

START

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Final

Meeting Minutes Transmittal/Approval
Unit Manager's Meeting: 100 Aggregate Area/100 Area Operable Units
740 Stevens Center, Room 1200, Richland, Washington
August 25, 1993

FROM/APPROVAL: *Eric D. Goller* Date _____
Eric D. Goller, 100 Area Unit Manager, RL (A5-19)

APPROVAL: *Jack W. Donnelly* Date 9/29/93
Jack W. Donnelly, 100 Aggregate Area Unit Manager, WA Department of Ecology

APPROVAL: *Dennis Faulk* Date 9-29-93
Dennis Faulk, 100 Aggregate Area Unit Manager, EPA (B5-01)

Meeting Minutes are attached. Minutes are comprised of the following:

- Attachment #1 - Meeting Summary
- Attachment #2 - Attendance Sheet
- Attachment #3 - Agenda
- Attachment #4 - Action Item Status List
- Attachment #5 - Status Package 100 Area Unit Manager's Meeting August 25, 1993
- Attachment #6 - Tri-Party Agreement Milestone M-30-05
- Attachment #7 - 100 F Area Map
- Attachment #8 - Laboratory Soil Washing Treatability Tests
- Attachment #9 - 100-HR-3 Groundwater Treatability Tests
- Attachment #10 - 100-KR-4 OU LFI Groundwater Investigation Validated Data Memorandum



Prepared by: *Kay Kimmel* Date: 9-29-93
Suzanne Clarke, Kay Kimmel, GSSC (A4-35)

Concurrence by: *Bob Henckel* Date: 9-29-93
Bob Henckel, WHC Coordinator (H6-02)

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**Attachment #1
Meeting and Summary of Commitments and Agreements**

**Unit Manager's Meeting: 100 Aggregate Area/100 Area Operable Units
August 25, 1993**

1. **SIGNING OF THE JULY 100 AREA UNIT MANAGER'S MEETING MINUTES** - Minutes were reviewed and approved with no changes.
2. **ACTION ITEM UPDATE: (See Attachment 4 for complete status, items listed below indicate the update to Action Items made during the meeting):**
- 1AAMS.9** Closed
- 1AAMS.15** Letter is pending.
- 1AAMS.16** Letter is pending.
3. **NEW ACTION ITEMS:** No new action items were initiated this month.
4. **100 AREA ACTIVITIES:**
- **Milestone 30-05:** Robert E. Peterson presented an update of activities being performed to fulfill the M-30-05 Milestone (see attachment #6).
 - **100 Area Excavation Treatability Studies: Identify key players, roles and responsibilities; and protocol for interfacing with field activities:** Joan Woolard and Jil Frain discussed safety and logistics to allow safe access to the excavation site. J. Frain provided a map (see attachment #7) of the excavation location and indicated a travel route around the north to observe field activities, staying upwind of the blowing dust. She noted that when visiting, the preferred times were during shift changes at 7:30 to 8:00 am and 12:30 to 1:00 pm. Coming in and out during the shift changes provides safer conditions for visitors. Mike Mahoney was introduced as the new site representative. His duties include tracking all site activities.
 - **100-HR-1 Excavation Treatability Study:** J. Woolard indicated the pre-job safety meeting will probably be scheduled at 3:00 pm on September 9, 1993. The field work will begin on September 13 and will continue as late as the end of October. A weekly status will be provided to the Regulators.
 - **Soil Washing Treatability Study:** Jim Field discussed status of treatability and described unexpected results with respect to removal of ¹³⁷Cs by autogenous grinding (see attachment #8). The data from F Area soils will be available for discussions with the Regulators in November. The formal report will be delivered to the Regulators by January 31, 1994.
 - **100-HR-3 Groundwater Treatability Study:** Jim Duncan presented the results from bench scale studies for treatment of groundwater via cation exchange to remove chromium and uranium (see attachment #9).

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4. 100 AREA ACTIVITIES: (continued)

- Operable Unit Status: Attachment #5 was provided for general information on the 100 Areas Operable Units.
 - Robert Henckel reported that the borehole at 100-DR-2 is to be completed today.
 - Data validation report WHC-SD-EN-TI-184 on the 100-KR-4 groundwater data was provided to the Regulators (see attachment #10 for memorandum).
 - The LFI Report and QRA on 100-BC-5 will be transmitted to the Regulators by the end of August. The recommendation is that there be no IRM at this time.

5. NEXT MEETINGS: The next CERCLA Unit Managers Meetings will be held on September 29 and 30, 1993.

930919.089

100 Aggregate Area Unit Manager's Meeting
 Official Attendance Record
 August 25, 1993

Please print clearly and use black ink

| PRINTED NAME | ORGANIZATION | O.U. ROLE | TELEPHONE |
|------------------------|--------------|---|----------------|
| Suzanne Clarke | Domest Moore | ES&T RL | 376-8189 |
| KAY KIMMEL | MACTEC (D&M) | RL SUPPORT | 376-1985 |
| Rich Hibbard | Ecology | SUPPORT | (206) 453-9367 |
| CHUCK CLINE | " | Hydrogeol. Support | (206) 438-7556 |
| Teay Krepp | WHC | Hydrology | 376-3398 |
| Diana Sietle | WHC | Representative | 372-3141 |
| PAMELA INNIS | EPA | UNIT MANAGER | 376-4919 |
| Eric Goller | RL | 100 Area Unit Mgr | 376-7326 |
| BOB SCHUECK | Domest Moore | G SSC | 946-0176 X222 |
| Glenn Goldberg | DOE | 100 Area Unit Mgr | 376-7142 |
| RP Henckel | WHC | 100 AREA | 376-2091 |
| Mike Mahoney | COE | Site Engr./DOE Support | 376-9580 |
| JOAN WOOLARD | WHC | 100 Area Treatability | 376-2539 |
| Jim Field | WHC | 100 Area Treatability | 376-3753 |
| Dennis Faulk | SPA | um | 6-8631 |
| Jil Frain | WHC | 100 F Area Treatability | 6-8941 |
| Jim Dunham | WHC | 100 HR-3 Gdwtr | 2-0896 |
| Jim PATTERSON | WHC | FR Program Office | 376-0902 |
| Nancy Uziemblo | Ecology | UM | 736-3014 |
| JEFF PHILLIPS | Ecology | UM | 736-3011 |
| Phillip STARRS | Ecology | - | 736-3029 |
| Audree De Angeles | PRC | EPA Support | 206-624-2692 |
| Larry Gadbois | EPA | RPM | 376-9884 |
| Alan D. Krus | WHC | 100 NRI Coord. 100 Area Source Team Ldr. | 376-5634 |
| Richard h. Biggensteff | WHC | 100 NR-4 Coord 100 Area GW Team Ldr. | 376-5634 |

Attachment #4

Unit Manager's Meeting: 100 Aggregate Area/100 Area Operable Units
August 25, 1993

Action Item Status List

| ITEM NO. | ACTION | STATUS |
|----------|--|--|
| 1AAMS.9 | DOE shall send a letter to Ecology, suggested from S. H. Wisness to D. Jansen with a cc. to EPA, explaining what is included in the ER Program for the N Reactor Area and how the multiple programs will be handled organizationally. Action to J. D. Goodenough (2/27/92). Action: E. D. Goller (5/27/92). Action: Bryan Foley (7/28/93). | Closed 08/25/93 |
| 1AAMS.15 | Provide response to April 2 EPA letter concerning river seeps. Action: Eric Goller (RL) 7/29/92. | Open (7/29/92). In DOE for transmittal (8/26/92). Letter is pending (08/25/93) |
| 1AAMS.16 | DOE should transmit Revision 1 of M-30-01. | Open (7/29/92). In DOE for transmittal (8/26/92). Letter is pending (08/25/93) |

260 540 136

Status of 100-Area Wide Activities
August 1992

- River Impact Studies

Columbia River Impact Evaluation Plan. Public Review began July 6, 1993, but has been extended 30 additional days to early September (Primary Document)

River sediment sampling field work, and sampling and validation completed. Validated Results submitted to regulators. The evaluation report is in preparation (no change).

Cultural Resources Investigations

Historic Sites in 100-HR-3 are being recorded; consultations with State Historic Preservation Office continue.

100-Area Ecological Investigations

Work is continuing on delineation of habitats of concern as identified in the Hanford Site Baseline Risk Assessment Methodology Report and the Columbia River Impact Evaluation Plan (No change)

An initial draft of a literature search on the ecotoxicology of contaminants of concern for ecological investigations is being used by ecological risk assessors. The document will be published in fall (no change)

The 100 Areas CERCLA Ecological Investigations report, with analysis of sample results, has been reviewed by DOE, PNL, and WHC (review ended August 6) and is being revised for publication.

100-AREA WIDE ACTIVITIES

| 1992 | | | 1993 | | | | | | | | | | | |
|------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |

AREA WIDE ACTIVITIES



RIVER IMPACT STUDY



2.0 Cum. Health Eff.(Primary)



2.2 Regulators Review/Approval (2)



3.0 Aquifer/River Interaction



4.0 Long Term Aquifer/River Interaction



4.2 Equipment Installation M-30-05, Sep 93



4.3 Monitoring & Analysis



CULTURAL RESOURCES INVESTIGATION



ECOLOGICAL INVESTIGATIONS



5.0 Ecological Summary Report Preparation



100 AREA RISK ASSESSMENT - Stated in general topic and ou specific

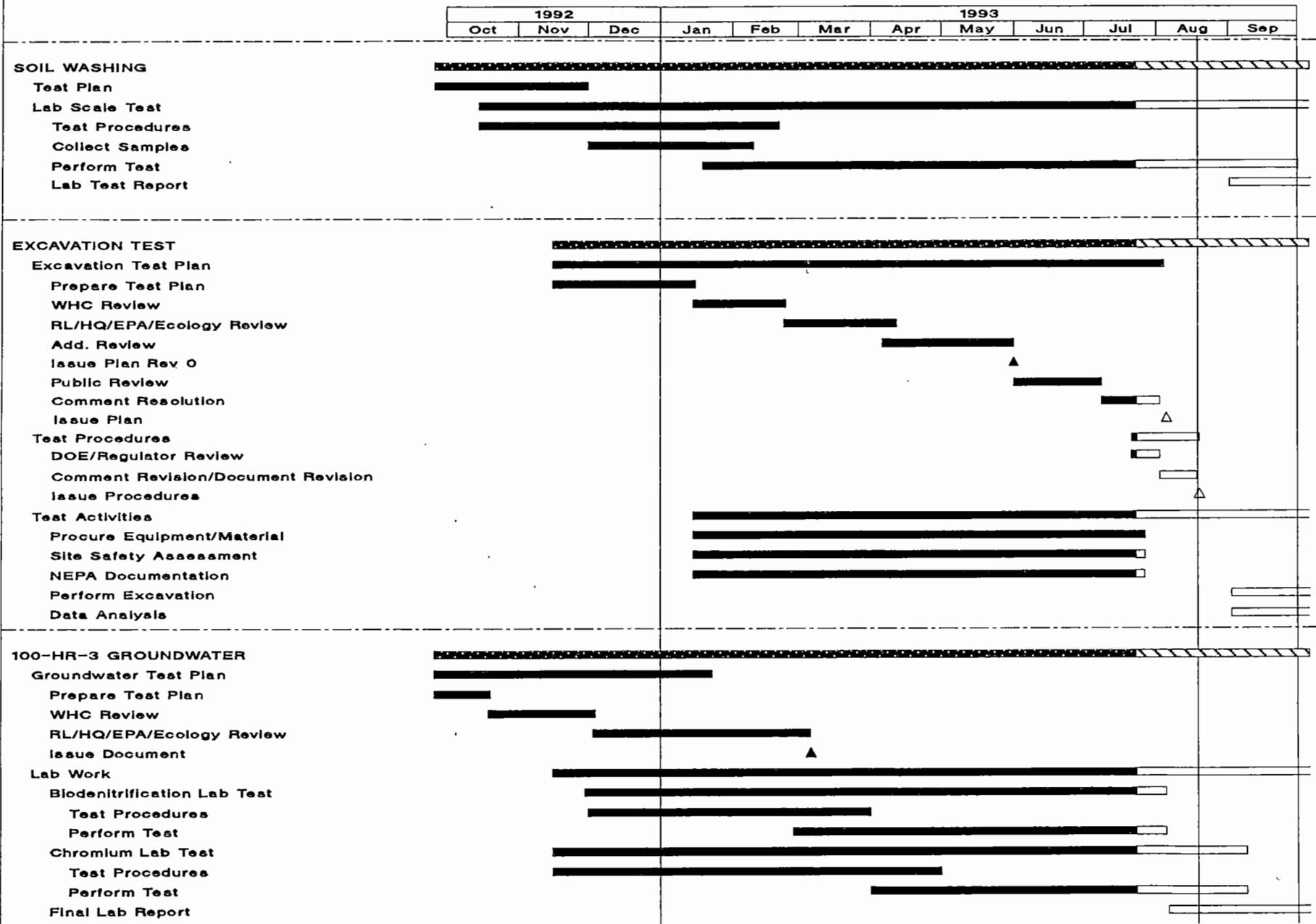
Data Date
16 Aug 93

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| Project: 100-AREA WIDE | DOE-RL | Date: 16Aug93 13:30 |
| 100 AREA WIDE ACTIVITIES | | |
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|----------|--|
| SUMMARY | |
| PROGRESS | |

93/3046.0396

100-AREA TREATABILITY TESTS



Data Date
16 Aug 93

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| Project: 100-Area RI/FS Activities | | Date: 16Aug93 12:32 |
| 100-AREA DRAFT TREATABILITY TESTS | | |
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Summary [hatched box]
Progress [solid black box]

#5/Page 4 of 28

100 AREA TREATABILITY TEST STATUS
August 1993, Unit Managers Meeting

SOIL WASHING TREATABILITY TEST

100 Area soil washing tests are on schedule. Attrition scrubbing tests have been completed and data is being assessed. The data show good correlation between energy expended and the reduction in radionuclide activities of sand particles. Up to a third of ^{137}Cs activity was removed in laboratory attrition tests. Autogenous grinding tests to remove contaminants from more coarse soil fractions are in progress. Preliminary results of chemical extraction tests indicate that greater than 70% of ^{152}Eu and ^{60}Co , and 8% to 11% of ^{137}Cs can be removed using a 0.5 M acidic solution. Microscopic analyses and X-Ray Diffraction are in progress. All tests are expected to be completed by the end of September.

100-HR-3 GROUNDWATER TREATABILITY TESTS

Chromium and Uranium Reduction/Precipitation and Ion Exchange:

-Reduction/Precipitation Reactions:

The reduction/precipitation using sodium sulfide/ferrous sulfate resulted in a solution that increased turbidity and pH. The ferric chloride precipitation resulted in solutions that gave a good settleable floc and decreased the solution turbidity (became clearer).

-Ion Exchange:

The DOWEX 21K resin has been tested against nitrate, chromium VI and uranium VI. The nitrates (initial concentration of 189,000 ppb) gave a breakthrough at approximately 380 column volumes (CVs). The chromium (initial concentration of 1780 ppb) did not attain a breakthrough value of C_0/C (initial concentration/final concentration) = 0.5. The run was halted after 10 liters were processed through the column and a C_0/C of 0.03 was attained. If the response to chromium VI is linear (yet to be determined), then the CV to breakthrough would be on the order of 30,000 CVs. The uranium VI data is being analyzed at PUREX laboratory.

Biodenitrification:

All testing has been completed. The most probable numbers (MPN's) and carbon source data is currently being evaluated. The samples for gross alpha, gross beta and chromium are being analyzed at Bldg. 325 at PNL.

100-HR-¹~~3~~ EXCAVATION TREATABILITY TEST

The Test Plan is undergoing a minor revision as a result of public comments. The Test Plan will be re-issued as revision 1. The test procedures are currently being revised to incorporate comments from RL and the regulatory agencies. The excavation is scheduled to be initiated on September 7, 1993.

2600 SHOE/EG

Work has been initiated on assembling the TerraStore. F-Area training is being held on August 23, 1993. For those interested in this training contact J. M. Frain. Training requirements for those that need access to the exclusion zone for the excavation will require 40 hour haz worker training, rad worker training, mask fit, and SKA-PAK, in addition to the F-Area training. However, spectators may remain outside the exclusion zone in what is known as the support zone and will not need any training.

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100-BC-1 SOURCE OPERABLE UNIT WORK SUMMARY
August 16, 1993

Task 11 - Qualitative Risk Assessment:

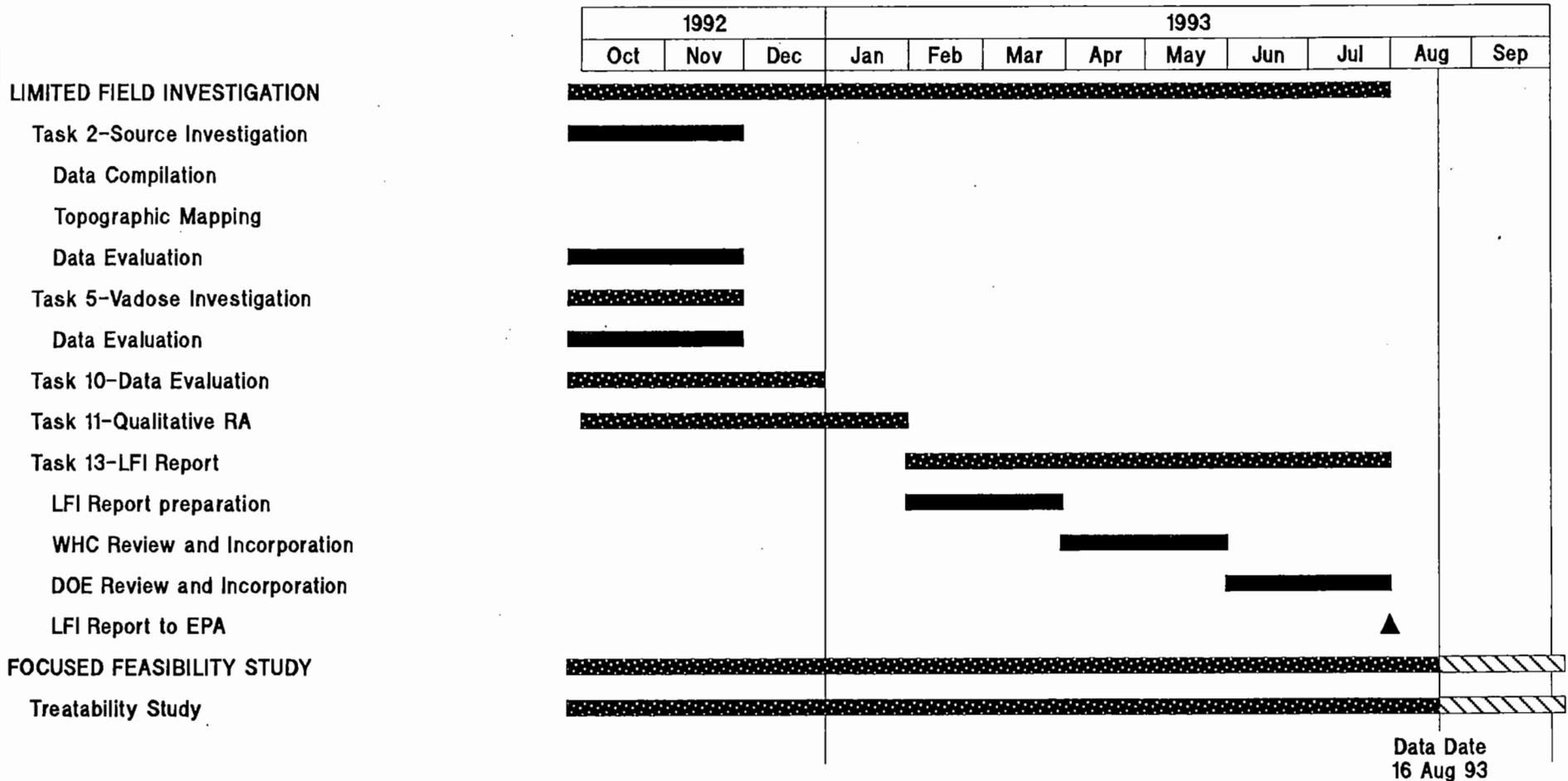
The final document was delivered to EPA and Ecology on July 31, 1993.

Task 13 - Limited Field Investigation (LFI) Report:

The final document was delivered to EPA and Ecology on July 31, 1993.

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100-BC-1 OPERABLE UNIT



Data Date
16 Aug 93

Summary 
Progress 

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| Project: 100-BC-1 | DOE-RL 90-07, Rev 0 | Date: 16Aug93 15:32 |
| 100-BC-1 Operable Unit Work Plan | | |
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FY 1993 Activities for 100-DR-1
N.M. Naiknimbalkar

AUGUST 1993 Status Report

100-DR-1 QUALITATIVE RISK ASSESSMENT STATUS

Qualitative Risk Assessment

Document Preparation:

SAIC/Golder prepared this report.

- o Qualitative Risk Assessment Report was revised to incorporate DOE comments and 20 copies were submitted to DOE-RL for Regulatory review.

LFI Report

IT prepared this document.

- o Limited Field Investigation (LFI) report was revised to incorporate DOE comments and twenty copies were submitted to DOE-RL for Regulatory review.

100-DR-2 Work Plan

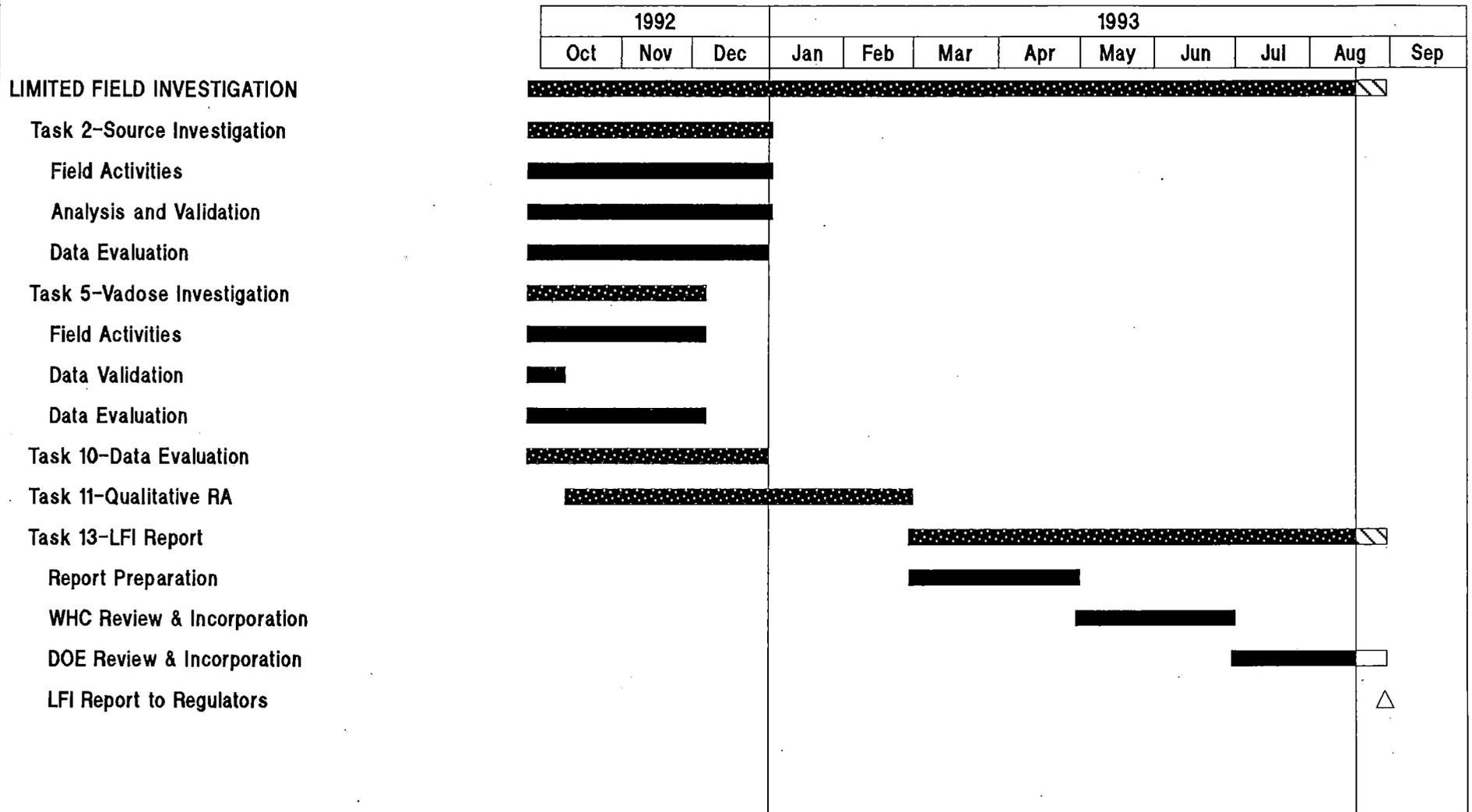
- o Scoping meetings were held with DOE-RL and the Regulators and agreement was reached for work scope to be included in the work plan. The work plan is progressing as planned.

Description of Work (DOW)

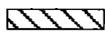
- o Description of Work (DOW) for DR-2 is based on agreements between Regulators, DOE-RL and WHC and has been released as WHC-SD-EN-AP-139, Rev. 0. Engineering Change Notice (ECN) has been completed to clarify the contents of DOW for ease of use in the field activities and will be a supplement to the DOW.

One borehole will be drilled through 116-DR-7 Inkwell Crib and one test pit each, will be excavated at 116-DR-3 Trench and Sodium Dichromate Transfer Station. CLP analysis will be conducted for borehole samples. SW-846 analysis will be done for test pit samples. Physical samples will be collected from the borehole site.

100-HR-1 OPERABLE UNIT



Data Date
16 Aug 93

Summary 

Progress 

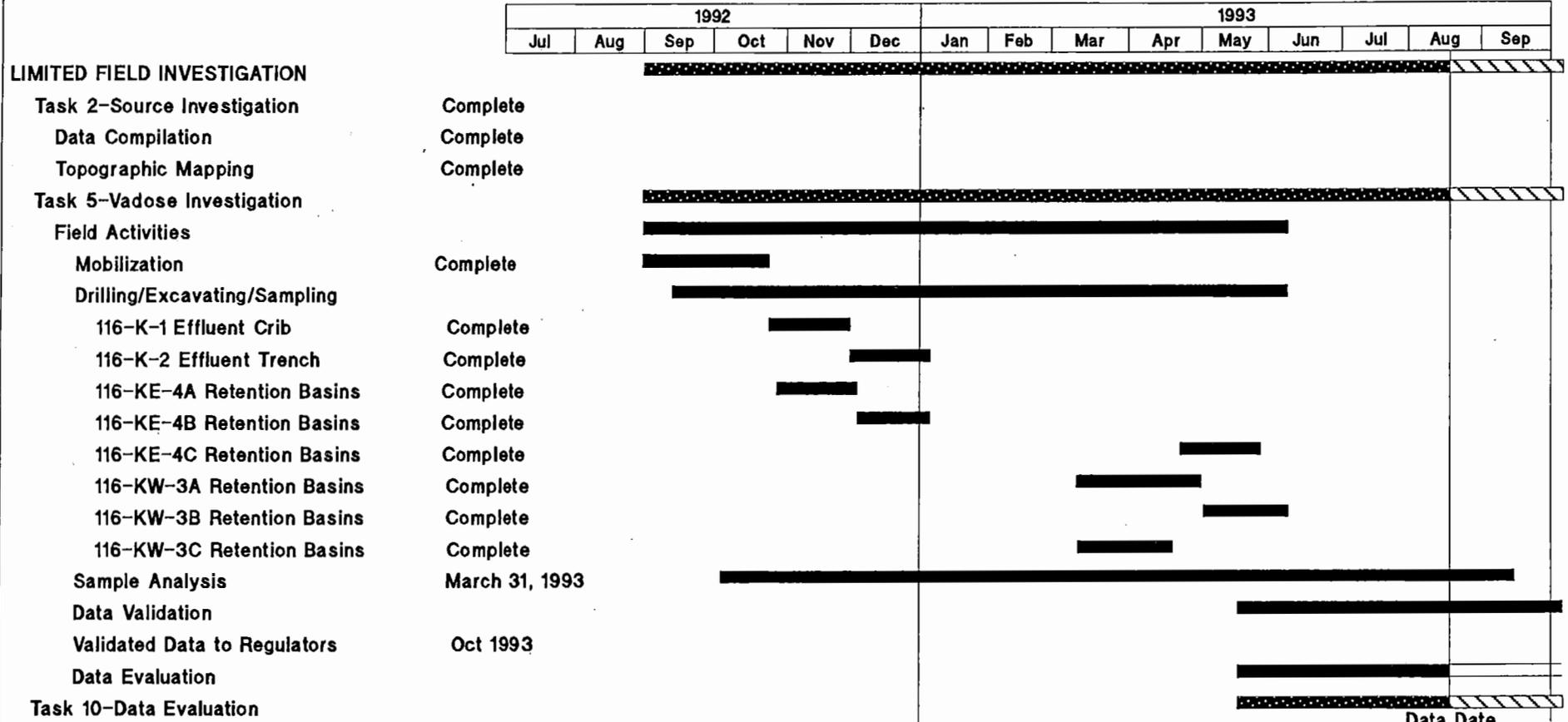
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| Project: 100-HR-1 | DOE-RL 88-35, Rev 0 | Date: 16Aug93 10:11 |
| 100-HR-1 Operable Unit Work Plan | | |
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100-HR-2

- Geophysical investigations of selected burial grounds will re-start in late August 1993. The work was postponed due to higher priority needs at other sites. The geophysical work is expected to be completed by late September 1993.

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100-KR-1 OPERABLE UNIT



Summary 
 Progress 

| | | |
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| Project: 100-KR-1 | DOE-RL 90-20, REV 0 | Data Date 16 Aug 93 |
| 100-KR-1 OPERABLE UNIT WORK PLAN | | |
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100-FR-1 OPERABLE UNIT

| 1992 | | | | | | 1993 | | | | | | | | |
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| Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |

LIMITED FIELD INVESTIGATION

Task 2-Source Investigation

Data Compilation

Topographic Mapping

Field Activities

Source Sampling

132-F-1 Chronic Feeding Barn

Sample Analysis

Data Validation

Data Evaluation

Task 5-Vadose Investigation

Field Activities

Mobilization

Drilling/Excavation and Sampling

116-F-6 Liquid Waste Disposal Trench

116-F-3 Fuel Storage (Test Pit)

116-F-1A Lewis Canal

116-F-1B Lewis Canal (Test Pit)

116-F-1C Lewis Canal (Test Pit)

116-F-14 Retention Basin

116-F-2 Basin Overflow Trench

108-F French Drain (Hand Sample)

116-F-9C Animal Waste Trench (BH)

116-F-9D (Test Pit)

116-F-4 Pluto Crib (BH)

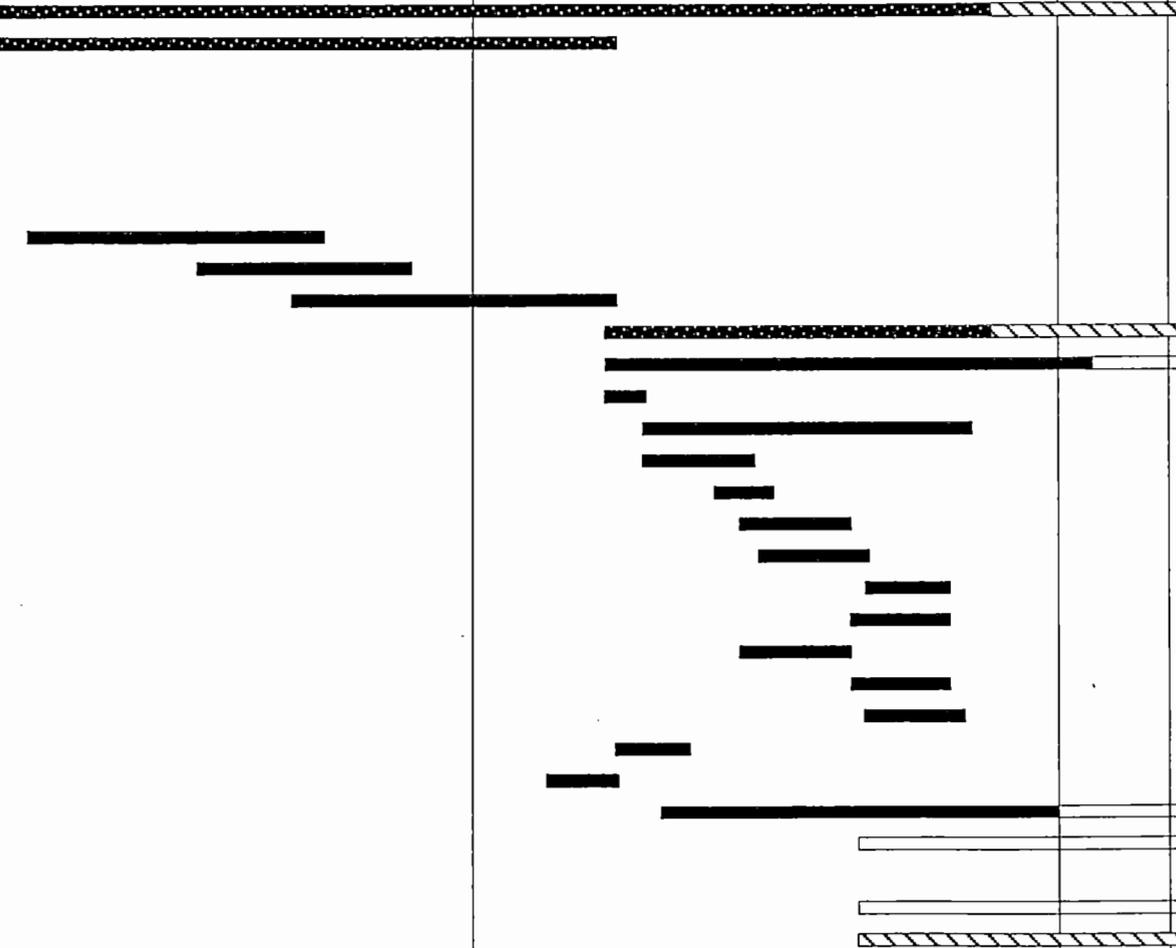
Sample Analysis

Data Validation

Validated Data to Regulators Nov 1993

Data Evaluation

Task 10-Data Evaluation



Data Date
16 Aug 93

Project: 100-FR-1 DOE-RL 90-33, REV 0 Date: 16Aug93 11:29

100-FR-1 OPERABLE UNIT WORK PLAN

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Summary
 Progress

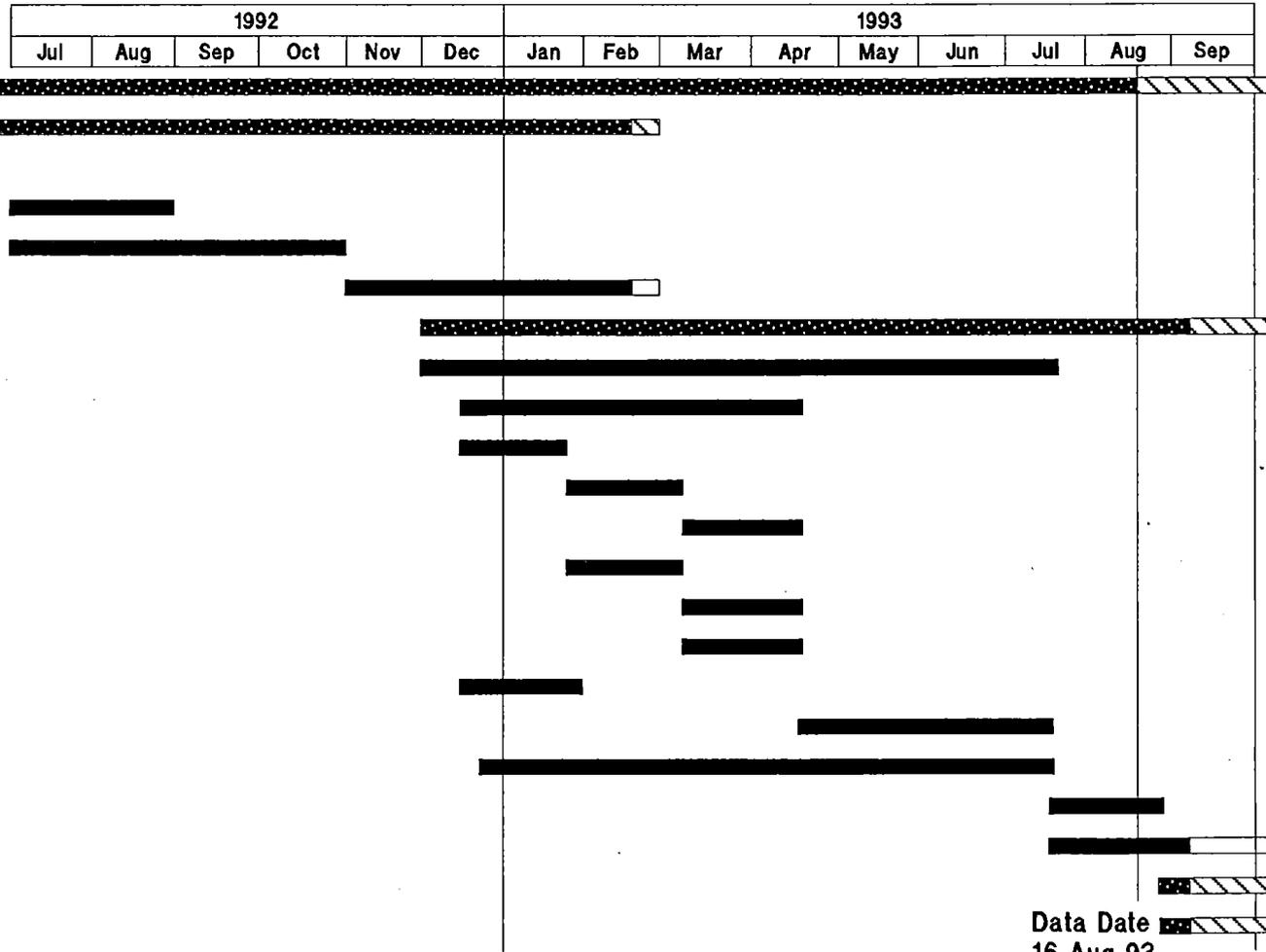
100-NR-1

The Data Validation Report for the 100-NR-1 Operable Unit Source Sampling (WHC-SD-EN-TI-190, Rev 0) was released.

100-NR-1 - Surface Radiation Survey: . The survey found a total of 46 separate areas within the N Area which contain elevated levels of contamination with activity levels ranging from 200 CPM to 15 mR/hr above background. The elevated areas range in size from approximately 1 square foot to 500 square feet. Total affected area is approximately 1800 square feet. One of these areas, approximately 300 square feet, is a suspected orphan burial site. Field gamma spectrometer readings over this area indicate Cs-137 exclusively. Other elevated areas are identified as containing only Co-60. Elevated alpha readings were not detected in any of the areas. Removal of these "hot spots" is underway and expected to be cleaned up by the end of the fiscal year. The removals to date have not detected anything unusual and are going as planned.

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100-NR-1 OPERABLE UNIT



Data Date 16 Aug 93

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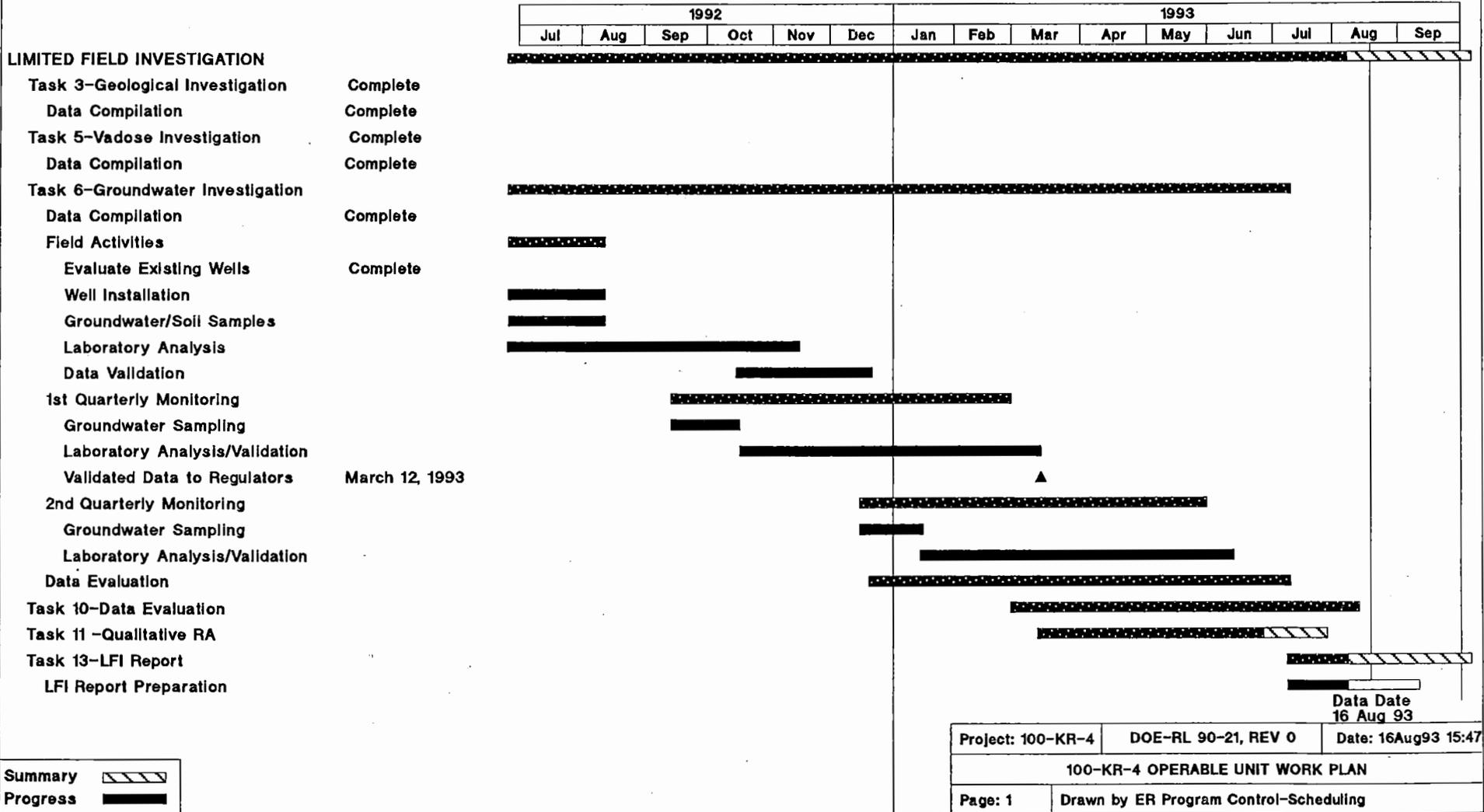
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| 100-NR-1 OPERABLE UNIT WORK PLAN | | |
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100-KR-4 STATUS

- 1ST ROUND (SEPTEMBER 92), 2ND ROUND (DECEMBER 92), 3RD ROUND (MARCH 93), 4TH ROUND (JULY 93) GROUNDWATER SAMPLING COMPLETE. SAMPLING WILL BE ON A SEMI-ANNUAL BASIS STARTING IN DECEMBER, 1993.
- SAMPLE VALIDATION REPORTS FOR DRILLING SAMPLE DATA AND 1ST ROUND GROUNDWATER SUBMITTED MARCH, 1993.
- SAMPLE VALIDATION REPORT FOR 2ND ROUND GROUNDWATER SUBMITTED JULY, 1993.
- SAMPLE VALIDATION REPORT FOR 3RD ROUND GROUNDWATER SUBMITTED AUGUST, 1993.
- QUALITATIVE RISK ASSESSMENT AND LIMITED FIELD INVESTIGATION REPORT IN PROGRESS.

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100-KR-4 OPERABLE UNIT



Summary
 Progress

Data Date
16 Aug 93

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| Project: 100-KR-4 | DOE-RL 90-21, REV 0 | Date: 16Aug93 15:47 |
| 100-KR-4 OPERABLE UNIT WORK PLAN | | |
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**100 NR-2 GROUNDWATER OPERABLE UNIT
WORK SUMMARY 8/19/93**

WORK PLAN

Progress has resumed on completing the 100 NR-2 Work Plan.

TASK 6 - GROUNDWATER INVESTIGATION

Quarterly Monitoring - Four rounds of groundwater samples have been taken.

Data Validation - The soil data has been validated.

100-NR-2 OPERABLE UNIT

| 1992 | | | | | | 1993 | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|
| Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |

LIMITED FIELD INVESTIGATION

Task 3-Geological Investigation

Data Compillation

Task 5-Vadose Investigation

Data Compillation

Task 6-Groundwater Investigation

Data Compillation

Field Activtles

Well Siting

Well Installation

Well N-1

Water Level Measurement

Air Monitoring

Groundwater/Soil Samples

Laboratory Analysis

Data Validation

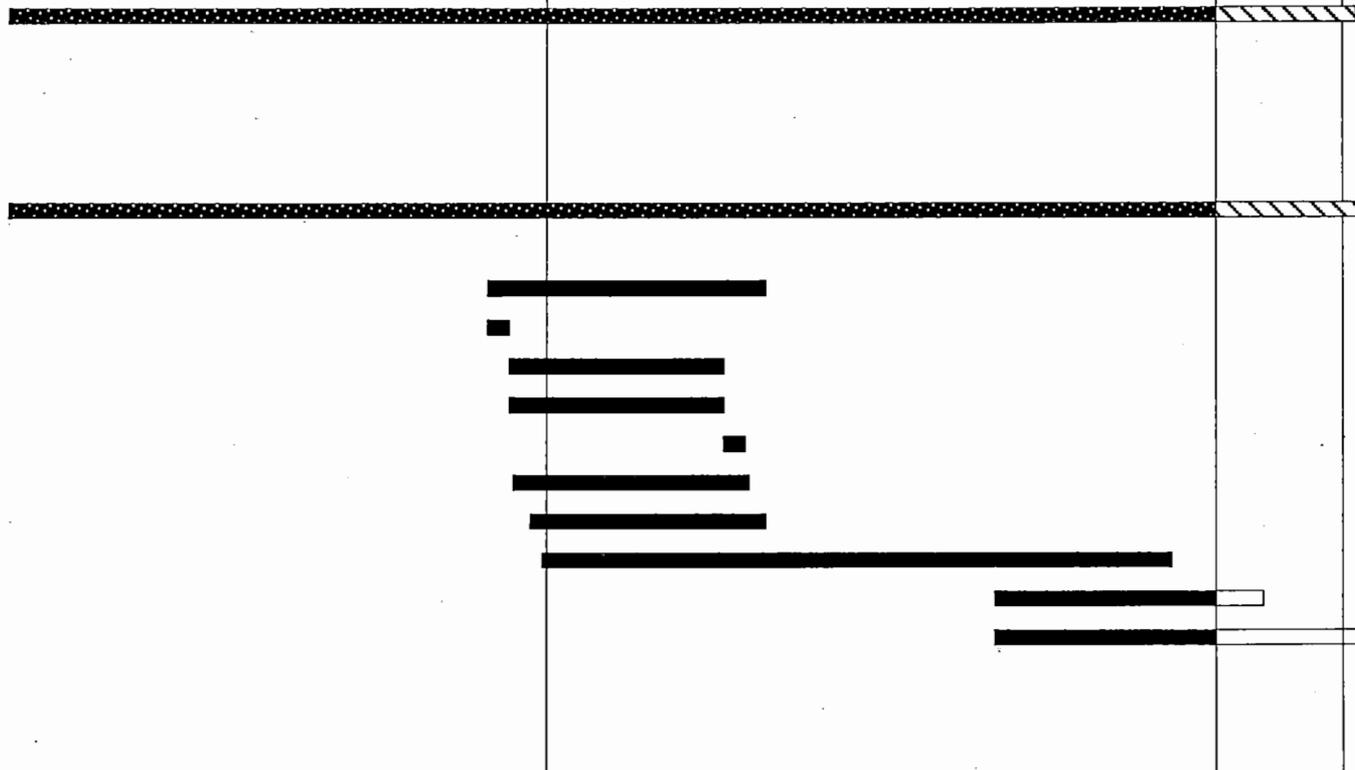
Data Evaluation

Task 11-Qualitative RA

Task 13-LFI Report

FOCUSED FEASIBILITY STUDY

IRM PROPOSED PLAN



Data Date
16 Aug 93

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| Summary |  |
| Progress |  |

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| Project: 100-NR-2 | DOE-RL | Date: 16Aug93 8:12 |
| 100-NR-2 OPERABLE UNIT WORK PLAN | | |
| Page: 1 | Drawn by ER Program Control-Scheduling | |

**100 HR-3 GROUNDWATER OPERABLE UNIT
WORK SUMMARY 8/19/93**

TASK 6 - GROUNDWATER INVESTIGATION

Quarterly Monitoring - Four rounds of groundwater samples have been taken. The fifth round is presently being sampled for a reduced analyte list.

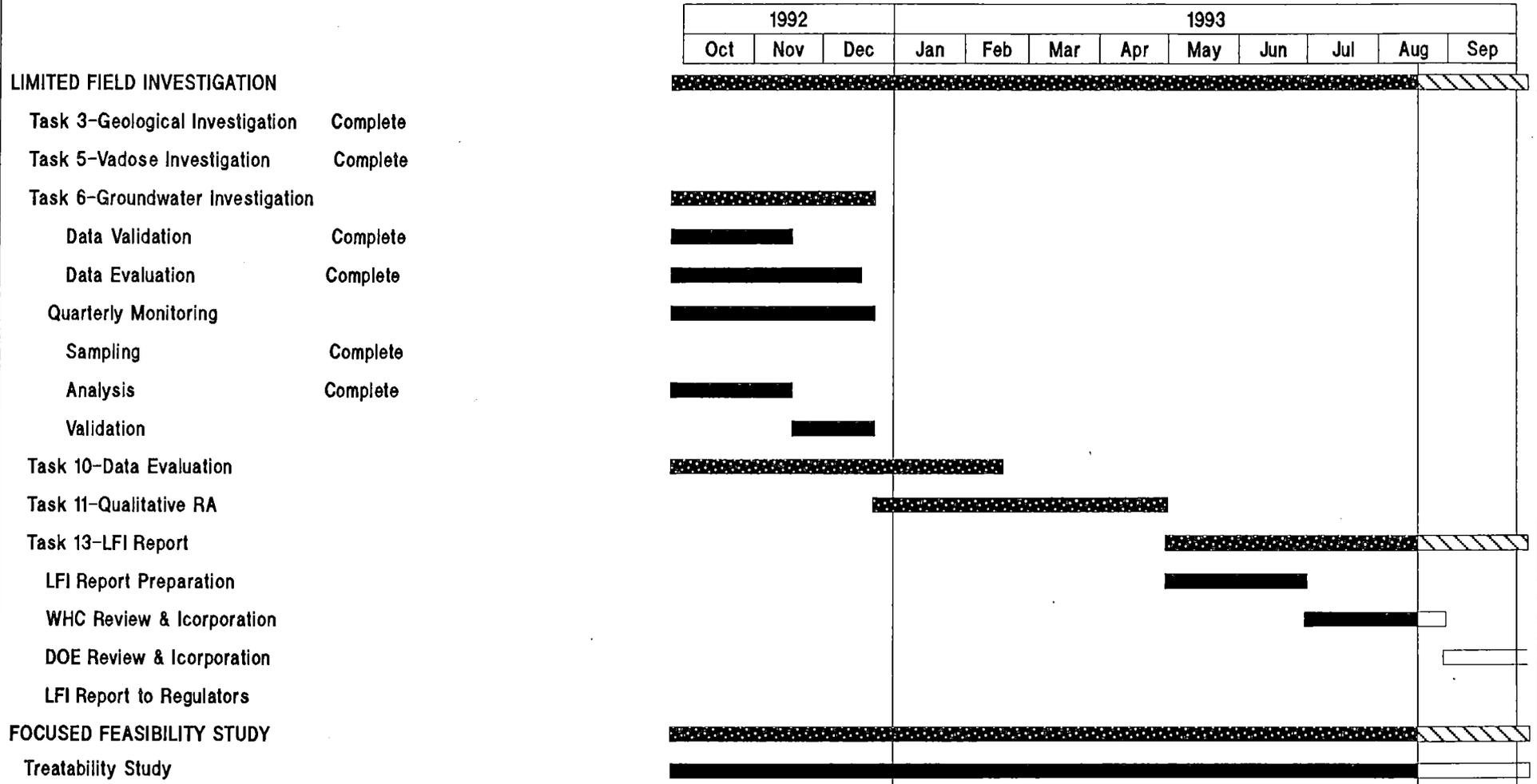
Data Validation - First, second, third and fourth round groundwater data has been validated.

LFI Report - The LFI Report is in progress and will be submitted to DOE in August and to the regulatory agencies in October.

QRA Report - The QRA Report is in progress and will be submitted to DOE in August and to the regulatory agencies in October.

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100-HR-3 OPERABLE UNIT



Data Date
16 Aug 93

Summary

Progress

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| Project: 100-HR-3 | DOE-RL 88-36, Rev 0 | Date: 16Aug93 9:00 |
| 100-HR-3 Operable Unit Work Plan | | |
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100-BC-5 STATUS

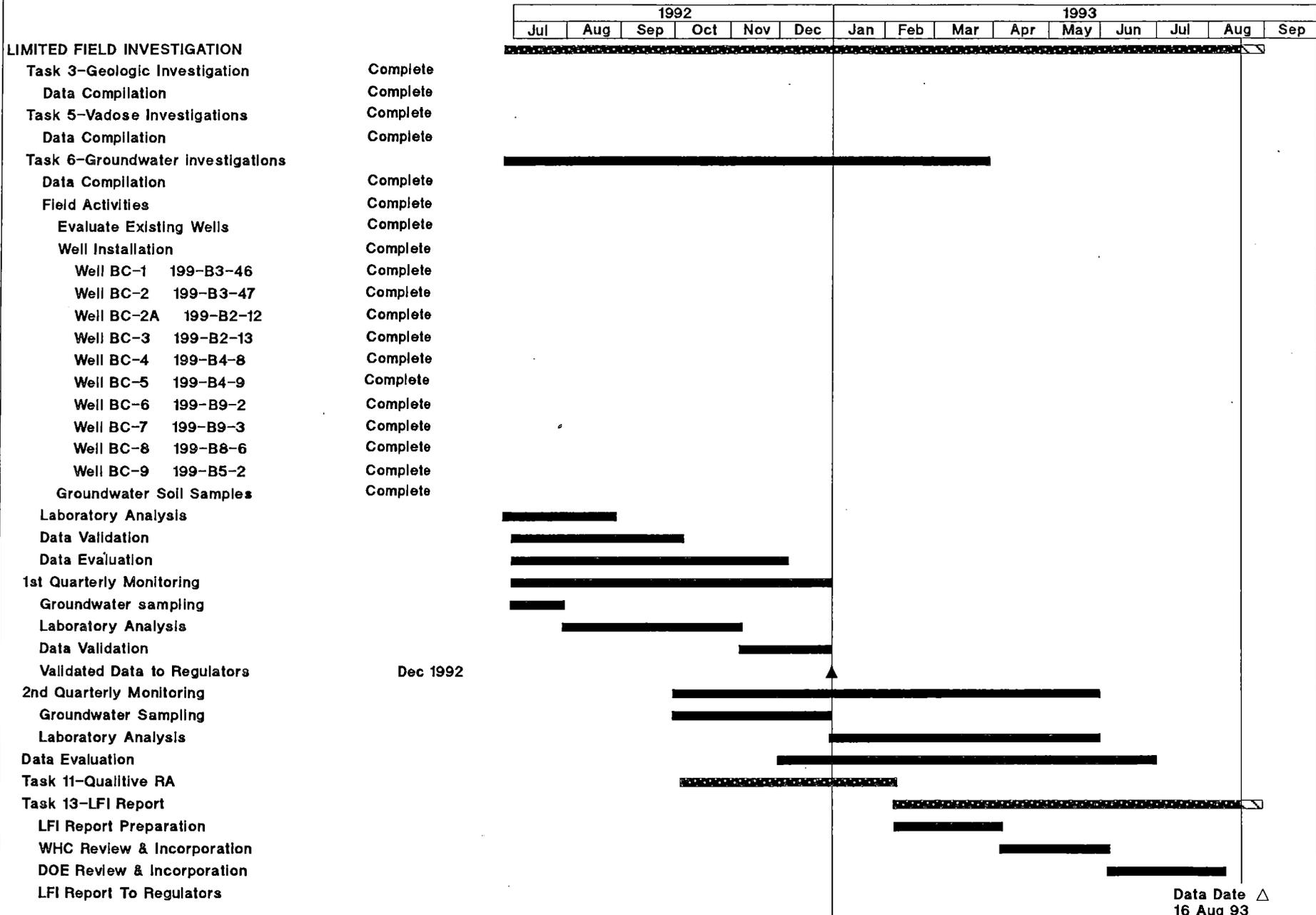
- 1ST QUARTER (JULY), 2ND QUARTER (OCTOBER), 3RD QUARTER (JANUARY), 4TH QUARTER (APRIL) GROUNDWATER SAMPLING COMPLETE. SAMPLING WILL BE ON A SEMI-ANNUAL BASIS STARTING IN OCTOBER 1993.
- SAMPLE VALIDATION REPORTS FOR DRILLING SAMPLE DATA AND 1ST QUARTER GW SUBMITTED DECEMBER 31, 1992
- SAMPLE VALIDATION REPORT FOR 2ND QUARTER GW SUBMITTED APRIL 14, 1993
- SAMPLE VALIDATION REPORT FOR 3RD QUARTER GW SUBMITTED JUNE 1, 1993
- LFI AND QRA REPORT ACTIVITIES ON SCHEDULE

100-FR-3 STATUS

- ALL FY92 DRILLING ACTIVITIES COMPLETE (DECEMBER)
- 1ST QUARTER (DECEMBER), 2ND QUARTER (APRIL), 3RD QUARTER (JULY) GW SAMPLING COMPLETE
- SAMPLE VALIDATION REPORT FOR DRILLING SAMPLE DATA SUBMITTED MARCH 12, 1993
- SAMPLE VALIDATION REPORT FOR 1ST QUARTER GW SUBMITTED JUNE 14, 1993
- SAMPLE VALIDATION REPORT FOR 2ND QUARTER GW SUBMITTED AUGUST 16, 1993

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100-BC-5 OPERABLE UNIT



Data Date ▲
16 Aug 93

Summary Task [diagonal lines] Progress [solid black]
Detail Task [white] Milestone ▲

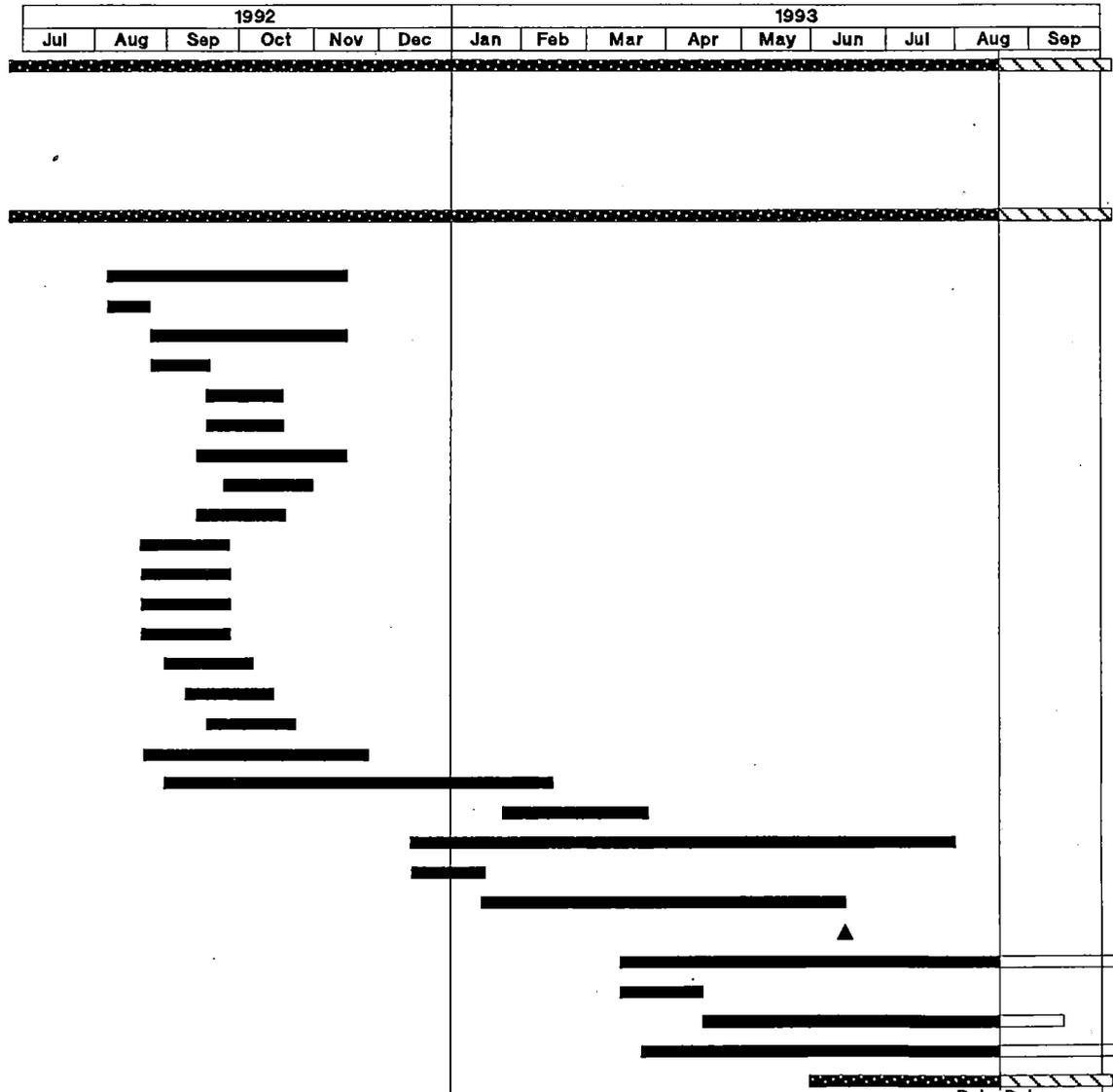
Project: 100-BC-5 DOE-RL 90-08, REV 0 Date: 16Aug93 10:08
100-BC-5 Operable Unit Work Plan
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100-FR-3 OPERABLE UNIT

LIMITED FIELD INVESTIGATION

- Task 3-Geological Investigation Complete
- Data Compilation Complete
- Task 5-Vadose Investigation Complete
- Data Compilation Complete
- Task 6-Groundwater Investigation Complete
- Data Compilation Complete
- Field Activities
- Evaluate Existing Wells
- Well Installation
- Well F3-1 199-F6-1
- Well F3-2 199-F5-42
- Well F3-3 199-F5-43A
- Well F3-3A 199-F5-43B
- Well F3-4 199-F5-44
- Well F3-5 199-F1-2
- Well F3-6 199-F5-45
- Well F3-7 199-F5-48
- Well F3-8 199-F5-47
- Well F3-9 199-F8-3
- Well F3-11 199-F5-46
- Well F3-12 199-F7-3
- Well F3-13 199-F8-4
- Groundwater/Soil Samples
- Laboratory Analysis
- Data Validation
- 1st Quarterly Monitoring June 14, 1993
- Groundwater Sampling
- Laboratory Analysis/Validation
- Validated Data to Regulators
- 2nd Quarterly Monitoring
- Groundwater Sampling
- Laboratory Analysis/Validation
- Data Evaluation
- Task 10-Data Evaluation



Data Data
16 Aug 93

Summary Task Progress
Detail Task Milestone

| | | |
|----------------------------------|--|---------------------|
| Project: 100-FR-3 | DOE-RL 91-53, REV 0 | Date: 16Aug93 14:09 |
| 100-FR-3 OPERABLE UNIT WORK PLAN | | |
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TRI-PARTY AGREEMENT MILESTONE M-30-05 . . .

" Install equipment and initiate monitoring activities to perform long-term evaluation of river/aquifer interaction . . . " (9/93)

- **Status of Milestone Completion**
- **Summary of August '93 Activities**

**R. E. Peterson, 376-5858
Westinghouse, Geosciences**

120510E33

STATUS OF M-30-05 OBLIGATION FOR 9/93 . . .

Install Field Equipment

- **All automated water level recording equipment described in 100 NPL Agreement #52 has been installed.**

Initiate Monitoring Activities

- **Water table along the river in the 100 Areas is being monitored at thirty-two well stations.**
- **River stage is being monitored by four river stage recorders.**
- **Electrical conductivity is being monitored in a well, riverbank seep, and the river.**
- **Groundwater flow velocity measurements in wells are scheduled for August/September.**

210310E16

SUMMARY OF AUGUST '93 ACTIVITIES . . .

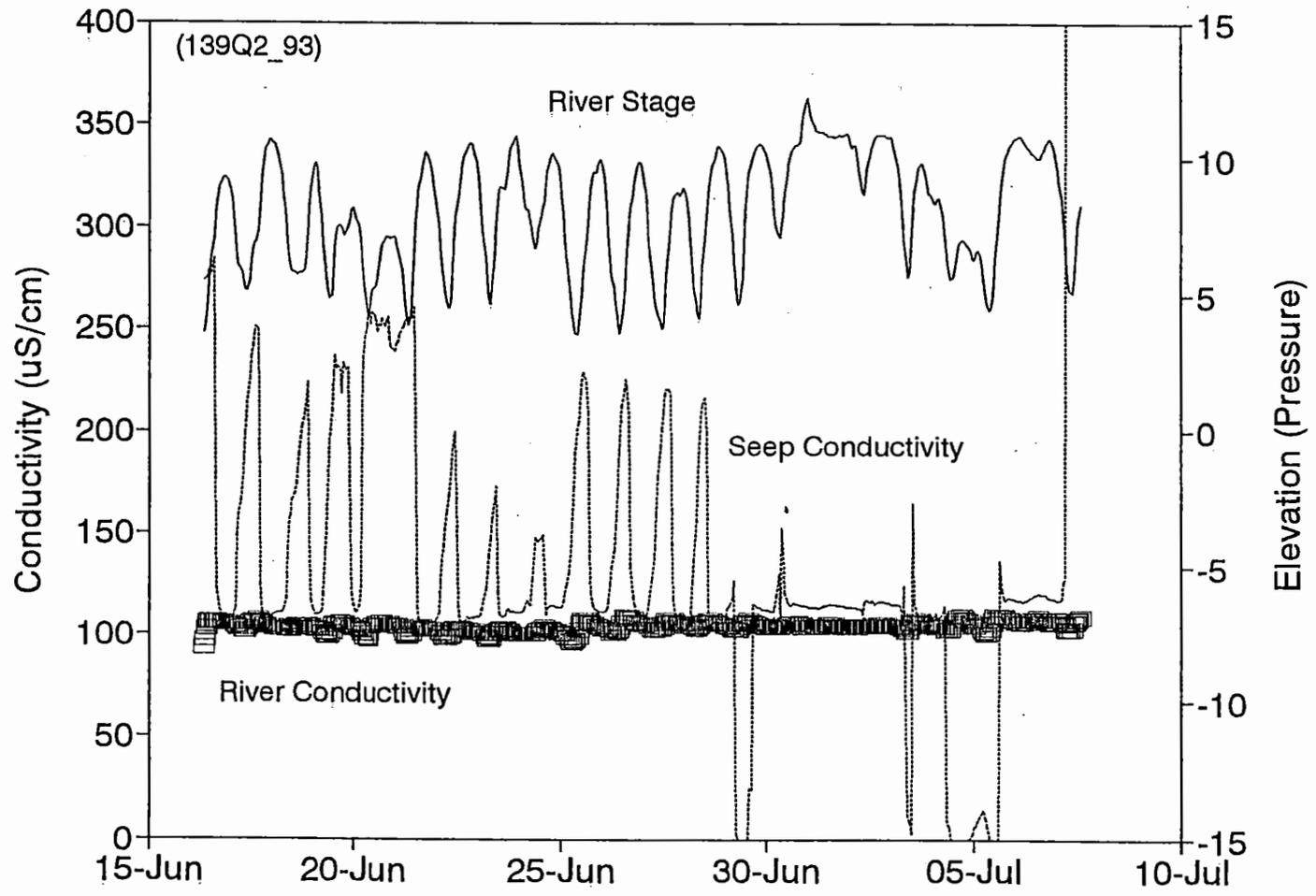
Field Equipment Installations

- **An automated river stage recorder is installed at 100-N Area (replacement for former manual recorder).**

Monitoring Activities Related to Long-Term Evaluation

- **Conductivity measurements at riverbank seep were interrupted by cable break in July. Repairs in progress (Figure attached).**
- **Conductivity profiles obtained from six wells in 100-H Area -- analysis in progress.**
- **Analysis of existing hourly data continues:**
 - (1) Water level variability**
 - (2) Water quality/river stage**
 - (3) Aquifer hydraulic properties**

SHORELINE CONDUCTIVITY (100-H AREA)



SUMMARY OF AUGUST '93 ACTIVITIES Cont . . .

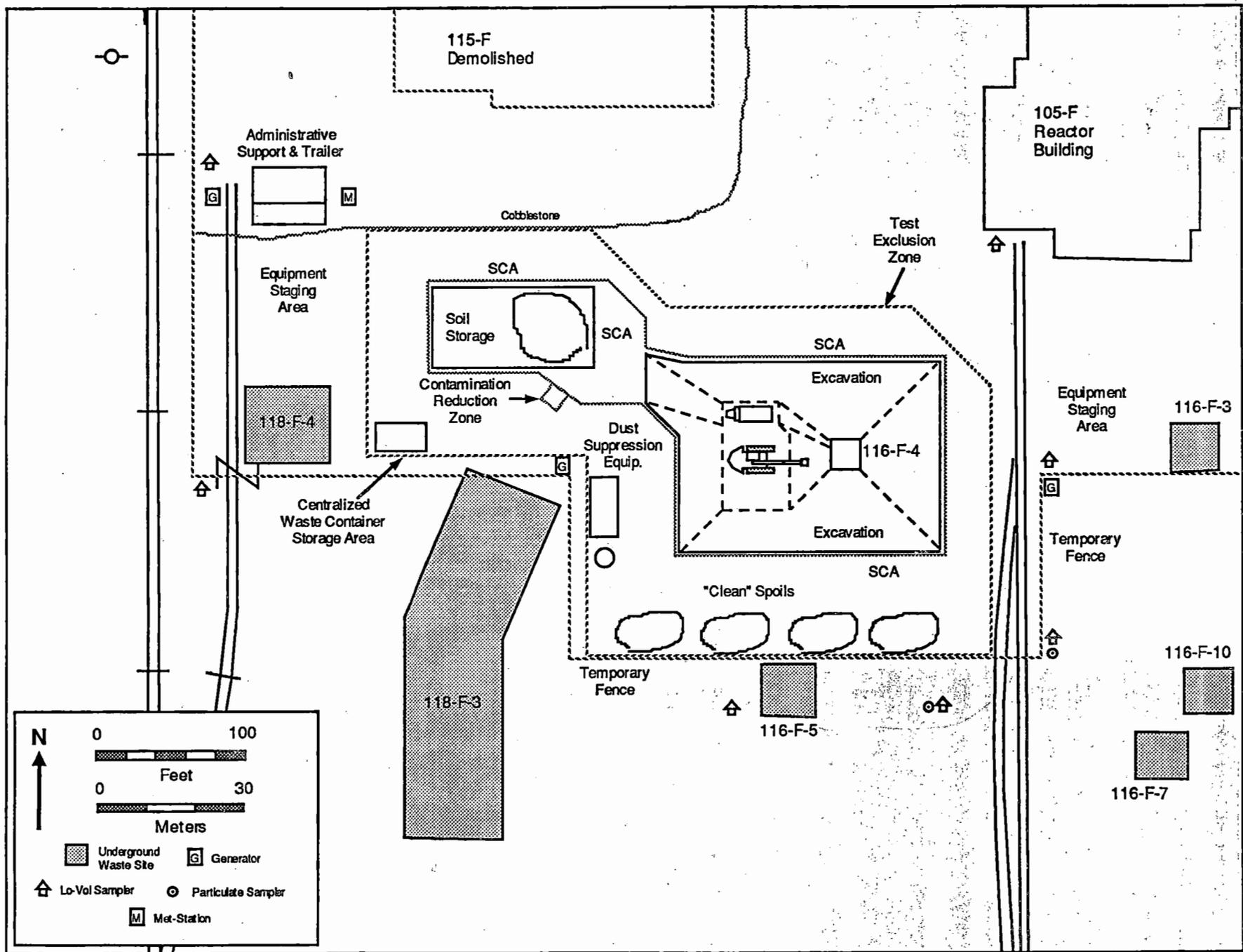
Data Provided to Other Hanford Site Projects

- **Hourly river stage data provided to The Nature Conservancy in support of an island vegetation mapping project.**
- **River stage data used to verify a river flow model developed for HEDR-Project (PNL).**

100 NPL Agreement Form #52

- **Activity plan included with Agreement has been revised in response to EPA and Ecology comments.**

5240 SUREVIEW



**LABORATORY SOIL WASHING TREATABILITY TESTS
100 AREA**

AUGUST UNIT MANAGERS MEETING

**WESTINGHOUSE HANFORD COMPANY
ENVIRONMENTAL RESTORATION ENGINEERING**

100 Area Soil Washing Test Status

Completed:

- Chemical and Isotopic Analyses
- Moisture Content
- Specific Gravity
- Soil pH, Ion Exchange, TOC
- Wet Screening
- Attrition Scrubbing ("D" samples only, "B/C" samples too coarse)
0.25mm - 2mm material

In Progress:

- Sequential Extraction
- Autogenous Grinding ("B/C" samples, + 2mm particles)
- Optical and Electron Microscopy
- Mineralogy by X-Ray Diffraction
- Surface Area
- Chemical Extraction (0.25mm - 2mm particles)

Scheduled:

- Density Gradient Fractionation
- Heap Leaching
- Optimization
- Waste Water Treatment
- Characterization and Testing of "F-Area " samples

RADIONUCLIDE DATA FOR SIZE-FRACTIONED SOILS

| SIZE FRACTION | Co-60 pCi/g | Cs-137 pCi/g | Eu-152 pCi/g | Weight % |
|-------------------------|----------------|-----------------|-----------------|----------|
| 116-C-1 Sample | | | | |
| > 2 mm | <3 | 675 | 21 | 97.2 |
| < 2 mm | 1621 | 28300 | 4856 | 2.8 |
| 116-D-1B Sample* | | | | |
| 13.5-9.51 mm | <3 | 13 | <5 | 7.9 |
| 9.5-2 mm | <3 | 41 | <5 | 5.3 |
| 2-0.25 mm | <3 | 56 | 17 | 40.7 |
| 0.25-0.074 mm | 5 | 213 | 47 | 4.8 |
| 0.074-0.028 mm | 30 | 380 | 277 | 7.4 |
| <0.028 mm | 252 | 1110 | 2350 | 0.2 |

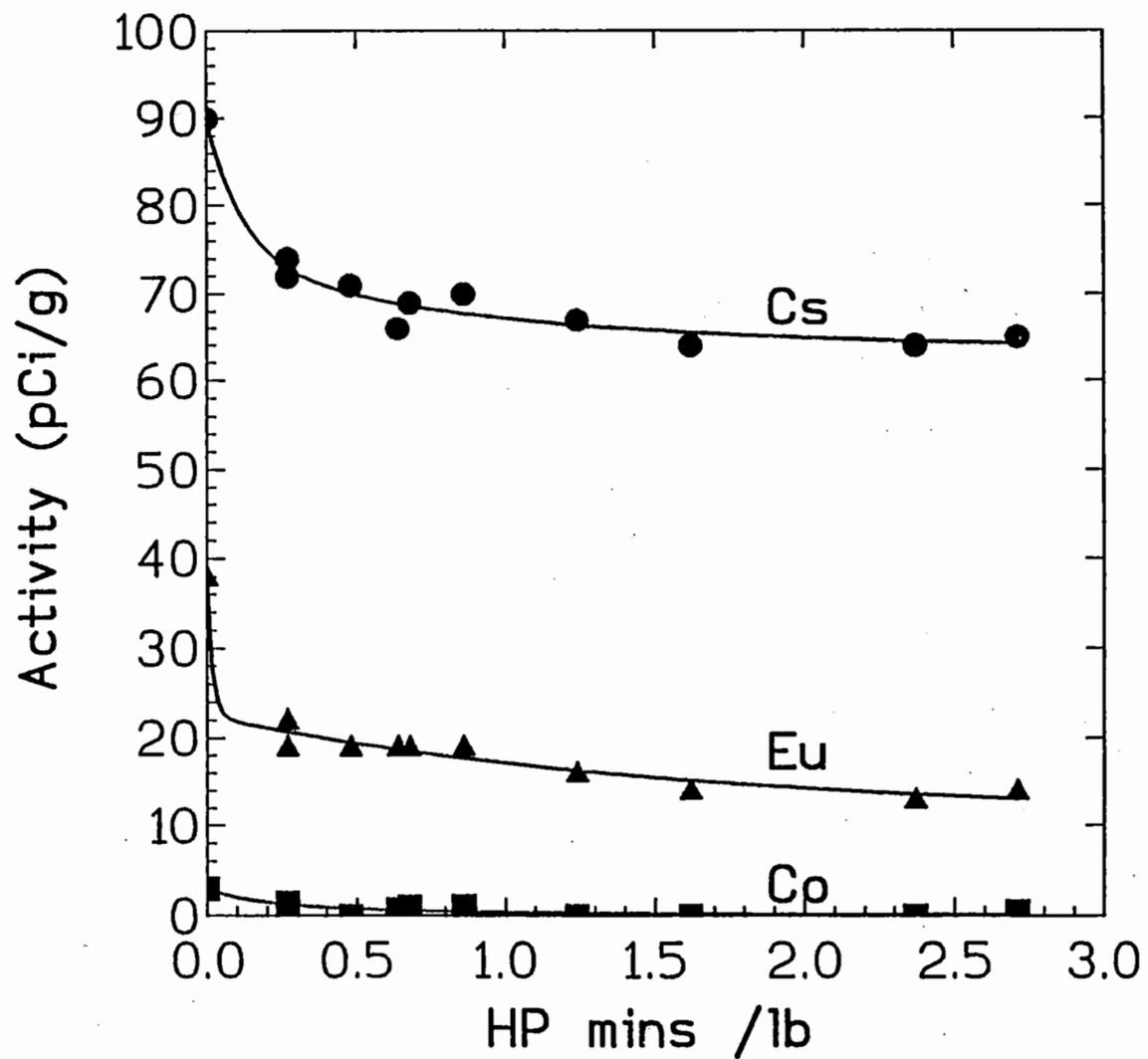
* 33.7 % of particles > 13.5 mm/

RADIONUCLIDE DATA FOR SIZE-FRACTIONED SOILS

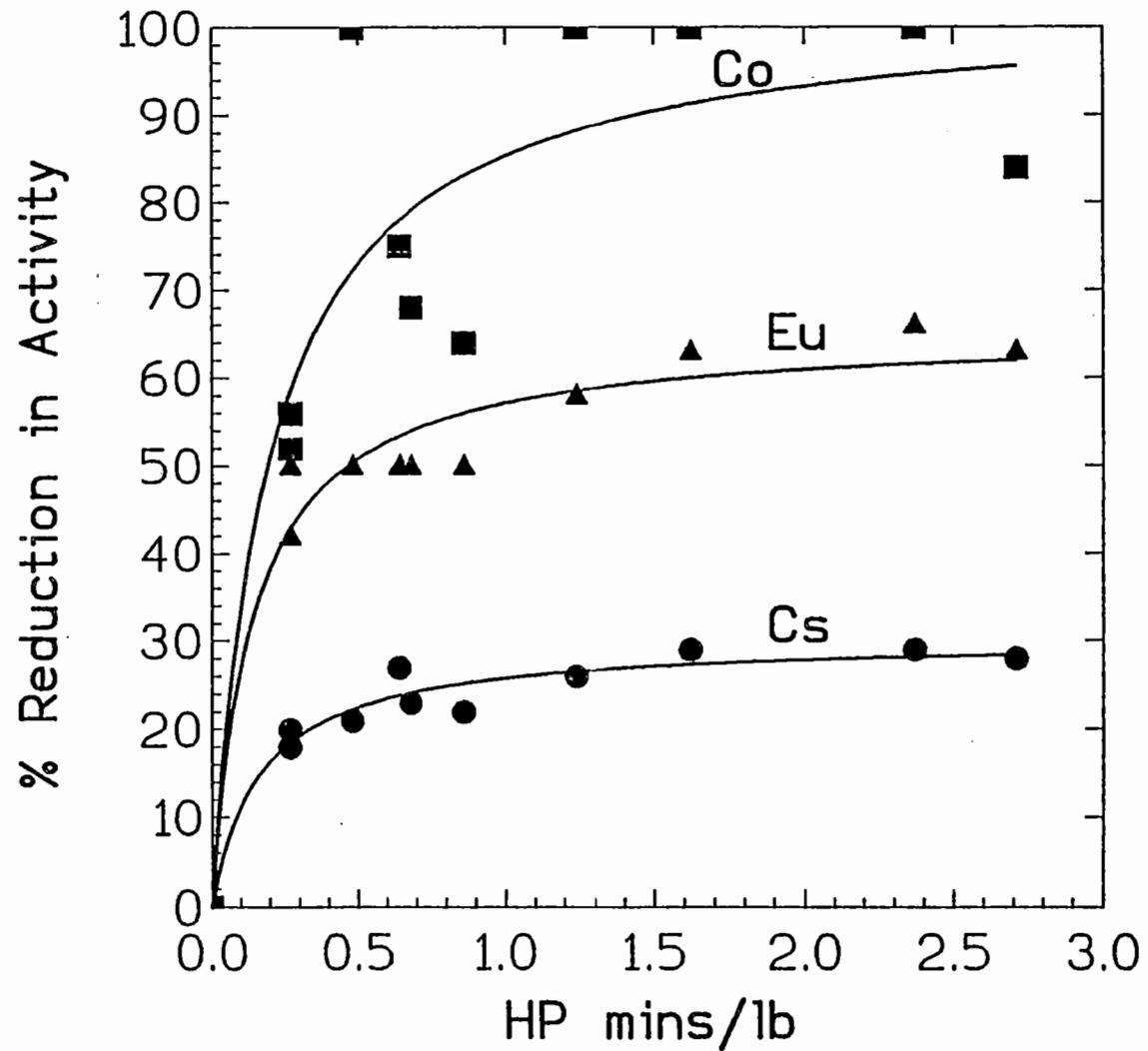
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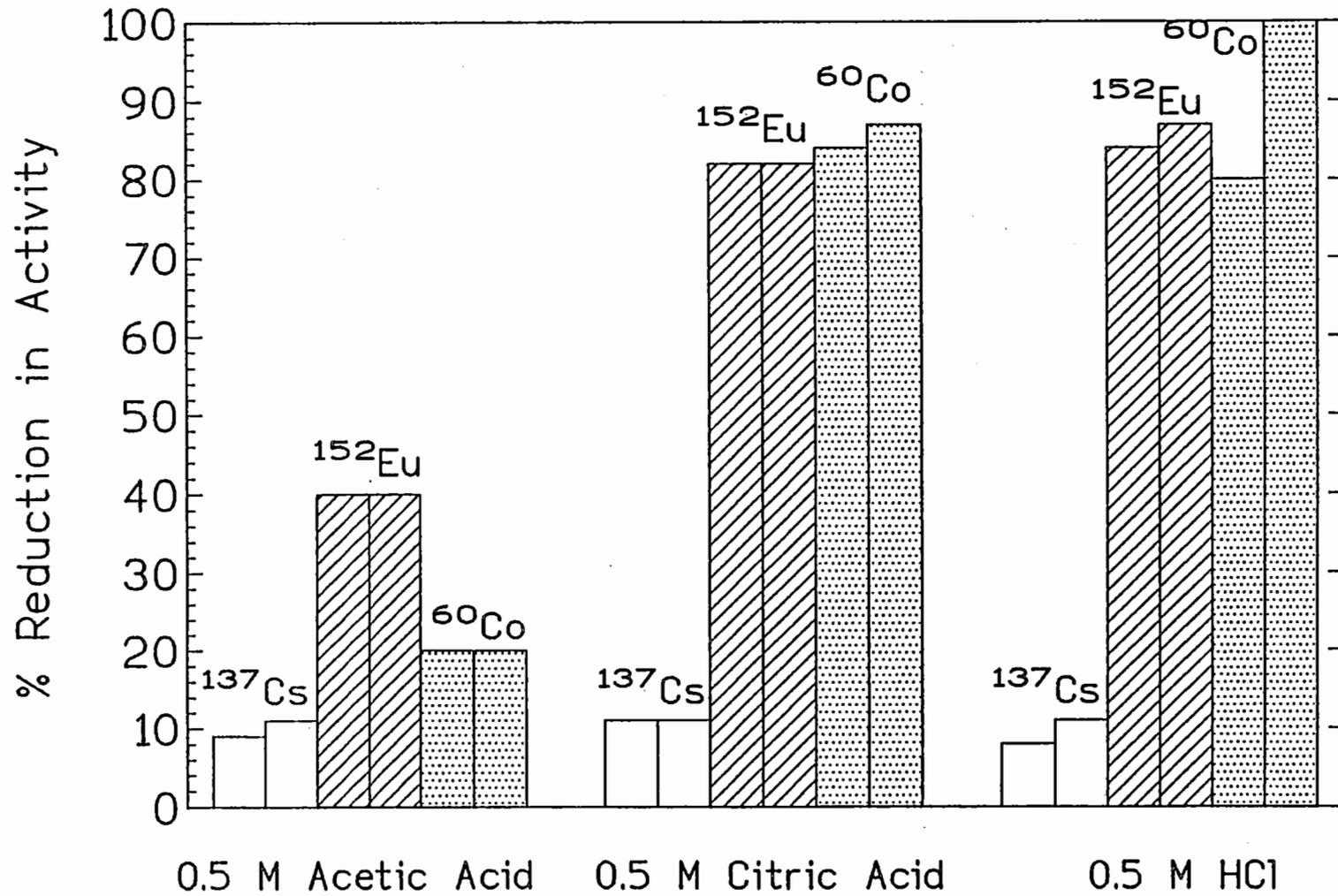
ATTRITION SCRUBBING: 116-D-1B SAMPLE



ATTRITION SCRUBBING: 116-D-1B SAMPLE



CHEMICAL EXTRACTION: 116-D-1B SOIL SAMPLE



Preliminary Assessments

- Greater than 80% of "B/C" and "D" soil particles > 0.25 mm.
- Radioactive Isotopes (Cs, Eu, Co) are contaminants of concern in "C" and "D" soils, highest concentration in fines.
- Volume reduction more complex than anticipated due Cs-137, and need to treat coarse soils.
- Treatability of Plutonium and Strontium contaminants to be determined in "F" soil tests

100-HR-3 GROUNDWATER TREATABILITY TESTS

UNIT MANAGERS MEETING

AUGUST 1993

BIODENITRIFICATION

- **INITIAL TESTING IS COMPLETED**
- **FINAL CONFIRMATION TESTS COMPLETED**
 - **DATA IS CURRENTLY BEING ANALYZED**

CHROMIUM & URANIUM PRECIPITATION ION EXCHANGE

STATUS:

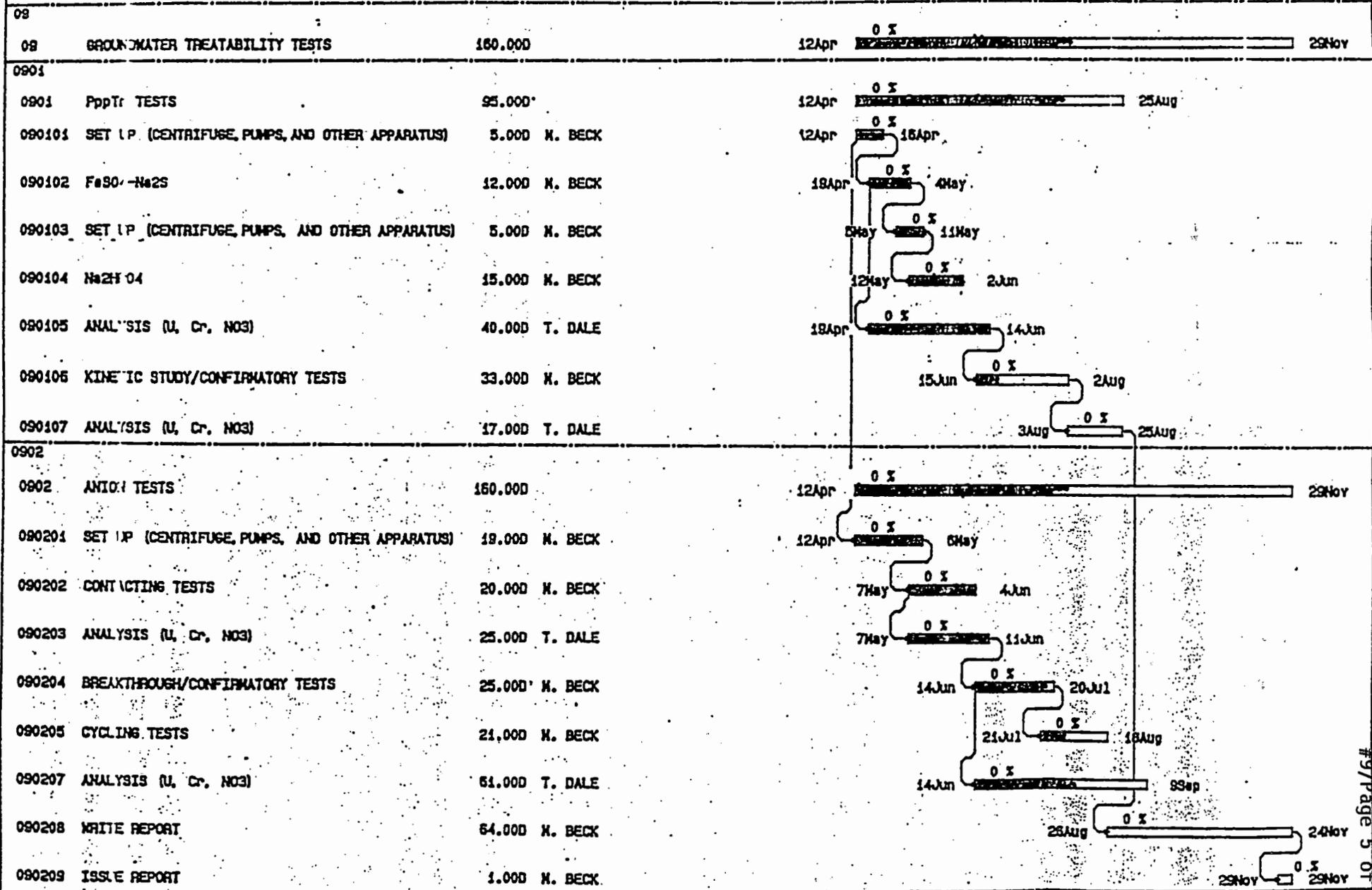
- TESTING FOR REDUCTION/PRECIPITATION COMPLETE
- ION EXCHANGE
 - DECONTAMINATION FACTORS (DF's) COMPLETE
 - RESIN SELECTED
 - FIRST PHASE OF BREAKTHROUGH TESTING COMPLETE
 - CYCLING TESTS UNDERWAY

Ex situ removal of
Chromate, Nitrate, & Uranium (VI)

Actual setup began January 20/1993

CODE1

| 1993 | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 3Feb | 4Mar | 1Apr | 6May | 4Jun | 2Jul | 3Aug | 8Sep | 6Oct | 3Nov |



Legend
Early CPH

| | | |
|--------------------------------|---------------------------|--------------------|
| Project: GMIT | GMIT | Date: 9Apr93 11:52 |
| GROUNDWATER TREATABILITY TESTS | | |
| Page: 1 | Drawn by GWIKNET Graphics | |

ATTACHMENT 1

#9/ Page 5 of 8

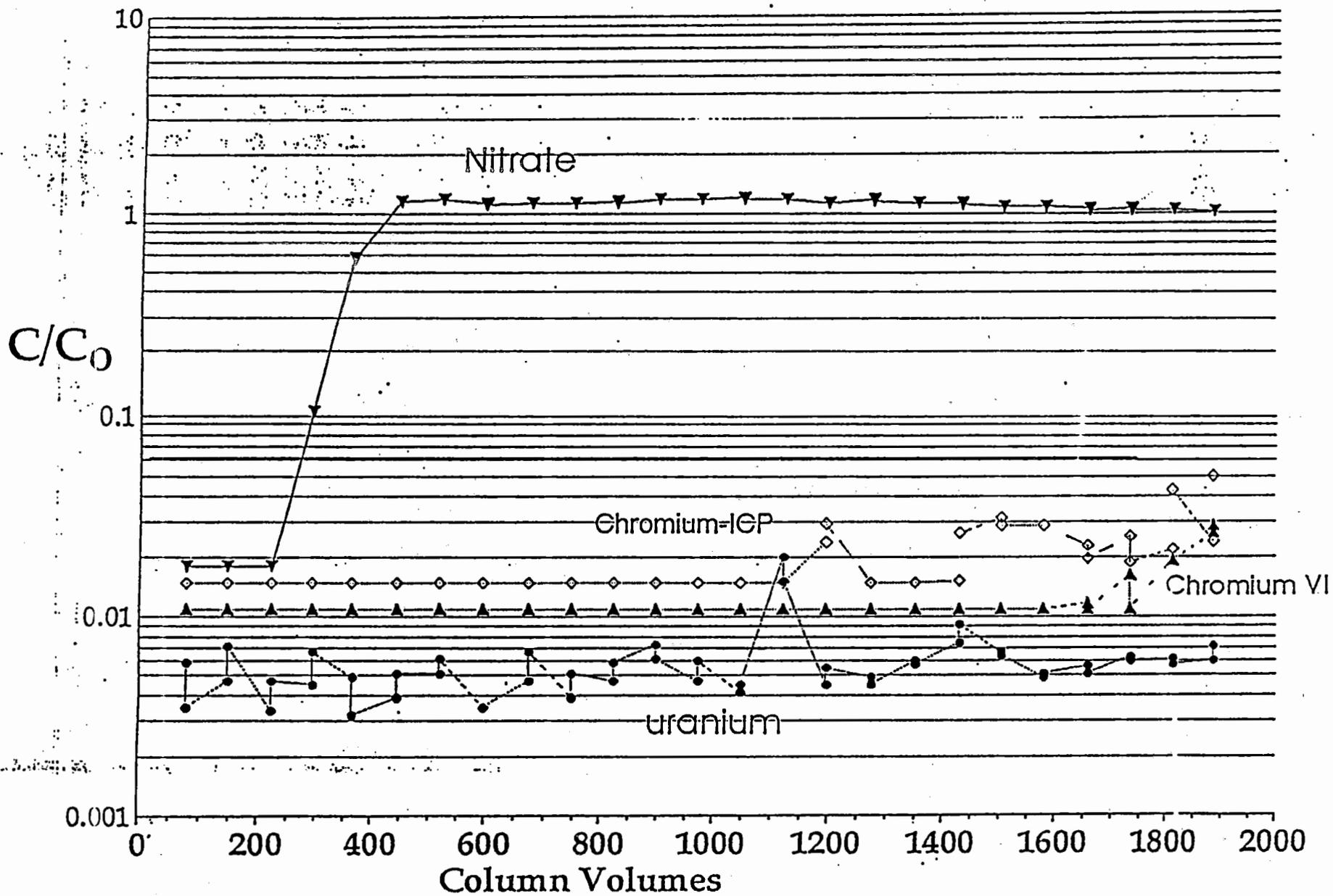
CHROMIUM & URANIUM PRECIPITATION ION EXCHANGE

- PRELIMINARY RESULTS -- ION EXCHANGE, DF's

| | DOWEX 21K | AMBERLITE 402 | AMBERLITE 410 |
|---------|-----------|---------------|---------------|
| NITRATE | 40 | 6 | 12 |
| CHROME | > 50 | > 50 | > 50 |
| URANIUM | > 100 | > 100 | > 100 |

CHROMIUM & URANIUM PRECIPITATION ION EXCHANGE

- RESIN OF CHOICE -- DOWEX 21K
 - AFFINITY FOR NITRATES
 - NO SIGNIFICANT INTERACTIONS FOUND BETWEEN NITRATE, CHROMATE, OR URANIUM (VI)



WELL: H3-2C

$C_0 = 189,000$ ppb NO_3^-
 1,780 ppb Cr (VI)
 720 ppb U (VI)

Distribution
Unit Manager's Meeting: 100 Aggregate Area/100 Area Operable Units
August 25, 1993

Julie K. Erickson /Eric Goller DOE-RL, ERD (A5-19)
Mike Thompson DOE-RL, EAP/RPB (A5-19)
Diane Clark DOE-RL, TSD/SSB (A5-55)
Heather Trumble DOE-RL, OTD/FTB (A5-19)
Steve Balone DOE-HQ (EM-442)

Dennis Faulk 100 Aggregate Area Manager, EPA (B5-01)
Ward Staubitz, USGS Support to EPA
Audree DeAngeles, PRC Support to EPA

Jack Donnelly 100 Aggregate Area Manager, WDOE (Kennewick)
Larry Goldstein WDOE (Lacey)

Lynn Albin Washington Dept. of Health

Tom Wintczak, WHC Program Manager (H6-27)
Mel Adams, WHC /A.D. Krug, WHC (H6-02) (H6-01)
Bob Henckel, WHC (H6-02)
L.D. Arnold, WHC (B2-35)
Diana Sickle, WHC (H6-27)
Chris Widrig, PNL (Please route to:) (K1-21)
 Wayne Martin, PNL (K1-19)
 Mark Hanson, PNL (K1-51)
 Roy Gephart, PNL (K1-22)
 Steve Slate, PNL (K1-19)
 Joan Keller, PNL (K1-21)
 Ben Johnson, PNL (K1-78)

Original Sent to: ADMINISTRATIVE RECORD: 100 AAMS; Care of EPIC, WHC (H6-08)

Please inform Suzanne Clarke (376-8189) or Kay Kimmel (376-1985) of Mactec/Dames & Moore of deletions or additions to the distribution list.