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Final

Meeting Minutes Transmittal/Approval
Unit Manager's Meeting: 200-BP-1 Operable Unit
450 Hills Street, Richland, WA
July 30, 1992

APPROVAL: Allan C Harris Date 8-27-92
Allan Harris, 200-BP-1 Unit Manager, RL (A5-19)

APPROVAL: Paul Beaver Date 8/27/92
Paul Beaver, 200-BP-1 Unit Manager, EPA (B5-01)

APPROVAL: Dib Goswami Date 8/27/92
Dib Goswami, 200-BP-1 Unit Manager, WA Department of Ecology

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

Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
Attachment #2 - Agenda for the Meeting
Attachment #3 - Attendance List
Attachment #4 - Status of Action Items
Attachment #5 - Approved Document Change Control Form #23
Attachment #6 - Approved Document Change Control Form #24
Attachment #7 - Approved Document Change Control Form #25
Attachment #8 - 200-BP-1 Well Remediation Activities
Attachment #9 - Sorption/Column Leach Testing
Attachment #10 - 200-BP-1 Vadose Sampling
Attachment #11 - Sample Validation Summary
Attachment #12 - RLS Spectral Gamma-Ray Borehole Survey
Attachment #13 - Preliminary Potential Contaminants of Concern for 200-BP-1 Operable Unit Borehole Soils Table 3-12.
Attachment #14 - Preliminary Potential Radionuclide Contaminants of Concern Table 4-5.
Attachment #15 - Preliminary Potential Metal, Cyanide and Anion Contaminants of Concern for the 200-BP-1 Groundwater Table 4-4.
Attachment #16 - 200-BP-1 Operable Unit Schedule

SEP 1992
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Prepared by: Suzanne E. Clarke Date: 8/27/92
Suzanne Clarke, Kay Kimmel, GSSC (A4-35)

Concurrence by: Mark Buckmaster Date: 8/27/92
Mark Buckmaster, WHC RI Coordinator (H4-55)

Attachment #1

Meeting Summary and Summary of Commitments and Agreements
Unit Manager's Meeting: 200-BP-1 Operable Unit
July 30, 1992

1. **SIGNING OF THE June 200-BP-1 MEETING MINUTES:**

   Minutes from the June meeting were reviewed and approved with no changes.

2. **ACTION ITEM UPDATE: (See Attachment 4 for status)**

   2BP.53 Closed 7/30/92. Format presented 06/25/92. Groundwater data was presented at the July UMM.

3. **NEW ACTION ITEMS (INITIATED July 30, 1992):**

   No new action items initiated.

4. **STATUS OF REMEDIAL INVESTIGATION TASKS:**

   - 3 Change Request forms formally transmitted to EPA, 2 were signed at this meeting, #25 is under consideration at EPA.
     - #23 Reference to WHC-CM-7-7 added.
     - #24 Title changes.
     - #25 Eliminate free and complexed CN analysis.

   - Well Remediation Activities: See Attachment #8.

   - Column Leach/Sorption Testing: Waiting for data results/clarification of PNLs QA organization. See Attachment #9.

   - Vadose Sampling: Cleanup activities will be completed by next week (Attachment #10).

   - Cone penetrometer: Second phase with a ~~6~~ 4" (see) penetrometer is planned for the near future. See 100 Areas Meeting Minutes.

   - Sample Validation Summary: Commitment for results by end of September.

   - Spectral Gamma Logging Results: See attachment #11.

     - Analytical Results: Radiation data through round 4 is complete - validation currently being done.

     - Cribs appear to be similar, high levels, up to 1,000,000 pCi/g in the vadose zone.

5. **SCHEDULE:** See Attachment #16.

Attachment #2

200-BP-1 UNIT MANAGERS MEETING AGENDA
JULY 30, 1992
12:30-2:00 PM
450 HILLS ST., ROOM 47

Introduction:

Status:

- Action Items:
  - o Groundwater Data
- Work Plan Changes:
  - o EII Revision
  - o Quality Officer
  - o Free CN Reduction
- Remedial Investigation:
  - o Well Remediation
  - o Column Leach/Sorption Testing
  - o Vadose Sampling
  - o Chemical Data Status
- Issues:
  - o Cone Penetrometer
- Other Topics:
  - o Schedule
- Agreements and Commitments:

Attachment #3

200-BP-1 Operable Unit Manager's Meeting
Official Attendance Record
July 30, 1992

Please print clearly and use black ink

PRINTED NAME	SIGNATURE	ORGANIZATION	O.U. ROLE	TELEPHONE
Brian Drost	Brian Drost	USGS	EPA Support	206-593-6510
CHUCK CLINE	Charles Cline	Ecology	Hydrogeo.	(206) 438-755
Jeff Phillips	Jeff Phillips	Ecology	Unit Manager	(509) 546-2906
Jonathan Sprecher	[illegible]	Brown & Caldwell	Ecology Support	(503) 244-7005
Jeff Lerch	[illegible]	WHC	OSM	(509) 373-3419
Ken HOFFMANN	[illegible]	WHC	Proj. Geologist	(509) 378-3725
Janet Franco	Janet Franco	Oregon Dept. of Energy		(503) 378-3187
Paul Beaver	Paul Beaver	EPA	Unit mgr	509) 376-8665
Andree DeAngeles	Andree DeAngeles	PRC	EPA Support	206-624-2692
H. Kirth Erickson	G. Kirth Erickson	GSSC	RL support	(509) 376-8189
KAY KIMMEL	Kay Kimmel	SWEC	GSSC mgr 200/300	509-372-0610
Rich Carlson	Richard Carlson	WHC	Area RI's	(509) 376-9027
Len Collard	L. B. Collard	WHC	groundwater modeling	(509) 376-1032
A.C. Harris	A C Harris	DOE	Unit Manager	(509) 376-4339
Suzanne Clarke	Suzanne Clarke	SWEC	GSSC for RL	(509) 372-0630

Attachment #4

ACTION ITEMS

Item Number	Action	Status
2BP.53	Provide format for sampling data and present first 3 quarters of groundwater data. Action: Buckmaster	Closed: Format of sampling data presented at the June UMM. Closed: Groundwater data presented at the July UMM.

Attachment #5

Change Number	APPROVED DOCUMENT CHANGE CONTROL FORM	Date
23	Do not use blue ink. Type, or print in black	7/28/92

Document Number & Title	Date Document Last Issued
RI/FS Work Plan for the 200-BP-1 Operable Unit, Hanford Site, Richland, Washington	March 1990

Originator	Phone
M. A. Buckmster WHC, RI Coordinator 7/29/92	376-1792

Description of Change

Place a footnote in Table 1, page SAP-3 stating "Refer to control manual WHC-CM-7-7, "Environmental Investigation and Site Characterization Manual" prior to initiating field work.

Note: Include affected page number

Justification and Impacts of Change

Over time, procedures are deleted, revised, or incorporated into other EIIs.

A. C. Harris _____

DOE UNIT MANAGER DATE

D. R. Sherwood (EPA) _____

LEAD REGULATORY UNIT MANAGER DATE

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement, Section 9.3

Attachment #6

Change Number	APPROVED DOCUMENT CHANGE CONTROL FORM	Date
24	Do not use blue ink. Type, or print in black	7/28/92

Document Number & Title	Date Document Last Issued
RI/FS Work Plan for the 200-BP-1 Operable Unit, Hanford Site, Richland Washington	March 1990

Originator	Phone
M. A. Buckmaster Mark A. Buckmaster 7/29/92 WHC RI Coordinator	376-1792

Description of Change

In the Project Management Plan, page PMP-3 change the "Quality Assurance Officer" to "Cognizant Quality ASsurance Manager" and the "Quality Coordinator" to "Cognizant QA engineer". Figures 3-7 on pages PMP-5 - PMP-9 will show the "Cognizant QA Engineer reporting responsibilities to the "Cognizant QA Manager". The "QA Manager" will report to the "Technical Lead".

Note: Include affected page number

Justification and Impacts of Change

Reorganization and position descriptions and responsibilities are currently defined for the "Cognizant Quality Assurance Manager" and the "Cognizant QA Engineer".

A. C. Harris _____ _____

DOE UNIT MANAGER DATE

D. R. Sherwood (EPA) _____ _____

LEAD REGULATORY UNIT MANAGER DATE

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement, Section 9.3

Change Number	APPROVED DOCUMENT CHANGE CONTROL FORM	Date
25	Do not use blue ink. Type, or print in black	7/28/92

Document Number & Title	Date Document Last Issued
RI/FS Work Plan for the 200-BP-1 Operable Unit, Hanford Site, Richland Washington	March 1990

Originator	Phone
M. A. Buckmaster WHC RI Coordinator 7/29/92	376-1792

Description of Change

Eliminate free and complex CN analysis from the groundwater parameters of Interest Table 25, page WP-110.

Note: Include affected page number

Justification and Impacts of Change

Results from the first 5 sampling events indicate low concentrations of free CN. The proposed regulatory drinking water limit is 200 mg/l. Only one well (699-50-53A) has exceeded this limit. Typical concentrations are less than 30 mg/l. Analysis for total CN will continue for all wells. This practice will reduce cost without compromising Data Quality Objectives.

A. C. Harris _____

DOE UNIT MANAGER DATE

D. R. Sherwood (EPA) _____

LEAD REGULATORY UNIT MANAGER DATE

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement, Section 9.3

200-BP-1 PNL Cyanide Sample Analyses (Value in $\mu g/L$)									
Well Number	1st Qtr Total Cn	1st Qtr Free Cn	1st Qtr Complex Cn	2nd Qtr Total Cn	2nd Qtr Free Cn	2nd Qtr Complex Cn	3rd Qtr Total Cn	3rd Qtr Free Cn	3rd Qtr Complex Cn
299-E33-04	11.6			34.0 J	8.4	25.6			
299-E33-07	14.7			38.8 J	3.7	35.1	40.3 J	7.3 J	33.0 J
299-E33-12	5.9 U			39.7 J	11.1	28.6			
				39.8 J	2.1	37.7			
699-49-55A	17.8			26.2 J	2.0 U	24.2 J	27.5 J	2.0 UJ	25.5 J
699-49-57A	13.9			26.4 J	23.4 J	3.0 J	28.6 J	6.6 J	22.0 J
699-50-53A	385.2	298.0	87.2	876.3 J	110.0	766.3	716.6 J	83.0 J	633.6 J
699-52-54	20.7			52.1 J	21.4	30.7	64.7 J	3.0 J	61.7 J
699-55-57	30.5			128.7 J	37.9	90.8	133.6 J	6.0 J	127.6 J

Not analyzed.

Attachment #8

200-BP-1 WELL REMEDIATION ACTIVITIES

Well Remediation:

- Remediation activities on the 5 remaining wells (299-E33-12, 299-E33-13, 299-E33-15, 299-E33-18, and 299-E33-24) began this week.
- Tentative schedule to complete all remediation activities is the end of August.

Attachment #9

200-BP-1 SORPTION/COLUMN LEACH TESTING

Column Leach Testing:

- All testing has been completed.
- All samples have been submitted to the laboratory for analysis.

Sorption Testing:

- Currently revising the test plan.

Attachment #10

200-BP-1 VADOSE SAMPLING

Cleanup Activities:

- o Cleanup activities should be completed by the end of next week.

Exposure results:

- o Estimated 36,000 man hours
- o Total Whole Body - 630 mRem/hr
- o Total Extremities - 2238 mRem/hr

200-BP-1 SAMPLE VALIDATION SUMMARY

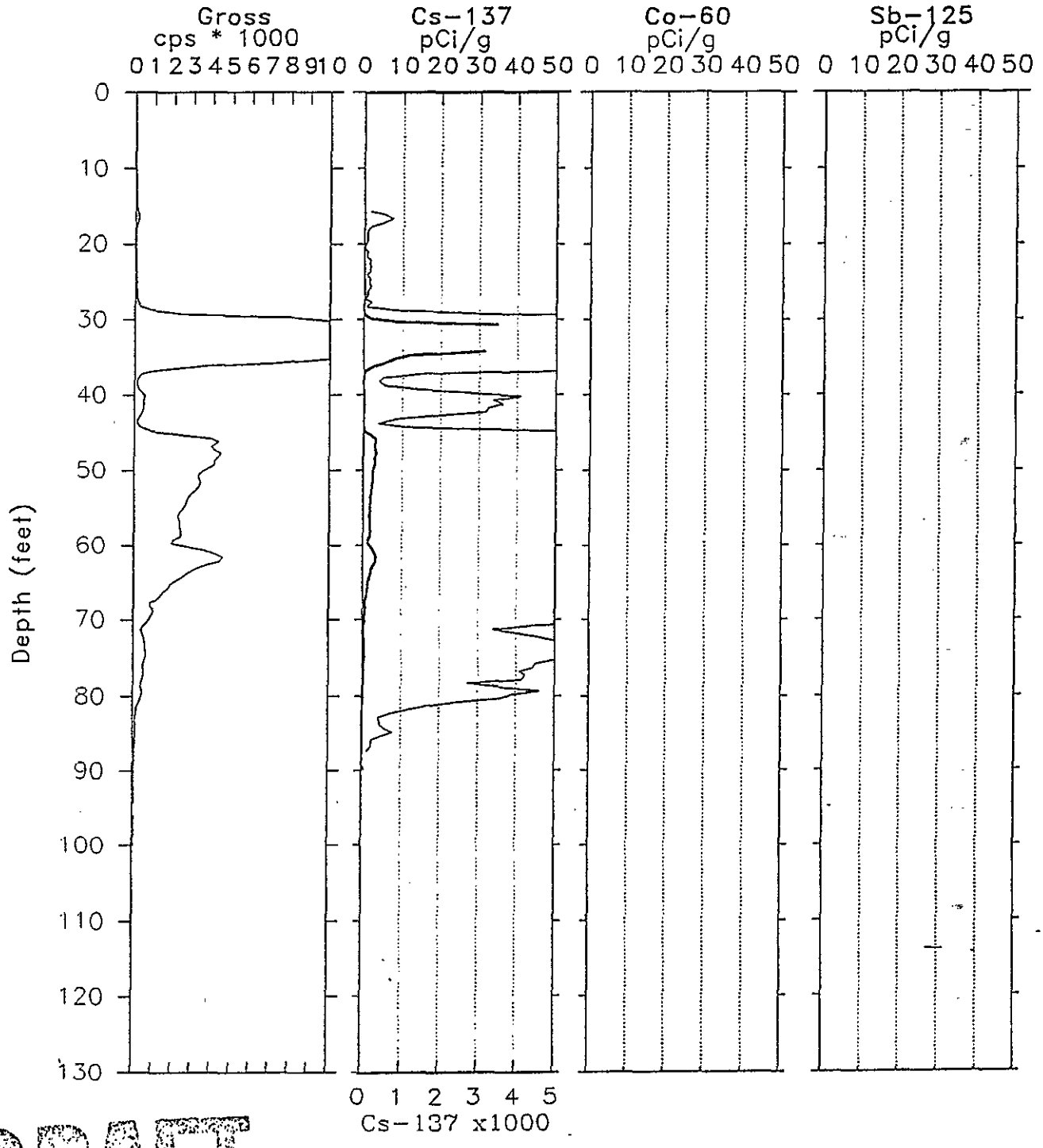
CHEMICAL SAMPLES					
Sample Type	Total Samples	Number of Samples Received from Laboratory	Total Validated Samples	Total Unvalidated Samples	Total Samples which have Partial Data Validated
2nd Quarter Groundwater	189	189	169	20	10
3rd Quarter Groundwater	135	135	131	4	0
4th Quarter Groundwater	110	110	84	26	0
Crib Samples	321	201	77	244	9

RADIOCHEMICAL SAMPLES					
Sample Type	Total Samples	Number of Samples Received from Laboratory	Total Validated Samples	Total Unvalidated Samples	Total Samples which have Partial Data Validated
2nd Quarter Groundwater	60	60	0	60	0
3rd Quarter Groundwater	52	52	0	52	0
4th Quarter Groundwater	43	43	0	43	0
Crib Samples	179	100	0	179	0

Attachment #11

RLS Spectral Gamma-Ray Borehole Survey

Project: 200-BP-1 Crib Characterization Log Date : Aug 30, 1991
Borehole : 216-B-57A Anal. Date: July 20, 1992
12", 10", & 8" Casing



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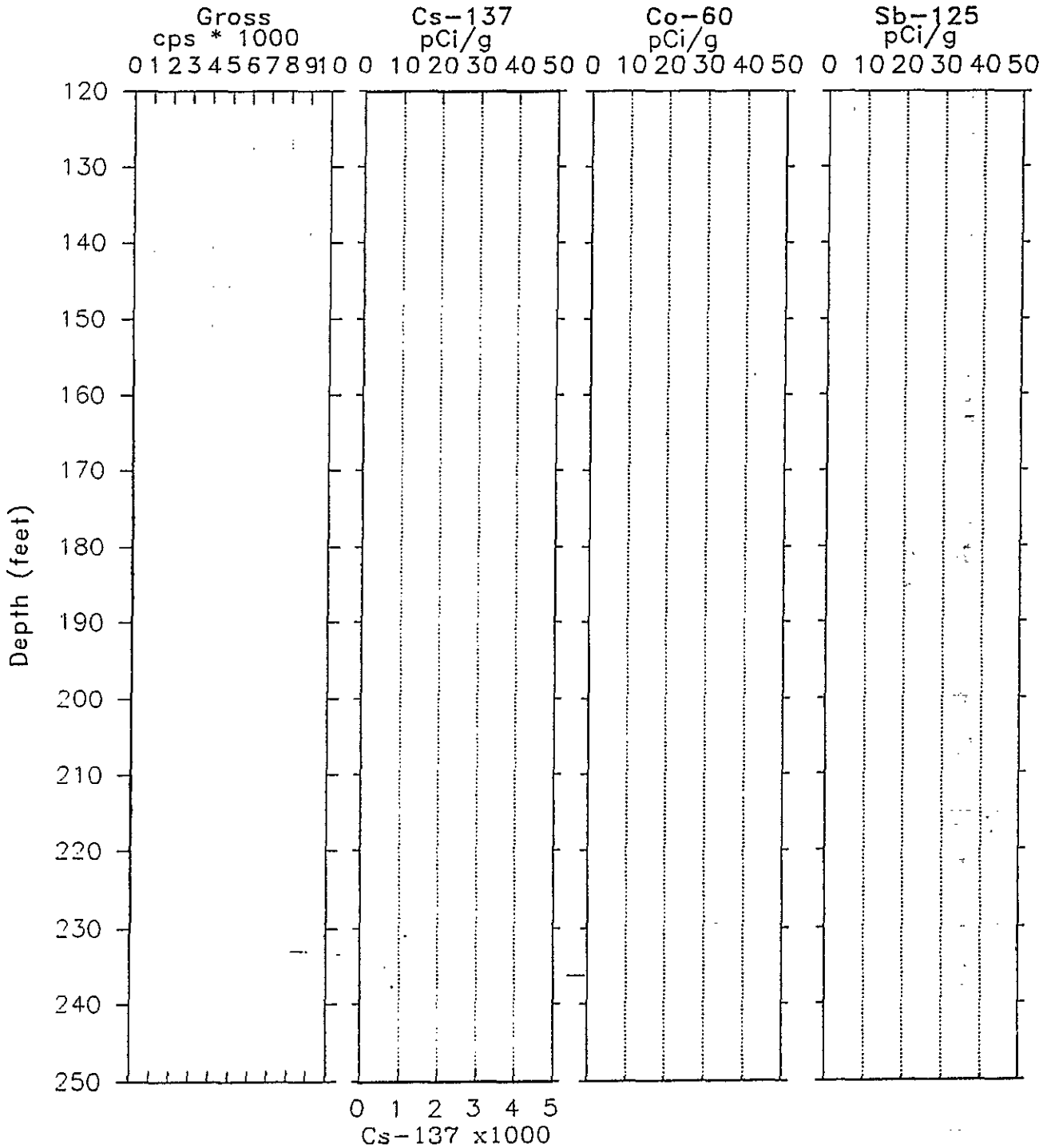
Plot 1 of 2

RLS Spectral Gamma-Ray Borehole Survey

Project: 200-BP-1 Crib Characterization
Borehole : 216-B-57A
12", 10", & 8" Casing

Log Date : Aug 30, 1991
Anal Date: July 20, 1992



Plot 2 of 2

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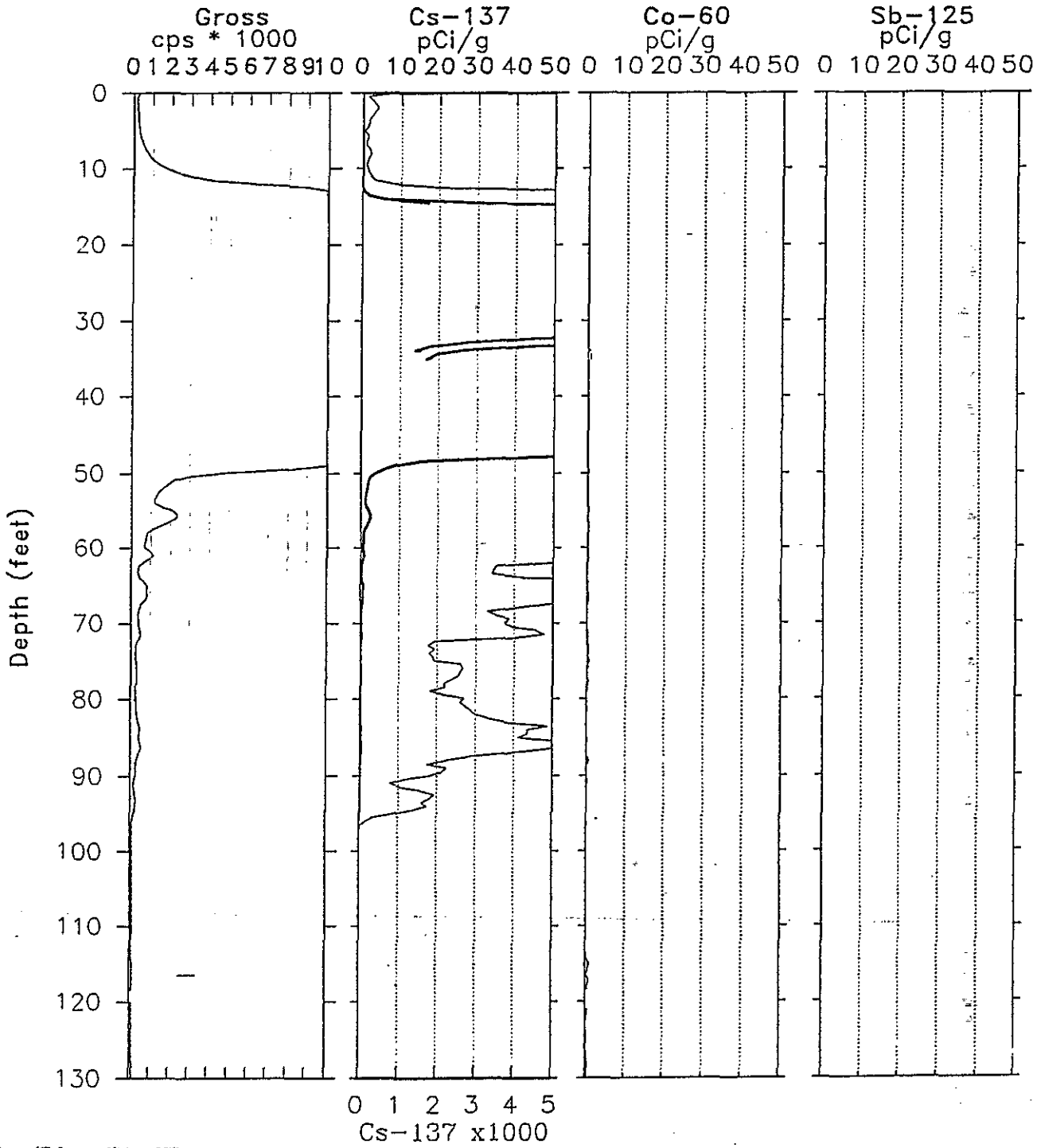
RLS Spectral Gamma-Ray Borehole Survey

Project: 200-BP-1 Crib Characterization
Borehole : 216-B-43A

Log Date : Jan 27, 1992
Anal Date: July 20, 1992



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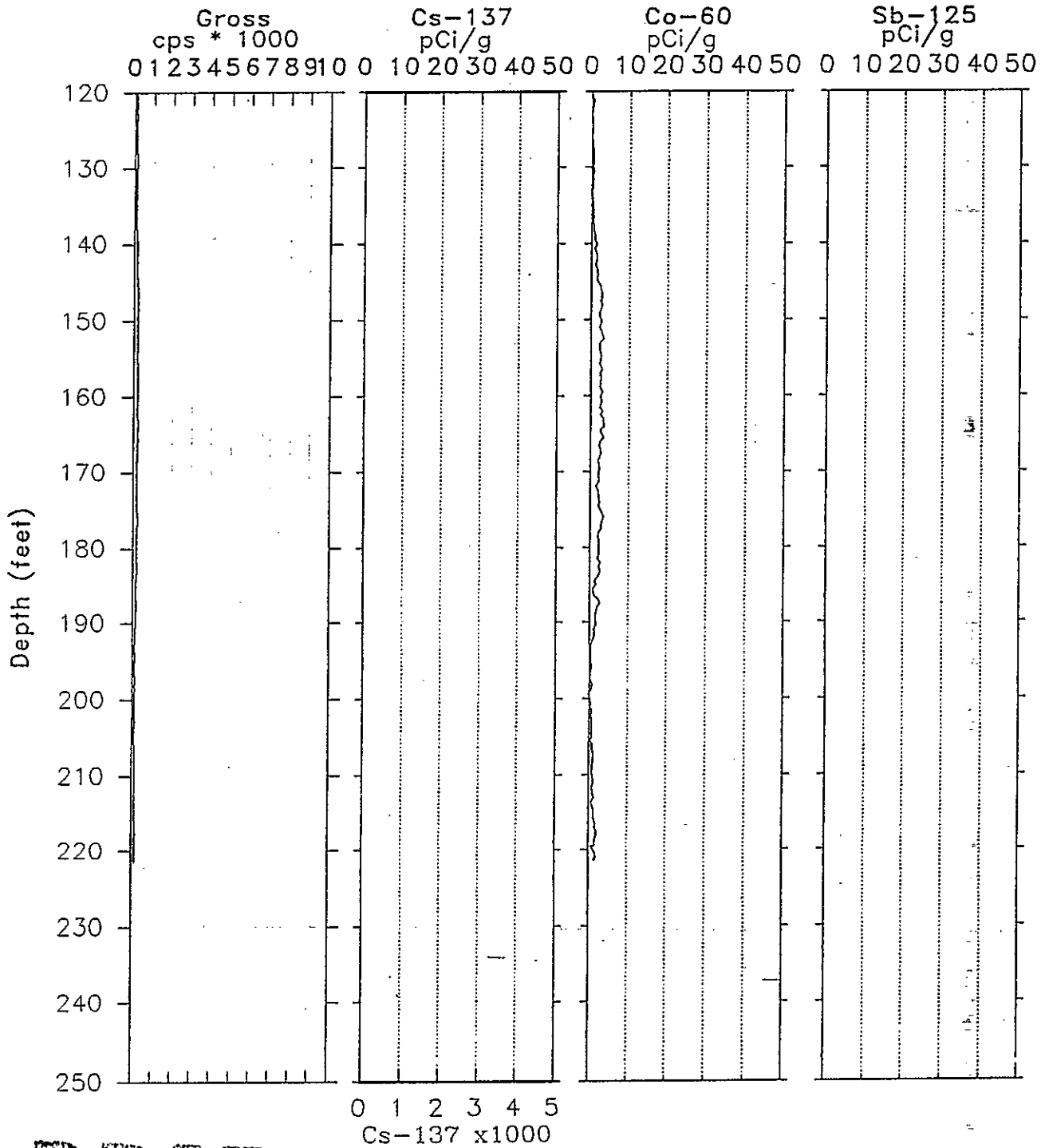
Plot 1 of 2

RLS Spectral Gamma-Ray Borehole Survey

Project: 200-BP-1 Crib Characterization
Borehole : 216-B-43A

Log Date : Jan 27, 1992
Anal Date: July 20, 1992



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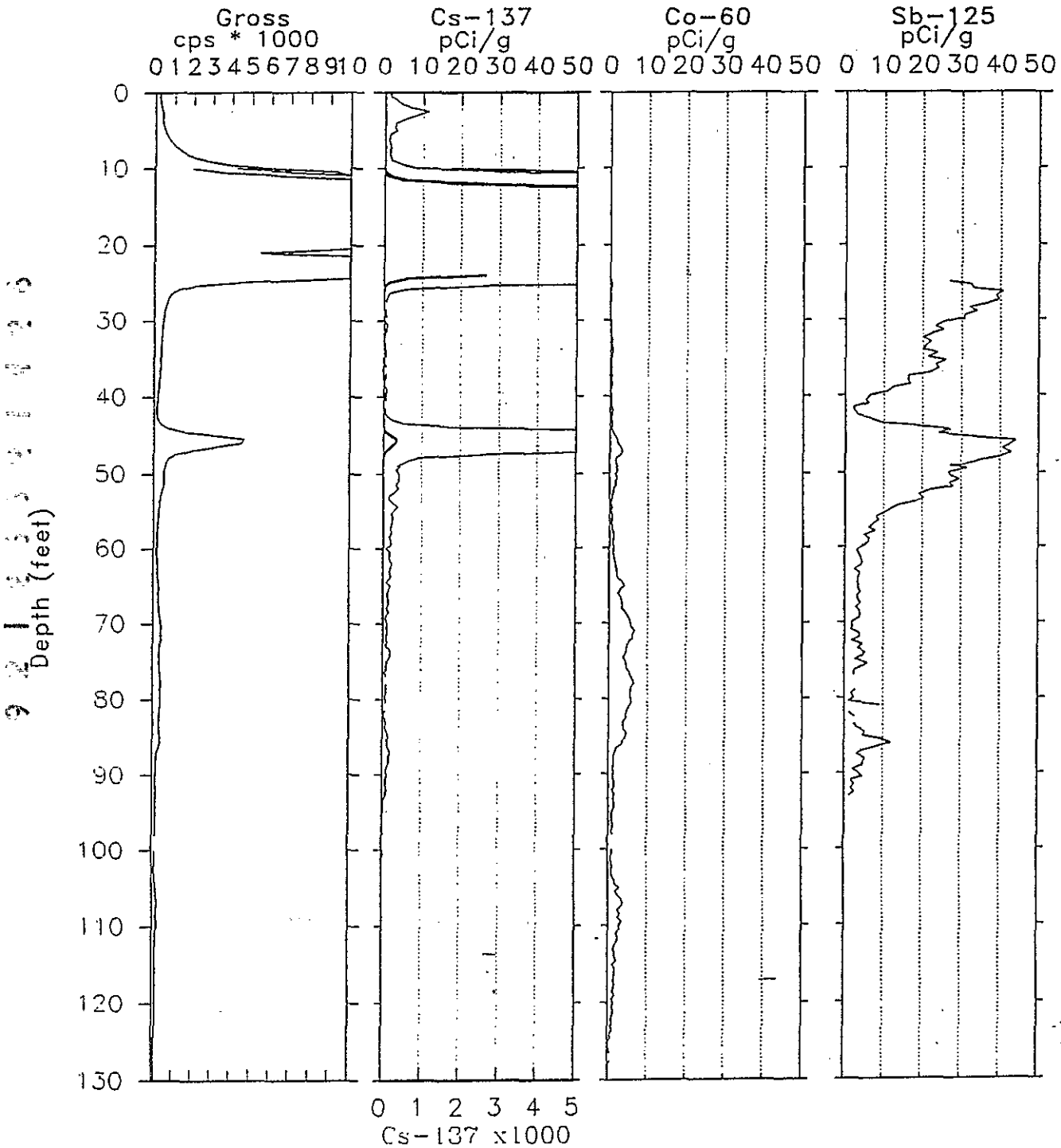
Plot 2 of 2

RLS Spectral Gamma-Ray Borehole Survey

Project: 200-BP-1 Crib Characterization
Borehole : 216-B-49A
12", 10", & 8" Casing

Log Date : Sept 5, 1991
Anal Date: July 20, 1992



Plot 1 of 2

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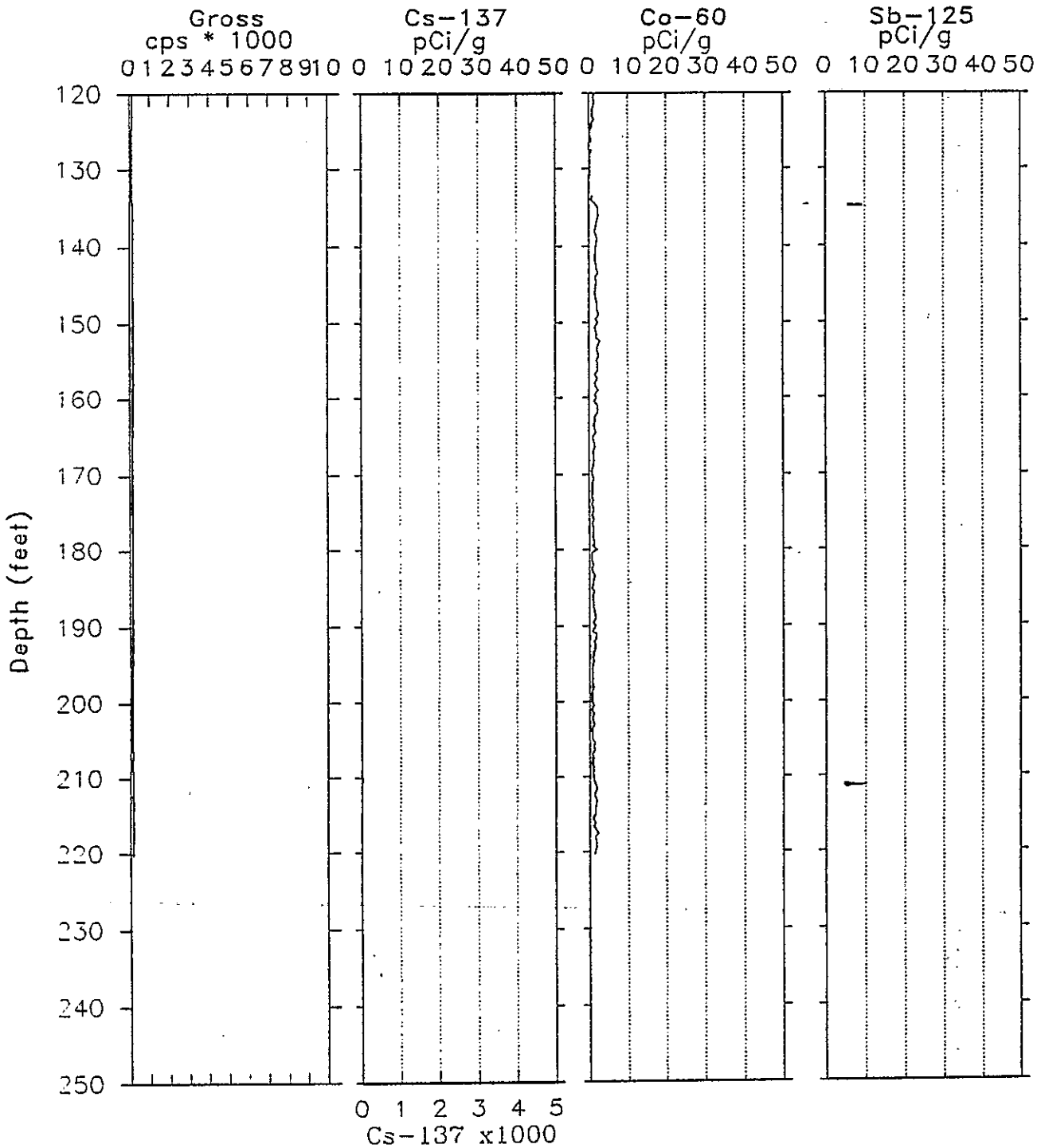
RLS Spectral Gamma-Ray Borehole Survey

Project: 200-BP-1 Crib Characterization
Borehole : 216-B-49A
12", 10", & 8" Casing

Log Date : Sept 5, 1991
Anal Date: July 20, 1992



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Plot 2 of 2

9 2 1 2 2 1 1 7

Table 3-12. Preliminary Potential Contaminants of Concern for 200-BP-1 Operable Unit Borehole Soils. (Sheet 1 of 2)

Borehole	Depth ft	HEIS #	SR-90 (pCi/g)	CS-137 (pCi/g)	CO-60 (pCi/g)	PU-238 (pCi/g)	PU-239/240 (pCi/g)	TOTAL U (pCi/g)	Th-228 (pCi/g)	Ra-226 (pCi/g)	Arsenic (mg/Kg)	Phosphoric acid tributyl (ug/Kg)
216-B-43A	2.5-4.5	B015L7		3.65								
216-B-43A	10.4-12.9	B015M3		0.62								
216-B-43A	18.5-21.0	B015P9	6700000	3440000		8.6	405	27.9				
216-B-43A	26.0-28.5	B015P1	454000	3950				18.8				
216-B-43A	83.5-86.0	B015R1			0.15							
216-B-43A	130.5-133.0	B015S1			0.357							
216-B-43A	130.5-133.0	B015R9			0.4			2	6			
216-B-43A	157.5-160.0	B015J6			2							
216-B-44A	29.0-31.5	B01SD9										590
216-B-44B	19.0-21.5	B01SG7										15000
216-B-44B	29.0-31.5	B01SG9										760
216-B-45A	3.0-5.5	B015P2		3.26								
216-B-45A	17.0-19.0	B01S75	5960000	6360000		110	2400					6000
216-B-45A	27.0-28.5	B01S77	4030	1212	2.72							265
216-B-45B	17.0-19.0	B01S97										20000
216-B-45B	20.0-22.5	B01S99										3400
216-B-45B	20.0-22.5	B01SB1										3500
216-B-45B	27.0-29.5	B01SB3										170
216-B-45C	17.0-20.0	B01SB2										32000
216-B-46A	27.0-29.5	B015N9	ND/2300	1480								
216-B-46B	19.0-21.0	B015P5	353000	420000	5	6.94	227	29.9				13200
216-B-46B	30.0-32.5	B015Q1	6840	642			3.4	6.2				
216-B-46C	19.0-21.5	B015R5	230000	193000	2.2		64	6		•		17650
216-B-48A	17.5-20.0	B01SC7										11000
216-B-48B	19.5-22.0	B01SF7										3800
216-B-49A	3.0-5.5	B00X67		2.05								
216-B-49A	18.0-20.0	B00X75	65850	20800	1.3		31	41.2				
216-B-49A	25.0-27.5	B00X87		0.82	0.28			6.7				
216-B-49A	75.0-77.5	B00XD5			4.03							
216-B-49A	75.0-77.5	B00XD7			4.03				0.76			
216-B-49A	104.5-107	B015G3			2.6			1.4				
216-B-49A	135-137.5	B015H5			1.9			2.4				
216-B-49A	162-164.5	B015K1			1.24							
216-B-49A	190.5-193.0	B015K7			1.65				0.85			

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Table 3-12. Preliminary Potential Contaminants of Concern for 200-BP-1 Operable Unit Borehole Soils. (Sheet 2 of 2)

Borehole	Depth ft	HEIS #	SR-90 (pCi/g)	CS-137 (pCi/g)	CO-60 (pCi/g)	PU-238 (pCi/g)	PU-239/240 (pCi/g)	TOTAL U (pCi/g)	Th-228 (pCi/g)	Ra-226 (pCi/g)	Arsenic (mg/Kg)	Phosphoric acid tributyl (ug/Kg)
216-B-49A	217.0-219.5	B015K9			1.45							
216-B-49B	2.0-5.0	B015L9		0.47								
216-B-49B	17.5-19.5	B015M9	1870000	1230000		10	594	81				
216-B-49B	27.0-29.5	B015M7		11.5	0.2			4.7				
216-B-49C	16.5-19.0	B01S89	2080000	1630000		11	560					295
216-B-50A	4.6-7.0	B015L1		0.84								
216-B-50A	9.8-11.8	B015L3		0.83								
216-B-50A	15.7-17.8	B015L5	570000	2000000		5.06	249	6.3				965
216-B-50A	26.5-29.0	B015M5		0.86	0.08							
216-B-50B	3.5-6.0	B015G5		4.9				1.6				
216-B-50B	12.0-16.0	B015G7		2.2								
216-B-50B	15.5-17.5	B015G9	67700	572000			121	1.6				
216-B-50B	28.0-30.5	B015H1	457	2045				1.2				
216-B-50B	28.0-30.5	B015H3	250	1030								
216-B-50C	3.5-6.0	B015H7		1.16								
216-B-50C	3.5-6.0	B015J7		1.12								
216-B-50C	11.0-15.0	B015J9		0.521								
216-B-50C	19.0-20.5	B015K3	7750	562000	28.6			22.6			8.22	
216-B-50C	28.0-30.5	B015K5		0.503								
216-B-57A	15.0-17.0	B00X61	67	50.5								
216-B-57A	26.5-29.0	B00X59							0.88			
216-B-57A	30.0-33.0	B00X77		67000								
216-B-57A	82.0-84.5	B00X71							0.77			
216-B-57B	2.0-4.5	B00XC3						1.1				
216-B-57B	9.0-12.0	B00XC5							0.77			
216-B-57B	31.0-34.0	B00XD1		4650						892		
216-B-57B	47.0-50.0	B00XD3		68.4						7.5		
216-B-57C	2.0-5.0	B00X99		0.7				1.8				
216-B-57C	18.5-20.0	B00XB3						3				
		CRITERIA CONC.	21	0.017	0.0039	3.5	3.3	0.93	0.006	0.0055	0.59	

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Table 4-5. Preliminary Potential Radionuclide Contaminates of Concern. (Page 1 of 6)

LOCATION BY WELL #	ANALYSIS QUARTER	HEIS NUMBER	Tc-99 (pCi/l)	gross A (pCi/l)	gross B (pCi/l)	Sr-90 (pCi/l)	tot. U (umg/l)	Co-60 (pCi/l)	Ru-106 (pCi/l)
299-E33-01	1	B00F98	91	19	190				
	2	B00XW0	610		350		3.2		
	2	B00XW0	440		340		3		
	3	B011F9	810		280		3		
299-E33-03	1	B00F53	110		87				
	1	B00F91			96		2.4		
	2	B00XW9	450		260		2.4		
	3	B011J0	630		270				
299-E33-04	1	B00F88	300	16	230		2.4	22.9	
	1	B00FB7	170		180		3		
	2	B00XX2	760		470		2.7	17.5	
	3	B011J3	820		410				
	3	B011P4	790		380		2.7	16.7	
299-E33-05	1	B00FB1	180	15	230		3.1	18.9	
	2	B00XZ6	830		500		3.6	15.1	
	3	B011J6	970		410		3.3	26.3	
299-E33-07	1	B00FB4	470	30	440		2.5	22.8	
	2	B00XX5	990		520		2.7	14.5	
	3	B011J9	11000		320			23.8	
299-E33-12	1	B00F76	1500	67	1100		2.9		
	2	B00XN8	1400		1100		3	53.7	
	2	BOOXN8			1000			64.6	
	2	B00XZ3	1400		1100		3	53.7	
	3	B011K5	1700		890		2.4	52.1	
	4	B019Q1	1800		890		2.7	46.5	
299-E33-13	1	B00FC8	770	28	340		3.3		
	1	B00FD0							<2.1-2.2
	2	B00XS7A	760		610		3.8		
	2	B00XT8	730		610		3.5		
	2	B00XZ0	780		600		4.2		
	3	B011L4	1100		480				
299-E33-14	1	B00F63	44						
	2	B00XR8	67				2.4		
	3	B011G2	39		86				
	4	B019Y7	38						
299-E33-15	1	B00F66							
	2	B00XV7							
	3	B011K8							
299-E33-18	1	B00F73					2.9		
	2	B00XV4	37						
	3	B011L1	100		52		2.7		
299-E33-24	1	B00FC2	270		240		2.8		
	1	B00FC4							<1.6
	2	B00XY7	340		200		3.3		
	3	B011K2	680		170		3.2		
299-E33-26	1	B00FF5	560		86		4		
	1	B00FF7							<2.1
	2	B00XQ3	840		460		3.6	8.66	
	3	B011F3	980		380		3.7	12.5	
299-E33-28	1	B00F47							
	2	B00XN5							
	3	B011D1							
	4	B019V9							

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Table 4-5. Preliminary Potential Radionuclide Contaminates of Concern. (Page 2 of 6)

LOCATION BY WELL #	ANALYSIS QUARTER	HEIS NUMBER	Tc-99 (pCi/l)	gross A (pCi/l)	gross B (pCi/l)	Sr-90 (pCi/l)	tot. U (umg/l)	Co-60 (pCi/l)	Ru-106 (pCi/l)
299-E33-38	1	B00F69	340		88		3.1		
	1	B00FF8	610		100		3.6		
	2	B00XS9	620		380		3.8	13.9	
	2	B00XV1A	740		350		3		
	3	B011H1	820		380			18.3	
	4	B019L9	530		280		3.6		
299-E33-39	1	B00FG1					2.4		
	2	B00XT2	50		59				
	2	B00XY4	48						
	3	B011H4	45						
	4	B019M3							
299-E33-40	1	B00FH0					5.2		
	2	B00XT5					3.9		
	3	B011H7					4.1		
	4	B019M7				1.3	4.7		
299-E34-01	1	B00F28					2.4		
	2	B00XQ6					2.4		
	2	B00XL7					2.5		
	3	B011B6							
699-47-50	1	B00F19	610				3.2		
	2	B00XG5					2.9		
	3	B011B3					2.5		
699-47-60	1	B00DZ2					2.6		
	2	B00XH4					2.5		
	3	B01179							
	4	B019H3					2.5/U		
699-48-50	1	B00F16					2.8		
	2	B00XG2					3.5		
	3	B011B0					3.3		
	4	B01B17			53/U		4.1/U		
	4	B019S1					3.8/U		
669-49-55A	1	B00F09	740	42	430		4.5	22	
	1	B00F11							
	2	B00XH7	750	40	370		4.2	13.3	
	3	B01182	730		330		6.1	20.8	
	4	B019H7	750/U		310/U		4.9/U	18	
699-49-55B	1	B00F12					2.9		
	2	B00XK2					2.9		
	2	B00XP7							
	4	B019G1					3.5/U		
699-49-57A	1	B00F02	650	15	170				
	2	B00XJ3	720	50	470		2.5	20	
	3	B01188	610		330		2.8	16	
699-49-57B	1	B00F06					2.5		
	2	B00XJ9							
	3	B011L9A							
	3	B01167							
699-50-53A	1	B00F01							<1.1-4.4
	1	B00DZ9	14000		7100		6.2	480	
	1	B00DZ9	20000		6200	1.5	5.8	428	
	2	B00XJ0	18000		5800		5.9	387	
	3	B01185	21000		3800		5.5	391	
	4	B019J1	17000/U		5400/U		7/U	368	

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Table 4-5. Preliminary Potential Radionuclide Contaminates of Concern. (Page 3 of 6)

LOCATION BY WELL #	ANALYSIS QUARTER	HEIS NUMBER	Tc-99 (pCi/l)	gross A (pCi/l)	gross B (pCi/l)	Sr-90 (pCi/l)	tot. U (umg/l)	Co-60 (pCi/l)	Ru-106 (pCi/l)
699-50-53B	1	B00DZ6							
	2	B00XJ6					2.7		
	3	B01164							
	4	B019F3					2.6/U		
699-52-54	1	B00DY9		20	180		8.7		
	2	B00XH1	960	68	470		6.9	16	
	3	B01176	1200		410		6.3	26.3	
699-52-57	1	B00DY6					3.6		
	2	B00XG8					2.8		
	3	B01173					7.5		
	3	B01173					7.8		
699-53-55A	1	B00DL6	100		83		4.2		
	2	B00XF9							
	3	B01191							
699-53-55B	1	B00DL9							
	2	B00XK5	120				3.5		
	3	B01194	190		110		4.8		
	3	B011M1	170		100		4.2		
	3	B011P1	190		100		4.3		
699-53-55C	1	B00DM2	98		51		4		
	2	B00XL4	140				3.7		
	3	B01197	190		330		3.1		
699-54-57	1	B00DL2							
	1	B00DK9							
	2	B00XF3							
	3	B01158					2.5		
699-55-55	1	B00DL2A							
	2	B00XF6	37						
	3	B01161	63						
	4	B01909	69/U						
	4	B01B13			56/U				
699-55-57	1	B00DK6	1900	74	920		4.7	73.1	
	2	B00XF0	2400		860		5.7	6.82	
	3	B01155	2800		1100		4.7	78.6	
RISK-BASED REG. CONC.			35	15	50	1.3	2.4	3	4.8

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Table 4-5. Preliminary Potential Radionuclide Contaminates of Concern. (Page 4 of 6)

LOCATION BY WELL #	ANALYSIS QUARTER	HEIS NUMBER	Cs-137 (pCi/l)	Ra-226 (pCi/l)	Ra-228 (pCi/l)	H3 (pCi/l)	Pu-238 (pCi/l)	Pu-239 (pCi/l)
299-E33-01	1	B00F98						
	2	B00XW0						
	2	B00XW0						
	3	B011F9						
299-E33-03	1	B00F53						
	1	B00F91						
	2	B00XW9						
	3	B011J0						
299-E33-04	1	B00F88		0.59/U				
	1	B00FB7						
	2	B00XX2						
	3	B011J3						
	3	B011P4						
299-E33-05	1	B00FB1						
	2	B00XZ6						
	3	B011J6						
299-E33-07	1	B00FB4						
	2	B00XX5						
	3	B011J9						
299-E33-12	1	B00F76						
	2	B00XN8						
	2	BOOXN8						
	2	B00XZ3						
	3	B011K5						
	4	B019Q1						
299-E33-13	1	B00FC8						
	1	B00FD0						
	2	B00XS7A						
	2	B00XT8						
	2	B00XZ0						
	3	B011L4						
299-E33-14	1	B00F63						
	2	B00XR8						
	3	B011G2						
	4	B019Y7						
299-E33-15	1	B00F66						
	2	B00XV7						
	3	B011K8						
299-E33-18	1	B00F73						
	2	B00XV4						
	3	B011L1						
299-E33-24	1	B00FC2				14000		
	1	B00FC4						
	2	B00XY7				16000		
	3	B011K2				17000		
299-E33-26	1	B00FF5						
	1	B00FF7						
	2	B00XQ3						
	3	B011F3						
299-E33-28	1	B00F47						
	2	B00XN5						
	3	B011D1						
	4	B019V9						

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Table 4-5. Preliminary Potential Radionuclide Contaminates of Concern. (Page 5 of 6)

LOCATION BY WELL #	ANALYSIS QUARTER	HEIS NUMBER	Cs-137 (pCi/l)	Ra-226 (pCi/l)	Ra-228 (pCi/l)	H3 (pCi/l)	Pu-238 (pCi/l)	Pu-239 (pCi/l)
299-E33-38	1	B00F69						
	1	B00FF8						
	2	B00XS9						
	2	B00XV1A						
	3	B011H1						
	4	B019L9						
299-E33-39	1	B00FG1						
	2	B00XT2						
	2	B00XY4						
	3	B011H4						
	4	B019M3						
299-E33-40	1	B00FH0					0.22	
	2	B00XT5						
	3	B011H7						
	4	B019M7						
299-E34-01	1	B00F28						
	2	B00XQ6						
	2	B00XL7						
	3	B011B6					0.27	
699-47-50	1	B00F19						
	2	B00XG5						
	3	B011B3						
699-47-60	1	B00DZ2						
	2	B00XH4						
	3	B01179						
	4	B019H3						
699-48-50	1	B00F16						
	2	B00XG2						
	3	B011B0						
	4	B01B17						
	4	B019S1						
669-49-55A	1	B00F09			1.5			
	1	B00F11						
	2	B00XH7						
	3	B01182						
	4	B019H7						
699-49-55B	1	B00F12			2.4			
	2	B00XK2						
	2	B00XP7						
	4	B019G1						
699-49-57A	1	B00F02						
	2	B00XJ3					0.56	
	3	B01188						
699-49-57B	1	B00F06						
	2	B00XJ9						
	3	B011L9A						
	3	B01167						
699-50-53A	1	B00F01						
	1	B00DZ9						
	1	B00DZ9						
	2	B00XJ0						
	3	B01185						
	4	B019J1						

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Table 4-5. Preliminary Potential Radionuclide Contaminates of Concern. (Page 6 of 6)

LOCATION BY WELL #	ANALYSIS QUARTER	HEIS NUMBER	Cs-137 (pCi/l)	Ra-226 (pCi/l)	Ra-228 (pCi/l)	H3 (pCi/l)	Pu-238 (pCi/l)	Pu-239 (pCi/l)
699-50-53B	1	B00DZ6						
	2	B00XJ6						
	3	B01164						
	4	B019F3					U/0.23	
699-52-54	1	B00DY9						
	2	B00XH1						
	3	B01176						
699-52-57	1	B00DY6						
	2	B00XG8						
	3	B01173						
	3	B01173						
699-53-55A	1	B00DL6						
	2	B00XF9						
	3	B01191						
699-53-55B	1	B00DL9						
	2	B00XK5						
	3	B01194					0.31	0.35
	3	B011M1					0.68	1.4
	3	B011P1						
699-53-55C	1	B00DM2						
	2	B00XL4						
	3	B01197						
699-54-57	1	B00DL2						
	1	B00DK9						
	2	B00XF3						
	3	B01158						
699-55-55	1	B00DL2A						
	2	B00XF6						
	3	B01161						
	4	B01909						
	4	B01B13						
699-55-57	1	B00DK6				8800		
	2	B00XF0						
	3	B01155				8700		
RISK-BASED REG. CONC.			1.6	0.38	0.38	8500	0.21	0.2

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Table 4-4. Preliminary Potential Metal, Cyanide and Anion Contaminates of Concern for the 200-BP-1 Groundwater.

WELL LOCATION	ANALYSIS QUARTER	ARSENIC (UG/L)		CHROMIUM (UG/L)		IRON (UG/L)		MANGANESE (UG/L)		NICKEL (UG/L)	
		TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED
299-E32-01	2			59.6 J							
299-E33-01	1										
	3										
299-E33-03	3										
299-E33-04	1										
	3										
299-E33-07	1										
	3					400					
299-E33-12**	1					858					
	2					302					
	3										
299-E33-13	1										
	2										
	3										
299-E33-14	1					1910					
	2					1520 J					
	3					625					
299-E33-15	1										
	3	10.1									
299-E33-18	1					1080					
	2					5240 J					
	3										
299-E33-24											
299-E33-26	1			167 J		1210					
	2					628 J					
	3			95.2		1560	469				
299-E33-28											
299-E33-38	1			57.9		335					
299-E33-39	1					322					
	2										
	3			60.7 J		346					
299-E33-40	1					5180	794	106	55.5 J		
	2					1178 J		69.2	52		
	3					1230		88.6	82.8		

*\ Average of Duplicate Sample Analyses **\ Confined Aquifer Monitoring Well

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Table 4-4. Preliminary Potential Metal, Cyanide and Anion Contaminates of Concern for the 200-BP-1 Groundwater.

WELL LOCATION	ANALYSIS QUARTER	ARSENIC (UG/L)		CHROMIUM (UG/L)		IRON (UG/L)		MANGANESE (UG/L)		NICKEL (UG/L)	
		TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED
299-E34-01	1			67.3		1440					
	2					1630*					
	3					1240					
699-47-50**	1			86.1		1380					
	3					1260					
699-47-60											
699-48-50	1			85.6		453		240 J	234 J		
	2							50.6	52.9		
699-49-55A	1			112		729					
	3					327 J					
699-49-55B**	1			80.3		1900	1180				
	2			82.4		519*		94.5	95.7		
699-49-57A	1										
	3										
699-49-57B**	1			73.1 J		1330	347	177 J	169 J		
	2				56.4 J		660	122	127		
	3							98.6	92.3		
699-50-53A	1									618.7	590.5
	2						394			563 J	701 J
	3					789 J	400 J				
699-50-53B**	1			155 J		1040		138 J	122 J		
	2					526				133 J	
	3				271 J	1310 J		92.7	73		
699-52-54	1					653					
	2					976					
	3					948 J					
699-52-57	1							313 J	295 J		
	2					513		206	225		
	3							247	244		
699-53-55A	1					615		61.6 J	56 J		
699-53-55B	1					541					
	2					485					130 J
	3						324 J		50.4		
699-53-55C	1			85.2		421					

*\ Average of Duplicate Sample Analyses **\ Confined Aquifer Monitoring Well

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Table 4-4. Preliminary Potential Metal, Cyanide and Anion Contaminates of Concern for the 200-BP-1 Groundwater.

WELL LOCATION	ANALYSIS QUARTER	ARSENIC (UG/L)		CHROMIUM (UG/L)		IRON (UG/L)		MANGANESE (UG/L)		NICKEL (UG/L)	
		TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED
699-54-57**	1					21218*		267*	254* J		
	2					532	414				
	3					498					
699-55-55	1					857					
699-55-57	1					1680		54 J			
	2					446					
	3					441					

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*\ Average of Duplicate Sample Analyses **\ Confined Aquifer Monitoring Well

Table 4-4. Preliminary Potential Metal, Cyanide and Anion Contaminates of Concern for the 200-BP-1 Groundwater.

WELL LOCATION	ANALYSIS QUARTER	ANTIMONY (UG/L) TOTAL		ANTIMONY (UG/L) FILTERED		SELENIUM (UG/L) TOTAL		SELENIUM (UG/L) FILTERED		CYANIDE (UG/L) TOTAL		CYANIDE (UG/L) FREE		NITRATE (MG/L) TOTAL		SULFATE (MG/L) TOTAL	
299-E32-01	2																
299-E33-01	1													65.5	J		
	3													83.7	J		
299-E33-03	3													77.5	J		
299-E33-04	1													61.5	J		
	3													85.8*	J		
299-E33-07	1													80.5	J		
	3													96.4	J		
299-E33-12**	1													54.9	J		
	2													55.6*	J		
	3													62.7	J		
299-E33-13	1													73.5	J		
	2													78.1*	J		
	3													81.8	J		
299-E33-14	1																
	2																
	3																
299-E33-15	1													75.6	J		
	3													73.7	J		
299-E33-18	1																
	2																
	3													54.4	J		
299-E33-24																	
299-E33-26	1																
	2																
	3																
299-E33-28																	
299-E33-38	1																
299-E33-39	1																
	2			29.9	B												
	3																
299-E33-40	1																
	2	21.4	B														
	3																

*\ Average of Duplicate Sample Analyses **\ Confined Aquifer Monitoring Well

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Table 4-4. Preliminary Potential Metal, Cyanide and Anion Contaminates of Concern for the 200-BP-1 Groundwater.

WELL LOCATION	ANALYSIS QUARTER	ANTIMONY (UG/L) TOTAL		ANTIMONY (UG/L) FILTERED		SELENIUM (UG/L) TOTAL		SELENIUM (UG/L) FILTERED		CYANIDE (UG/L) TOTAL		CYANIDE (UG/L) FREE		NITRATE (MG/L) TOTAL		SULFATE (MG/L) TOTAL	
299-E34-01	1																
	2																
	3																
699-47-50**	1																
	3																
699-47-60																	
699-48-50	1																
	2																
699-49-55A	1																
	3													44.7	J		
699-49-55B**	1																
	2																
699-49-57A	1													67.1	J		
	3													72.2	J		
699-49-57B**	1																
	2																
	3																
699-50-53A	1					61	J	32.6	J	385		298		690	J	522	J
	2					32.8	J	31.2	J	876.3	J	110					
	3					35	J	25	J	716.6	J	83	J				
699-50-53B**	1																
	2																
	3																
699-52-54	1					10.8	J	12.6	J					46.6	J		
	2					12.3											
	3													1670	J		
699-52-57	1																
	2																
	3																
699-53-55A	1																
699-53-55B	1	38.6	B			11.3											
	2																
	3			120													
699-53-55C	1	27.9	B														

*\ Average of Duplicate Sample Analyses **\ Confined Aquifer Monitoring Well

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Table 4-4. Preliminary Potential Metal, Cyanide and Anion Contaminates of Concern for the 200-BP-1 Groundwater.

WELL LOCATION	ANALYSIS QUARTER	ANTIMONY (UG/L)				SELENIUM (UG/L)				CYANIDE (UG/L)				NITRATE (MG/L)		SULFATE (MG/L)	
		TOTAL		FILTERED		TOTAL		FILTERED		TOTAL		FREE		TOTAL		TOTAL	
699-54-57**	1	14.6*	B	43.2*	B												
	2																
	3																
699-55-55	1																
699-55-57	1					15.3		11.3						81.3	J		
	2					11.8		11.3									
	3					13.5	J	13.8	J					123			

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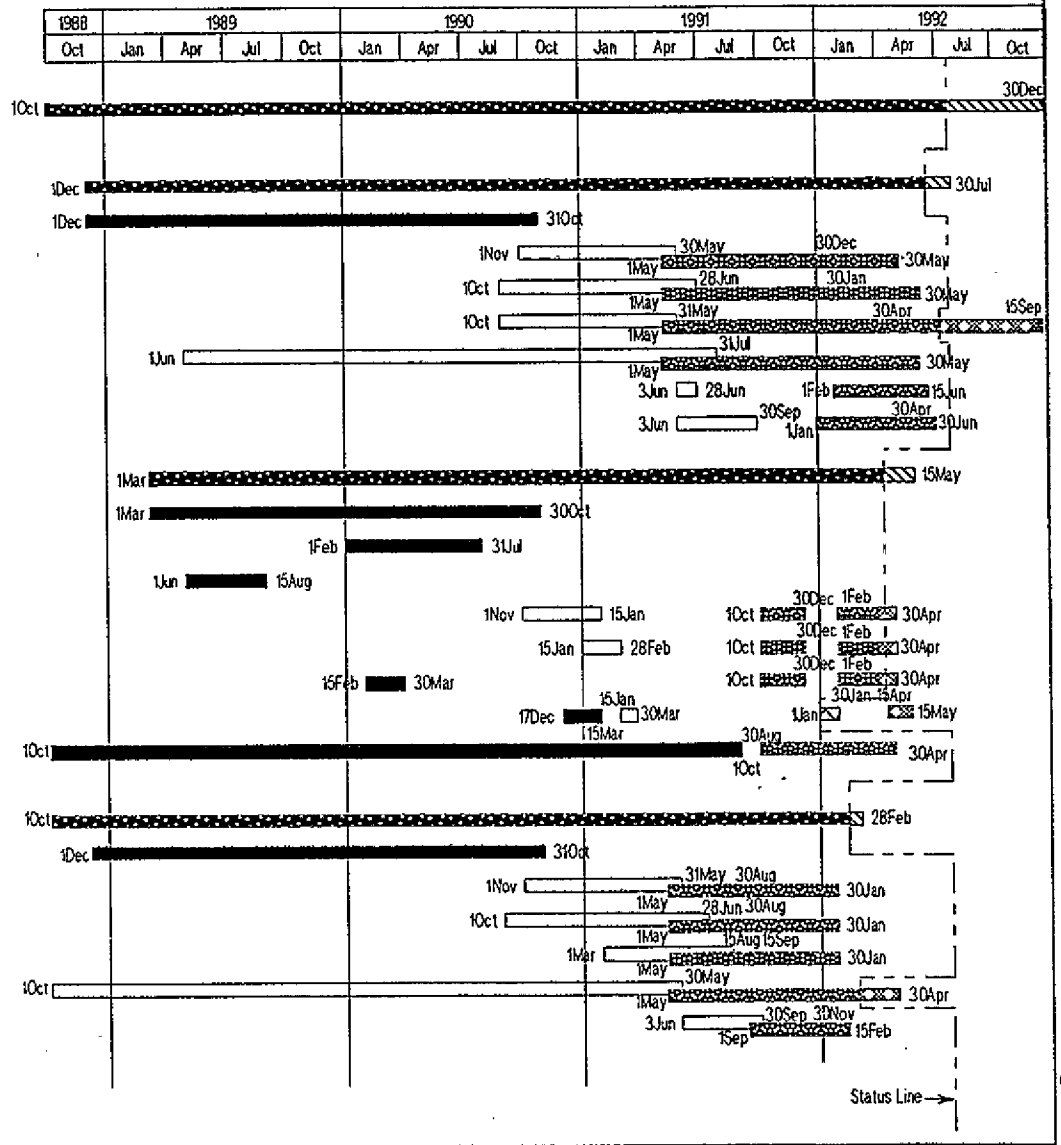
*\ Average of Duplicate Sample Analyses **\ Confined Aquifer Monitoring Well

200-BP-1 OPERABLE UNIT

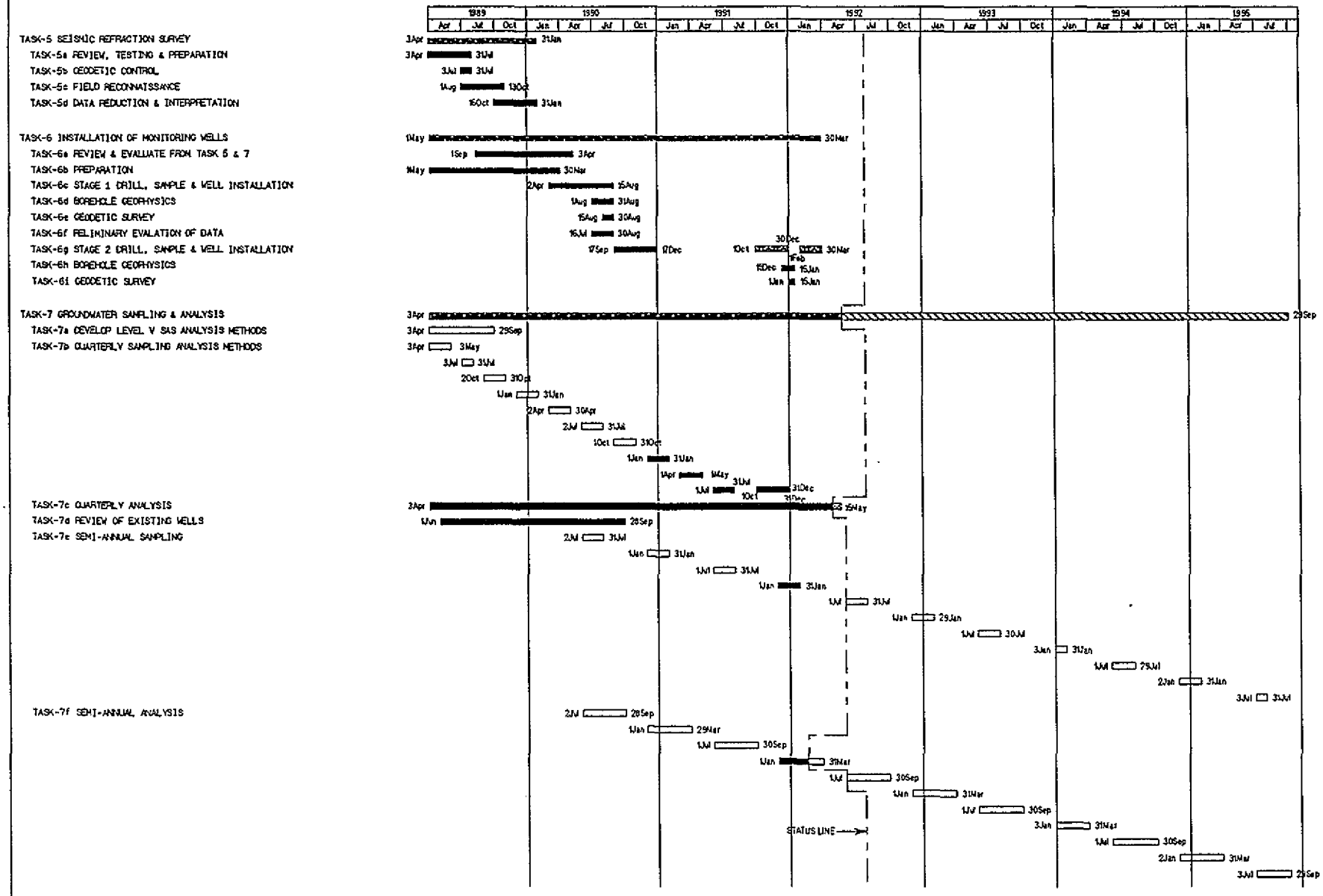


LEGEND:
- ORIGINAL SCHEDULE ACTIVITIES
- SUMMARY ACTIVITIES
- REVISED ACTIVITIES
- ACTUAL ACTIVITIES

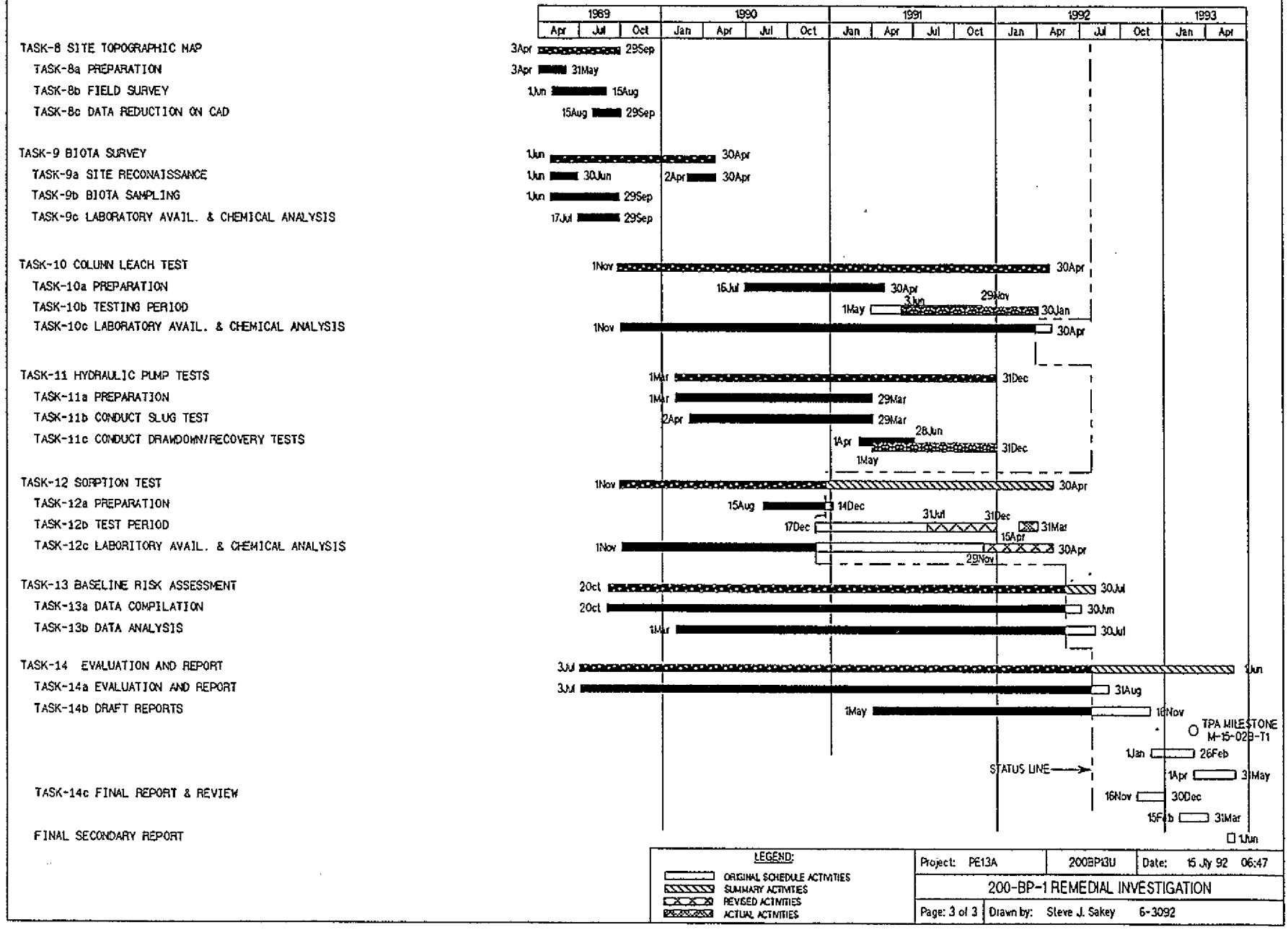
Project: PE13A	200BP1U	Date: 15 July 92 06:15
200-BP-1 REMEDIAL INVESTIGATION		
Page: 1 of 3	Drawn by: Steve J. Sakey 6-3092	

Attachment #16

200-BP-1 OPERABLE UNIT



200-BP-1 OPERABLE UNIT



Distribution

Unit Manager's Meeting: 200-BP-1 Operable Unit
June 25, 1992

Julie K. Erickson . . . . . Chief, DOE-RL, ERD/EPB (A5-19)
Roger D. Freeberg . . . . . Chief, Rstr. Br., DOE-RL/ERD (A5-19)
Mike Thompson, ... DOE-RL, EAP/RPB (A5-19)
Diane Clark, ... DOE-RL, TSD/SSB (A5-55)
Mary Harmon, ... DOE-HQ (EM-442)
Suzanne Clarke, SWEC . . . . . GSSC to DOE-RL (A4-35)

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

Darci Teel . . . . . 100 Aggregate Area Manager, WDOE (Kennewick)
Larry Goldstein . . . . . WDOE (Lacey)

Lynn Albin . . . . . Washington Dept. of Health

Richard D. Wojtasek . . . . . Prgm. Mgr. WHC (L4-92)
Tom Wintczak . . . . . WHC (L4-92)
Mel Adams . . . . . WHC (H4-55)
L.D. Arnold . . . . . WHC (B2-35)
Rich Carlson . . . . . WHC (H4-55)
Mark Buckmaster . . . . . WHC (H4-55)
Doug Dunster . . . . . Golder Associates, Support to WHC

Chris Abraham, ... GAO (A1-80)
Ralph O. Platt . . . . . Oregon Water Resources Department

ADMINISTRATIVE RECORD: 200-BP-1; Care of EDMC, WHC (H4-22)

SEP 1992
RECEIVED
EDMC

This list has been updated. Please inform Suzanne Clarke (SWEC) of deletions or additions to the distribution list.