, Table 4.1-1 lists the number of SWMU's for which a subsequent investigation was identified in the Work Plan. The specific SWMU's may change depending on the results of initial investigations.

Corrective measures studies will be proposed for SWMU's where significant contaminant releases are identified. The identification of the specific SWMU's and the basis for

proposing the CMS will be given in a Technical Memorandum/Work Plan Modification. SWMU's for which the Work Plan identifies a subsequent RFI characterization are assumed to require a CMS following the investigation.

The assignments made in Table 4.1-I are relatively arbitrary, and serve the limited purpose of identifying the general range of numbers of SWMU's that may fall in each category.

4.2 INTERIM REMEDIAL MEASURES

As indicated in the schedule given above, the CMS will not begin until approximately September 1999. The Laboratory does not intend to commence the CMS process on a SWMU-by-SWMU basis as each unit requiring a CMS is identified. Rather, the CMS will be conducted for the TA-21 Operable Unit as a whole.

In the meantime, however, the Laboratory may choose to conduct interim remedial measures for institutional purposes (voluntary corrective actions as defined in the draft 40 CFR 264 Subpart S). The Laboratory also may be directed by EPA to conduct interim remedial measures based on EPA's determination that releases from a SWMU pose a threat to human health or the environment. These options are described in the IWP Section 3.12, Interim Remedial Measures.

TABLE 4.1-I. ESTIMATED NUMBER OF SWMU'S IDENTIFIED FOR CMS IN EACH TECHNICAL MEMORANDUM

Technical Memorandum	Date	Number of SWMU's Addressed ^a	Estimated Number of SWMU's for No Further Action	Estimated Number of SWMU's for CMS	Est. No. of SWMU's for Subsequent Investigation
Initial Investigations					
1. Near-Surface Investigations (Seq. 2) Mesa Top and Outfalls	14 Jun 93	43	25	16	2
2. Subsurface Investigations (Seq. 6) Vadose Zone and MDA V	29 Sep 93	2			2
3. Near-Surface Investigations (Seq. 3) MDA and non-MDA SWMU's	28 Jul 95	49	13	10	26
4. Subsurface Investigations (Seq. 7) MDA T, MDA U	4 Aug 95	8			8
5. Near-Surface Investigations (Seq. 4) Non-MDA SWMU's	24 Apr 96	14	5	5	4
6. Subsurface Investigations (Seq. 8) MDA B, MDA A	24 Jul 96	2			2
Subsequent Investigations					
7. Near-Surface Investigations (Seq. 5) MDA and non-MDA SWMU's	20 Jun 97	32		32	
8. Subsurface Investigations (Seq. 9) MDA T	25 Jul 97	10		10	
9. Subsurface Investigations (Seq. 10) MDA V, MDA U, MDA B, MDA A	14 Aug 98	2		2	

^aThe number of SWMU's for initial investigation in this table totals 118 rather than 112 because several SWMU's have components included in more than one investigation. For example, material disposal areas are counted twice because they have both surface and subsurface investigations.

5. REFERENCES CITED

- LANL 1991 TA-21 Operable Unit RFI Work Plan for Environmental Restoration, LAUR-91-962, Los Alamos National Laboratory, Los Alamos NM 87545. May 1991.
- LANL 1990 Installation Work Plan for Environmental Restoration, LAUR-90-3825, Los Alamos National Laboratory, Los Alamos NM 87545. November 1990.
- EPA 1990 Module VIII, Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, U.S. Environmental Protection Agency, Region 6, Dallas TX 75202. March 8, 1990.

ATTACHMENT A

NOTICE OF DEFICIENCY

October 30, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Jerry Bellows
Area Manager
Department of Energy
Los Alamos Area Office
528 35th Street
Los Alamos, New Mexico 87544

Dear Mr. Bellows:

We have completed a review of your RCRA Facility Investigation (RFI) Workplan dated May 1991, and have determined the workplan to be deficient. A list of deficiencies and comments is enclosed for your review.

In addition, we understand that the RFI Workplans for the off-site Solid Waste Management Units (SWMU's) will not be completed until May 1992. We recommend that Los Alamos National Laboratory initiate an accelerated schedule for the Workplans pertaining to the off-site SWMU's (see the enclosed comment regarding this issue).

You shall have 30 days from the receipt of this letter to submit modified Workplans which address the enclosed deficiencies. If these modified Workplans are not approved, we may make further modifications as required.

If you have any questions, please contact me or have your staff contact Rich Mayer of my staff at (214) 655-6775.

Sincerely yours,

W.K. Honker

William K. Honker
Chief
RCRA Permits Branch

Enclosure

cc: Kathy Sisneros, NMED
Dr. Siegfried Hecker, LANL

LANL RFI WORKPLAN DEFICIENCIES

Chapter 1; Page 1-8 thru 1-9: LANL needs to increase the number of SWMU's being investigated during the end of 1991 and throughout 1992 (during the first year after workplan approval) and/or clarify that during the characterization/initial investigations a certain number of SWMU's will be investigated.

Chapter 1; Page 1-10: For each technical Memo, LANL needs to state the estimated number/range of SWMU's to be addressed. In addition, LANL needs to include an estimated number/range of Corrective Measure Studies initiated in each technical memo, if appropriate.

GENERAL COMMENT

EPA's understanding is that LANL has done a detailed scientific risk/SWMU environmental priority assessment which concluded that SWMU's located in Technical Area 21 were the number one environmental priority. Even though this scientific study supported the investigation of TA 21 SWMU's first, EPA recommends that the investigation of the off-site SWMU's be accelerated from the current schedule. During the permitting process, the Agency was repeatedly told by DOE/LANL personnel that SWMU's located off-site would be investigated first. Since EPA was assured that off-site SWMU's would be investigated first, no detailed permit requirement was included. However, since the first RFI Workplan (May 1990) does not include any off-site SWMU's, EPA is greatly concerned, and feels that the investigation of the off-site SWMU's should be accelerated.