

Distribution

Unit Managers' Meeting: 100 Area Remedial Action Unit/Source Operable Units

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Frank Corpuz.....	BHI (H0-17)
Michelle Coy	CHI (H9-02)
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Jack Donnelly	BHI (H0-17)
Jon Fancher.....	CHI (X5-60)
Rex Miller.....	BHI (X3-40)
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Tom Kisenwether.....	BHI (X9-11)
Dean Strom	CHI (X3-40)
Jill Thomson	CHI (H9-01)
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Administrative Record	BHI (H0-09) 2 copies

Please inform Michael Wetzler (372-9562) – BHI (H0-17)
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**Meeting Minutes Transmittal/Approval
Unit Managers' Meeting
100 Area Remedial Action and Waste Disposal Unit/Source Operable Unit
3350 George Washington Way, Richland, Washington
March 27, 2003**

APPROVAL:  Date 4/24/03
Chris Smith/Jamie Zeisloft, 100 Area Unit Managers, RL (A3-04)

APPROVAL:  Date 4/24/03
Michael Thompson/ Arlene Tortoso, Waste Management
Division, RL (A6-38)

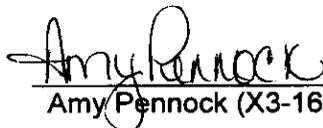
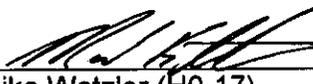
APPROVAL:  Date 4/23/03
John Price, 100 Aggregated Area Unit Manager, Ecology (B5-18)

APPROVAL:  Date 4-24-03
Dennis Faulk, 100 Aggregate Area Unit Manager, EPA (B5-01)

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

Attachment 1	--	Attendance Sheet
Attachment 2	--	Agenda
Attachment 3	--	100 Area Meeting Minutes
Attachment 4	--	WIDS site CVP Closeout Summary Table
Attachment 5	--	Approved Air Monitoring Plan for 118-C-4 Horizontal Control Storage Cave Decontamination and Decommissioning
Attachment 6	--	100 Area RDR/RAWP & SAP Proposed Revisions
Attachment 7	--	118-K-1 Design Schedule
Attachment 8	--	Information on 100-F-19:2 CVP Waste Site Additions
Attachment 9	--	100-BC Area Status Map
Attachment 10	--	Remaining Sites Schedule

Prepared by:

 
Amy Pennock (X3-16) / Mike Wetzler (H0-17)

Date

4/23/03

Concurrence by:


Vern Dronen, Project Manager

BHI Remedial Action and Waste Disposal Project (H0-17)

Date

4/24/03

107312

Attachment #1

**Remedial Action and Waste Disposal Unit Managers' Meeting
Official Attendance Record - 100 Area
March 27, 2003**

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
D.N. Strom	CHI	100-BC	3-5519
J.D. Fumhr	CHI	100N RA	3-9123
M.R. Morton	BHI	ISS	3-1638
Chris Smith	DOE-RL	100 B/LF/IN	372-1544
K. Michael Thompson	DOE-RL	GW	373-0750
John Price	Ecology	Proj. Mgr	736-3029
Larry Gadbois	EPA	UM	376-9884
T. Kistner	BHZ	64 TL BHZ	531-0173
Richard Carlson	BHI	100 design / assess.	372-9632
DENNIS FOLEY	SOA		
Frank Conroy	BHI	100 Area ^{Project} Engineering	531-0625
M. Pruhmster	BHI	Grp 4	521-2089
Steve Clark	CHI	CVP	372-9531
DEENA LADUE	BHI		375 4431
MIKE SCHWAB	BHI	CVP	372-9407
Jamie Zeisler	RL/ERD	100-K	372-0188
J. J. Thomson	CHI	CVP	372-9697
Stacey Callison	CHI	CVP	372-9601
Am. Doctor	BHI	RISK ASSESS	372-9107
Alex Termonci	DOE	Closure	376-6222
John Ludowise	CHI	Design	372-9617
John Winterhalder	FA	GPP	372-8144
Jane Bonghese	FA	GPP	373-3804
Alex Naborali	BHI	CVP	372-9098

Attachment #2

100 AREA UNIT MANAGERS MEETING AGENDA

3350 George Washington Way
March 27, 2003

1:00 – 4:00 p.m. 3350 GWW (Room 1B45)

Administrative

- Meeting minutes status
- Next 100 UMM is April 24, 2003, at 1:00 – 4:00, 3350 GWW (1B45)

Groundwater

- 100 Area Open Action Items
- 100-Area Open forum and discussion
- 100-BC-5 and 100-FR-3 DQO status

100-BC-5 Groundwater OU

-

100-FR-3 Groundwater OU

-

100-HR-3 Groundwater OU

- Remediation treatment status

100-KR-4 Groundwater OU

- Remediation treatment status

100-NR-2 Groundwater OU

- Remediation treatment status

Review Open Action Items Log

General Crossover Items

- CVP status
- RESRAD Update
- Review and approve last UMM minutes

D&D

- Approved Air Monitoring Plan for 118-C-4 Horizontal Control Rod Storage Cave Decontamination and Decommissioning

Remedial Action

100 Area Common

- 100 Area RDR/RAWP and SAP proposed revisions
- ESD Status
- 100 Area Remaining Sites Confirmatory SAP
- Remaining Sites Sampling Efforts Status
 - Analytical detection limits clarification
 - Regulators schedule during Spring Break (April 7-11)
- 118-K-1 Design
 - Integrated K-Basins, Group 4 Remediation, and Soil Gas survey Schedule
- End State of Burial Ground Cleanup (BC, D, H, F, and K Areas)
 - Areas without buried debris and existing overburden
 - Finished grade after backfill

100 F, K, and Group 4

- 100 F Backfill Status
- 100-F-19 CVP Additional Sites (100-F-29 Experimental Animal Farm Pipeline and UPR-100-F-1 Animal Septic Spill)
- 100 K General Status
- 199-K-33 Groundwater Well Abandonment

100 N

- Project Status
- Air Monitoring Plan
- 1324N & 1234NA Certification of Closure
- RCRA Permit Mod Status
- 116-N-1 ESD

100 B/C

- Project Status
- Remaining Sites
- Characterization Sites

105F Fuel Storage Basin

- RAWD and D&D Interface at 105F Fuel Storage Basin
- Backfilling at 105 F Fuel Storage Basin by RAWD and D&D to support SSE subcontractor mobilization

Other

Attachment #3

UNIT MANAGERS MEETING MINUTES

3350 George Washington Way, 1B45

March 27, 2003

1:00 – 3:00 p.m. 100 Area 3350 GWW, 1B45

Administrative

- Meeting Minute Status – Tom Kisenwether (ERC) thanked everyone for their help with the meeting minutes. Mike Wetzler (ERC) will be responsible for getting the signatures on the minutes. It was requested that Michael Thompson (DOE) and Arlene Tortoso (DOE) be added to the approval/signature page.
- The next 100 Area Unit Managers Meeting will be held on April 24, 2003, at 3350 GWW room 1B45 starting at 1:00 p.m.

Groundwater

- 100 Area Open Action Items – There were no open action items.
- 100 Area Open Forum and Discussion – There were no items discussed.
- 100-BC-5 and 100-FR-3 DQO Status – The draft DQO has been sent out for review and approval.

100-BC-5 Groundwater OU

- Was not discussed.

100-FR-3 Groundwater OU

- Was not discussed.

100-HR-3 Groundwater OU

- Remediation Treatment Status – Currently is operating between 199 – 210 gallons per minute. Regarding ISRM – the injections were started on March 25 and were all completed that day. There were no un-scheduled outages.

100-KR-4 Groundwater OU

- Remediation Treatment Status – Currently is operating between 268 – 270 gallons per minute. There were no un-scheduled outages.

100-NR-2 Groundwater OU

- Remediation Treatment Status – Currently is operating at 65 gallons per minute. There was some low flow due to the water levels in the river. Oil was found in well 119-N18. A plan is being put together to put absorbent in the well to get rid of the oil. There were no un-scheduled outages.

General Cross Over Items

- CVP Status – Alex Nazarali (ERC) handed out the WIDS Site CVP Closeout Summary Table (**Attachment 4**) and it was briefly discussed. Alex mentioned that they are looking at ways to streamline the CVP process per recommendation of the regulators
- RESRAD Update – There was no updates at this time. Dennis Faulk (EPA) asked to have a running tally of all the RESRAD Updates.
- Review and Approval of Last UMM Minutes – February's minutes were still in the process of being finalized and were not available by the time this meeting was held. The new process of obtaining signatures was talked about again.

D & D

- Approved Air Monitoring Plan for 118-C-4 Horizontal Control Storage Cave Decontamination and Decommissioning – The plan was handed out (**Attachment 5**). The plan has been signed and they have already entered the building.
- Groundwater well decommissioning was discussed briefly and it was generally agreed that the ERC D&D Project would identify wells that need decommissioned in order to allow D&D of nearby structures. The notification would be to DOE so that proper coordination with FH and their subcontractor(s) may be accomplished.

100 Area Common

- 100 Area RDR/RAWP and SAP Proposed Revisions – Rich Carlson (ERC) handed out a list of the proposed revisions (**Attachment 6**). Rich asked that the regulators review the list and give ERC any input. After a brief discussion it was determined that there will need to be a meeting set up to discuss this.
- 100 Area Remaining Sites Confirmatory SAP - Rich Carlson (ERC) stated that the document was delivered to DOE on February 26 and the comment period will end on April 11.
- Remaining Sites Sampling Efforts Status – Rich Carlson (ERC) stated that four sites have been sampled so far. Things are moving right along.

- The regulators will be out on Spring Break on April 7 – 11.
- 118-K-1 Design – John Ludowise (ERC) handed out a schedule for the 118-K-1 Design (**Attachment 7**), overlapped with schedule coordination considerations for 100 K Remedial Action, K-Basins, and soil gas surveys to be performed by PNNL. It was reviewed. It was noted that FY03 activities include completion only of a 90% design. Schedule for subcontract procurement and final design is yet to be determined. Long-range planning baseline for remediation if FY09. Commencement of the soil gas survey should be underway soon to evaluate the potential of tritium source at the burial grounds. Mike Thompson (DOE) indicated that results of the soil gas survey could only detect and confirm the presence of tritium, but could not conclude that tritium is not present. Larry Gadbois (EPA) indicated that he would like to see remediation of 118-K-1 accelerated to provide experience for the 610-10 and 618-11 Burial Grounds. Frank Corpuz (ERC) pointed out that under the ERC or future RCC the 118-K-1 remedial action will be undertaken by commercial subcontractor, and not necessarily transferable as experience base for 618-10 and 618-11 under the Fluor Hanford (M&O) Program.
- Burial Ground Cleanup (B/C, D, H, F, and K Areas) – John Ludowise (ERC) stated that in general, 100 Area Burial Grounds currently have upwards of about 5 feet of overburden placed over the footprint of the waste sites. There are some areas of the Burial Grounds that had nothing dumped in them. Some potholes will have to be done to verify this. On a case by case basis, representative of EPA and Ecology took no exception to leaving existing overburden in place where the overburden and underlying soils were determined to be clean. In these situations, as long as the shallow zone cleanup criteria are met, the final grade becomes a caretaker issue. The Record of Decision specifies that finish backfill grade for remediated Burial Grounds is adjacent native grade.

100 F, K, and Group 4

- 100 F Backfill Status – Tom Kisenwether (ERC) stated that the backfill is going along well.
- 100-F-19 CVP Additional Sites – Mark Buckmaster (ERC) handed out information on 100-F-19: 2 CVP Waste Site Additions (**Attachment 8**) and it was discussed. Mark requested to close 100-F-29 and UPR-100-F-1 with the pipeline CVP (100-F-19-2) and regulator (Dennis Faulk) approved the addition and close up of these two sites as part of the pipeline CVP.
- 100 K General Status – The eagle roosting area is being worked and the eagle is still there and isn't being disturbed. The elevation was brought up on 116-KW-3 because the contamination wasn't as deep as once thought. They are now only going down three meters and it will be classified as shallow zone. Things at 100 K are going well.

100 N

- Project Status – Jon Fancher (ERC) stated that 75,000 tons have been excavated so far for FY03. They are currently working plumes and working on the re-design for the crib excavation
- 100 N ESD – Comments received to date were supportive of the ESD, and not many comments have been received. Additional comments are expected from stakeholders near the end of the comment period (March 31, 2003). Additionally, it was suggested that a Response to Comment Document is not needed for this ESD which was agreed to by EPA and Ecology..

100 B/C

- Project Status – Dean Strom (ERC) handed out a map of 100 B/C area (**Attachment 9**) showing the status of work.
- Remaining Sites – Dean Strom (ERC) handed out a schedule of the remaining sites (**Attachment 10**) and it was briefly reviewed.

Other

- Nothing else was discussed.

Attachment #4

WIDS Site CVP Closeout Summary Table

3/27/2003

WIDS Site Closeout	CVP Doc. No. documenting WIDS site closeout	EPA/ Ecology WIDS Signoff	Issue Rev. 0 CVP
100 B/C Area			
116-B-13	CVP-1999-00002	7/22/99	7/1999
116-B-14	CVP-1999-00003	7/22/99	7/1999
116-C-1	CVP-1998-00006	1/21/99	1/1999
116-B-1	CVP-1999-00012	12/8/1999	12/1999
116-B-11	CVP-1999-00001	12/8/1999	12/1999
116-C-5	CVP-1999-00004	12/8/1999	12/1999
116-B-4	CVP-1999-00014	2/24/2000	3/3/2000
116-B-6B	CVP-1999-00017	2/24/2000	3/3/2000
116-B-9	CVP-1999-00009	2/24/2000	3/3/2000
116-B-2	CVP-1999-00015	2/24/2000	3/3/2000
116-B-3	CVP-1999-00013	2/24/2000	3/3/2000
116-B-10	CVP-1999-00010	2/24/2000	3/3/2000
116-B-12	CVP-1999-00008	2/24/2000	3/3/2000
116-C-2A	CVP-1999-00019	3/15/2000	3/28/1999
116-C-2B			
116-C-2C			
116-B-6A	CVP-1999-00011	5/17/2000	5/26/2000
116-B-16	CVP-2002-00003	7/25/2002	8/6/2002
116-B-7			
132-B-6			
132-C-2	CVP-2002-0012	(Review Draft 08/12/03; Signoff 9/30/03)	
BC Pipeline			
1607-B-7			
1607-B-8			
1607-B-9			
1607-B-10			
1607-B-11			
100-C-3			
100 D Area			
100-D-4 (107D5)	CVP-98-00004	3/25/1999	3/1999
100-D-20 (107D3)	CVP-98-00003	3/25/1999	3/1999
100-D-21(107D2)	CVP-98-00002	3/25/1999	3/1999
100-D-22 (107D1)	CVP-98-00001	3/25/1999	3/1999
1607-D2		closed	
1607-D2:1 Tile Field	CVP-98-00005	3/25/1999	3/1999
Septic Pipelines	CVP-2000-0004	9/26/2000	9/2000
Septic Tank	CVP-99-00005	11/23/1999	12/1999
116-DR-9	CVP-99-00006	1/6/2000	1/2000
100-D-25			
116-D-7	CVP-99-00007	8/15/2000	8/2000
100-D-18 (107D4)	CVP-2000-00001	9/26/2000	10/2/2000
116-DR-1	CVP-2000-00002	9/26/2000	9/27/2000
116-DR-2			
100-D-48		closed	
100-D-48:1 (Grp 2 North Pipelines)	CVP-2000-00003	3/14/2001	3/2001
100-D-48:2 (Grp 2 West Pipelines)	CVP-2000-00005	9/26/2000	10/2/2000
100-D-48:3 (Grp 3 Large Pipelines)	CVP-2000-00034	4/20/2001	4/20/2001
100-D-48:4 (Grp 3 Small Pipelines)	CVP-2000-00033	4/17/2001	4/20/2001
100-D-19	CVP-2000-00003	3/14/2001	3/2001
UPR-100-D-4			
100-D-49		closed	
100-D-49:1 (Grp 2 North Pipelines)	CVP-2000-00003	3/14/2001	3/2001
100-D-49:2 (Grp 2 East Pipelines)	CVP-2000-00005	9/26/2000	10/2/2000
100-D-48:3 (Grp 3 Large Pipelines)	CVP-2000-00034	4/20/2001	4/20/2001

WIDS Site CVP Closeout Summary Table

3/27/2003

WIDS Site Closeout	CVP Doc. No. documenting WIDS site closeout	EPA/ Ecology WIDS Signoff	Issue Rev. 0 CVP
100 D Area (cont.)			
UPR-100-D-2	CVP-2000-00005	9/26/2000	10/2/2000
UPR-100-D-3			
100-D-5	CVP-2000-00034	4/20/2001	4/20/2001
100-D-6			
116-D-3	no CVP site rejected	5/17/2000	N/A
116-D-4	CVP-2000-00008	10/23/2000	10/31/2000
116-D-6	CVP-2000-00009	11/7/2000	11/9/2000
116-D-1A	CVP-2000-00010	3/12/2001	3/2001
116-D-1B			
100-D-46			
116-D-2	CVP-2000-00013	10/23/2000	10/25/2000
116-DR-6	CVP-2000-00014	10/23/2000	10/24/2000
116-DR-4	CVP-2000-00015	10/23/2000	10/25/2000
100-D-12	CVP-2000-00016	10/23/2000	10/26/2000
100-D-52	CVP-2000-00018	11/7/2000	11/9/2000
116-DR-7	CVP-2000-00019	9/26/2000	10/2/2000
116-D-9	CVP-2000-00012	3/23/2001	3/23/2001
100 H Area			
1607-H2	CVP-2000-00024	2/5/2001	2/2001
1607-H4	CVP-2000-00025	2/26/2001	2/26/2001
116-H-1	CVP-2000-00026	4/4/2001	4/11/2001
116-H-7	CVP-2000-00027	7/24/2001	8/1/2001
100-H-5	CVP-2000-00028	12/21/2000	12/21/2000
100-H-17	CVP-2000-00031	3/6/2001	3/8/2001
116-H-2			
100-H-2			
100-H-30			
100-H-21	CVP-2000-00029	3/29/2001	3/29/2001
100-H-22			
100-H-1			
100-H-24	CVP-2000-00030	5/9/2001	5/2001
116-H-3	CVP-2000-00032	4/3/2001	4/11/2001
100 N Area			
120-N-1	CVP-2001-00021	3/28/2002	4/18/2002
120-N-2			
100-N-58			
116-N-3	CVP-2002-00002	9/26/2002	12/23/2002
100 Area Misc. & 300 Area			
JA Jones	CVP-2001-00019	11/8/2001	12/10/2001
600-23	CVP-2001-00020	11/30/2001	12/17/2001
300-49 (Landfill 1A)	CVP-2001-00015	<i>(Review Draft 01/24/03; Signoff 4/17/03)</i>	
300-50 (Landfill 1B)	CVP-2001-00016	<i>(Review Draft 02/27/03; Signoff 4/17/03)</i>	
628-4 (Landfill 1D)	CVP-2001-00017	<i>(Review Draft 04/10/03; Signoff 5/14/03)</i>	
316-1(South Process Pond)	CVP-2001-00018	<i>(Review Draft 04/10/03; Signoff 5/14/03)</i>	
316-2 (North Process Pond)	CVP-2002-00011		
628-4 (Burial Ground)	CVP-2002-00014	<i>(Review Draft 07/03/03; Signoff 08/21/03)</i>	

WIDS Site CVP Closeout Summary Table

3/27/2003

WIDS Site Closeout	CVP Doc. No. documenting WIDS site closeout	EPA/ Ecology WIDS Signoff	Issue Rev. 0 CVP
100 F Area			
116-F-4	CVP-2001-00006	11/8/2001	11/15/2001
116-F-5	CVP-2001-00007	8/16/2001	8/23/2001
1607-F6	CVP-2001-00010	11/8/2001	11/15/2001
UPR-100-F2	CVP-2001-00011	4/22/2002	5/7/2002
100-F-19:1	CVP-2001-00002	5/21/2002	6/10/2002
100-F-19:3			
100-F-34			
116-F-12			
100-F-40	site closed (No CVP)	2/15/2002	2/15/2002
116-F-14	CVP-2001-00009	7/11/2002	7/18/2002
100-F-2	CVP-2001-00001	7/25/2002	8/5/2002
100-F-15	CVP-2002-00001	7/25/2002	8/6/2002
100-F-4			
100-F-11			
100-F-16			
116-F-9	CVP- 2001-00008	10/16/2002	10/22/2002
116-F-2	CVP- 2001-00005	1/13/2003	3/11/2003
126-F-1	CVP- 2002-00002	Pending (1/13/2003)	Pending
100-F-35	CVP-2002-00007	(Review Draft 4/17/03; Signoff 6/6/03)	
116-F-1	CVP-2002-00009		
116-F-3	CVP-2002-00008	(Review Draft 4/4/03; Signoff 6/10/03)	
116-F-6	CVP-2002-00010		
116-F-10	CVP-2002-00006	(Review Draft 4/21/03; Signoff 6/10/03)	
1607-F2	CVP-2002-00005	1/13/2003	3/11/2003
100-F-19:2	CVP-2001-00003		
116-F-11			
100-F-29			
UPR-100-F-1			

Attachment #5

AIR MONITORING PLAN FOR 118-C-4 HORIZONTAL CONTROL ROD STORAGE CAVE DECONTAMINATION AND DECOMMISSIONING

1.0 INTRODUCTION

The decontamination and decommissioning (D&D) of the 118-C-4 Horizontal Control Rod Storage Cave has the potential-to-emit (PTE) radionuclides. This activity is being conducted as part of a non-time-critical *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) removal action under an Action Memorandum (EPA 1997) signed by the U.S. Environmental Protection Agency and the U.S. Department of Energy. Methods and activities to disposition the 118-C-4 Horizontal Control Rod Storage Cave are similar to those discussed in the *Removal Action Work Plan for 105-D and 105-H Building Interim Safe Storage Projects and Ancillary Buildings* (DOE-RL 2002).

Quantification of radioactive emissions, implementing best available radionuclide control technology (BARCT), and air monitoring have been identified as substantive requirements (i.e., applicable or relevant and appropriate requirements) for the removal action. A BARCT compliance demonstration is determined by the regulatory agency on a case-by-case basis. This plan is prepared to demonstrate compliance with these substantive requirements in accordance with *Washington Administrative Code* (WAC) 246-247-040. This plan is also written to meet the substantive requirements of 40 *Code of Federal Regulations* (CFR) 61.

1.1 FACILITY DESCRIPTION

The 118-C-4 Horizontal Control Rod Storage Cave is located on the south side of the 105-C Reactor within the fence line and operated from 1950 to 1969. It consists of two U-shaped steel sections that were cut in half and placed cut-side down on a concrete pad between two concrete retaining walls. Each channel has a 0.3-m (1-ft) square cross section. This configuration was covered with soil/gravel and coated with asphalt emulsion for protection. The concrete ends are equipped with steel doors sealed to prevent entry. The caves were used for temporary storage of contaminated reactor control rods to allow radioactive decay prior to disposal. The north cave is empty, but the south cave contains two rod tips or similar items. French drains in the center of the concrete slab receive precipitation percolating through the gravel that covers the caves so that rain and snow water are diverted away from the steel tubes holding the control rods. Approximate overall dimensions of the structure are 17 m (56 ft) long by 7.8 m (25 ft 8 in.) wide by 1.8 m (5 ft 10 in.) high. Concrete aprons are located on each end of the rod cave. Each apron is 3 m (10 ft) long by 3 m (10 ft) wide.

1.2 PLANNED ACTIVITIES

The removal action work scope includes characterization sampling; decontamination; removal of accessible radiological and hazardous waste; demolition of structures; excavation of potentially contaminated soil; treatment if needed (e.g., grouting) to meet waste acceptance criteria; and handling, loading, and transportation of waste for disposal.

Decontamination methods may include wiping or applying fixatives to stabilize contamination, scabbling, abrasive blasting, and vacuuming. Portable temporary radiological air emission units (PTRAEUs) and glovebags may be used during these activities.

Demolition methods will be selected based on the structural elements to be demolished and will use conventional equipment, which will include the following:

- Excavator with a hoe-ram
- Hydraulic shears with steel shear jaws
- Concrete pulverizer jaws or breaker jaws
- Crane with wrecking ball
- Pneumatic hammers
- Crane to remove and size reduce materials
- Mechanical/power saws.

It is assumed that a portion of concrete demolition work will make use of a high-efficiency particulate air (HEPA)-filtered vacuum cleaner. Standard construction equipment will be used for excavation, loading, and hauling.

Equipment (e.g., haul trucks, containers) used in D&D activities will also be decontaminated, as necessary. Conventional methods (e.g., brushing or wiping, water wash, or HEPA-filtered vacuum cleaners) will be used. More aggressive equipment decontamination methods (e.g., grinding or wet grit blasting) may be used for equipment decontamination if other methods fail.

Demolition material will be sent primarily to the Environmental Restoration Disposal Facility for disposal. On a case-by-case basis, other approved disposal facilities may be used based on the specific waste stream designation.

2.0 AIRBORNE SOURCE INFORMATION

2.1 ROD CAVE STRUCTURE

The rod cave was characterized in 1998 (DOE-RL 1997, BHI 1998). The results were used in a calculation (BHI 2002a) to support the development of a preliminary hazard classification (PHC) for the structure (BHI 2002b).

The rod cave is believed to contain two rods in the southern channel. The northern channel contains low levels of smearable and fixed contamination. Because of the presence of the

control rods, the southern channel could not be surveyed as readily as the northern channel. However, the southern channel is assumed to contain similar levels of smearable and fixed contamination as the northern channel.

The estimated inventory in the rod cave is provided in the PHC supporting calculation (BHI 2002a). It is conservatively assumed that the entire radioactive inventory is in the form of contaminated particulates. The release fraction for particulates is $1E-03$ (WAC 246-247-030[21]).

Any residual contamination in soils removed during D&D of the structure is assumed to be bounded by the assumed inventory for the structure. If extensive contamination is found, remediation will be deferred to the Remedial Action and Waste Disposal Project, with approval from the lead regulatory agency.

Portions of concrete demolition and equipment decontamination may make use of a HEPA-filtered vacuum cleaner. It is assumed that 0.25% of the annual possession quantity will be collected in the HEPA-filtered vacuum cleaners. The HEPA-filtered vacuum cleaner has a release fraction of 1 (DOH 1994).

2.2 CONTROL RODS

The control rods are made of aluminum and have round cross sections with cavities filled with boron-carbide powder (BHI 1998). A central tube and return provided cooling in each rod. Boron-carbide is contained in 9.8 m (32 ft) of each control rod. The control rods are stored in aluminum tubes for containment and contamination control.

The radioactivity associated with the control rods was calculated in BHI (1998) and summarized in the PHC (BHI 2002b). The radionuclide inventory of each rod tip is due to a combination of activation products, contained internally, and fission products, located externally. The radiological source internal to the control rods is assumed to be fully encapsulated and thus has a release fraction of $1E-6$ (solid). The surface contamination present externally on the control rods is assumed to be present in the form of particulates with a release fraction of $1E-3$ (WAC 246-247-030[21]).

2.3 DOSE MODELING

The CAP-88-PC, Version 2.0, model was used to determine the total effective dose equivalent (TEDE), or annual unabated offsite dose, to the MEI. The calculation made the conservative assumption that D&D of the structure will be completed in 1 year. The PTE (Ci/yr) were used as the input for the computer model, and the model generated the annual unabated dose. The distance to the MEI used in the model was 10,164 m west-northwest. The maximum TEDE to the MEI from the D&D activities of the 118-C-4 Horizontal Control Rod Storage Cave is $1.71E-08$ mrem/yr.

The radionuclide annual possession quantity and subsequent PTE and TEDE calculations for the 118-C-4 Horizontal Control Rod Storage Cave are documented in *TEDE Calculation for D&D of the 118-C-4 Horizontal Control Rod Storage* (BHI 2003). Summary results are shown in the attachment.

3.0 BEST AVAILABLE RADIONUCLIDE CONTROL TECHNOLOGY

The D&D activities have the potential to release radioactive emissions to the atmosphere. Implementing BARCT for these radioactive emissions has been identified as an applicable or relevant and appropriate requirement.

The use of wiping or applying fixatives is an as low as reasonably achievable control that has been accepted as BARCT for fugitive particulate radionuclide air emissions, particularly when the potential offsite dose is low. Glovebags may also be used to reduce potential emissions. For vacuuming and the use of portable ventilation units, HEPA filters are used to collect generated dust. The use of HEPA filters has been generally accepted as BARCT. Because structure demolition may be a source of radioactive fugitive emissions, dust suppressants (e.g., water and fixatives) will be used and are considered BARCT for demolition. When using water, quantities used will be minimized to prevent water accumulation, puddles, and runoff within the area where the water is being used.

Because D&D activities may be a source of radioactive fugitive emissions, the following controls will be implemented and are also considered BARCT:

- Water will be applied during demolition, excavation, container loading, and backfilling processes to minimize airborne releases.
- Fixatives will be applied to any contaminated debris or soils that are being stockpiled (e.g., for reuse) that will be inactive for more than 24 hours.
- Fixatives will be applied to contaminated soils and debris that will be inactive less than 24 hours at the end of work operations, if the sustained wind speed is predicted overnight to be greater than 32 km/h (20 mph), based on the Hanford Meteorological Station morning forecast. This will allow for enough time, if necessary, to prepare for the application of dust control measures. If a soil fixative has already been applied and the soil and/or debris will remain undisturbed, further uses of fixatives will not be reapplied, unless needed. The fixatives or other controls will not be applied when the contaminated soils and/or debris are frozen or it is raining, snowing, or other freezing precipitation is falling at the end of work operations.
- An entry will be made in the project logbook (or equivalent) when the forecasts predict sustained wind speeds greater than 32 km/h (20 mph), and dust control is to be applied at the end of the work shift.

Haul trucks transporting bulk materials will be covered to contain the materials while in transit to the Environmental Restoration Disposal Facility.

4.0 MONITORING

Monitoring activities will consist of using one upwind and one downwind near-facility air monitoring station. These air monitors will run continuously during D&D activities involving radiologically contaminated materials. One new (N536) and one existing (N497) air monitor will be used as the upwind and downwind monitors for this work, respectively. Air monitor locations are shown in the attachment.

The operation of these monitors will follow the protocol established for near-facility monitors on the Hanford Site. The air samples will be changed every 2 weeks and analyzed for total alpha and total beta. The samples will be composited semiannually, and analyzed for gamma energy-emitting radionuclides, strontium-90, isotopic uranium, and isotopic plutonium. The data results will then be entered into the Automated Bar Coding of Air Samples at Hanford database for record keeping and reporting. The data from these monitors will be included in the annual reports prepared for the Hanford Site.

5.0 REFERENCES

- 40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," *Code of Federal Regulations*, as amended.
- BHI, 1998, *118-C-4 Horizontal Rod Cave Characterization Report*, BHI-01154, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.
- BHI, 2002a, *Hazardous Substance Inventory of 118-C-4 Waste Site*, Calculation No. 0100X-CA-N0015, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.
- BHI, 2002b, *Preliminary Hazard Classification (PHC) Document Form*, PHC-2002-0011, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.
- BHI, 2003, *TEDE Calculation for D&D of the 118-C-4 Horizontal Control Rod Storage Cave*, 0100B-CA-V0113, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, 42 U.S.C. 601, et seq.
- DOE-RL, 1997, *118-C-4 Horizontal Rod Cave Characterization Plan*, DOE/RL-97-33, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE-RL, 2002, *Removal Action Work Plan for 105-D and 105-H Building Interim Safe Storage Projects and Ancillary Buildings*, DOE/RL-2000-57, Rev. 2, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOH, 1994, letter from A. W. Conklin to S. H. Wisness, AIR 94-802, dated August 1, 1994, Washington State Department of Health, Olympia, Washington.

EPA, 1997, *Action Memorandum; 100 B/C Area Ancillary Facilities and the 108-F Building Removal Action, U.S. Department of Energy Hanford Site, Richland, WA*, Accession D197045200, U.S. Environmental Protection Agency, Region 10, Hanford Project Office, Richland, Washington.

WAC 246-247, "Radiation Protection – Air Emissions," *Washington Administrative Code*, as amended.

Concurrence:



D. C. Smith
U.S. Department of Energy, Richland Operations Office

2/19/03

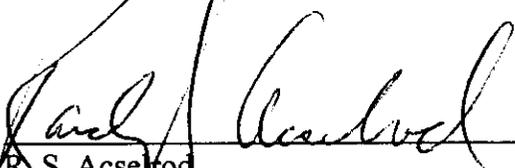
Date



D. A. Faulk
U.S. Environmental Protection Agency

2-19-03

Date



R. S. Acselrod
Washington State Department of Health

2/20/03

Date

ATTACHMENT

Potential-to-Emit Values for the Decontamination and Decommissioning of 118-C-4 Horizontal Control Rod Storage Cave.

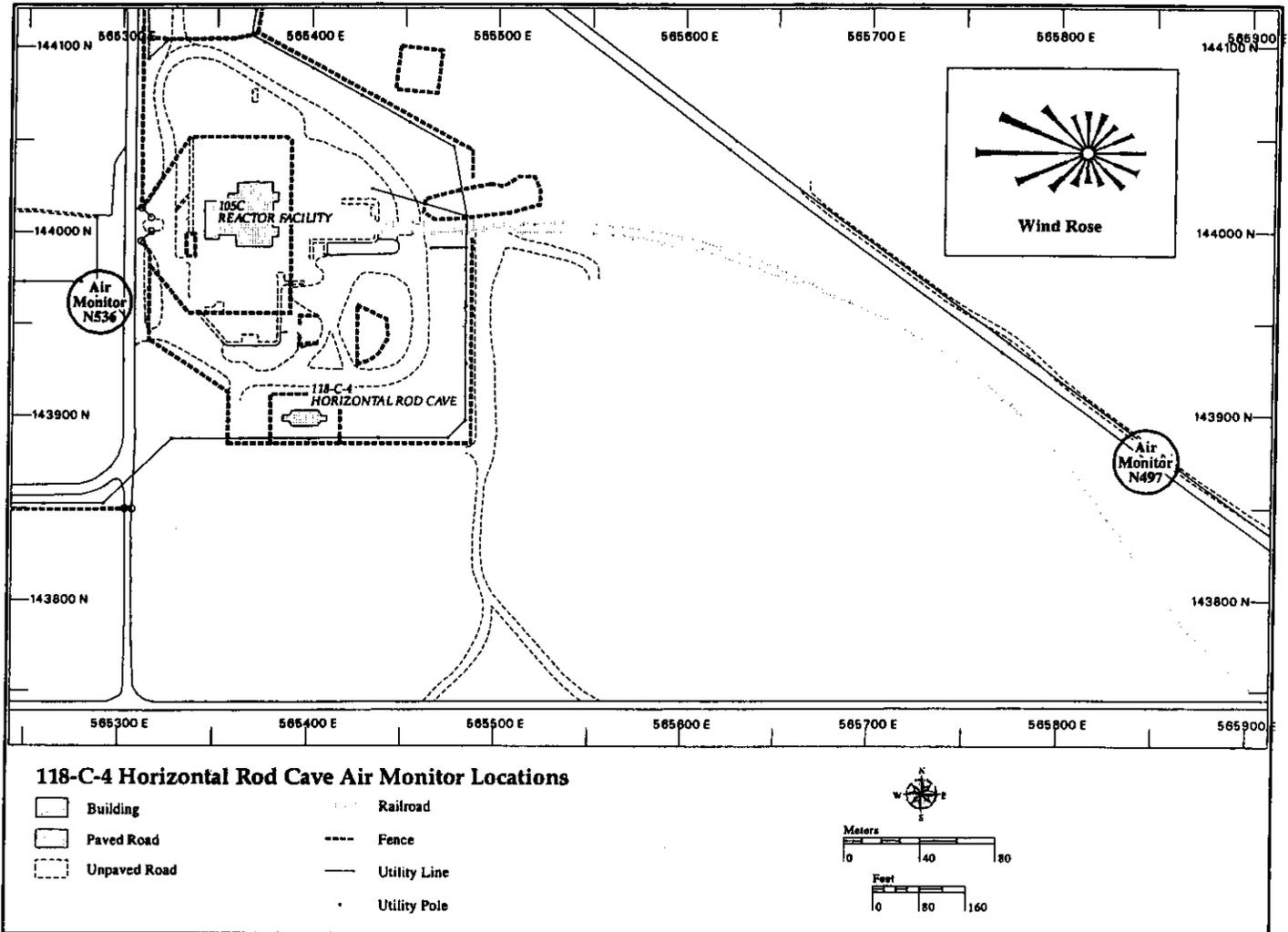
Isotope	Control Rods			HEPA Vacuuming			Conventional Demolition			Total Potential to Emit (Ci/yr)	Unabated TEDE to the MEI ^b (mrem/yr)
	APQ ^a	Release Fraction	Potential to Emit (Ci/yr)	APQ ^a	Release Fraction	Potential to Emit (Ci/yr)	APQ ^a	Release Fraction	Potential to Emit (Ci/yr)		
C-14	1.6E-04	1.0E-06	1.6E-10	--	1.0E+00	--	--	1.0E-03	--	1.6E-10	3.0E-13
Co-60	7.0E-02	1.0E-06	7.0E-08	1.1E-11	1.0E+00	1.1E-11	4.5E-09	1.0E-03	4.5E-12	7.0E-08	9.1E-09
Cs-137	8.6E-07	1.0E-03	8.6E-10	1.1E-10	1.0E+00	1.1E-10	4.5E-08	1.0E-03	4.5E-11	1.0E-09	3.1E-11
Eu-152	--	--	--	2.4E-12	1.0E+00	2.4E-12	9.6E-10	1.0E-03	9.6E-13	3.4E-12	4.3E-13
Eu-154	--	--	--	3.0E-11	1.0E+00	3.0E-11	1.2E-08	1.0E-03	1.2E-11	4.2E-11	4.2E-12
Eu-155	--	--	--	1.1E-10	1.0E+00	1.1E-10	4.2E-08	1.0E-03	4.2E-11	1.5E-10	6.7E-13
K-40	--	--	--	6.3E-09	1.0E+00	6.3E-09	2.5E-06	1.0E-03	2.5E-09	8.7E-09	9.0E-10
Pu-238	--	--	--	3.5E-11	1.0E+00	3.5E-11	1.4E-08	1.0E-03	1.4E-11	4.9E-11	3.4E-10
Pu-239	--	--	--	5.8E-12	1.0E+00	5.8E-12	2.3E-09	1.0E-03	2.3E-12	8.0E-12	6.0E-11
Pu-241	--	--	--	3.0E-09	1.0E+00	3.0E-09	1.2E-06	1.0E-03	1.2E-09	4.2E-09	4.9E-10
Ra-224	--	--	--	1.2E-09	1.0E+00	1.2E-09	4.8E-07	1.0E-03	4.8E-10	1.7E-09	1.2E-10
Ra-226	--	--	--	6.8E-10	1.0E+00	6.8E-10	2.7E-07	1.0E-03	2.7E-10	9.4E-10	3.9E-10
Ra-228	--	--	--	1.1E-09	1.0E+00	1.1E-09	4.2E-07	1.0E-03	4.2E-10	1.5E-09	2.5E-10
Sr-90	8.6E-07	1.0E-03	8.6E-10	1.2E-10	1.0E+00	1.2E-10	4.8E-08	1.0E-03	4.8E-11	1.0E-09	8.8E-11
U-234	--	--	--	2.1E-10	1.0E+00	2.1E-10	8.5E-08	1.0E-03	8.5E-11	3.0E-10	8.4E-10
U-235	--	--	--	1.3E-10	1.0E+00	1.3E-10	5.1E-08	1.0E-03	5.1E-11	1.8E-10	4.8E-10
U-238	--	--	--	1.1E-09	1.0E+00	1.1E-09	4.5E-07	1.0E-03	4.5E-10	1.6E-09	4.0E-09
Y-90	8.6E-07	1.0E-03	8.6E-10	1.2E-10	1.0E+00	1.2E-10	4.8E-08	1.0E-03	4.8E-11	1.0E-09	1.9E-13
Ba-137m	8.1E-07	1.0E-03	8.1E-10	1.1E-10	1.0E+00	1.1E-10	4.2E-08	1.0E-03	4.2E-11	9.6E-10	3.8E-19
Total										1.71E-08	

^a Radionuclide annual possession quantities are presented in Environmental Restoration Contractor (ERC) Calculation 0100B-CA-V0113, *TEDE Calculation for D&D of the 118-C-4 Horizontal Control Rod Storage Cave*, Rev. 0, January 2003 (BHI 2003).

^b The annual unabated dose was determined using the CAP88-PC, Version 2 model. The potential to emit (Ci/yr) was input to the model, and the model generated the annual unabated dose. The distance to the MEI from the 118-C-4 Horizontal Control Rod Storage Cave is 10,164 m west-northwest at the site boundary. The CAP88-PC model summary and synopsis are presented in ERC Calculation 0100B-CA-V0113, *TEDE Calculation for D&D of the 118-C-4 Horizontal Control Rod Storage Cave*, Rev. 0, January 2003 (BHI 2003).

APQ = annual possession quantity
 HEPA = high-efficiency particulate air (filter)
 MEI = maximally exposed individual
 TEDE = total effective dose equivalent

118-C-4 Horizontal Rod Cave Air Monitor Locations



Attachment #6

Updates to be made to 100 Area RDR/RAWP and 100 Area SAP

Global Issues and Changes

- Clarify composite sampling
- Incorporate all agreements made during the CVP process
- Update discussion on Institutional Controls (ICs), Refer to Sitewide IC Plan
- Update tables, as appropriate
- ✓• RESRAD program changes be included in the RDR
- Address regrading/recontouring and backfill
- Reference the updated 100/600 Area Mitigation Action Plan
- Update with any information pertaining to changes with the Remaining Sites SAP

Stakeholder Issues to be Discussed

- Address how ecological protectiveness is/will be addressed post-remedial action (BC Pilot project)
- Address tribal exposure scenario (B/C Pilot Project)
- Describe ecological receptors in 100 Areas (defer to descriptive documents – e. g. Neitzel 2002)
- Discuss MTCA ecological evaluation procedure (TBC rather than ARAR because the MTCA eco stuff is not in the ROD and is not retroactive)
- Include Executive Summary
- Change orientation of figures
- Name ecological RAOs (See changes to 300 Area RDR RAOs)
- Discuss biological monitoring (PNNL annual sampling under Surface Environmental Surveillance Program, B/C Pilot Project)

Attachment #7

2003 2004 2005 2006 2007 Fiscal Year 2008 2009 2010 2011 2012 2013



[Redacted bar]



Duplication of remediation infrastructure if 118-K-1 is remediated during this time-frame.

[Redacted bar]



USQ on Spent Nuclear Fuel Program if 118-K-1 is remediated in this time-frame.

[Redacted bar]

[Redacted bar]

[Redacted bar]

oval (M-34-22)
00A)

BD) 1 fiscal year required

)
D)

Attachment #8

100-F-19:2 CVP Waste Site Additions

100-F-29 : Animal Farm Process Sewer Pipelines

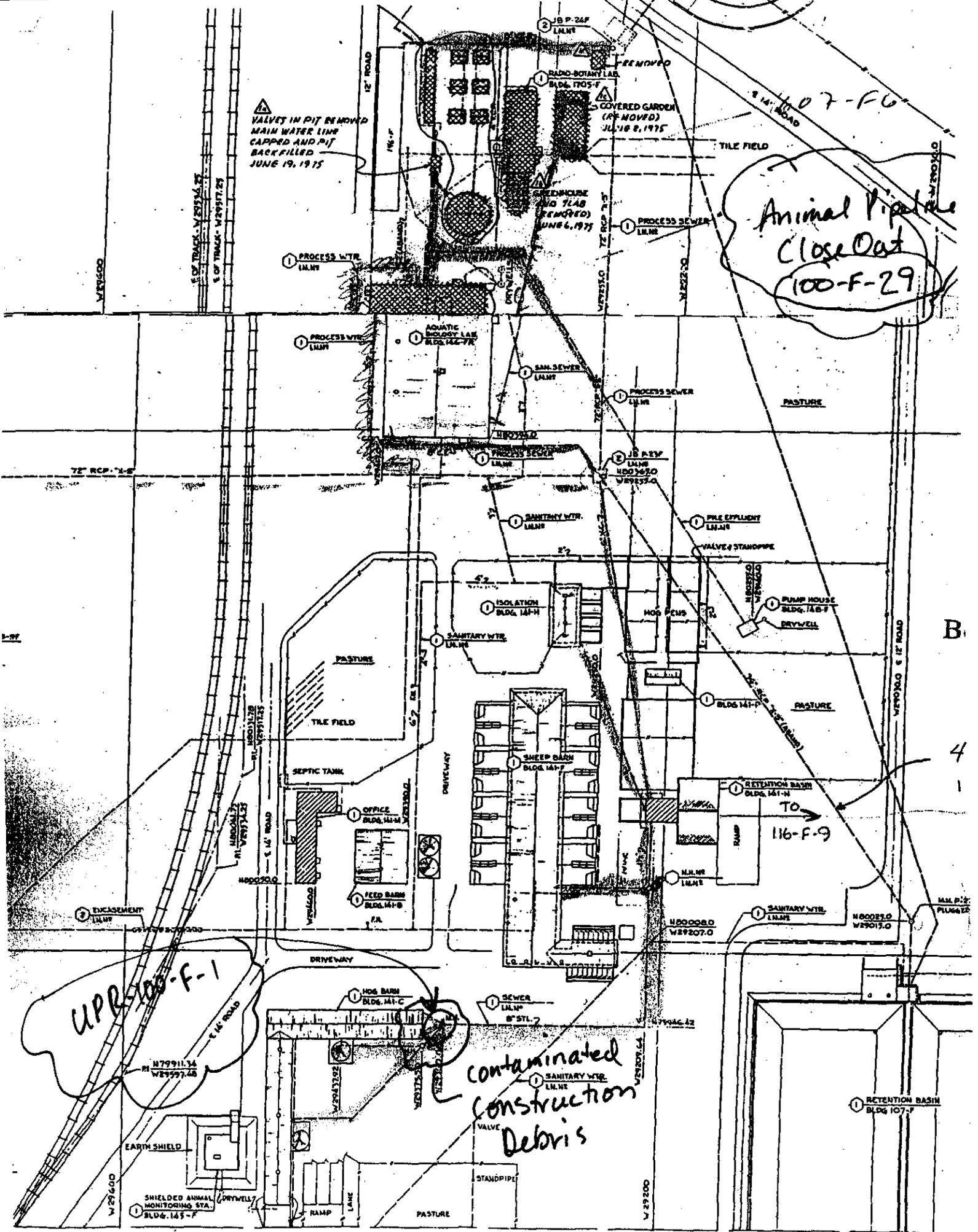
- Remediated along with the 100-F-19 reactor process water pipelines.
- Originally to be included as 100-F-19 pipelines
- Contaminant of Concern List

100-F-19	100-F-29 & UPR (116-F-9)
Cr+6	Cr+6
C-14	C-14
Cs-137	Cs-137
Co-60	Co-60
Eu-152	Eu-152
Eu-154	-
Eu-155	-
Ni-63	Ni-63
Sr-90	Sr-90

- Segregate 100-F-29 and include in 100-F-19:2 CVP

UPR-100-F-1 : Animal Farm Process Sewer Overflow

- Pipeline plugged and process sewer overflowed on the surface through an existing manhole.
- Contaminant of Concern List (see above table)
- Segregate UPR-100-F-1 and include in 100-F-19:2 CVP



VALVE IN PIT REMOVED
 MAIN WATER LINE
 CAPPED AND PIT
 BACK FILLED
 JUNE 19, 1975

COVERED GARDEN
 (REMOVED)
 JUL 18, 1975

Animal Pipeline
 Close Out
 100-F-29

contaminated
 Construction
 Debris

UPR-100-F-1

116-F-9

RETENTION BASIN
 BLDG. 107-F

SHIELDED ANIMAL
 MONITORING STA.
 BLDG. 145-F

B

4

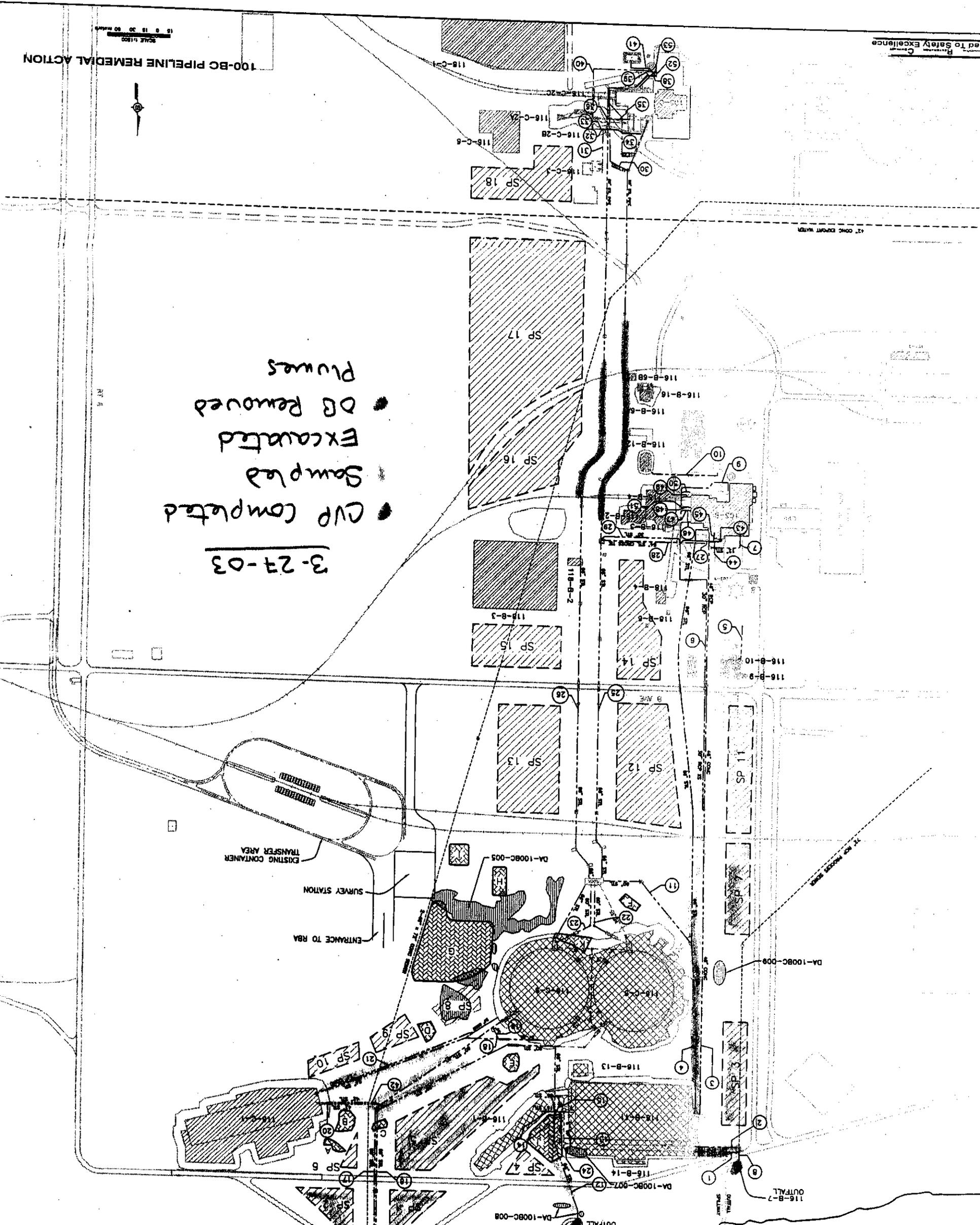
Attachment #9

100-BC PIPELINE REMEDIAL ACTION

SCALE 1:100
0 10 20 30 Meters



- 3-27-03
- GVP completed
 - Samples
 - Excavated
 - DB Removed
 - Piles



Attachment #10

Site	Remediated	LARADS	Sample Design	Staked	Sampled		CVP
					Variance	Verification	
100-C-3	3/19/2003	3/20/2003	3/24/2003	3/25/2003	3/25/2003	3/27/2003	
1607-B7	3/20/2003	3/21/2003	3/25/2003	3/25/2003	3/26/2003	3/27/2003	
1607-B8	3/24/2003	3/25/2003	3/26/2003	3/26/2003		3/28/2003	
1607-B9							
1607-B10	3/26/2003	3/27/2003					
1607-B11	3/25/2003	3/27/2003					
100-B-5	Plumes						
100-B-8	Plumes						

For information only.

Estimate

Site	Status
116-C-6	Sampled
116-B-15	Sampled
116-C-3	Preliminary Samples
128-C-1	Sampled
126-B-2	Currently working
126-B-3	Sampled
100-B-3	
120-B-1	
132-B-1	
100-B-1	
132-C-3	
132-B-4	
132-B-5	
132-C-1	
132-B-3	
100-DR, 600-30	
100-DR, 628-3	
100-DR, 128-D-1	
100-DR, 128-D-2	