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: _____ for Date _____
Eric D. Goller, 100 Area Unit Manager, RL (A5-19)

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

APPROVAL: _____ 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

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

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

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 ^{137}Cs 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).

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.

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	Dames & Moore	GSSC to RL	376-8189
KAY KIMMEL	MACTEC (O&M)	RL SUPPORT	376-1985
Rich Hibbard	Ecology	Support	(206) 453-5367
CHUCK CLINE	"	Hydrogeo. Support	(206) 438-7556
Tony Knepp	WHC	Hydrology	376 3398
Diana Sickle	WHC	Representative	372-3141
PAMELA INNIS	EPA	UNIT MANAGER	376-4919
Eric Goller	RL	100 Area Unit Mgr	376-7326
BOB SCHECK	Dames Moore	GSSC	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	EPA	um	6-8631
Jil Frain	WHC	100 F Area Treatability	6-8941
Jim Duncan	WHC	100 HR-3 Glutr	2-0896
Jim PATTERSON	WHC	ER Program Office	376-0902
Nancy Uziemblo	Ecology	um	736-3014
Jeff Phillips	Ecology	um	736-3011
Phillip SPARKS	Ecology	—	736-3029
Audree DeAngeles	PRC	EPA Support	206-624-2692
Larry Gadbois	EPA	RPM	376-9884
Alan D. Kings	WHC	100 NR 1 Coord. 100 Area Source Team Ldr	376-5634
Richard h. Biggerstaff	WHC	100 KR-4 Coord 100 Area GW Team Ldr	376 5634

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Attachment #3
Agenda

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

100 Area General Discussions

- **M-30-05** - Robert E. Peterson

- **100 Area Excavation Treatability Studies**
  - **Identify key players, roles and responsibilities; and protocol for interfacing with field activities.**
  - **100-HR-1 Excavation Treatability Study** - Jil Frain
  - **Soil Washing Treatability Study** - Jim Field
  - **100-HR-3 Treatability Study** - Jim Duncan

Operable Unit Status - Questions - Naiknimbalkar/Ayres/Krug/Steve Vukelich/Jim Roberts/Kytola

Action Item Status

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).

STATUS PACKAGE

100 AREA UNIT MANAGER'S MEETING

AUGUST 25, 1993

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.

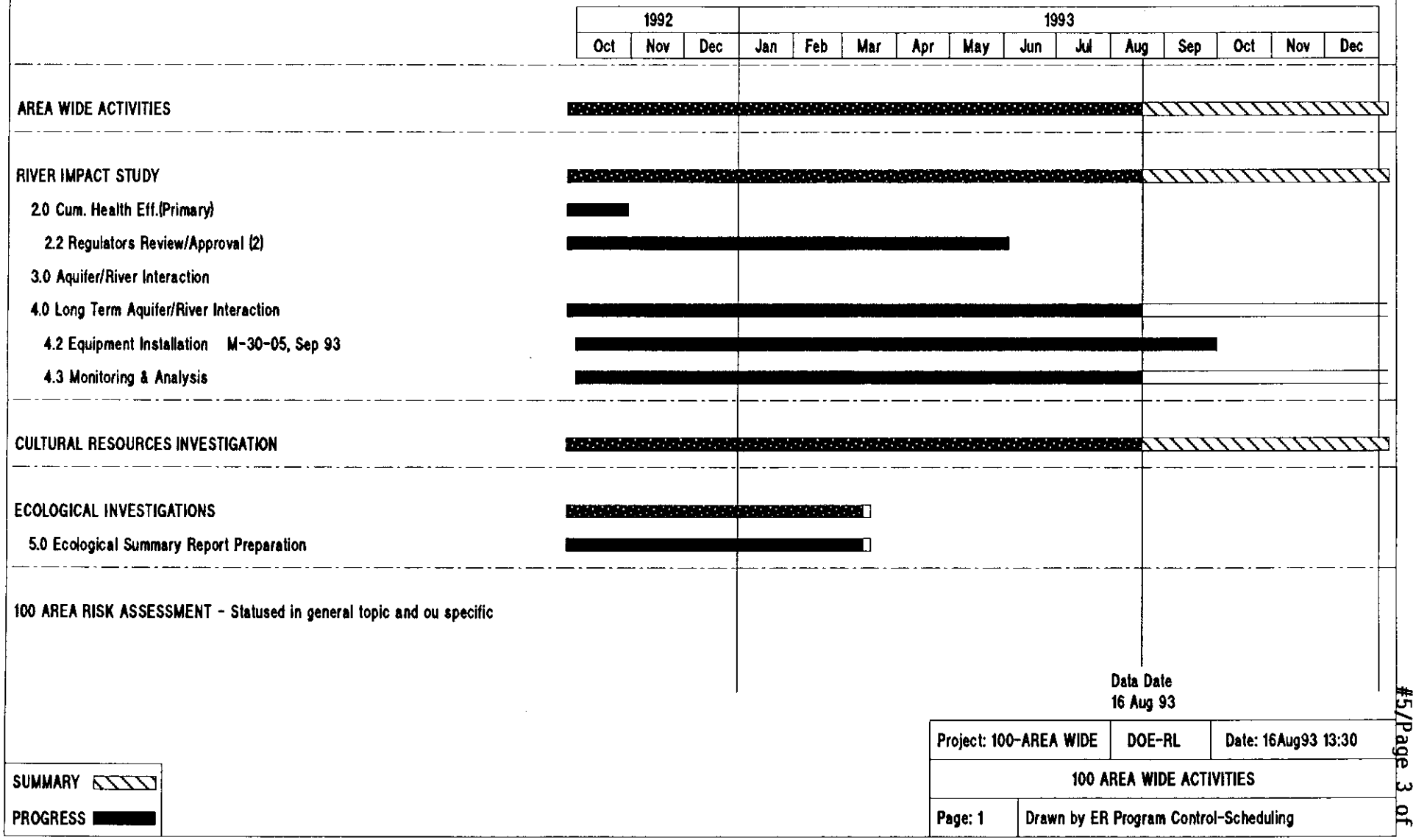
100-Area Ecological Investigations

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

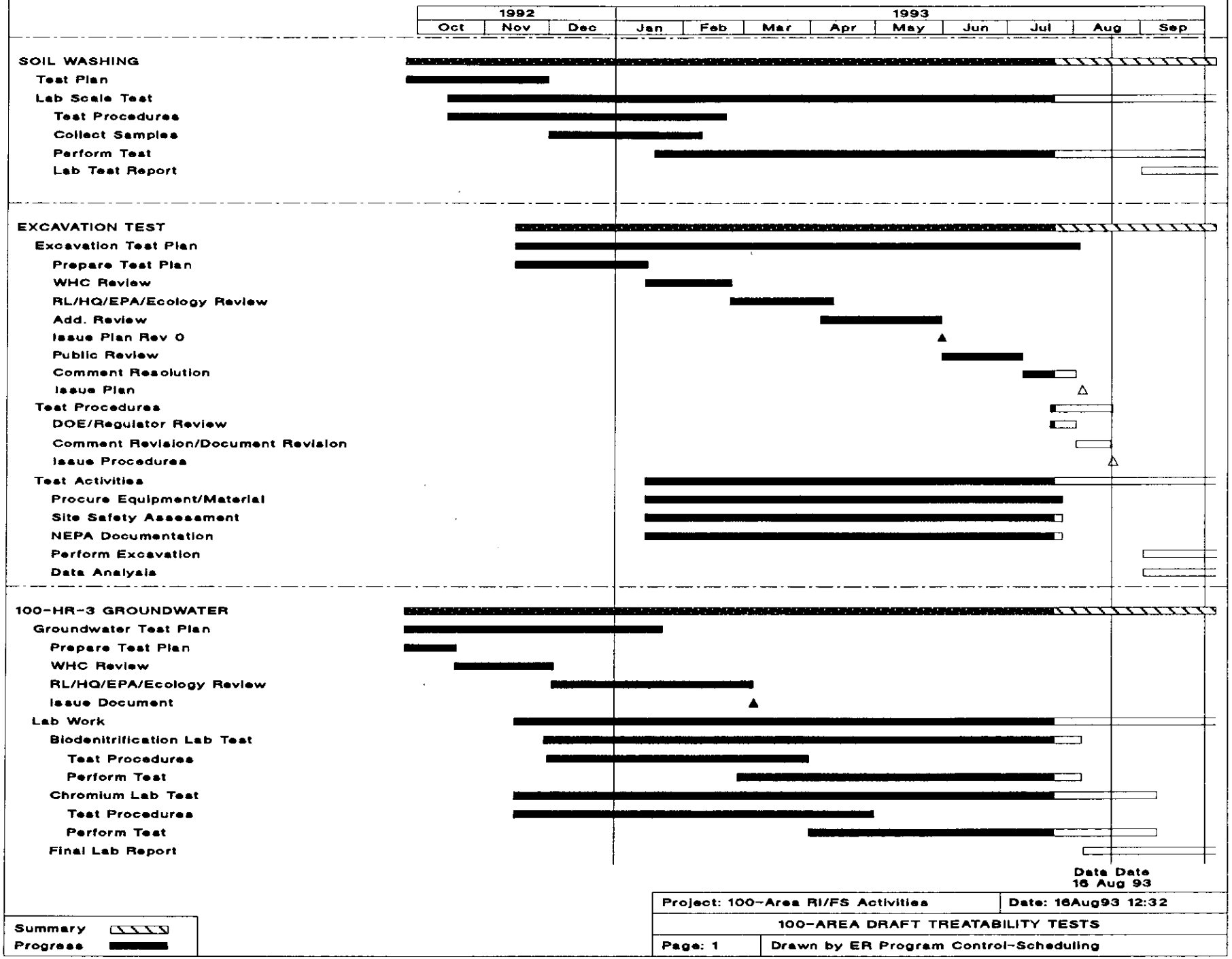
An initial draft of a literature search on the ecotoxicology of contaminants of concern for ecological investigations is being used by ecological risk assessors. The document will be published in fall (no change)

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



100-AREA TREATABILITY TESTS



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 soution. 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 settlable 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_o/C (initial concentration/final concentration) = 0.5. The run was halted after 10 liters were processed through the column and a C_o/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-~~3~~ 1 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.

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 outsider the exclusion zone in what is known as the support zone and will not need any training.

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.

100-BC-2 SOURCE OPERABLE UNIT WORK SUMMARY
August 16, 1993

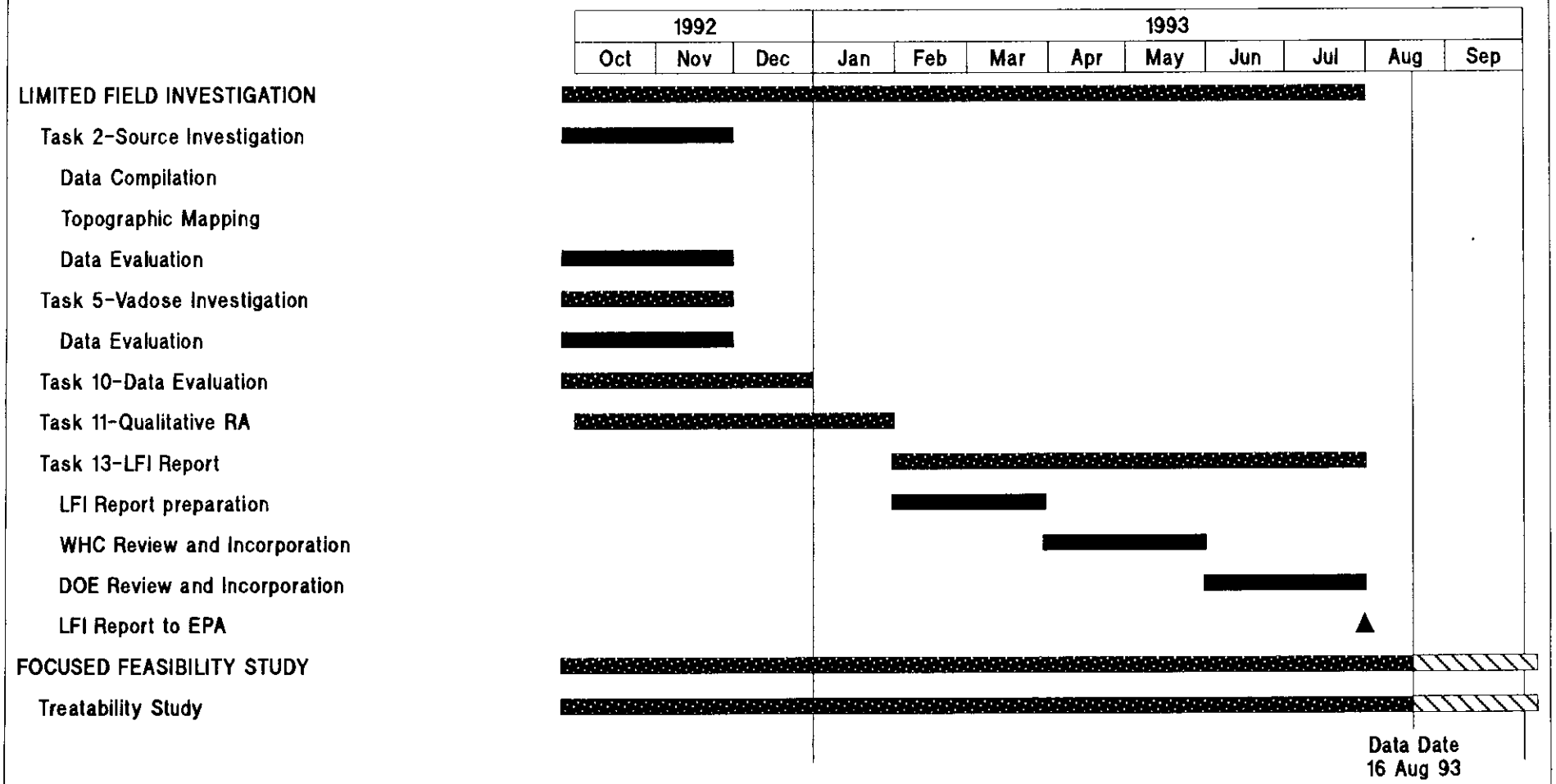
RI/FS Work Plan:

Regulator comments have been incorporated.

Field Activites:

Vadose drilling at the 116-C-2A pluto crib is complete.

100-BC-1 OPERABLE UNIT



Project: 100-BC-1	DOE-RL 90-07, Rev 0	Date: 16Aug93 15:32
100-BC-1 Operable Unit Work Plan		
Page: 1	Drawn by ER Program Control-Scheduling	

Summary
Progress

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.

- 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.

- 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

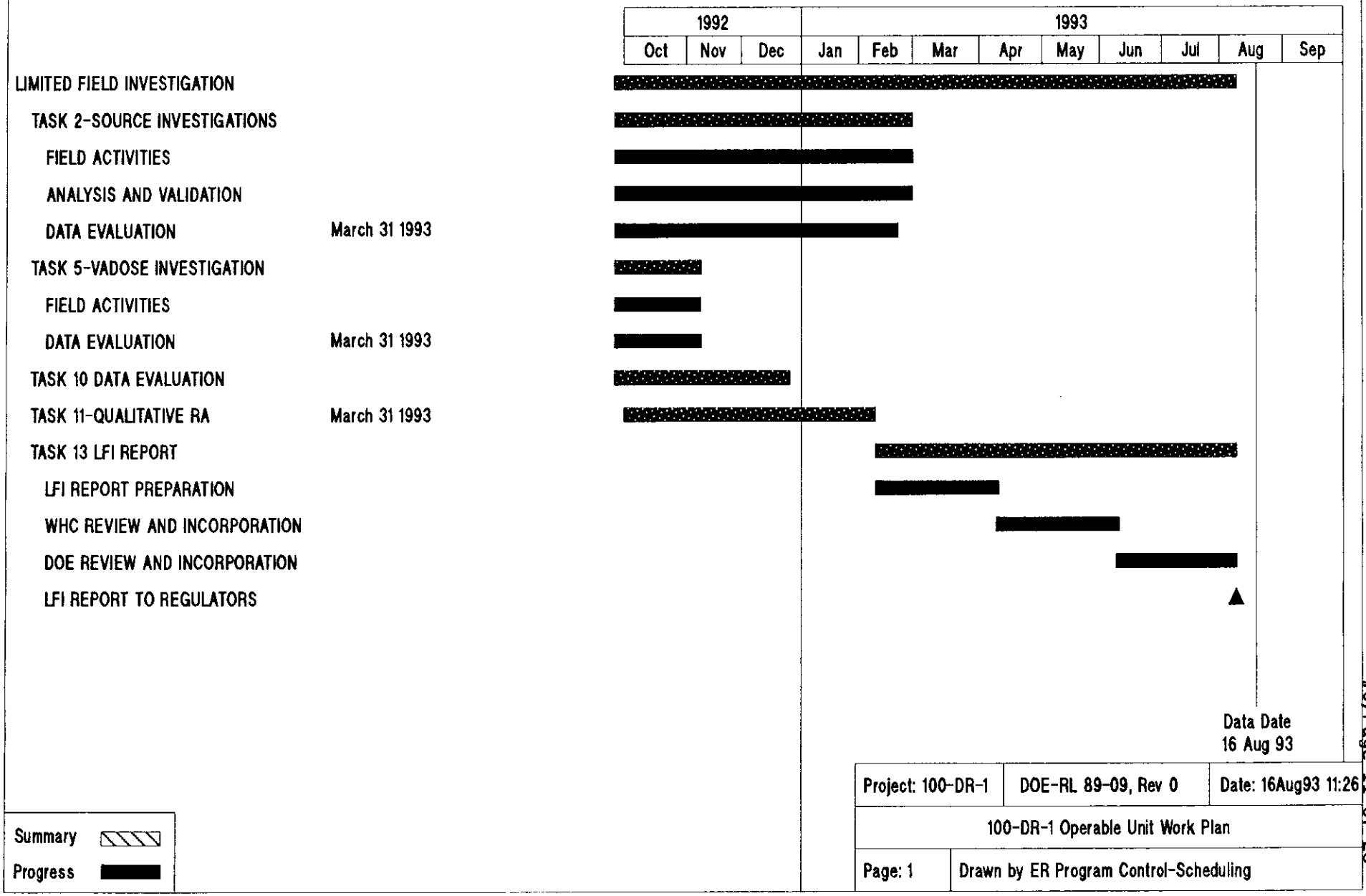
- Scoping meetings were held with DOE-RL and the Regulators and agreement was reached for work scope to be included in the work plan. The work plan is progressing as planned.

Description of Work (DOW)

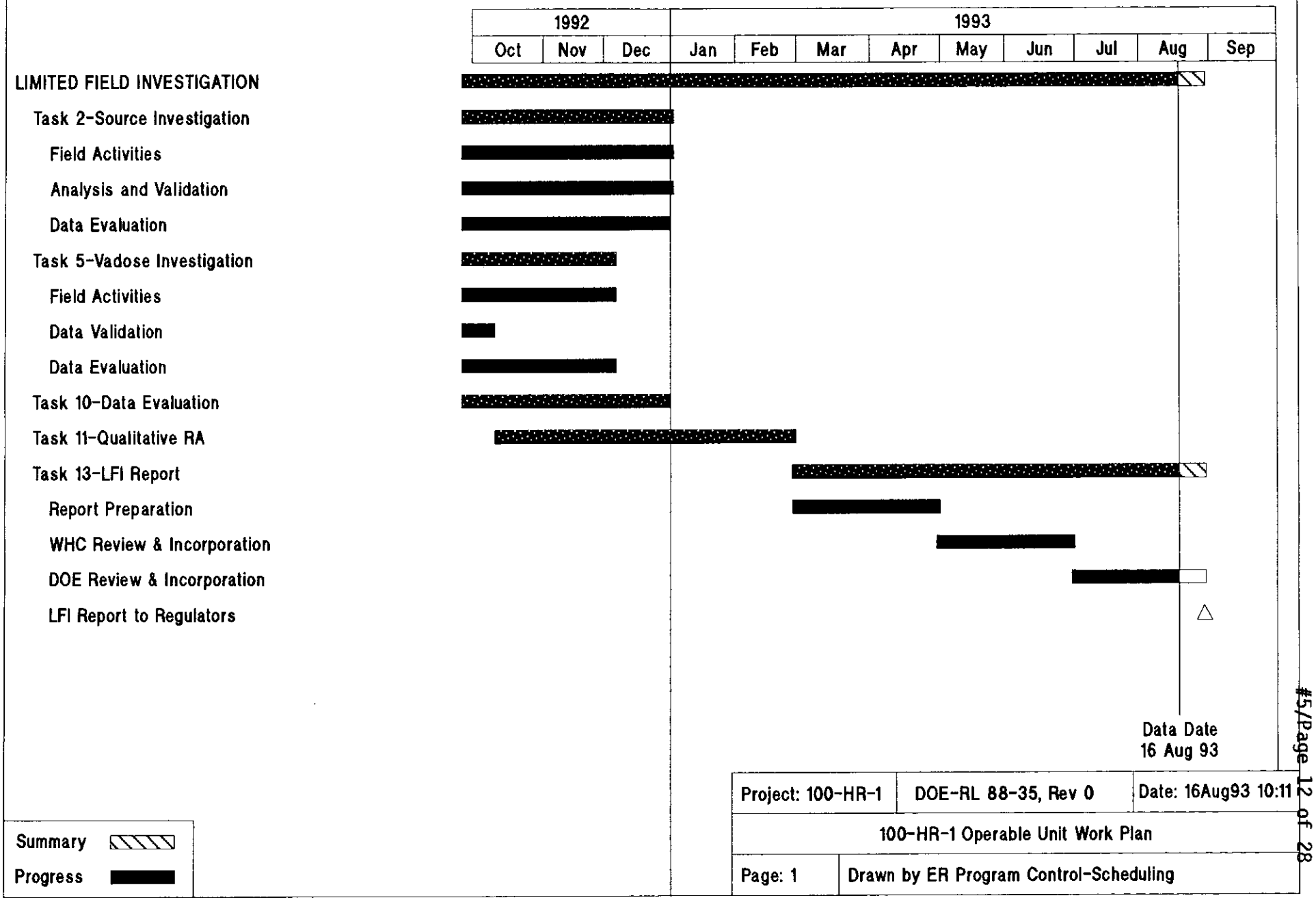
- Description of Work (DOW)for DR-2 is based on agreements between Regulators, DOE-RL and WHC and has been released as WHC-SD-EN-AP-139, Rev. 0. Engineering Change Notice (ECN) has been completed to clarify the contents of DOW for ease of use in the field activities and will be a supplement to the DOW.

  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-DR-1 OPERABLE UNIT



100-HR-1 OPERABLE UNIT



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.

FY 1993 ACTIVITIES FOR 100-KR-1

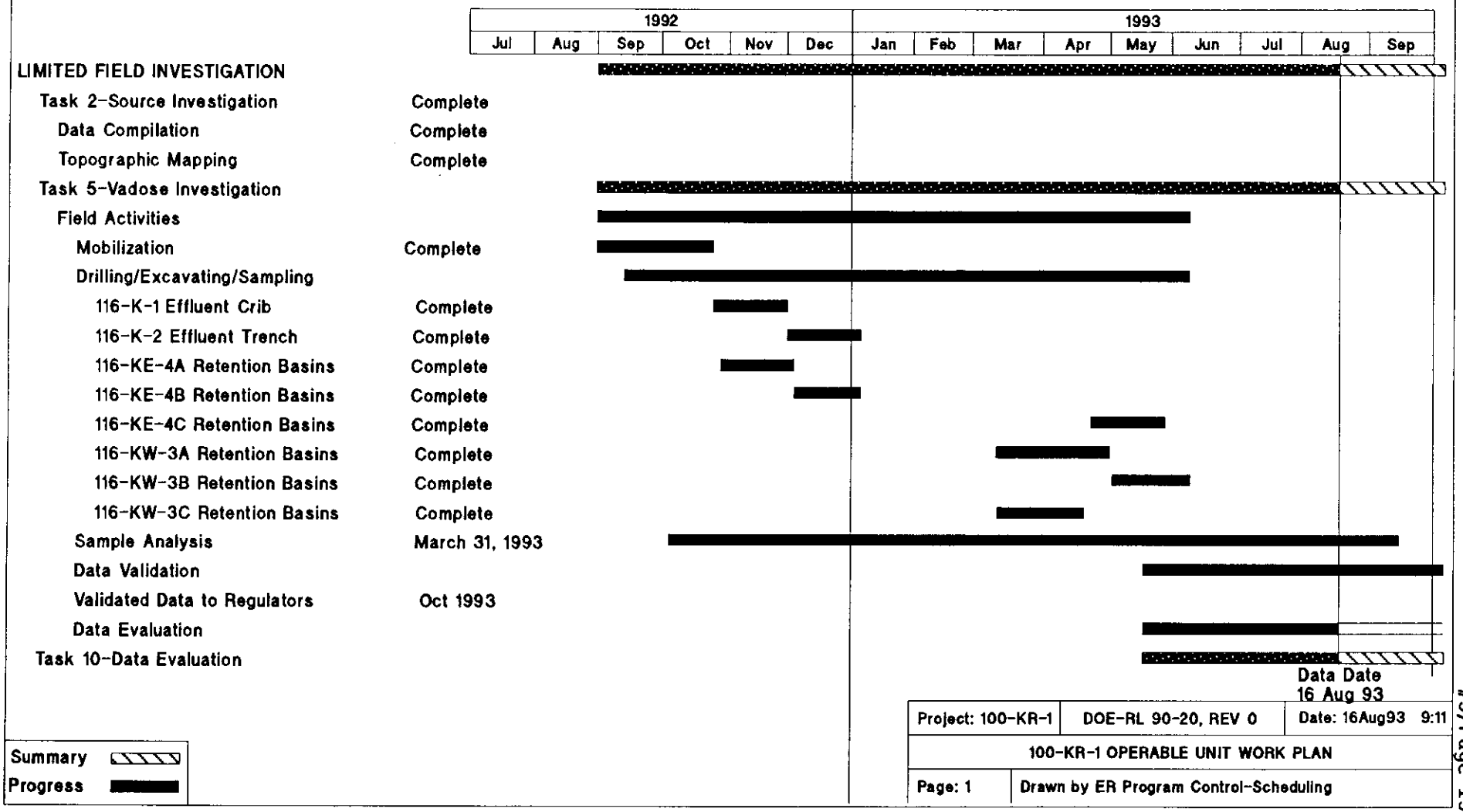
AUGUST 1993 STATUS REPORT

N.M. Naiknimbalkar

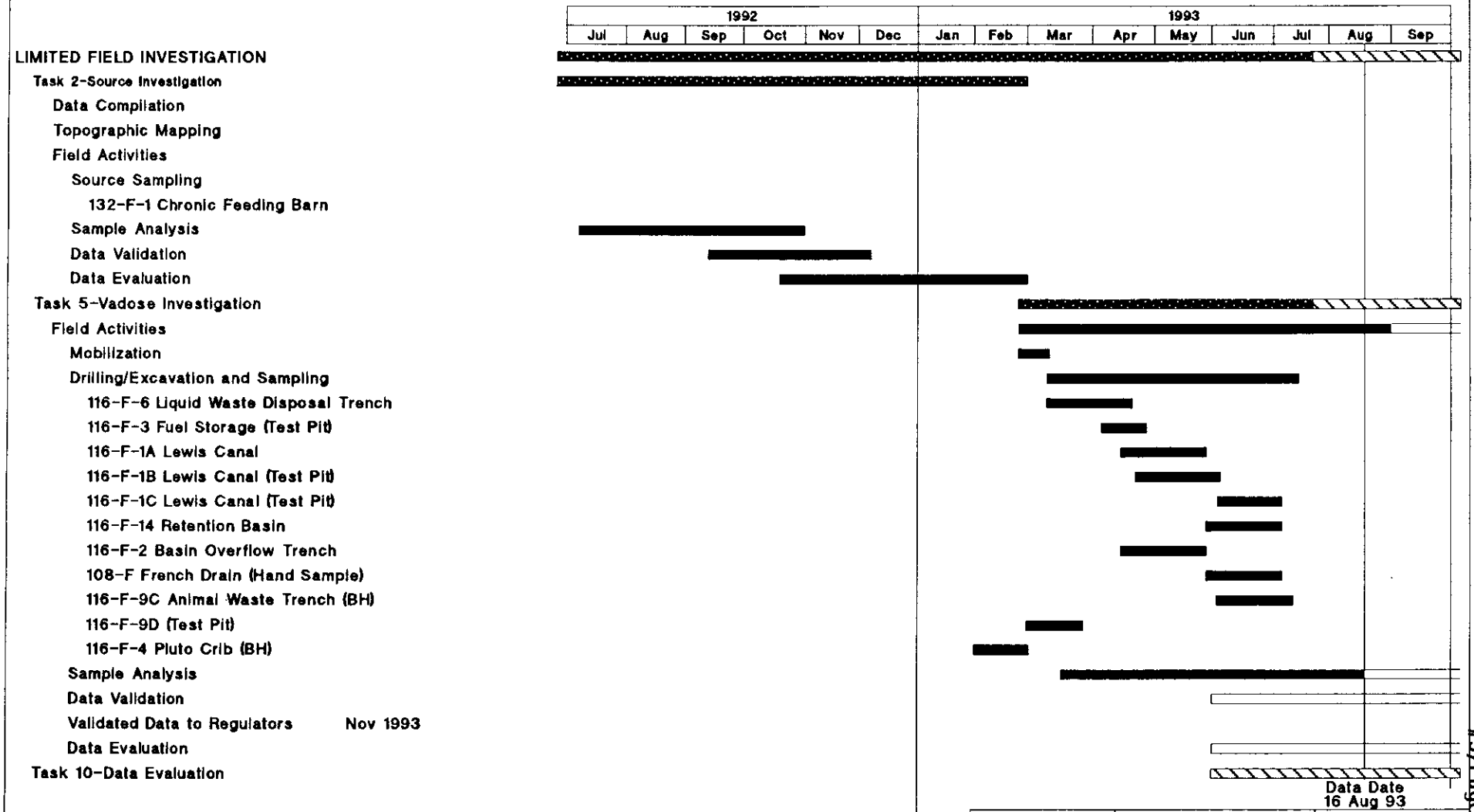
o	Four Vadose Boreholes		October/November 1992
	116-K-1	Effluent Crib	Completed
	116-K-2	Effluent Trench	Completed
	116-KE-4A	Retention Basin	Completed
	116-KW-3A	Retention Basin	Completed
o	Four Test Pits		
	116-KE-4B		Completed
	116-KE-4C		Completed
	116-KW-3B		Completed
	116-KW-3C		Completed
o	Sample Analysis		March 93
o	Data Validation		April 93

All vadose borehole and test pit sample validation data has been submitted to DOE-RL for distribution to Regulators.

100-KR-1 OPERABLE UNIT



100-FR-1 OPERABLE UNIT



OU MANAGERS MEETING - AUGUST 93

100-FR-1

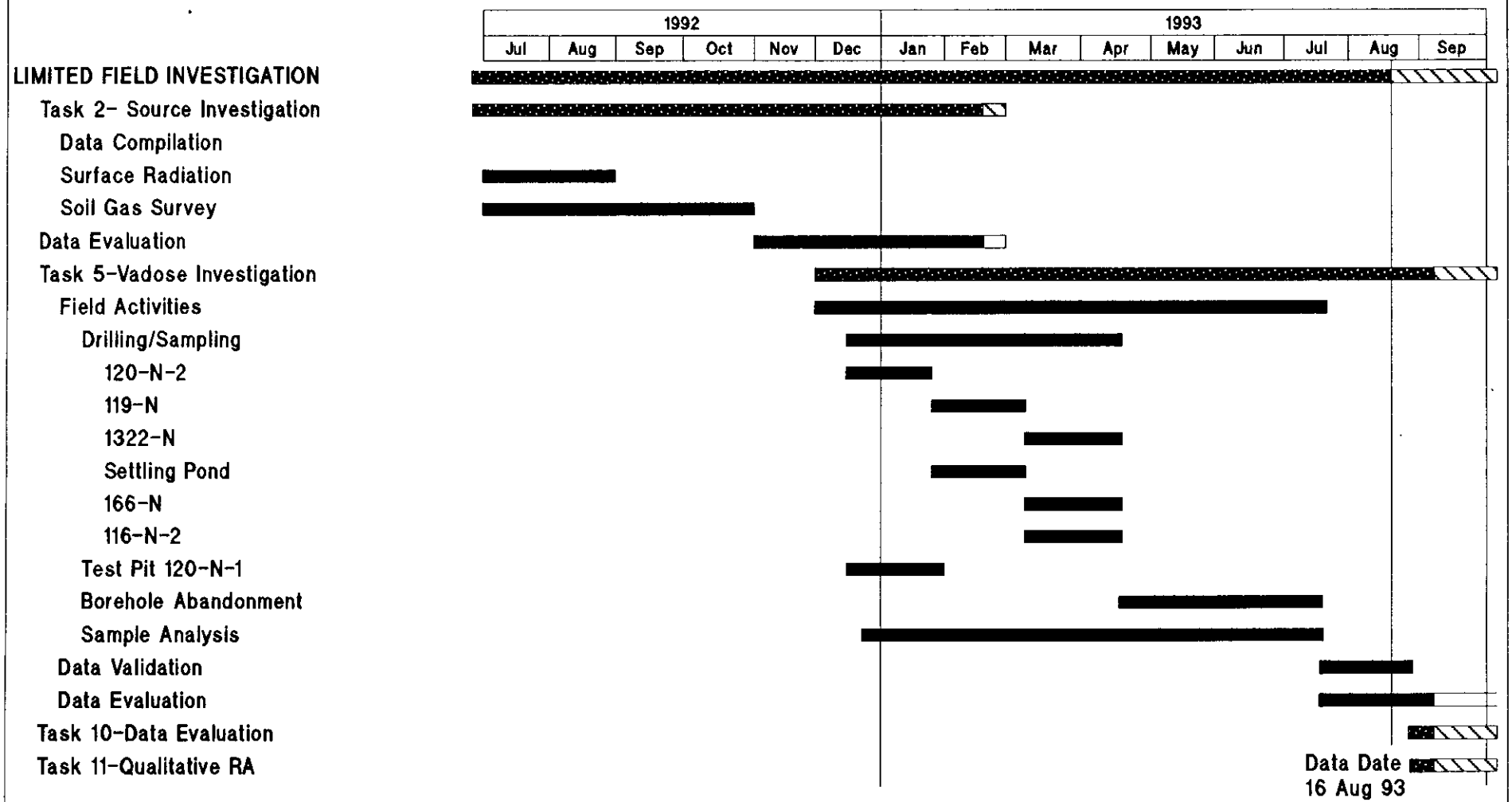
- Preliminary laboratory data from the Vadose boreholes is beginning to arrive. Approximately 65 samples were obtained. Ten percent of the samples will be validated. Validated data is due in August 1993.

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.

100-NR-1 OPERABLE UNIT



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.

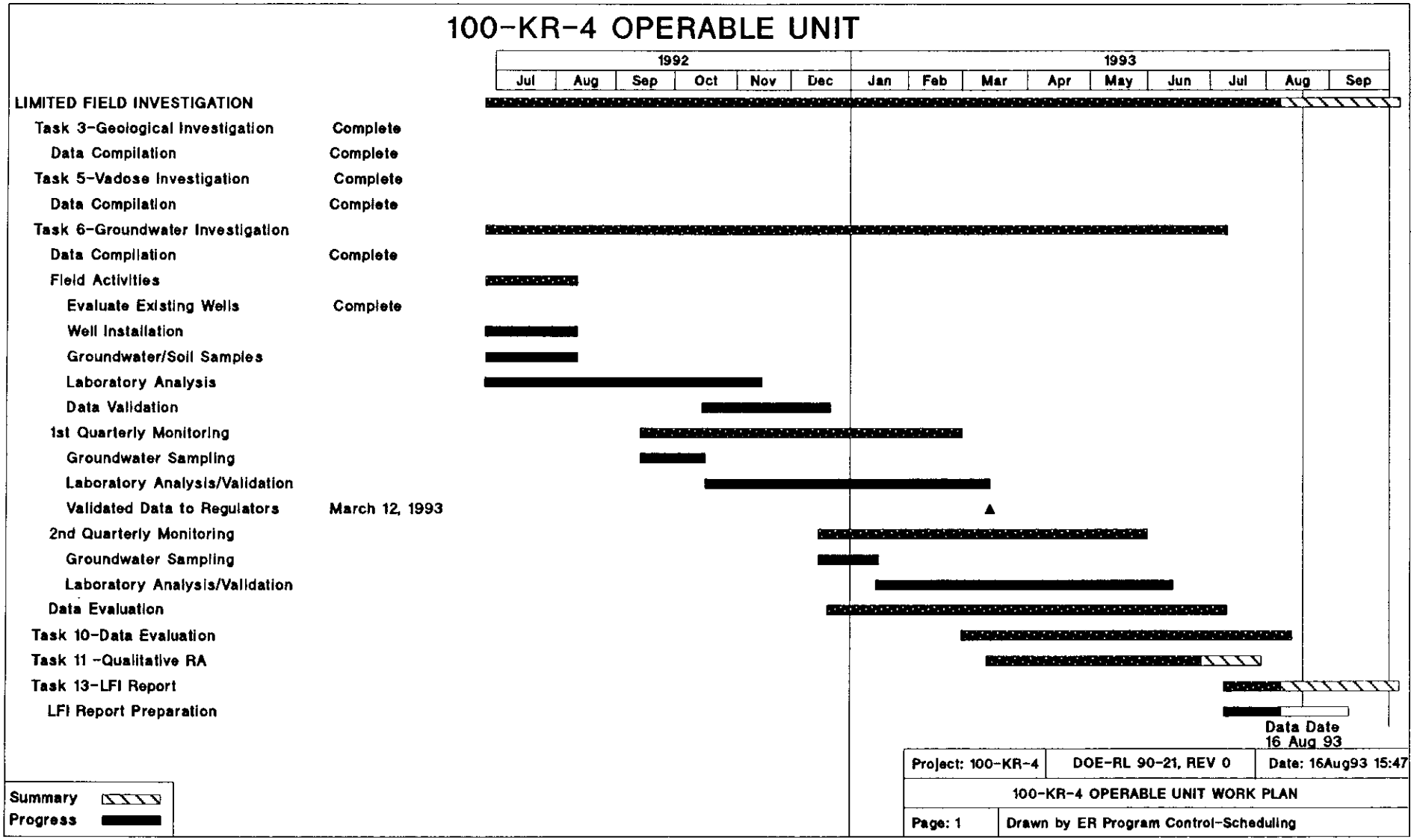
- SAMPLE VALIDATION REPORTS FOR DRILLING SAMPLE DATA AND 1ST ROUND GROUNDWATER SUBMITTED MARCH, 1993.

- 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.

100-KR-4 OPERABLE UNIT



100 NR-2 GROUNDWATER OPERABLE UNIT
WORK SUMMARY 8/19/93

WORK PLAN

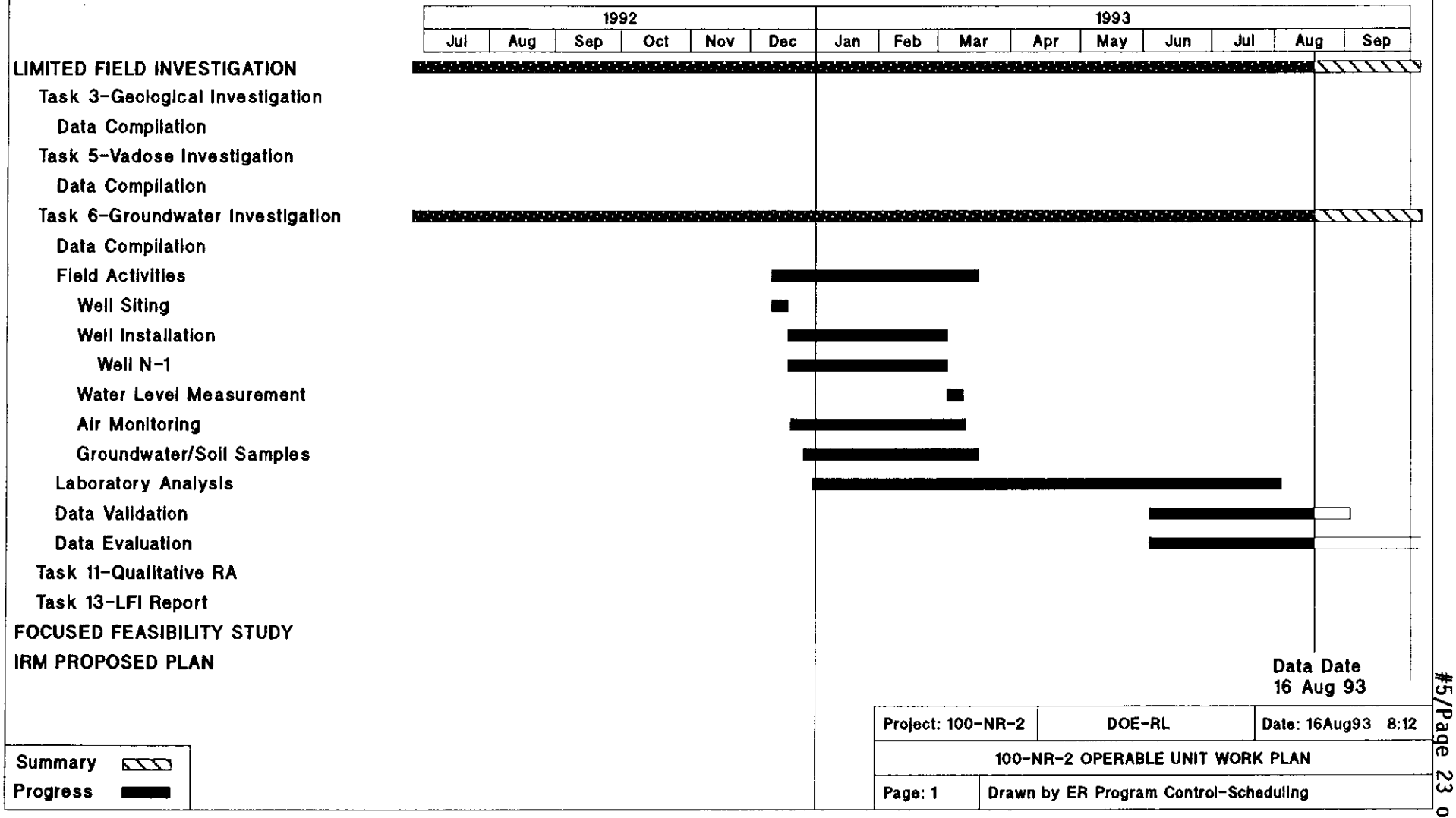
Progress has resumed on completing the 100 NR-2 Work Plan.

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



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

TASK 6 - GROUNDWATER INVESTIGATION

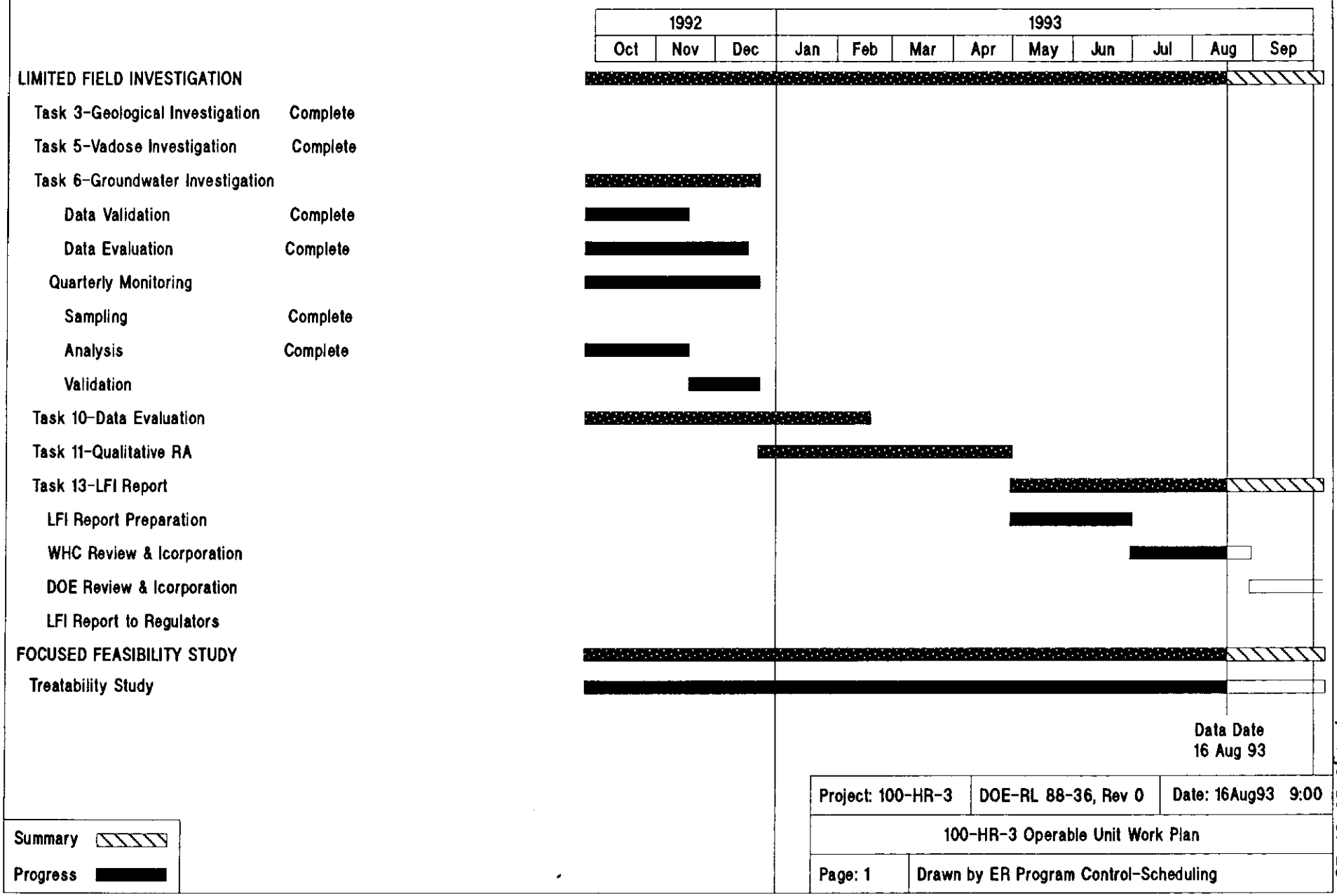
Quarterly Monitoring - Four rounds of groundwater samples have been taken. The fifth round is presently being sampled for a reduced analyte list.

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.

100-HR-3 OPERABLE UNIT



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)

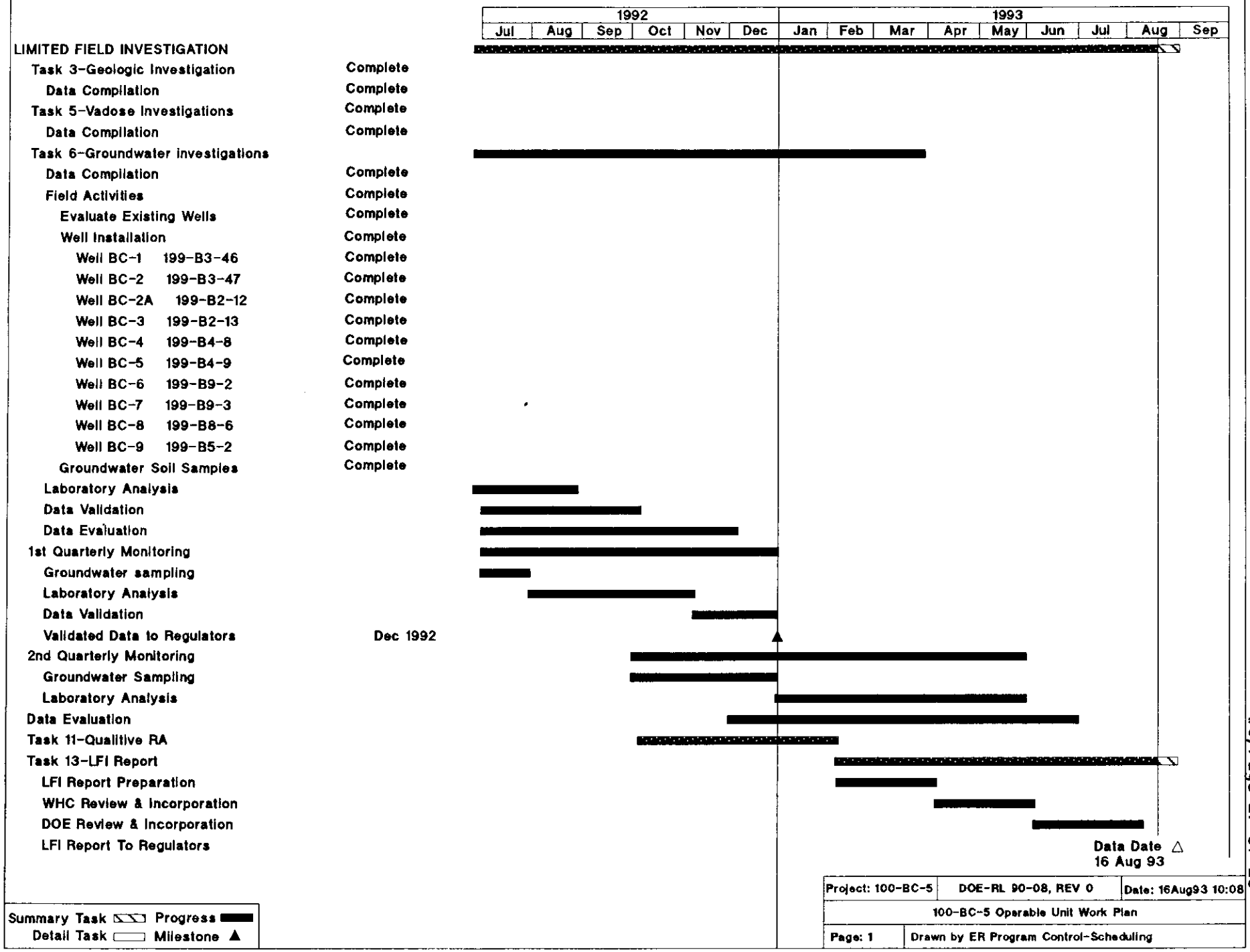
- 1ST QUARTER (DECEMBER), 2ND QUARTER (APRIL), 3RD QUARTER (JULY) GW SAMPLING COMPLETE

- SAMPLE VALIDATION REPORT FOR DRILLING SAMPLE DATA SUBMITTED MARCH 12, 1993

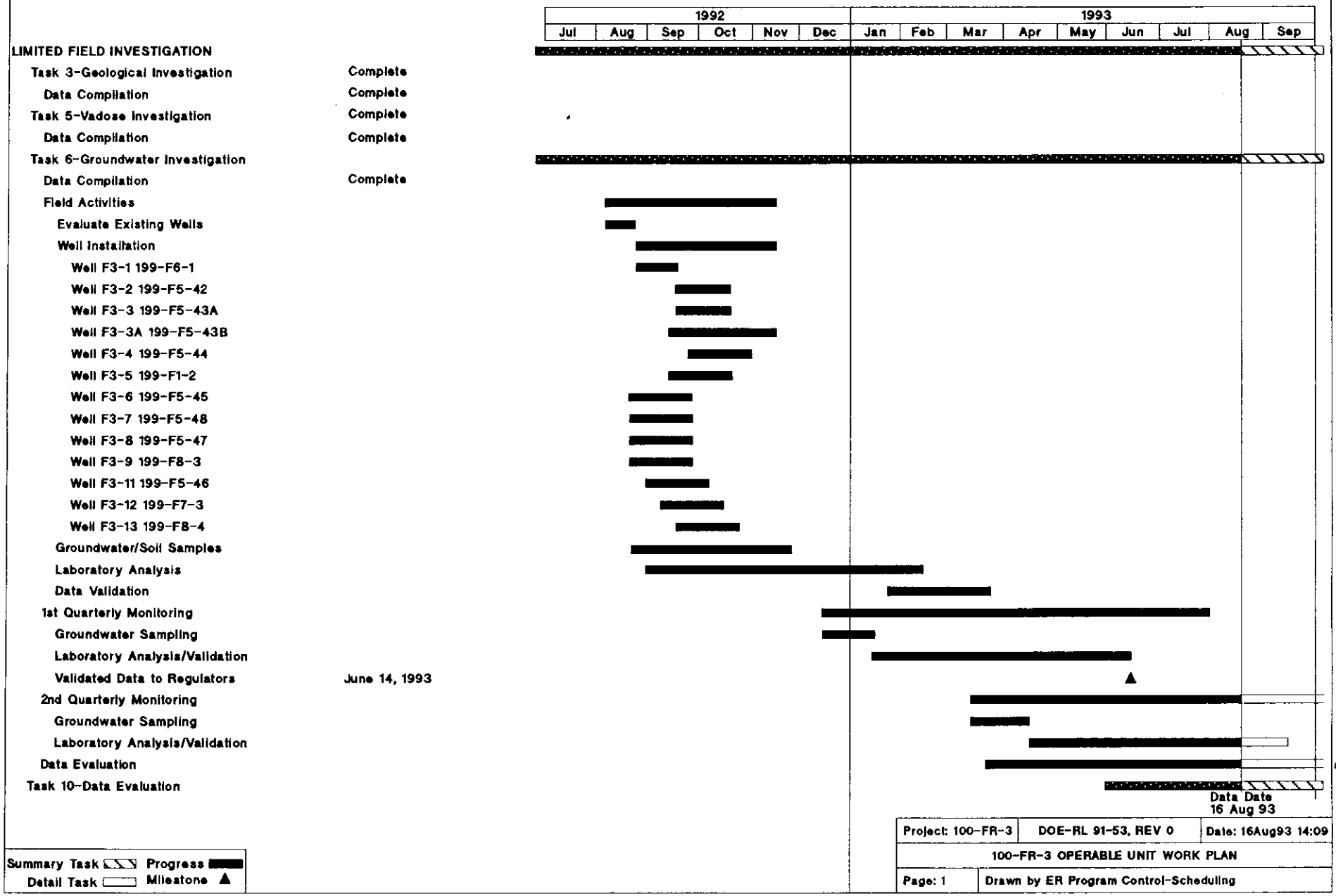
- SAMPLE VALIDATION REPORT FOR 1ST QUARTER GW SUBMITTED JUNE 14, 1993

- SAMPLE VALIDATION REPORT FOR 2ND QUARTER GW SUBMITTED AUGUST 16, 1993

100-BC-5 OPERABLE UNIT



100-FR-3 OPERABLE UNIT



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

Unit Managers Meeting 8/25/93

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.

SUMMARY OF AUGUST '93 ACTIVITIES . . .

Field Equipment Installations

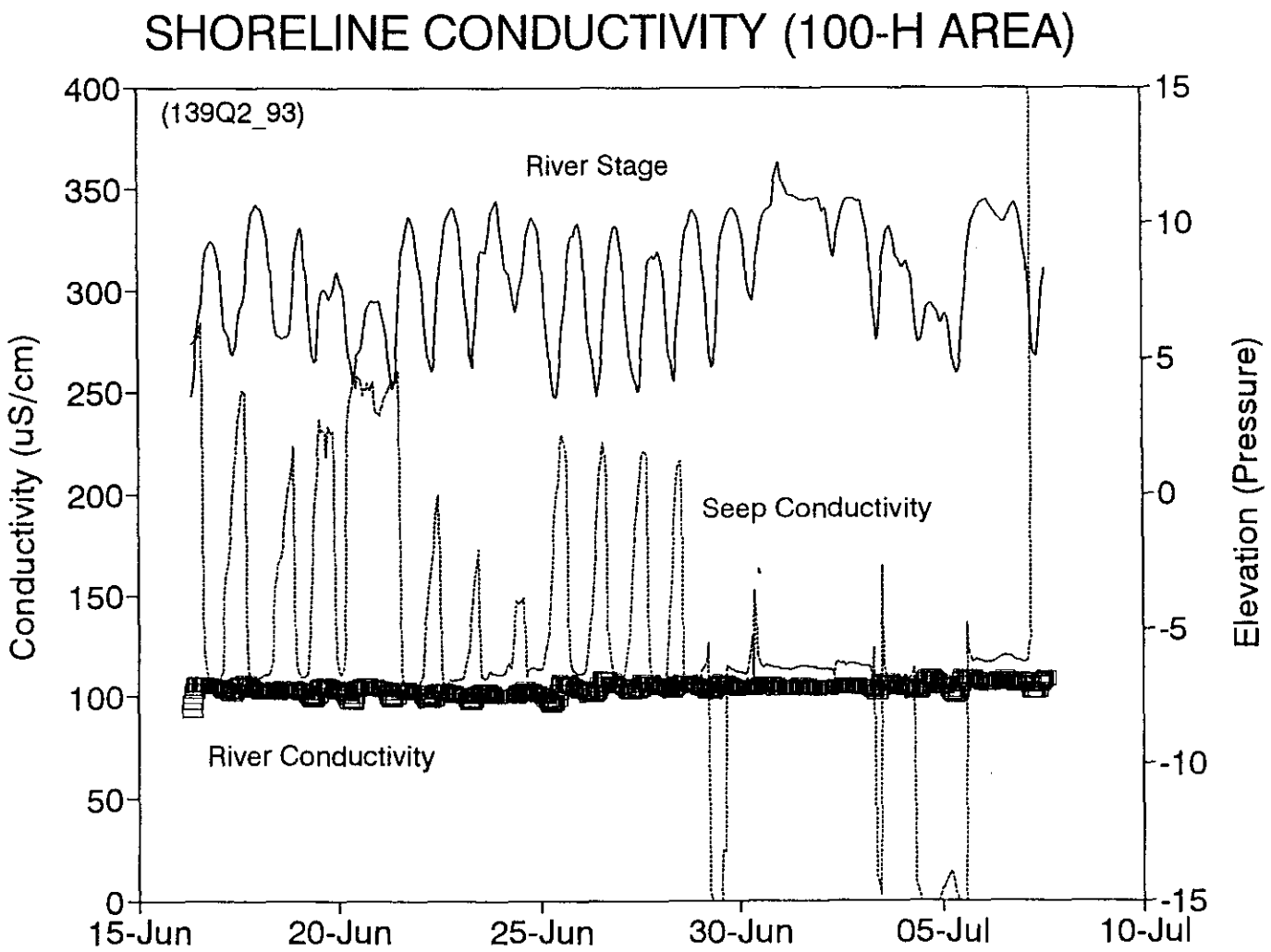
- An automated river stage recorder is installed at 100-N Area (replacement for former manual recorder).

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)
(139Q2_93)
River Stage
Seep Conductivity
River Conductivity
Conductivity (uS/cm)
Elevation (Pressure)
400
350
300
250
200
150
100
50
0
15
10
5
0
-5
-10
-15
15-Jun
20-Jun
25-Jun
30-Jun
05-Jul
10-Jul

SUMMARY OF AUGUST '93 ACTIVITIES Cont . . .

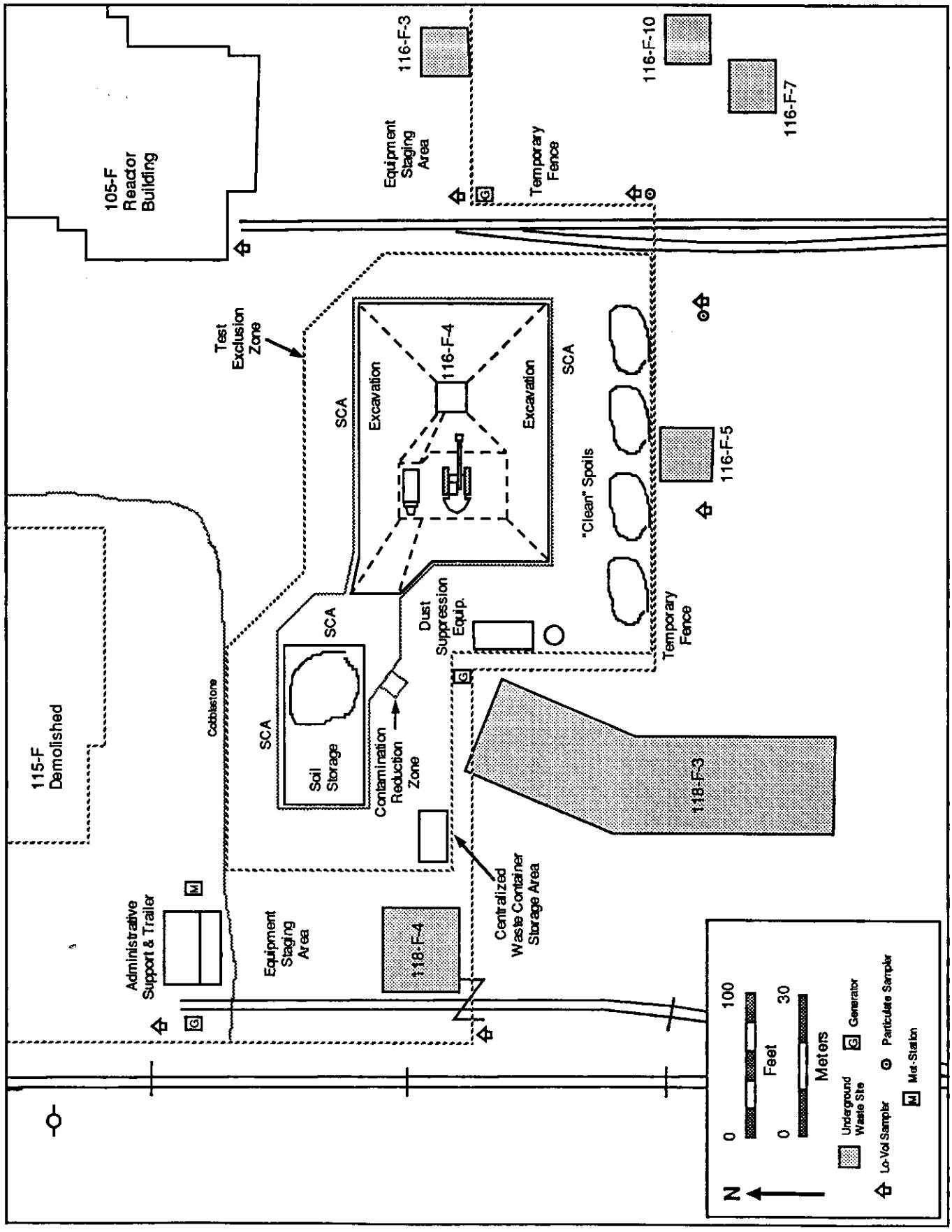
Data Provided to Other Hanford Site Projects

- 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.



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

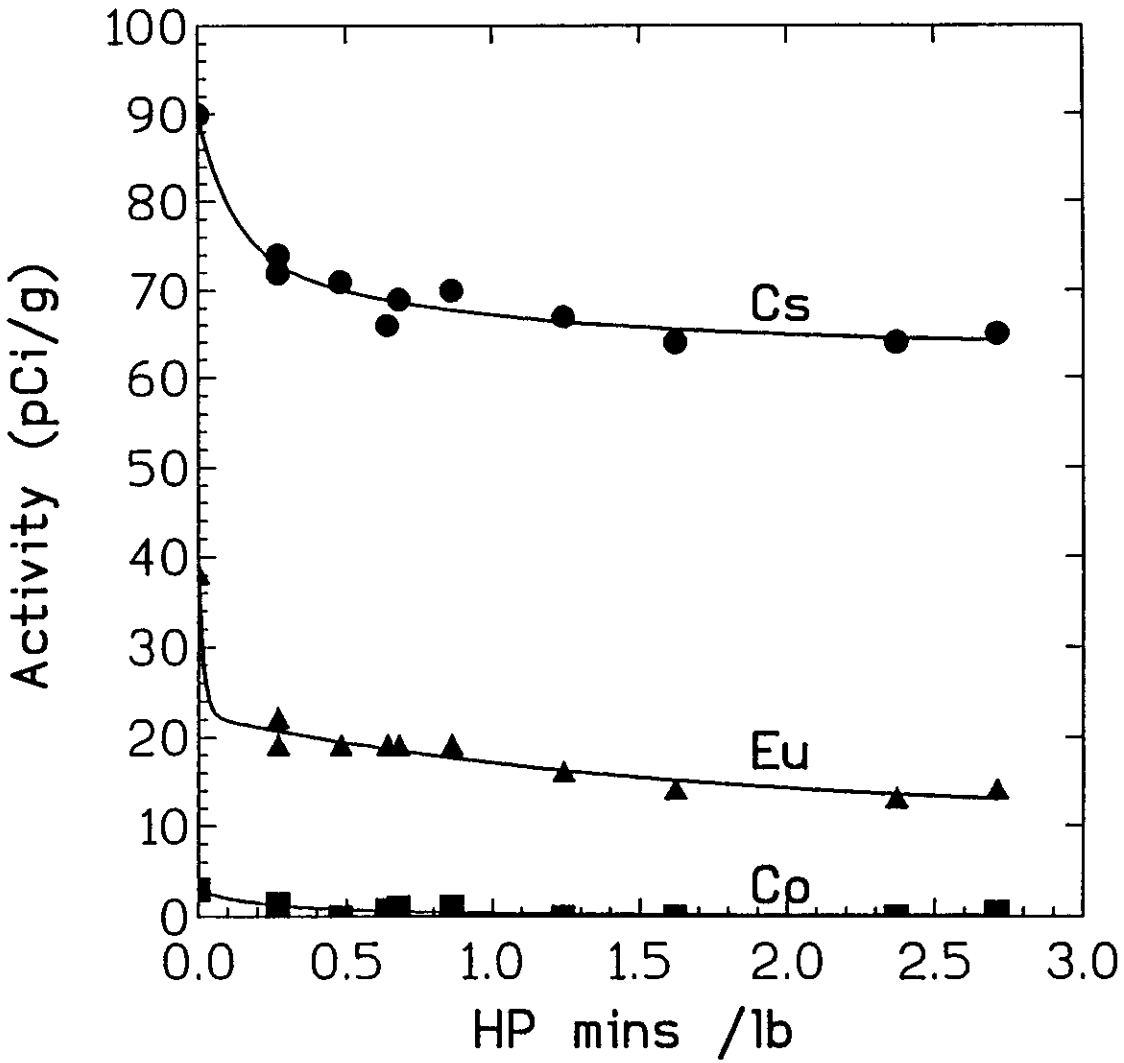
* 33.7 % of particles > 13.5 mm/

RADIONUCLIDE DATA FOR SIZE-FRACTIONED SOILS

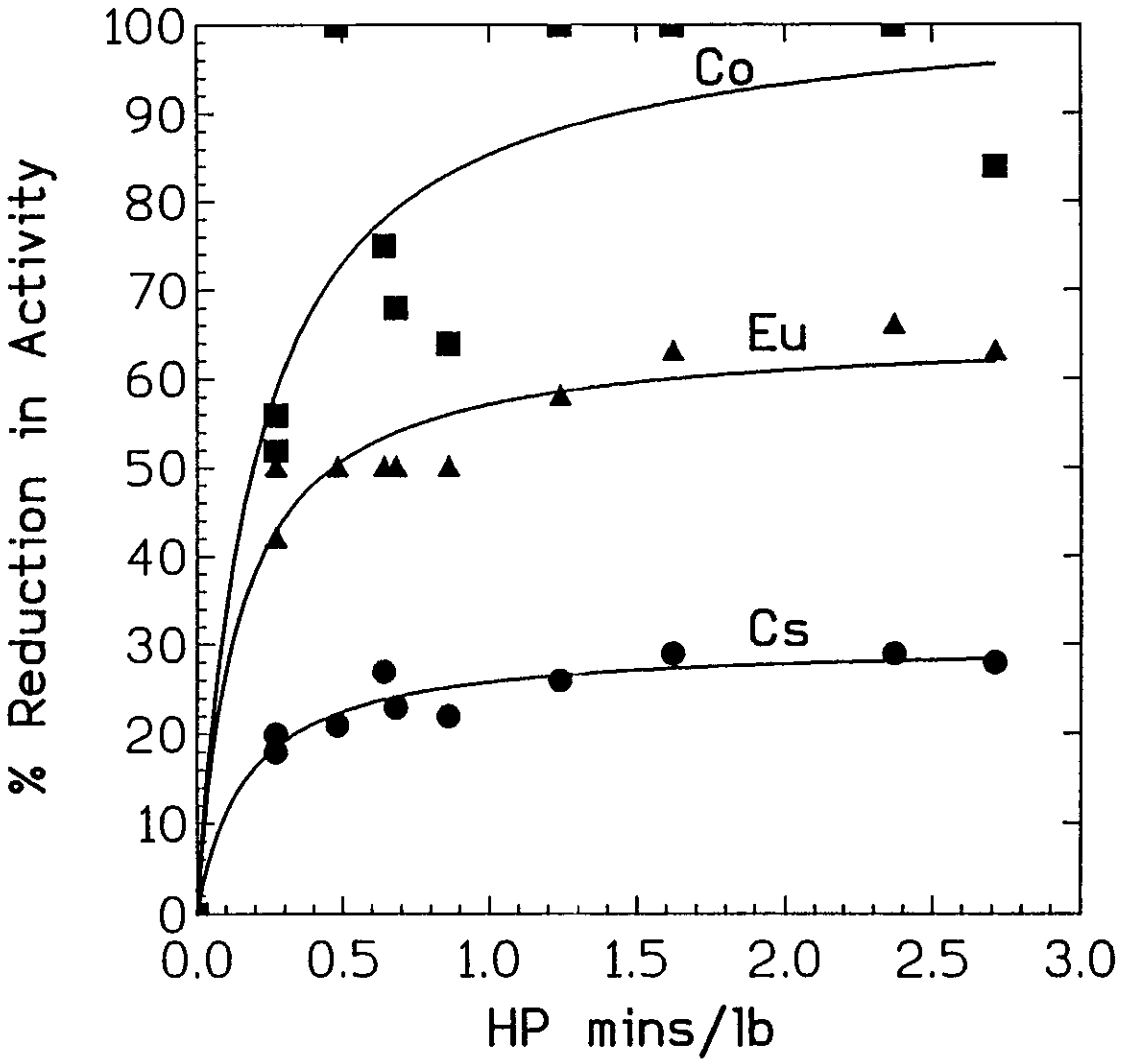
SIZE FRACTION	Co-60 pCi/g	Cs-137 pCi/g	Eu-152 pCi/g	Weight %
116-C-1 Sample				
> 2 mm	<3	675	21	97.2
< 2 mm	1621	28300	4856	2.8
116-D-1B Sample*				
13.5-9.51 mm	<3	13	<5	7.9
9.5-2 mm	<3	41	<5	5.3
2-0.25 mm	<3	56	17	40.7
0.25-0.074 mm	5	213	47	4.8
0.074-0.028 mm	30	380	277	7.4
<0.028 mm	252	1110	2350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

* 33.7 % of particles > 13.5 mm/

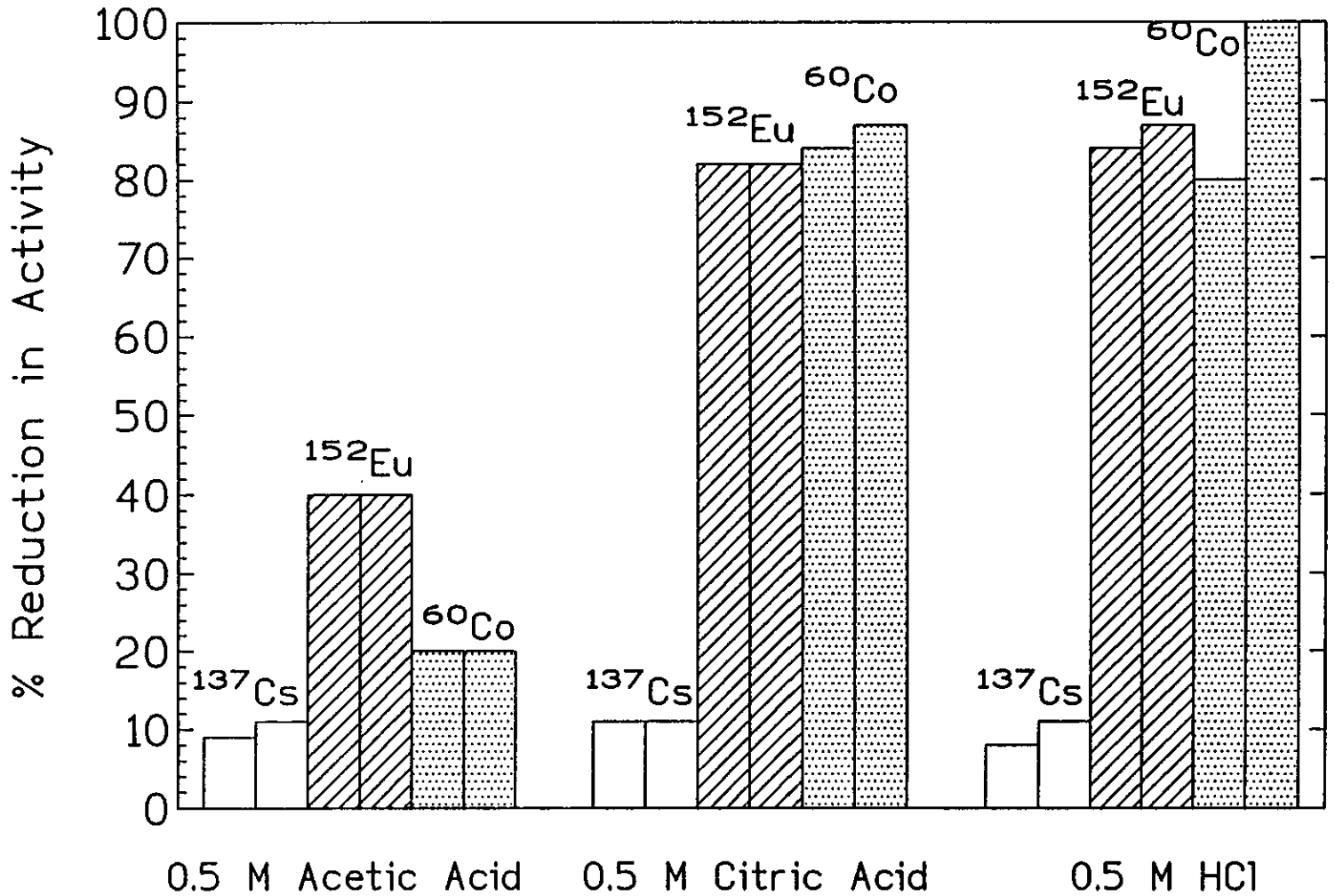
ATTRITION SCRUBBING: 116-D-1B SAMPLE



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

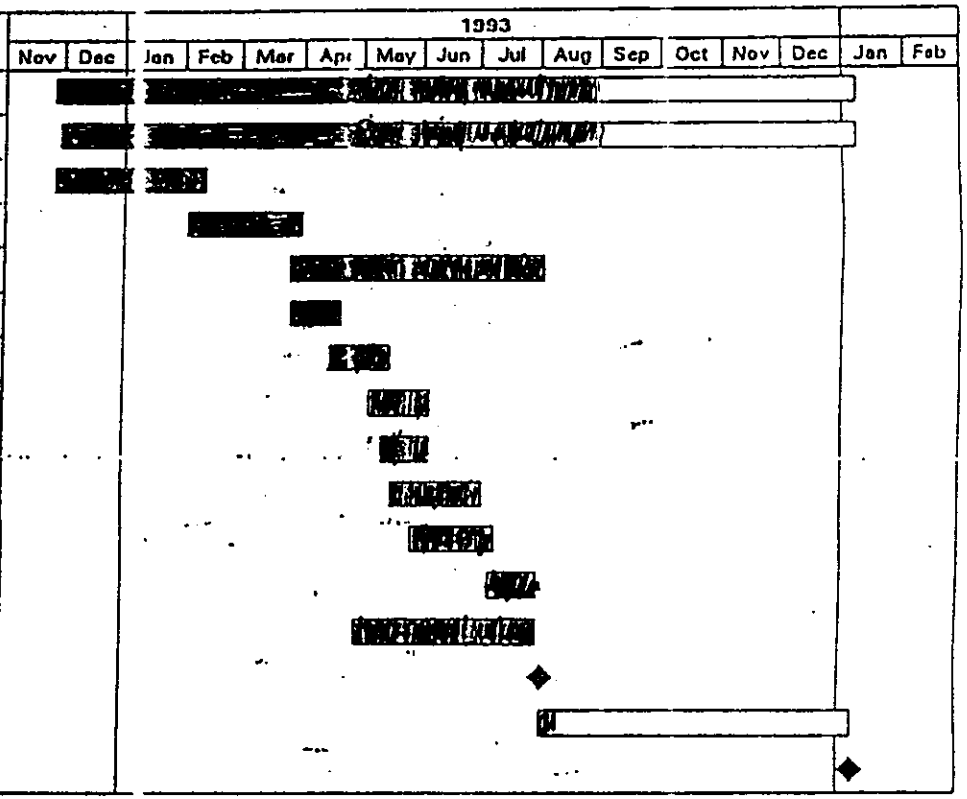
UNIT MANAGERS MEETING

AUGUST 1993

BIODENITRIFICATION

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

ID	Name	Scheduled Start	Scheduled Finish
1	100-HR-3 BIODENITRIFICATION	11/26/92	1/7/94
2	QUALITY ASSURANCE	11/29/92	1/7/94
3	PREPARE TEST DOCUMENTS	11/26/92	2/10/93
9	TEST SET UP	2/2/93	3/30/93
16	TESTING	3/25/93	8/2/93
17	Task 3.4.1 InhibitionTests	3/25/93	4/19/93
24	Task 3.4.3 pH Tests	4/14/93	5/14/93
31	Task 3.4.2 Carbon Ratios	5/4/93	6/4/93
38	Task 3.4.4 Temperature	5/11/93	6/4/93
45	Task 3.4.5 Carbon Source	5/16/93	7/2/93
52	Task 3.4.6 Large Volume Denitrification	5/26/93	7/8/93
60	Task 3.4.7 Final Confirmation Tests	7/6/93	7/30/93
68	Data Analysis and Draft Final Report Preparation	4/27/93	7/30/93
69	Submit Draft Report to WHC	8/2/93	8/2/93
70	FINAL REPORT REVIEWS	8/2/93	1/7/94
76	ISSUE FINAL REPORT	1/7/94	1/7/94



Project: 100 Area Biodenitrification
Date: 4/30/93

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

ATTACHMENT 3

CHROMIUM & URANIUM PRECIPITATION ION EXCHANGE

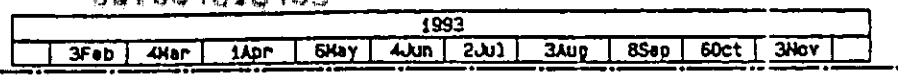
STATUS:

- 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 21, 1993

CODE:



09				
09	GROUNDWATER TREATABILITY TESTS	160.000		12Apr 0 % 29Nov
0901				
0901	PpprTr TESTS	95.000		12Apr 0 % 25Aug
090101	SET UP (CENTRIFUGE, PUMPS, AND OTHER APPARATUS)	5.000	M. BECK	12Apr 0 % 16Apr
090102	FeSO4-Na2S	12.000	M. BECK	18Apr 0 % 4May
090103	SET UP (CENTRIFUGE, PUMPS, AND OTHER APPARATUS)	5.000	M. BECK	5May 0 % 11May
090104	Na2H PO4	15.000	M. BECK	12May 0 % 2Jun
090105	ANALYSIS (U, Cr, NO3)	40.000	T. DALE	18Apr 0 % 14Jun
090106	KINETIC STUDY/CONFIRMATORY TESTS	33.000	M. BECK	15Jun 0 % 2Aug
090107	ANALYSIS (U, Cr, NO3)	17.000	T. DALE	3Aug 0 % 25Aug
0902				
0902	ANION TESTS	160.000		12Apr 0 % 29Nov
090201	SET UP (CENTRIFUGE, PUMPS, AND OTHER APPARATUS)	19.000	M. BECK	12Apr 0 % 6May
090202	CONTACTING TESTS	20.000	M. BECK	7May 0 % 4Jun
090203	ANALYSIS (U, Cr, NO3)	25.000	T. DALE	7May 0 % 11Jun
090204	BREAKTHROUGH/CONFIRMATORY TESTS	25.000	M. BECK	14Jun 0 % 20Jul
090205	CYCLING TESTS	21.000	M. BECK	21Jul 0 % 18Aug
090207	ANALYSIS (U, Cr, NO3)	61.000	T. DALE	14Jun 0 % 8Sep
090208	WRITE REPORT	64.000	M. BECK	26Aug 0 % 24Nov
090209	ISSUE REPORT	1.000	M. BECK	29Nov 0 % 29Nov

Legend

Early CPM

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

#9/Page 5 of 8

ATTACHMENT 1

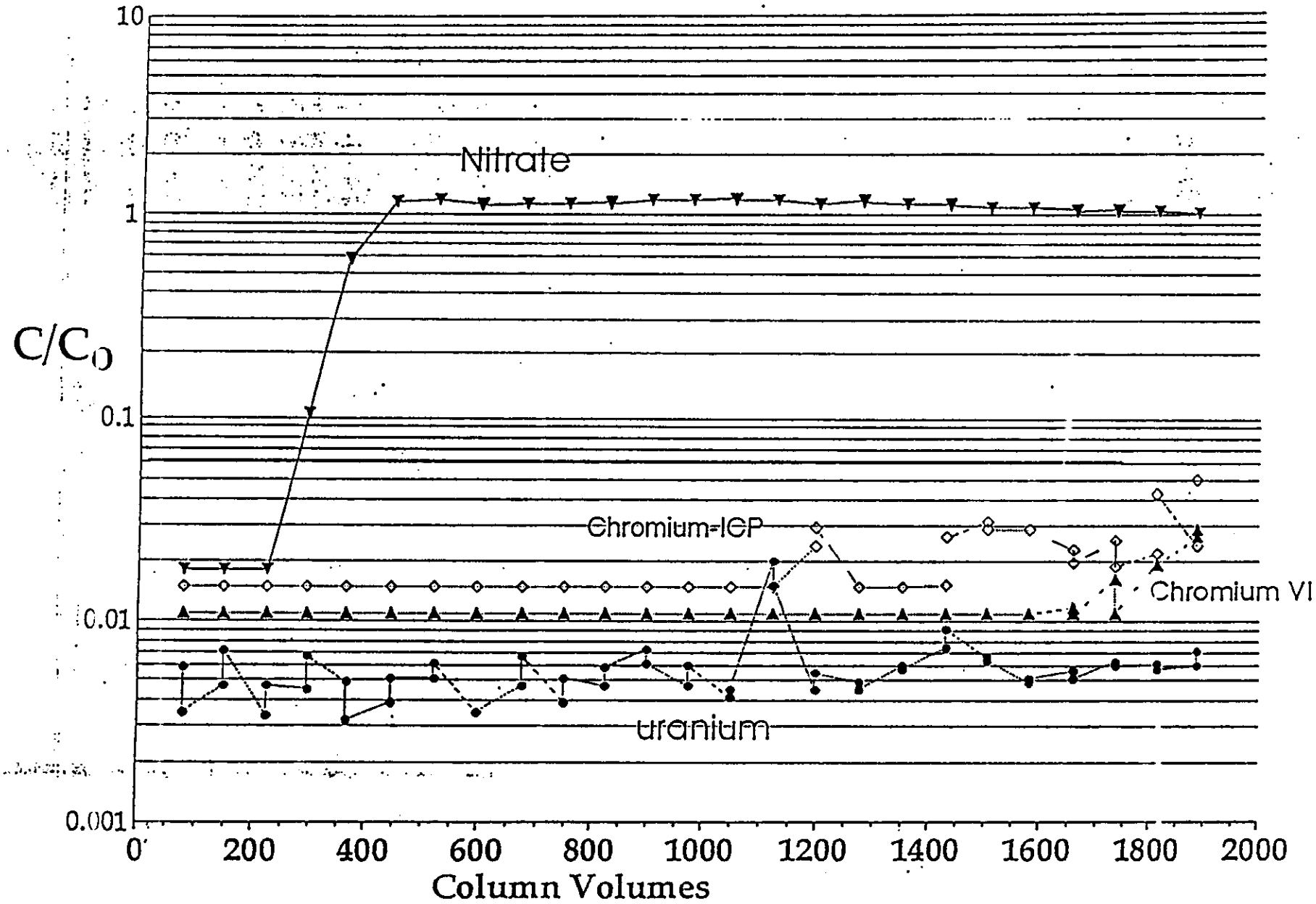
CHROMIUM & URANIUM PRECIPITATION ION EXCHANGE

- 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 INTERATIONS 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)

DON'T SAY IT --- *Write It!*

DATE: August 25, 1993

TO: Larry Gadbois, EPA B5-01
Dib Goswami, Ecology Kennewick

FROM: Eric Goller, RL A5-19
Telephone: 376-7326

cc: Jim Patterson, WHC H6-27 (w/o atts.)
Bob Henckel, WHC H6-02 (w/o atts.)
D.Biggerstaff, WHC H6-02 (w/o atts.)
Bob Scheck, D&M G1-01 (w/o atts.)
Kay Kimmel, D&M G1-01 (w/o atts.)

SUBJECT: 100-KR-4 OU LFI GROUNDWATER INVESTIGATION VALIDATED DATA

Attached please find a document reporting validated data summaries from the 100-KR-4 OU LFI groundwater investigations. The document title and WHC identification number is:

WHC-SD-EN-TI-184 Data Validation Report for the 100-KR-4 Operable Unit Third Round Groundwater Sampling, rev 0.

Please feel free to contact me with any comments or questions regarding this document. In addition, comments or questions regarding the technical elements of this document can be directed to Bob Henckel (376-2091) or Dick Biggerstaff (376-5634).

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

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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.