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**Meeting Minutes Transmittal/Approval
 Unit Managers' Meeting
 Remedial Action and Waste Disposal Unit/Source Operable Unit
 3350 George Washington Way, Richland, Washington
 August 20, 1998**

FROM/ APPROVAL: *[Signature]* Date 11/19/98
 Glenn Goldberg, 100 Area Unit Manager, RL (H0-12)

APPROVAL: *[Signature]* Date 11-23-98
 Wayne Soper/Phil Staats, 100 Aggregate Area Unit Manager, Ecology (B5-18)

APPROVAL: *[Signature]* Date 11-19-98
 Dennis Faulk, 100 Aggregate Area Unit Manager, EPA (B5-01)

APPROVAL: N/A - Did not attend Date _____
 Donna Wanek, 100-N Area Unit Manager, RL (H0-12)

APPROVAL: *[Signature]* Date 11/18/98
 Bryan Foley, 200 Area Unit Manager, RL (H0-12)

APPROVAL: N/A - Did not attend Date _____
 Joan Bartz/Shri Mohan, 200 Aggregate Area Unit Managers, Ecology (B5-18)

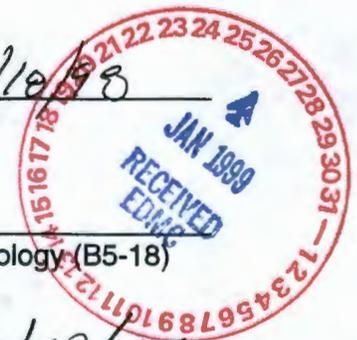
APPROVAL: *[Signature]* Date 12/10/98
 Ted A. Wooley, 200-B Area Project Manager, Ecology (B5-18)

APPROVAL: *[Signature]* Date Dec. 02, 1998
 Robert G. McLeod, 300 Area Unit Manager, RL (H0-12)

APPROVAL: N/A - Did not attend Date _____
 Alex B. Stone, 300 Area Aggregate Area Unit Manager, WDOE (B5-18)

APPROVAL: *[Signature]* Date 3 Dec 98
 David R. Einan, 300 Area Aggregated Unit Manager, EPA (B5-01)

APPROVAL: *[Signature]* Date 12/10/98
 Ted A. Wooley, 300 Area Process Trenches Subproject Manager, Ecology (B5-18)



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

Attachment #1a, b, and c	--	Agendas
Attachment #2a and b	--	Attendance Records
Attachment #3	--	Meeting Minutes
Attachment #4	--	ERC Meeting Minutes from July 24, 1998 -- <i>Air Monitoring Program at 100-BC-1 and 100-DR-1 Remedial Action</i>
Attachment #5	--	ERC Meeting Minutes from July 9, 1998 -- <i>Remediation Closeout and Backfill Status</i>

Prepared by: Michelle Peterson Date 12/10/98
Michelle Peterson (H0-10)/Tamen Rodriguez (H0-17)

Concurrence by: Vern Dronen Date 12/14/98
Vern Dronen, BHI Remedial Action and Waste Disposal Project Manager
(H0-17)

UNIT MANAGERS' MEETING AGENDA
3350 George Washington Way, Room 1B45
August 20, 1998

1:00 p.m. -- 300 Area

300-FF-1 Operable Unit

- Process Trenches
 - Backfill and Regrading
 - Vadose Zone Clean Closure Report
 - Verification Package
 - Independent PE Report
 - Permit Revisions
- Burial Ground 618-4
 - Drum Sampling Activities
- North Process Pond
 - Excavation of ACL Area
 - Excavation of Berms/BCL Stockpiling - Plume Test Pit Results
- TPA Milestone M-16-03D
- Update on 100 Area Groundwater

300-FF-2 Operable Unit

- Status of PNNL Site Assessments
- Status of RCRA/CERCLA Integration Discussions

UNIT MANAGERS' MEETING AGENDA
3350 George Washington Way, Room 1B45
August 20, 1998

2:00 p.m. – 200 Area

- 200 Area Implementation Plan Status
- 200-CW-1 Gable/B-Pond and Ditches Cooling Water Group DQO Status
- Detailed Work Plan
 - Status
 - Nonradioactive Dangerous Waste Landfill (NRDWL)
 - Hanford Prototype Barrier Monitoring

UNIT MANAGERS' MEETING AGENDA
3350 George Washington Way, Room 1B45
August 20, 1998

3:00 p.m. -- 100 Area Remedial Action

General

- Status of Review/Concurrence on July 1998 Meeting Minutes with Department of Health
- Status of Review/Concurrence on July 1998 Meeting Minutes on Pipeline, Plume, and Backfilling Strategies
- Introduction of NR Area Remedial Action
- Other

100-B/C Remedial Action

- Group 3 Sites - Remedial Design; Proceeding with Scheduling of Well Closure for 116-C2A Crib Injection Well
- Group 3 Waste Site Groupings for Site Closeout and Verification Reporting Purposes
- Information/Discussion on Previous Remedial Action and Testing on the 116-B4 Waste Site

100-DR Remedial Action

- Status/Schedule for Delivery of Site Closeout Reports for 107-D1, 107-D2, and 107-D3 Sludge Pits, and the 1607-D2 Septic Tank, Abandoned Tile Field
- Status of Upcoming Well Abandonments/Well Modifications (199-D8-55, and 199-D8-3)

100-H, -F, and -K Remedial Action

- Request for Inclusion of the 100 H-2 Burial Ground as Part of the 100-H-17 and 116-H-2 Remedial Action

4:00 pm -- Remedial Design and Assessment

- Remaining Sites PP status
- Burial Grounds FFS status
- Appendix C status

<u>Name</u>	<u>Organization</u>	<u>Responsibility</u>	<u>phone #</u>
Curt Wittreich	ERC	Tech Support	572-9586
Tom Post	EPA	—	376-6623
Barbara Harper	YIN		946-0101
Dennis Faulk	EPA	ZP-2 OU	376-8631
Pamela Innis	EPA	—	376-4919
Ted Wooley	Ecology	B AREA PM	736-3012
Craig Cameron	EPA		376-8665
Bryan Jolley	DOE-RL	Job Area	376-7087
Greg Mitchell	BHI	ZPD TASK LEAD	372-9632

300 Area Unit Managers Meeting
 Attendance List
 August 20, 1998

<u>Name</u>	<u>Organization</u>	<u>Phone Number</u>
Richard Carlson	BHI	373-3008
Tel Woolley	Ecology	736-3012-
Barbara Harner	YIN	946-0101
Bob McLeod	DOE	372-0096
Jim Russ	BHI	373-6585
Jeff James	BHI	373-6372
Dave Einar	EPA	376-3883
Craig Cameron	EPA	376-8665
Clarence Corrivem	BHI	372-9565
Wayne Soprv	Ecology	736-3049

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**MEETING MINUTES
REMEDIAL ACTION AND WASTE DISPOSAL
UNIT MANAGERS' MEETING – 100 AREA
August 20, 1998**

Attendees: G. Goldberg (DOE/RL), A. Langstaff (BHI), F. Corpuz (BHI), W. Remsen (BHI), B. Mukherjee (BHI), P. Innis (EPA), C. Hammer (EPA), D. Faulk (EPA), B. Harper (Yakama Indian Nation), C. Corriveau (BHI), W. Soper (Ecology), and P. Doctor (BHI) *(Note: No official attendance record was signed at this meeting.)*

Agenda: See Attachment #1a for copy of meeting agenda.

Topics of Discussion:

General

1. Status of Review/Concurrence on July 1998 Meeting Minutes with Department of Health Regarding Air Monitoring and Dust Control -- RL, EPA, and Ecology have reviewed with no comments and have signed the meeting minutes. The minutes will be forwarded to WDOH for review/concurrence, and BHI will then distribute the minutes (see Attachment #4).
2. Status of Review/Concurrence on July 1998 Meeting Minutes on Pipeline, Plume, and Backfilling Strategies -- RL, EPA, and Ecology have reviewed and concurred with the meeting minutes, with no comments. The meeting minutes are provided as Attachment #5. In general, each case in the field will be addressed individually, with lead regulator involvement.
3. Introduction of NR Area Remedial Action -- The status of the 100-N Area remedial action to date was provided. To date, decision documents on remedial action (i.e., two corrective measures studies and two proposed plans, one each for TSDs and one each for the remaining 100-N Area soil sites and groundwater) were completed and issued. An EE/CA for the D&D of ancillary facilities in the 100-N Area was also completed and issued. Public comments on these documents have been received and responses are being finalized. An Action Memorandum for the EE/CA has been prepared and is being reviewed by the regulators. The expected date for issuance of the Action Memorandum is by the end of October 1998, and the ROD is expected to be issued by the end of December 1998.
4. Other --
 - *Small Sites Grouping for 100-BC Group 3* -- The applicability of the approach in regards to other 100 Area sites was discussed (see discussion below on 100-B/C Remedial Action for more detailed information).
 - *107-D5 and 116-C-1 Closeout Reports* -- Regulator comment resolution on the closeout reports for these two sites was discussed. The final revision of the reports are planned for the beginning of FY 1999.

100 Area Remedial Action

1. Group 3 Sites (Remedial Design; Proceeding with Scheduling of Well Closure for 116-C-2A Crib Injection Well) -- Scheduling for the closure of the well is proceeding. A discussion was held on vadose zone modeling. W. Soper (Ecology) will be the lead contact for well decommissioning at the remedial action sites (for both EPA and Ecology lead sites), and approval/concurrence for well decommissioning plans will be through W. Soper (Ecology), who will advise/communicate with S. Leja (Ecology). Documentation/concurrence on decommissioning plans can be made via e-mail, and BHI will assign chronological control numbers to such documentation for the project files.

General decommissioning plans for the 116-C-2A overflow/injection well were discussed (see Attachment #5 for a handout that was made on this subject), and a plan will be submitted to Ecology and a copy will be sent to EPA as the lead regulatory agency.

As necessary, for deep vadose zone modeling for demonstration of attainment of groundwater and river remedial action goals for the 116-C-2A site, the contaminant profile distribution from the 116-C-1 site vadose test pit will be used. The contaminant profile distribution will be scaled to the COC concentrations at the bottom of the 116-C-2A engineered structure. Remedial action is planned during the third quarter of 1999 (approximately April 1999) to remove the engineered structure, which is approximately 28 ft below existing grades.

2. Group 3 Waste Site Groupings for Site Closeout and Verification Reporting Purposes -- Where adjacent small waste site excavations are in close proximity and end up in essentially the same excavation, the waste site COCs will be combined and one site closeout analysis and report will be prepared. It is anticipated that for the Group 3 100-B/C Area sites, the following sites will have a common excavation:

- 116-C-2A, -2B, and -2C (pluto crib, pump station, and sand filter)
- 116-B-6A and 116-B-16 (crib and fuel examination tank).

Where waste sites are in close proximity and even if there is a common process or similar COCs listing, there is no advantage to combining the waste sites for closeout analysis and reporting, unless the waste sites are joined by lateral plumes.

3. Information/Discussion on Previous Removal Action and Testing on the 116-B-4 Waste Site -- A follow-up site walkdown was performed with EPA, RL, and BHI on August 24, 1998. The existing data from the 100-B/C demonstration (from the bottom of the 20-ft deep excavation, which removed the engineered structure, and extends into what is now identified as the "deep zone," and was backfilled with clean backfill from a nearby borrow pit) can be used for site closeout purposes (see handout [Attachment #5]).

For the identified lateral plumes in the shallow zone, the following was discussed:

- To the west, toward the 105-B Reactor, no further remedial action is required as part of the 116-B-4 site, and this plume will be remediated during future remediation of the 105-B Reactor.

- To the south, toward the existing railroad spur, after any necessary discussions with ERC cultural resources staff, remedial action of the plume will require either removal and storage (and later replacement/restoration of the same track elements), or mining/shoring beneath the railroad tracks.
- To the east, toward the existing light pole standards, after any necessary discussions with ERC cultural resources staff, remedial action of the plume will require removal and storage, and later replacement/restoration of the same pole standards (two are estimated).
- To the north (and in general, to the north and east), to the extent possible and necessary, the 116-B-2 and 116-B-3 will be excavated first to include the 116-B-4 plumes with these waste sites.

100-DR Remedial Action

1. Status/Schedule for Delivery of Site Closeout Reports for 107-D1, 107-D2, and 107-D3 Sludge Pits, and the 1607-D2 Septic Tank, Abandoned Tile Field -- The closeout reports for the 107-D1, -D2, and -D3 Sludge Pits and the 1607-D2 Septic Tank, Abandoned Tile Field were delivered to RL the second week of September 1998.
2. Status of Upcoming Well Abandonments/Well Modifications (199-D8-55 and 199-D8-3) - W. Soper (Ecology) will be the lead contact for well decommissioning at the remedial action sites (for both EPA and Ecology lead sites), and approval/concurrence for well decommissioning plans will be through W. Soper (Ecology), who will advise/communicate with S. Leja (Ecology). Documentation/concurrence on decommissioning plans can be made via e-mail, and BHI will assign chronological control numbers to such documentation for the project files.

100-H, -F, and -K Remedial Action

1. Request for Inclusion of the 100-H-2 Burial Ground as Part of the 100-H-17 and 116-H-2 Remedial Action -- Per Ecology's October 28, 1997, letter to RL (CCN 052617) and the RDR/RAWP (DOE/RL-96-17, Rev. 1), the 100-H-2 Burial Ground site will be included as a proximity site as part of the 100-H-17 and 116-H-2 remedial action. RL and Ecology will be contacted in the near future regarding waste site COCs.

**REMEDIAL ACTION AND WASTE DISPOSAL
UNIT MANAGERS' MEETING -- 200 AREA
August 20, 1998**

Attendees: See Attachment #2a.

Agenda: See Attachment #1b for copy of meeting agenda.

Topics of Discussion:

1. 200 Area Implementation Plan Status -- The DOE review of the 200 Area Implementation Plan was completed. The Draft A version has been prepared and is currently in the DOE concurrence process. RL committed to review DOE's comments and their impact on the document with the Implementation Plan Team. RL will offer the Tribal Nations the opportunity to hold direct discussions with DOE regarding any issues or concerns that the tribes may have regarding the initial draft. The regulator members of the development team are invited to participate in any direct discussions that take place. B. Harper, representative to the Yakama Indian Nation (YIN), stated her expectations that the YIN had wanted to participate in drafting the document with the project team. RL stated that the request had been considered and that the team's response was to involve the YIN and any other interested Tribal Nations and stakeholders after the initial draft had been prepared. This decision was made to ensure that the initial draft captured both DOE and regulator agency requirements and expectations. Draft A has been issued to the regulators for review, and comments are to be submitted to RL by September 21, 1998. The Tri-Party Agreement milestone delivery date for the Implementation Plan is on schedule.
2. 200-CW-1 Gable/B Pond and Ditches Cooling Water Waste Group DQO Status -- RL indicated that the draft DQO Workbook is in the process of being transmitted to Ecology for review. RL requested that Ecology's comments be provided by September 7, 1998, to support the 200-CW-1 Tri-Party Agreement Milestone (M-13-20) for completion of the Draft A RI/FS Work Plan.
3. Detailed Work Plan for FY 1999-2001 -- EPA voiced interest in opportunities to reduce characterization costs in the 200 Areas.
 - *Nonradioactive Dangerous Waste Landfill (NRDWL)* -- RL has submitted a supplemental funding request to provide for additional characterization work at the NRDWL, which was requested by Ecology on June 10, 1998. However, the funding is "below the line" on the integrated priority list for the Environmental Restoration Program.
 - *Hanford Prototype Barrier Monitoring* -- RL has submitted a request to fund continued barrier monitoring and testing; however, the funding is below the line. A treatability test report and demobilization of equipment is planned for FY 1999. EPA's position is that the equipment should not be demobilized and that other funding sources (e.g., EM-50) should be found to support continued monitoring and testing of the barrier. EPA committed to seek alternative funding sources.

4. Other -- EPA indicated that adding the 200 North Cooling Water Waste Group to the 100 Area Remaining Sites ROD can be done and that RL should proceed with the action.

**REMEDIAL ACTION AND WASTE DISPOSAL
UNIT MANAGERS' MEETING -- 300 AREA
August 20, 1998**

Attendees: See Attachment #2b.

Agenda: See Attachment #1c for copy of meeting agenda.

Topics of Discussion:

300-FF-1 Operable Unit

300 Area Process Trenches

1. **Backfill and Regrading** -- Backfill and regrading of the 300 Area Process Trenches is approximately 75% complete. It was noted that more backfill will be required to fill in a depression at the north end of the trenches. Also discussed was the need to use the area southeast of the trenches as a haul road for a short period of time. Therefore, backfilling and regrading of the southern half of the eastern trench and associated area will be done after the hauling operations are completed. Revegetation will be performed this fall at areas where the regrading has been completed. One other related item discussed was the fact that a Native American from the Wanapum Tribe observed the backfilling and regrading operations on a daily basis. Members of the Nez Perce Tribe also observed for one day. No cultural resources were identified.
2. **Vadose Zone Clean Closure, Verification Package, and Independent PE Reports** -- RL acknowledged receipt of Ecology's *Acceptance of Certification of the 300 Area Process Trenches Clean Closure of the Soil Column and Groundwater Corrective Action Requirements* letter. Ecology indicated that the vadose zone clean closure, verification package, and independent PE reports were each reviewed and approved in the acceptance of the certification letter. B. Harper from the Yakama Indian Nation was attending the meeting and requested a copy of the vadose zone clean closure report; RL committed to provide a copy.
3. **Permit Revisions** -- It was noted that the Class 3-to-1's and Class 1 permit revisions related to post-closure had recently been approved by Ecology and are being processed into the September quarterly update to the permit. Ecology indicated that PNNL had recently responded to Ecology's comments on the groundwater monitoring permit revision; however, Ecology had not yet had a chance to review the responses.
4. **Survey Plat and Notice in Deed** -- Preparation of the survey plat and Notice in Deed are in progress and are scheduled to be completed by mid-September 1998.

Burial Ground 618-4

1. **Drum Sampling Activities** -- To date, 25 drums have been sampled in accordance with the burial ground drum characterization sampling and analysis plan. One drum was not sampled because there was suspect asbestos on the drum lid. EPA expressed the desire to sample the drum if it has labeling because of the labeling correlation aspect of the analysis. (**NOTE:** Subsequent to the UMM, it was determined that this particular drum was not a uranium drum and that it contained other anomalous waste. Therefore,

the drum was not sampled. It was noted that the crane operator, in between drum lifts, is weighing all of the drums. This may provide the ability to do some correlation based on drum weight. At the end of the meeting, BHI showed a short video of drum sampling operations at the burial ground.)

2. Burial Ground Excavation Report -- The subject report is on schedule.

North Process Pond

1. Excavation of ACL Areas -- The excavation of the above cleanup limit (ACL) area is going very well. There is a plume in the southwestern quadrant; two test pits were excavated in this quadrant to a depth of approximately 4 ft. The contamination appeared to be below cleanup standards at the bottom of the test pits, suggesting that the plume may only be a few feet deep. The northeast quadrant appears to be below cleanup standards at the design cut elevation. The current haul road was partially built up over the ACL area in the southeast corner of the southeast quadrant of the pond. The sloped surface in this area is below cleanup standards based on radiological field screening. BHI is evaluating how much fill was placed to build the road at the southeast corner to determine if it needs to be excavated or not.
2. Excavation of Berms/BCL Stockpiling -- At the remedial action subcontractor's request, BHI asked permission to allow the remedial action subcontractor to stockpile below cleanup limit (BCL) soils excavated from the center of the berm into the remediated ACL area. A separation layer would be placed between the BCL and native soil. EPA and DOE concurred with the approach, as long as the remedial action subcontractor was willing to accept the risk of having to move the BCL soil at their own expense if verification samples require additional excavation in this portion of the ACL area.

TPA Milestone M-16-03D

1. Status -- The subject milestone was discussed because it is currently set for May 1999, and due to delays associated with performing burial ground and landfill work in the Level B PPE and the unearthing of a cache of drums requiring treatment, the May 1999 date to complete excavation of all waste sites cannot be met. RL has already sent notice to EPA that the milestone cannot be met. BHI would like to set a time for discussing the scope of the milestone and the date for the new milestone. EPA indicated that the scope could be discussed at any time; however, setting the date needs to wait until the FY 1999 drum treatment planning is completed. EPA desires to set a milestone that will include excavation of all sites and completion of all waste treatment associated with the 618-4 Burial Ground drums.

300-FF-2 Operable Unit

1. Status of PNNL Site Assessments -- Field walkdowns of waste sites and data-gathering activities were completed by mid-August in support of the categorization of 69 waste sites for which PNNL has responsibility. This task included development of dispositions and a meeting with PNNL and RL representatives, which has been scheduled for August 26, 1998. This will be followed by a meeting in early September 1998 with EPA to review the dispositions.

2. Status of RCRA/CERCLA Integration Discussions -- A meeting to continue discussions with Ecology relative to the integration of RCRA and CERCLA activities for the 300-FF-2 Operable Unit was held on August 13, 1998. Draft materials prepared by the PHMC at the request of Ecology regarding TSD units in the 300 Area were reviewed. The 303-M Uranium Oxide Facility, 303-K Contaminated Waste Storage Facility, and the 300 Area Waste Acid Treatment System are three TSD units that will require coordination. The 324 Building closure plan will also require coordination.

Environmental
Restoration
Contractor

ERC Team

Meeting Minutes

Job No. 22192
Written Response Required NO
Due Date N/A
Actionee N/A
Closure CCN N/A
OL 100-BC-1 100-DR-1
TSD N/A
ERA N/A
Subject Code 4170

SUBJECT AIR MONITORING PROGRAM AT 100-BC-1 AND 100-DR-1 REMEDIAL ACTION PROJECTS

TO Distribution

FROM F. M. Corpuz

DATE July 24, 1998

ATTENDEES

R. D. Belden X9-06
A. W. Conklin
F. M. Corpuz X9-06
R. L. Donahoe X9-06
J. D. Fancher X3-40
D. A. Faulk B5-01 (2)
G. I. Goldberg H0-12
J. D. Ludowise H9-03
H. M. Rodriguez A5-15
W. W. Soper B5-18
J. G. Woolard H0-02

MICHELLE PETERSON
H0-10

DISTRIBUTION

Attendees, w/a
K. E. Cook, w/a H9-02
E. T. Coenenberg, w/a H9-03
J. W. Darby, w/a H0-18
V. R. Dronen, w/a H0-09
R. C. Havenor, w/a X3-40
F. V. Roeck, w/a H0-17
A. L. Langstaff, w/a X3-40
A. R. Michael, w/a H0-17
Project Files, w/a X9-06
Document and Information Services H0-09

Attachments:

- 1) Roster of Attendees
- 2) Meeting Agenda
- 3) 100 B/C and 100 D CERCLA Air Monitoring Information
- 4) Vacuum PTE

RECEIVED

OCT 06 1998

BY DIS

A meeting on the above subject was held on Thursday, July 9, 1998, at 3350 George Washington Way, conference room 2A01.

After circulation of the attendee roster (**Attachment 1**) and attendee introductions, Joan Woolard (Bechtel Hanford, Inc.(BHI)) reviewed the agenda (**Attachment 2**) and a handout that summarized the information to be discussed (**Attachment 3**).

Potential-To-Emit (PTE) and Inventory for 100 B/C Area

Joan Woolard reviewed the handout information, which presented a revised PTE calculation for radionuclides. Due to increased volume and inventory contained in 100 B/C Area waste sites, an increase in the PTE could occur in the future. Joan Woolard discussed Ni-63, a constituent identified as additional inventory in 100 B/C waste sites that was added to the revised PTE calculations. Although this additional inventory did not cause an exceedance of the PTE, it raised the current dose higher than anticipated. Jon Fancher (CH2M Hill Hanford, Inc.(CHI)) briefly went through the process for arriving at a new PTE dose, based on current inventory and

maximally exposed individual (MEI). Joan Woolard proposed to establish a new PTE dose for the project (summarized in Attachment 2, page 3) that will be evaluated annually.

Al Conklin (Washington State Department of Health) asked if air monitoring for the site was still adequate since the direction to the MEI (west of the waste sites) is different than the direction to the air monitors (east and southeast). It was explained that the predominate wind direction has not changed and that the monitors are located in the predominate downwind direction to capture the majority of potential emissions. The PTE was calculated based on the direction from the waste sites (west) that would provide the largest dose at the site boundary (assumed to be the location of the MEI). The site boundary is much closer in the west direction than in the predominate downwind direction (east and southeast); therefore, an MEI at the site boundary west of the waste sites could potentially receive a larger dose. It was agreed that the monitors are properly located.

Also, Joan Woolard stated that ERC will review the PTE calculations on annual basis. This review will compare actual air monitoring data with the PTE, and will include an evaluation of the production and inventory information to ensure that the assumptions that provide the basis for the PTE bound site conditions.

Potential-To-Emit (PTE) and Inventory for 100 DR Area

Joan Woolard reviewed the similar increased volume and inventory situation at the 100 D Area waste sites. The excavation activities will also extend beyond the original schedule of 22 months. In the 100 D Area sites, both Ni-63 and Eu-155 were identified as additional inventory in these waste sites. The original 100 D Area MEI was exceeded, not due to two additional radionuclides, but to the significantly higher inventory and production volumes. A new PTE was calculated, and is shown in Attachment 3.

High Efficiency Particulate Air (HEPA) Vacuums

The HEPA vacuums are used at 100 B/C in the site frisking stations to pick up loose material on the shuttle trucks. The agreement documented in previous meeting minutes (CCN 053924) concerning HEPA vacuums indicated that HEPA filtered vacuums could be used to assist in decontamination and to pick up loose contaminated materials as needed. The HEPA vacuum at 100 D has never been used. It was noted that the PTE for use of the vacuums would be re-calculated to provide potential dose estimates based on inventory information consistent with the revised 100 D and 100 B/C area dose estimates. The re-calculated PTE for vacuum use is provided as Attachment 4.

In the fall of 1998, remediation work will commence on the 100 D Area pipelines. Some pipes encountered in this activity will be wrapped in asbestos, so the HEPA vacuum may be used to clean personnel who are exiting the work area. Before the 100 D pipeline work begins, the PTE calculations for HEPA vacuums will be reviewed to make certain that the vacuum is accounted for.

Documenting Application of Dust Control

Jon Fancher discussed the 100 B/C and 100 D Monthly Air Quality Data Summary Record (MAQDSR) forms, which document the weather conditions and the application of dust control. The MAQDSR forms are submitted on a monthly basis to ERC Document and Information Services (DIS) and are flagged in the DIS database as air quality documents. These forms replace the logbook for this purpose. Dennis Faulk (Environmental Protection Agency), Wayne Soper (Washington State Department of Ecology) and Al Conklin agreed that this form was an acceptable replacement for the logbook.

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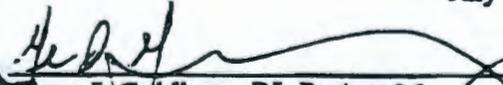
Health and Safety Considerations for Application of Dust Control

Ron Belden (BHI) presented a specific situation when it would not be feasible to apply dust control due to worker health and safety considerations. When personnel were excavating in the 116-D-7 site, a west wind caused the work site to be shut down. In this particular case, the only site access was downwind, and personnel applying soil fixative were not able to spray it on the open excavation faces. In addition, the personnel would have been exposed to the airborne fixative and contamination. Due to these specific drawbacks, the fixative was not applied.

Ron Belden ended by stating that inactive faces are routinely covered with magnesium chloride, and that water trucks and a sprinkler system continuously wet down the work areas and haul roads. Routine radiological surveys and monthly equipment inspections have showed no loss of radiological control at the work site.

Al Conklin agreed that the conditions that Ron Belden described were acceptable as an exception for not applying dust control. Al Conklin asked that, if similar situations occur and radiological surveys show site control was lost, he would like to be notified. Al Conklin further agreed that workers should not be exposed to potentially hazardous conditions in order to apply soil fixative. Dennis Faulk reminded ERC personnel that this notification should be made through the lead regulatory agency for each site.

Meeting Minutes Transmittal/Concurrence**Air Monitoring Program At 100-BC-1 And 100-DR-1 Remedial Action Projects****3350 George Washington Way, Room 2A01, Richland, Washington****July 9, 1998**

Concurrence:  Date 7/30/98
Glenn I. Goldberg, RL Project Manager

Concurrence:  Date 8-17-98
Dennis A. Faulk, EPA

Concurrence:  Date 8-20-98
Wayne W. Soper, Ecology

Concurrence:  Date 7/24/98
Al W. Conklin, WDOH

Concurrence:  Date 7/24/98
Richard L. Donahoe, BHI Task Lead

7/9/98
NAME

ORG PHONE

JOAN WOOLARD
Stenn Goldberg
Rick Donahoe
Allen W Conklin
Frank Corning
Ron Belden
Wayne Soper
Jon Fambor

BHI 372-9649
DOE 376-9552
BHI 531-0654
DOH 360-236-3261
BHI 373-1661
BHI 373-1982
Ecology 736-3049
ERC 373-5598

Also attending:

Dennis Faulk EPA
Hector Rodriguez DOE

**100 B/C AND 100 D AREAS REMEDIAL ACTION
AIR MEETING
7/9/98
AGENDA**

1. **100 B/C Area Potential to Emit**
2. **100 D Area Potential to Emit**
3. **Dust control**

100 B/C AND 100 D CERCLA AREA AIR MONITORING

Potential-to-Emit and Inventory for 100 B/C Area

The following section presents a revised calculation of the potential-to-emit (PTE) for radionuclides.

Due to the increased volume and inventory contained in the 100 B/C Area waste sites, an increase in the PTE could occur in the future. Ni-63 has been identified in soil samples as additional inventory for the 100 B/C Area excavation activities. Ni-63 was not included in the original calculations, but are not significant contributors to the overall dose.

The potential dose to the maximally exposed individual (MEI) for 100 B/C Area remedial activities was based on what was then considered a worst case waste site, 116-C-2. The dose contribution from the larger individual waste sites was not calculated due to lack of accurate radionuclide inventory information. The 116-C-2 dose, $1.64E-02$, was to be applied to each waste site as a conservative means to develop a PTE. This strategy was presented to DOH in meetings on May 23, 1995 and May 20, 1996. The dose calculations were based on the location of the MEI at 25,000 meters to the east. The potential dose to this MEI based on the application of the worst case waste site and the dose with the current inventory information is contained in the attached table.

A revised potential dose to the MEI has been calculated based on best available inventories determined during excavation activities to date and with the location of the MEI at 11,767 meters to the west. The MEI has been changed to be consistent with the latest calculation approach used for Groups 3 and 4 Remedial Action air monitoring plans. The MEI is, for the purposes of the calculation, considered to be located at the site boundary in the direction that provides the largest dose.

The revised potential unabated dose to the MEI is $4.1 E-02$ mrem/yr. The attached table contains information on the annual possession quantity, release fraction, release rate, and dose per radionuclide.

The PTE for the HEPA filtered vacuum will be recalculated based on the current inventory. The vacuum is currently being used to vacuum the inside of the truck cabs.

Potential-to-Emit and Inventory for 100 DR Area

The following section presents a revised calculation of the potential-to-emit (PTE) for radionuclides.

Due to the increased volume and inventory contained in the 100 D Area waste sites, a revised PTE has been calculated. The excavation activities will also extend beyond the scheduled 22 months. Ni-63 and Eu-155 have been identified in soil samples as additional inventory for the 100 Area DR excavation activities. Ni-63 and Eu-155 were

not included in the original calculations. but they are not significant contributors to the overall dose.

The potential dose to the MEI for 100 D Area remedial activities was calculated based on an MEI located 19,300 meters to the southeast (Ringold Farm). This estimate was presented to DOH in a meeting on September 19, 1996 and is provided in the attached table along with the potential dose to this same MEI based on current inventory information.

A revised potential dose to the MEI has been calculated based on best available inventories determined during excavation activities to date and with the location of the MEI at 15.738 meters to the east. The MEI has been changed to be consistent with the latest calculation approach used for Groups 3 and 4 Remedial Action air monitoring plan. The MEI is, for the purposes of the calculation, considered to be located at the site boundary in the direction that provides the largest dose.

The revised potential unabated dose to the MEI is $2.58 \text{ E-02 mrem/yr}$. The attached table contains information on the annual possession quantity, release fraction, release rate, and dose per radionuclide.

The PTE for the HEPA filtered vacuum will be recalculated based on the current inventory. The vacuum has not been used to date. The vacuum will be used to assist with the pipeline excavation activities that will be initiated in the Fall/Winter. The PTE will be re-visited prior to initiation of pipeline activities.

Documenting Application of Dust Control

It was agreed during a May 25, 1997 meeting that a log book would be used to document the application of dust control. A project specific form has been developed as a substitution to the log book.

PTE TABLE

DOSE ASSUMPTIONS	100 D AREA	100 B/C AREA
Original dose	3.39 E-03	3.05 E-02
Dose based on current inventory and original MEI	7.34 E-03	1.92 E-02
Dose based on current inventory and new MEI	2.58 E-02	4.10 E-02

Attachment 3

Waste Site	116-B-4	116-B-5	116-B-11	116-C-1	116-C-1 Dem	116-C-3	BC Pipe	Totals	Annual Possession Quantity, C/yr (29 month duration)	Release Fraction (from WAC 246-247-030)	Potential to Emit C/yr	Unbound Offsets Due to the Maximally Exposed Individual, mrem/yr.
Start Ship Date	8/27/96	6/15/95	11/26/97	7/17/96	11/13/97	9/25/96	10/2/96					
End Ship Date	5/20/97	12/15/95	4/10/98	1/9/98	12/18/97	3/26/98	5/5/97					
Net Wt. lbs	9.936E+06	4.708E+06	1.807E+08	2.130E+08	3.961E+07	4.259E+08	3.702E+07					
Net Wt. Kgs	4.507E+06	2.136E+06	8.197E+07	9.754E+07	1.797E+07	1.932E+08	1.679E+07	4.141E+08				
Total Ci	1.318E+00	4.897E-02	1.551E+02	2.155E+01	3.658E+00	1.638E+02	1.299E+01	3.585E+02				
Am-241												
v, pCi/g	2.090	0.233	3.331	1.901	1.901	4.472	6.370					
Total Ci	0.009	0.001	0.289	0.185	0.034	0.864	0.107	1.490E+00	6.16E-01	1.00E-03	6.16E-04	7.61E-03
Cs-137												
v	129.300	0.680	141.433	130.313	130.313	141.000	115.260					
Total	0.583	0.001	11.594	12.710	2.341	27.237	1.936	5.640E+01	2.33E+01	1.00E-03	2.33E-02	3.38E-03
Co-60												
v	27.200	0.677	48.430	7.333	7.333	61.980	24.080					
Total	0.123	0.001	3.970	0.715	0.132	11.973	0.404	1.732E+01	7.17E+00	1.00E-03	7.17E-03	1.00E-03
Eu-152												
v	107.700	4.405	433.950	42.231	42.231	404.800	396.270					
Total	0.485	0.009	35.572	4.119	0.759	78.196	6.653	1.258E+02	5.21E+01	1.00E-03	5.21E-02	6.99E-03
Eu-154												
v	11.800	0.457	68.741	5.727	5.727	101.100	98.150					
Total	0.053	0.001	5.635	0.559	0.103	19.530	1.648	2.733E+01	1.14E+01	1.00E-03	1.14E-02	1.23E-03
Eu-155												
v	0.530	0.090	2.870	5.559	5.559	7.482	62.750					
Total	0.002	0.000	0.235	0.542	0.100	1.445	1.054	3.379E+00	1.40E+00	1.00E-03	1.40E-03	6.72E-06
Ni-63												
v	N/A	N/A	1.163.000	N/A	N/A	N/A	N/A					
Total			95.335					9.534E+01	3.94E+01	1.00E-03	3.94E-02	1.13E-05
K-40			source D	source D		source D						
v	12.290	11.360	12.970	15.090	N/A	28.920	15.810					
Total	0.055	0.024	1.063	1.472		5.587	0.266	8.467E+00	3.50E+00	1.00E-03	3.50E-03	3.84E-04
Pu-238												
v	N/A	N/A	0.123	0.280	0.280	0.110	0.420					
Total			0.010	0.027	0.005	0.021	0.007	7.070E-02	2.93E-02	1.00E-03	2.93E-05	2.18E-04
Pu-239/240												
v	N/A	N/A	8.713	3.186	3.186	1.546	10.610					
Total			0.714	0.311	0.057	0.299	0.178	1.559E+00	6.45E-01	1.00E-03	6.45E-04	5.18E-03
Sr-89/90												
v	1.609	0.773	5.477	5.320	5.320	75.000	33.780					
Total	0.007	0.002	0.449	0.519	0.096	14.488	0.567	1.613E+01	6.67E+00	1.00E-03	6.67E-03	6.30E-04
Th-232 Dau			source D	source D		source D						
v	N/A	0.488	1.300	1.208	N/A	17.970	6.400					
Total		0.001	0.107	0.118		3.471	0.107	3.804E+00	1.57E+00	1.00E-03	1.57E-03	1.34E-02
U-234				source D								
v	N/A	N/A	0.580	0.679	N/A	0.200	0.170					
Total			0.048	0.066		0.039	0.003	1.552E-01	6.42E-02	1.00E-03	6.42E-05	1.94E-04
U-235				source D								
v	N/A	0.611	0.030	0.172	N/A	0.400	0.013					
Total		0.001	0.002	0.017		0.077	0.000	9.803E-02	4.06E-02	1.00E-03	4.06E-05	1.16E-04
U-238												
v	N/A	2.750	N/A	N/A	1.755	2.640	0.345					
Total		0.006			0.032	0.510	0.006	5.532E-01	2.29E-01	1.00E-03	2.29E-04	6.17E-04

Attachment 3

Waste Site	116-B-4	116-B-5	116-B-11	116-C-1	116-C-1 Dem	116-C-5	BC Pipe	Totals	Annual Possession Quantity, Ci/yr (29 month duration)	Release Fraction (from WAC 246-247-030)	Potential to Emit Ci/yr	Unbased Offsite Dose to the Maximally Exposed Individual mrem/yr.
Start Ship Date	8/27/96	6/15/95	11/26/97	11/7/96	11/13/97	9/25/96	10/2/96					
End Ship Date	5/20/97	12/15/95	4/10/98	1/9/98	12/18/97	3/26/98	5/5/97					
Net Wt. lbs	9.936E+06	4.708E+06	1.807E+08	2.150E+08	3.961E+07	4.259E+08	3.702E+07	4.141E+08				
Net Wt. Kgs	4.507E+06	2.136E+06	8.197E+07	9.754E+07	1.797E+07	1.932E+08	1.679E+07	3.585E+02				
Total Ci	1.318E+00	4.897E-02	1.551E-02	2.155E-01	3.658E+00	1.638E-02	1.299E-01					
U-238 Data												
x	N/A	0.404	0.648	0.280	N/A	0.560	3.200					
Total		0.001	0.053	0.027		0.108	0.054	2.432E-01	1.01E-01	1.00E-03	1.01E-04	6.09E-05 ²
Misc Others:												
Ra-224												
x	N/A	N/A	N/A	source D	N/A	N/A	N/A					
Total				0.542				5.286E-02	2.19E-02	1.00E-03	2.19E-05	1.48E-10
Ra-226												
x	N/A	N/A	N/A	source D	N/A	N/A	N/A					
Total				0.455				4.438E-02	1.84E-02	1.00E-03	1.84E-05	8.12E-06
Ra-228												
x	N/A	N/A	N/A	source D	N/A	N/A	N/A					
Total				0.641				5.252E-02	2.59E-02	1.00E-03	2.59E-05	7.65E-11
										TOTAL	4.10E-02	

N/A = Not Available

Notes:

- 1 Net Weight data current as of 04-29-98
- 2 Includes daughters

Waste Site	107-101	107-102	107-103	107-104	107-105	1607-102	116-10-7	116-DR1&2	116-DR-9	Totals	Annual Possession Quantity, Ci/yr (17 month duration)	Release Fraction (from WAC 246-247-030)	Potential to Emit Ci/yr	Unabated Offsite Dose to the Maximally Exposed Individual, mrem/yr
Start Ship Date	3/17/97	12/1/97	7/25/97	9/8/97	3/18/97	1/9/98	5/1/97	11/27/96	6/3/97					
End Ship Date	3/10/98	3/18/98	8/8/97	3/10/98	3/28/97	2/10/98	4/10/98	5/2/97	4/9/98					
Net Wt, lbs	2.141E+07	2.192E+07	6.428E+06	1.778E+07	3.690E+06	2.221E+07	2.029E+08	1.081E+08	2.318E+08	6.363E+08				
Net Wt, Kgs	9.710E+06	9.943E+06	2.916E+06	8.064E+06	1.674E+06	1.008E+07	9.203E+07	4.905E+07	1.052E+08	2.886E+08				
Net Wt, Tons	1.070E+04	1.096E+04	3.214E+03	8.888E+03	1.845E+03	1.111E+04	1.014E+05	5.406E+04	1.159E+05	3.181E+05				
Total Ci														
Isotope Data														
Am-241														
x, pCi/g	0.245	0.195	0.349	0.409	0.265	0.199	1.627	1.083	3.8					
Total Ci	2.179E+03	1.919E+03	1.018E+03	3.298E+03	4.116E+04	2.005E+03	1.497E+01	5.312E+02	3.996E+01	6.135E+01	4.33E+01	1.00E+03	4.33E+04	5.62E+01
Cs-137														
x	0.081	0.055	0.074	12.99	0.118	0.05	43.49	192.18	79.41					
Total	7.865E+04	5.469E+04	2.840E+03	1.047E+01	1.975E+04	5.038E+04	4.002E+00	9.426E+00	8.351E+00	2.189E+01	1.55E+01	1.00E+03	1.55E+02	2.38E+01
Co-60														
x	0.074	0.086	0.248	0.317	0.053	0.051	35.71	16.2	67.81					
Total	7.185E+04	8.551E+04	7.231E+04	2.556E+03	8.872E+05	5.139E+04	3.286E+00	7.945E+01	7.131E+00	1.122E+01	7.92E+00	1.00E+03	7.92E+03	1.17E+03
Eu-152														
x	0.267	0.29	1.09	3.06	14.98	0.303	200.43	357.77	333.75					
Total	2.592E+03	2.883E+03	3.178E+03	2.467E+02	2.508E+02	3.053E+03	1.845E+01	1.755E+01	3.510E+01	7.115E+01	5.02E+01	1.00E+03	5.02E+02	7.12E+03
Eu-154														
x	0.144	0.141	0.26	0.447	0.145	0.171	29.88	26.22	258.59					
Total	1.398E+01	1.402E+01	7.581E+04	3.604E+03	2.427E+04	1.723E+03	2.750E+00	1.286E+00	2.719E+01	3.124E+01	2.21E+01	1.00E+03	2.21E+02	2.53E+03
Eu-155														
x	0.205	0.139	0.259	0.303	0.226	0.141	2.06	1.53	6.83					
Total	1.990E+03	1.382E+03	7.552E+04	2.443E+03	3.783E+04	1.421E+03	1.896E+01	7.504E+02	7.182E+01	9.912E+01	7.00E+01	1.00E+03	7.00E+04	3.55E+06
I-129														
x	4.123	11.38	3.48	26.17	2.67	NA	NA	NA	NA					
Total	4.003E+02	1.132E+01	1.015E+02	2.110E+01	4.470E+03					3.788E+01	2.67E+01	1.00E+03	2.67E+04	3.22E+05
K-40														
x	12.628	14.39	11.94	15.02	13.47	12.49	15.83	13.54	20.06					

Waste Site	107-D1	107-D2	107-D3	107-D4	107-D5	1607-D2	116-D-7	116-DR1&2	116-DR-9	Totals	Annual Possession Quantity, Ci/yr (17 month duration)	Release Fraction (from WAC 246-247-030)	Potential to Emit Ci/yr	Unabated Offsite Dose to the Maximally Exposed Individual, mrem/yr
Start Ship Date	3/17/97	12/3/97	7/25/97	9/8/97	3/18/97	1/9/98	5/1/97	11/27/96	6/3/97					
End Ship Date	3/10/98	3/18/98	8/8/97	3/10/98	3/28/97	2/10/98	4/10/98	5/2/97	4/9/98					
Net Wt. lbs.	2.11E+07	2.19E+07	6.12E+06	1.77E+07	3.69E+06	2.22E+07	2.02E+08	1.08E+08	2.31E+08	6.36E+08				
Net Wt. Kgs.	9.71E+06	9.94E+06	2.91E+06	8.06E+06	1.67E+06	1.00E+07	9.20E+07	4.90E+07	1.05E+08	2.88E+08				
Net Wt. Tons	1.07E+01	1.09E+01	3.24E+00	8.88E+00	1.81E+00	1.11E+01	1.01E+05	5.40E+01	1.15E+05	3.18E+05				
Total	1.22E+01	1.33E+01	3.48E+00	1.21E+01	2.25E+00	1.25E+01	1.45E+00	6.64E+01	2.10E+00	4.80E+00	3.39E+00	1.00E-03	3.39E-03	3.95E-04
Ne-63														
N	NA	NA	NA	NA	NA	NA	6.72E-04	NA	NA					
Total							6.72E-04	6.18E-05		6.18E-05	4.47E-05	1.00E-03	4.37E-08	1.32E-11
Pu-238														
N	NA	NA	NA	NA	NA	NA	0.06	0.334	0.0465					
Total							5.52E-03	1.63E-02	4.89E-03	2.67E-02	1.89E-02	1.00E-03	1.89E-05	1.48E-04
Pu-239/240														
N	NA	NA	NA	NA	NA	NA	1.53	0.177	0.835					
Total							1.40E-01	8.68E-03	8.78E-02	2.37E-01	1.67E-01	1.00E-03	1.67E-04	1.41E-03
Sr-89/90														
N	NA	NA	NA	NA	NA	NA	4.62	1.11	1.119					
Total							4.25E-01	5.44E-02	1.17E-01	5.97E-01	4.22E-01	1.00E-03	4.22E-04	4.21E-05
Th-232/230														
N	NA	0.718	0.568	0.741	NA	0.611	5.216	1.017	1.026					
Total		7.18E-03	1.65E-03	5.99E-03		6.37E-03	4.80E-01	4.98E-02	1.07E-01	6.59E-01	4.65E-01	1.00E-03	4.65E-04	4.15E-03
U-234														
N	NA	NA	NA	NA	NA	NA	0.05	0.134	0.1204					
Total							4.60E-03	6.57E-03	1.26E-02	2.38E-02	1.68E-02	1.00E-03	1.68E-05	5.35E-05
U-235														
N	0.302	0.152	0.371	0.718	0.344	NA	0.01	-0.015	0.0134					
Total	2.93E-03	1.51E-03	1.08E-03	5.79E-03	5.75E-04		9.20E-04	-7.35E-04	1.40E-03	1.34E-02	9.52E-03	1.00E-03	9.52E-06	2.87E-05
U-238														
N	5.438	5.78	6.59	8.13	5.96	1.195	0.04	-0.089	0.641					
Total	5.28E+02	5.74E+02	1.92E+02	6.55E+02	9.97E+03	1.20E+02	3.68E+03	-4.36E+03	6.74E+02	2.83E+01	2.00E+01	1.00E+03	2.00E+04	6.91E+04

Waste Site	107-D1	107-D2	107-D3	107-D4	107-D5	1607-D2	116-D-7	116-DRI&2	116-DRI-9	Totals	Annual Possession Quantity, Ci/yr (17 month duration)	Release Fraction (from WAC 246-247-030)	Potential to Emit Ci/yr	Unabated Offsite Dose to the Maximally Exposed Individual, mrems/yr.
Start Ship Date	3/17/97	12/1/97	7/25/97	9/8/97	3/18/97	1/9/98	5/1/97	11/27/96	6/3/97					
End Ship Date	3/10/98	3/18/98	8/8/97	3/10/98	3/28/97	2/10/98	4/10/98	5/2/97	4/9/98					
Net Wt, lbs	2.141E+07	2.192E+07	6.428E+06	1.778E+07	3.690E+06	2.221E+07	2.029E+08	1.081E+08	2.318E+08	6.363E+08				
Net Wt, Kgs	9.710E+06	9.943E+06	2.916E+06	8.064E+06	1.674E+06	1.008E+07	9.203E+07	4.905E+07	1.052E+08	2.886E+08				
Net Wt, Tons	1.070E+04	1.096E+04	3.214E+03	8.888E+03	1.845E+03	1.111E+04	1.014E+05	5.406E+04	1.159E+05	3.181E+05				
U-238 Dau														
x	NA	0.535	0.467	0.517	NA	0.459	2.121	0.86	0.883					
Total		5.320E-03	1.362E-03	4.169E-03		4.625E-03	1.952E-01	4.218E-02	9.285E-02	3.457E-01	2.44E-01	1.00E-03	2.44E-04	1.60E-06 ²
Misc Others:														
Ra-224														
x	NA	NA	NA	NA	NA	0.555	NA	NA	0.581					
Total						5.592E-03			6.110E-02	6.669E-02	4.71E-02	1.00E-03	4.71E-05	5.25E-06
Ra-226														
x	NA	NA	NA	NA	NA	0.424	NA	NA	NA					
Total						4.272E-03				4.272E-03	3.02E-03	1.00E-03	3.02E-06	1.40E-06
Ra-228														
x	NA	NA	NA	NA	NA	0.58	NA	NA	NA					
Total						5.844E-03				5.844E-03	4.13E-03	1.00E-03	4.13E-06	2.11E-06
													TOTAL	2.58E-02

Notes:

1 Net Weight data current as of 04-29-98.

2 Includes daughters.

Estimated Exposure to Maximally Exposed Individual due to HEPA-Filtered Vacuum Operation in the 100-B/C Area.

	Annual Possession Quantity for Remediation C/yr	Annual Possession Quantity for HEPA Filtered Vac. C/yr	Release Fraction for HEPA Filtered Vac.	Potential to Emit for HEPA Filtered Vac. C/yr	Unabated Offsite Dose to the Maximally Exposed Individual, for HEPA Filtered Vac. mrem/yr.
Am-241	6.16E-01	3.27E-07	1.00E+00	3.27E-07	4.04E-06
Ce-137	2.33E+01	1.24E-05	1.00E+00	1.24E-05	1.80E-06
Co-60	7.17E+00	3.81E-06	1.00E+00	3.81E-06	5.31E-07
Eu-152	5.21E+01	2.76E-05	1.00E+00	2.76E-05	3.71E-06
Eu-154	1.14E+01	6.05E-06	1.00E+00	6.05E-06	6.53E-07
Eu-155	1.40E+00	7.43E-07	1.00E+00	7.43E-07	3.57E-09
Ni-63	3.94E+01	2.10E-05	1.00E+00	2.10E-05	6.00E-09
K-40	3.50E+00	1.86E-06	1.00E+00	1.86E-06	2.05E-07
Pu-238	2.93E-02	1.55E-08	1.00E+00	1.55E-08	1.16E-07
Pu-239/240	6.45E-01	3.43E-07	1.00E+00	3.43E-07	2.75E-06
Sr-89/90	6.67E+00	3.54E-06	1.00E+00	3.54E-06	3.35E-07
Th-232 Dau	1.57E+00	8.36E-07	1.00E+00	8.36E-07	7.10E-08
U-234	6.42E-02	3.41E-08	1.00E+00	3.41E-08	1.03E-07
U-235	4.06E-02	2.15E-08	1.00E+00	2.15E-08	6.16E-08
U-238	2.29E-01	1.22E-07	1.00E+00	1.22E-07	3.28E-07
U-238 Dau	1.01E-01	5.34E-08	1.00E+00	5.34E-08	3.23E-08
Ra-224	2.19E-02	1.16E-08	1.00E+00	1.16E-08	7.86E-14
Ra-226	1.84E-02	9.75E-09	1.00E+00	9.75E-09	4.31E-09
Ra-228	2.59E-02	1.37E-08	1.00E+00	1.37E-08	4.06E-14
Total	1.48E+02	7.88E-05		7.88E-05	2.18E-05

Notes:

1. Indicated values include daughters.
2. Soil Mass is assumed to be 100 lb (45.5 kg) per year per vacuum.
3. Two vacuums are available for use at 100-B/C.
4. Radionuclide concentrations in the soil the same as was used in remediation calculation.
5. Distance to site boundary from 100-BC is 11,767 meters to the west, the same as was used in remediation calculation.
6. Release factor of 1.00 is used for all nuclides per direction of Washington Dept. of Health (Reference: Letter, A. W. Conklin, Department of Health to S. H. Wisness, DOE-RL, AIR 94-802, Dated August 1, 1994).

Estimated Exposure to Maximally Exposed Individual due to HEPA-Filtered
Vacuum Operation in the 100-D/DR Area.

Waste Site Start Ship Dat End Ship Dat Net Wt, lbs	Annual Possession Quantity for Remediation Ci/yr	Annual Possession Quantity for HEPA Filtered Vac. Ci/yr	Release Fraction for HEPA Filtered Vac.	Potential to Emit for HEPA Filtered Vac. Ci/yr	Unabated Offsite Dose to the Maximally Exposed Individual, for HEPA Filtered Vac. mrem/yr.
Am-241	4.33E-01	9.67E-08	1.00E+00	9.67E-08	1.25E-08
Ce-137	1.55E+01	3.45E-08	1.00E+00	3.45E-08	5.30E-07
Co-60	7.92E+00	1.77E-08	1.00E+00	1.77E-08	2.81E-07
Eu-152	5.02E+01	1.12E-05	1.00E+00	1.12E-05	1.59E-08
Eu-154	2.21E+01	4.92E-08	1.00E+00	4.92E-08	5.85E-07
Eu-155	7.00E-01	1.56E-07	1.00E+00	1.56E-07	7.92E-10
I-129	2.87E-01	5.97E-08	1.00E+00	5.97E-08	7.18E-09
K-40	3.39E+00	7.57E-07	1.00E+00	7.57E-07	8.81E-08
Ni-63	4.37E-05	9.75E-12	1.00E+00	9.75E-12	2.94E-15
Pu-238	1.89E-02	4.22E-09	1.00E+00	4.22E-09	3.30E-08
Pu-239/240	1.67E-01	3.74E-08	1.00E+00	3.74E-08	3.14E-07
Sr-89/90	4.22E-01	9.42E-08	1.00E+00	9.42E-08	9.39E-09
Th-232 Dau	4.65E-01	1.04E-07	1.00E+00	1.04E-07	9.28E-07
U-234	1.88E-02	3.78E-09	1.00E+00	3.78E-09	1.19E-08
U-235	9.52E-03	2.13E-09	1.00E+00	2.13E-09	6.40E-09
U-238	2.00E-01	4.47E-08	1.00E+00	4.47E-08	1.54E-07
U-238 Dau	2.44E-01	5.45E-08	1.00E+00	5.45E-08	3.57E-10
Ra-224	4.71E-02	1.05E-08	1.00E+00	1.05E-08	1.17E-08
Ra-226	3.02E-03	6.74E-10	1.00E+00	6.74E-10	3.12E-10
Ra-228	4.13E-03	9.21E-10	1.00E+00	9.21E-10	4.71E-10
Total	1.02E+02	2.28E-05		2.28E-05	5.75E-08

Notes:

1. Indicated values include daughters.
2. Soil Mass is assumed to be 100 lb (45.5 kg) per year per vacuum.
3. One vacuum is available for use at 100-D.
4. Radionuclide concentrations in the soil the same as was used in remediation calculation.
5. Distance to site boundary from 100-D/DR is 15,738 meters to the east,
the same as was used in remediation calculation.
6. Release factor of 1.00 is used for all nuclides per direction of Washington Dept. of Health (Reference: Letter, A. W. Conklin, Department of Health to S. H. Winess, DOE-RL, AIR 94-802, Dated August 1, 1994).

Environmental
Restoration
Contractor

ERC Team

Meeting Minutes

Job No. 22192

Written Response Required: NO

Due Date: N/A

Action: N/A

Close CCN: N/A

OU: 100-BC-1, 100-DR-1

TSD: N/A

ERA: N/A

Subject Code: 4170

SUBJECT REMEDIATION CLOSEOUT AND BACKFILL STRATEGY

TO Distribution

FROM F. M. Corpuz *F.M. Corpuz*

DATE September 22, 1998

ATTENDEES

F. M. Corpuz X9-06
J. D. Fancher X3-40
D. A. Faulk B5-01
G. I. Goldberg H0-12
A. L. Langstaff X3-40
W. W. Soper B5-18

DISTRIBUTION

Attendees, w/a
R. D. Belden, w/a X9-06
D. B. Blumenkranz, w/a H9-02
K. E. Cook, w/a H9-02
P. G. Doctor, w/a H0-02
R. L. Donahoe, w/a X9-06
J. M. Frank, w/a X9-06
R. C. Havenor, w/a X3-40
R. B. Kerkow, w/a X9-06
F. V. Roeck, w/a H0-17
M. H. Sturges, w/a X3-40
Project Files, w/a X9-06
Document and Information Services H0-09

Attachment: Closeout and Backfill Remediation Strategy
Handout

A meeting on the above subject was held on Thursday, July 9, 1998, at 3350 George Washington Way, conference room 1A14.

Jon Fancher (CH2M Hill Hanford) presented a handout (**Attachment**), which summarized the closeout and backfill strategy for three distinct remediation area types: effluent pipelines, large lateral vadose zone plumes, and overburden.

Effluent Pipeline Remediation

Jon Fancher reviewed the sampling and backfilling strategy for effluent pipelines sections, which includes submittal of an abbreviated calculation brief to the regulators and DOE-RL, addressing attainment of remedial action goals. Review and concurrence on the calculation brief, from DOE-RL and the regulators, would be attained prior to commencement of backfilling. Jon Fancher stressed that site locations will be tailored to the actual configurations of the pipeline sections being worked on and is based on the square footage of the Primary Decision Unit (PDU). Total lengths of PDUs would be on the order of 300 feet for large diameter effluent pipelines. Regarding completion and reporting of groupings of sections of PDUs

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that fall along a logically grouped pipeline run, Jon Fancher explained that these PDUs could be closed out in a logically associated group by including all of the PDUs in one or more closeout verification reports. Dennis Faulk (U. S. Environmental Protection Agency) stated that ERC should document overburden radiological field screening surveys that are being performed. The closeout verification reports that have been prepared to date have only included surface composite closeout sampling data. Dennis Faulk would like to see a combination of the radiological field screening surveys and closeout sampling (per the Sampling and Analysis Plan (SAP) document) of the overburden, for the pipeline and other waste sites.

The issue of performing the Sum of Fractions calculation separately from the RESRAD calculation was discussed. All attendees agreed that it is acceptable to perform the Sum of Fractions for determination of compliance with the 15 mrem/yr RAG, but if RESRAD calculations are being performed for risk assessment, then RESRAD calculated dose levels (instead of sum of the fractions) would be used. Frank Corpuz (Bechtel Hanford, Inc. (BHI)) reiterated that approach needs to include the overburden.

Dennis Faulk and Wayne Soper (Washington Department of Ecology) concurred with the five day timeframe for regulator review of the pipeline PDU calculation brief, provided that adequate notice is given.

Large Lateral Vadose Zone Plumes and Associated Waste Sites

Jon Fancher reviewed the strategy for closeout and backfill of plumes associated with waste sites. The remediation would depend on issues such as the excavation conditions and the schedule and cost delays. Using the 116-D7 site as an example, Jon Fancher went through how relatively smaller plumes that are associated with waste sites could be sampled and closed out in conjunction with that site. As an option, it was suggested that relatively larger plumes could be remediated and evaluated as independent PDUs. The closeout verification reports for the parent waste sites would be prepared, with a later revision referencing the PDU calculation brief for the associated plume.

Wayne Soper suggested that the 116-D7 plumes be included with the pipeline waste sites to the north, which would permit the completion of the 116-D7 and would not leave any part of the waste site open or make the plume a separate waste site. Dennis Faulk agreed that this approach was acceptable, as long as a plume has a clearly associated waste site in the vicinity, for reporting purposes. Where a plume is not associated with a pipeline or adjacent waste site (such as 116-C-1), then the waste site and all plumes must be remediated and included in one closeout report. All attendees agreed that the plume calculation brief would roll up into the site closeout verification for the adjacent waste site. Frank Corpuz stated that ERC will consult with the lead regulatory agency about the plumes on a case by case basis. Dennis Faulk stated that the decision on inclusion of plumes is a regulatory agency decision. It was agreed that closeout samples could be collected from excavated portions of a parent waste site prior to and separate of remediation of associated plumes.

Jon Fancher took the action to notify Ecology and EPA in advance of closeout sampling events, in order that Ecology and EPA can plan collection of split samples.

At the request of Dennis Faulk, Jon Fancher discussed and clarified the different stages of sampling and analysis required in the SAP.

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Overburden

Jon discussed a cost and time effective strategy of combining overburden in common piles. The constituents of concern for the combined overburden piles would incorporate all constituents from any waste site that contributed to the common overburden pile. The overburden pile closeout would be included in a existing planned verification report. Alvin Langstaff (BHI) added that, once the overburden verification is complete, the overburden could be used as clean backfill at the next available waste site for backfilling. The regulatory agency attendees, after discussing the cost effectiveness of combining like overburden, agreed with the strategy.

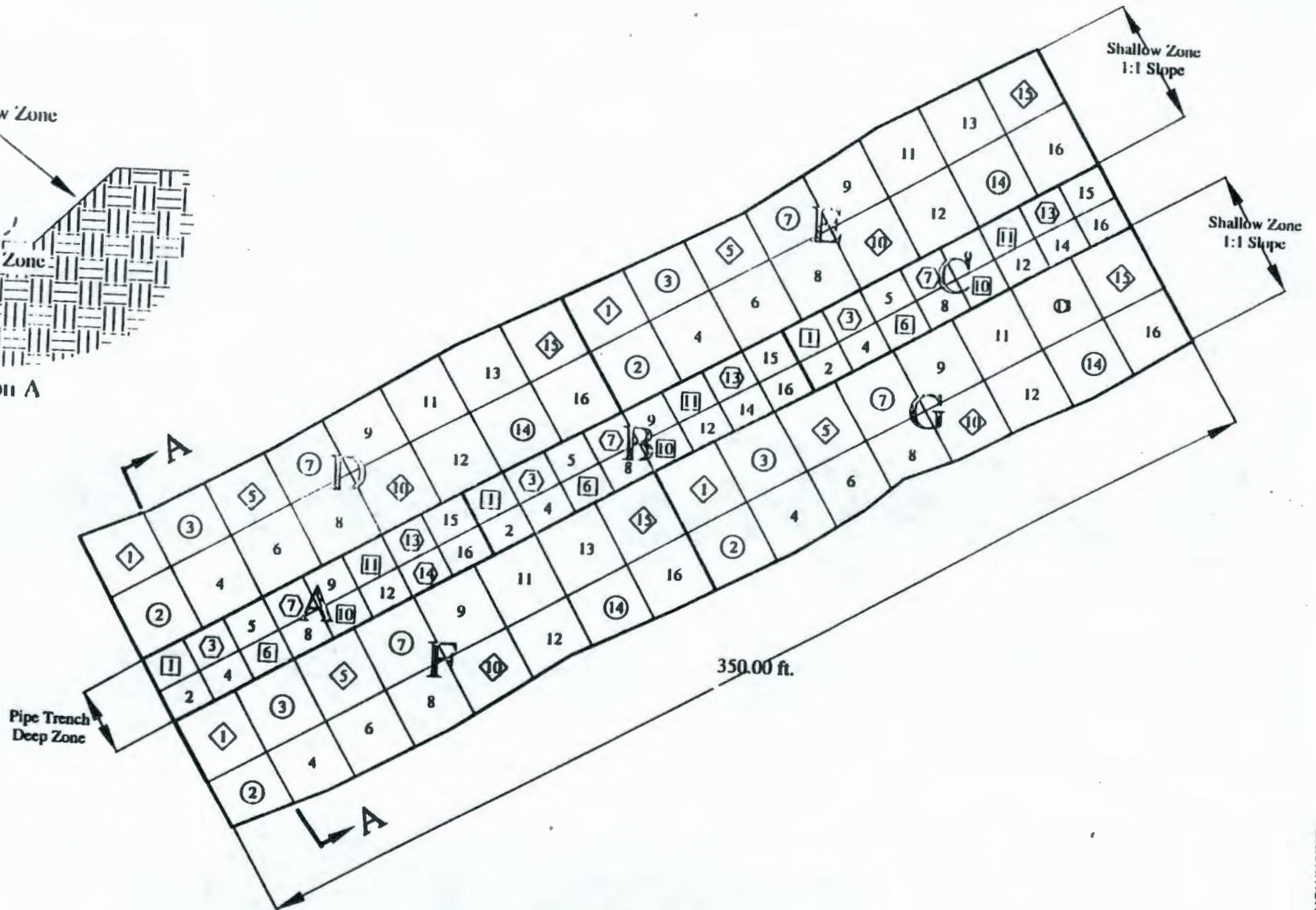
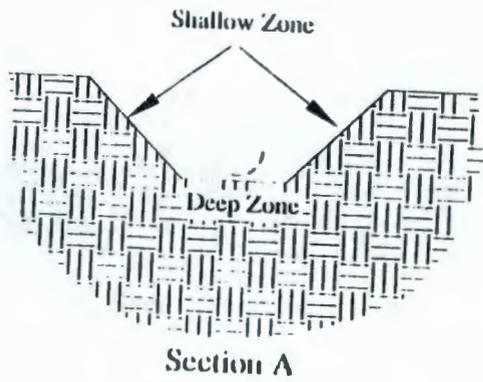
Other

DOE-RL, EPA and Ecology concurred that the report outline format presented in the Remedial Design Report/Remedial Action Work Plan, can be modified and rearranged, to allow for better clarity and understanding.

Effluent Pipeline Remediation – Close Out and Backfill Strategy

7/9/98

- Utilize *Primary Decision Unit* (PDU) concept based on area of decision unit per the Sampling and Analysis Plan (SAP) and Field Instruction Guide (FIG)
 - Utilizing an example (see generic map) of a 60" diameter pipeline, 15 feet in depth, 1H: 1V side slopes and using the minimum primary decision unit size of 15,000 ft², the PDU length is on the order of 350feet (about 107m).
 - Prepare minimum analyses in a completed and approved engineering calculation brief, for each PDU, covering:
 - Sampling Location Map
 - Gamma Energy Analyses (GEA) variance (determines number of off-site closeout samples)
 - Closeout Verification Results/Determination of Statistical Values (95th UCL/other)
 - Sum of the Fractions analyses (15mrem/yr evaluation) for Direct Exposure for radionuclides, and direct comparison of MTCA values for Direct Exposure for chemical and metal COCs
 - MTCA 3-point statistical test
 - Cumulative risk for non-rad COCs via Sum of Fractions.
 - RESRAD shallow risk analysis
 - Demonstration of attainment of Groundwater and River RAGs will be based on scaling pipeline deep sample results with Operable Unit site specific vadose zone modeling.
- After completion of engineering calculation brief covering above topics 5 days of regulator review then backfilling of PDU is allowed, at Subcontractor option.
- Upon completion of all PDU's along a logical grouped pipeline "run" (e.g., from reactor to a main access road, and from the road to the effluent basin, and from effluent basin to outfall), prepare a formalized and detailed, closeout/verification report.



NOTES:
 1. VERTICAL DATUM: NAVD88
 2. DRAWING IS NOT TO SCALE

U.S. DEPARTMENT OF ENERGY
 DOE FIELD OFFICE, RICHLAND
 HANFORD ENVIRONMENTAL RESTORATION PROJECT

100 AREA REMEDIAL DESIGN
 PIPELINE CLOSEOUT VERIFICATION

**Large Lateral Vadose Zone Plumes and Associated Waste Sites
Close Out and Backfill Strategy**

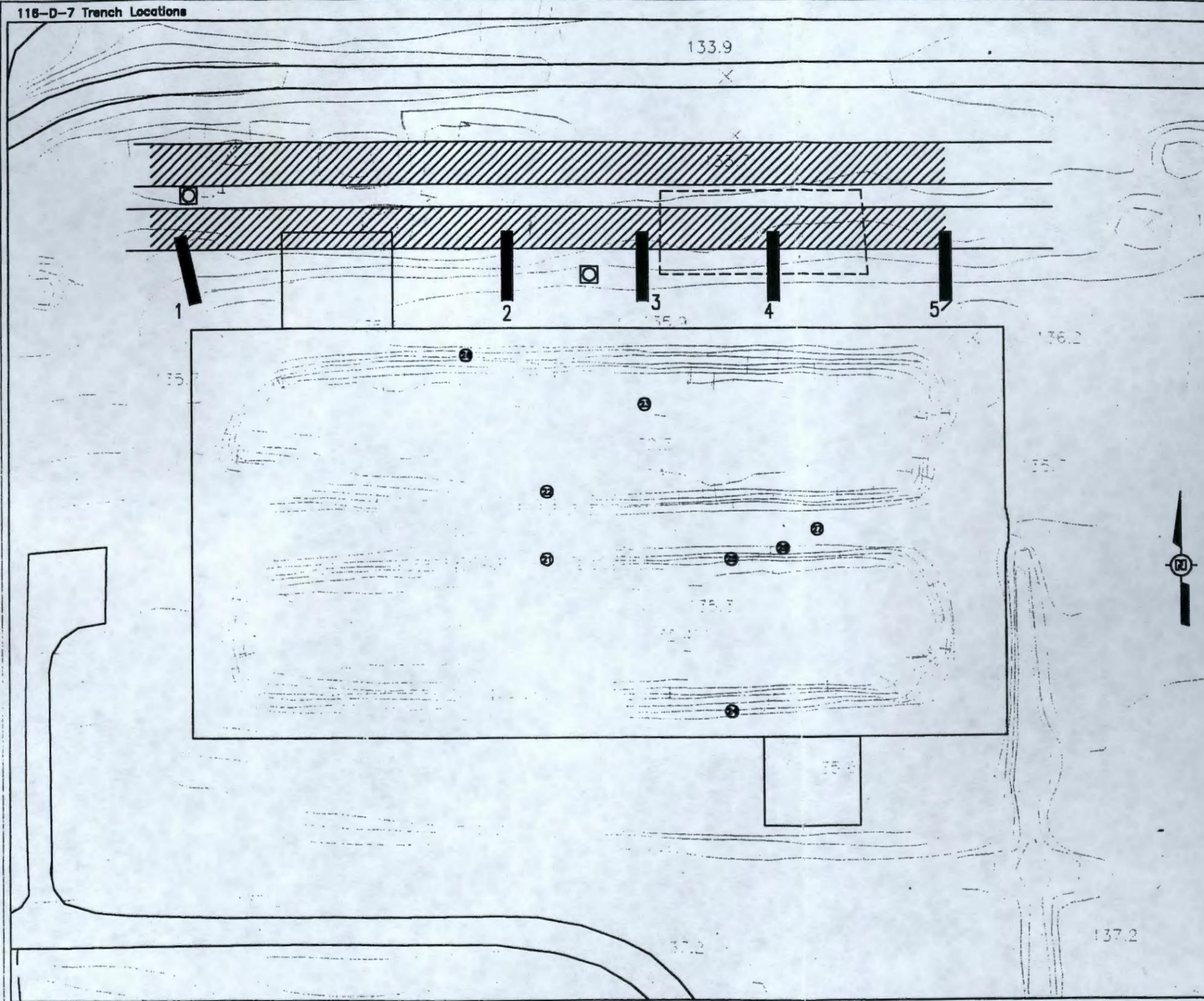
- **Issues:**
 - Length and Duration of open excavation (access, safety, etc.)
 - Delay of backfilling/extended Commercial Subcontract durations/cost & schedule
- **Example: 107-D7**
 - Majority of waste site ready for closeout, plumes exist to the north.
 - Proceed with testing and prepare closeout and verification package for parent waste site and any small plumes, technically address parent waste site as "stand-alone". Reference to associated larger plume, handled technically separately (see below).
 - Allow backfilling to proceed of the parent waste site and any smaller plumes covered in the verification package..
 - Remediate larger plume(s) as PDUs.
 - Prepare minimum analyses in a completed and approved engineering calculation brief, for each PDU, covering:
 - Sampling Location Map
 - Gamma Energy Analyses (GEA) variance (determines number of off-site closeout samples)
 - Closeout Verification Results/Determination of Statistical Values (95th UCL/other)
 - Sum of the Fractions analyses (15mrem/yr evaluation) for Direct Exposure for radionuclides, and direct comparison of MTCA values for Direct Exposure for chemical and metal COCs
 - MTCA 3-point statistical test and cumulative risk for rad and non-rad COCs.
 - Cumulative risk for non-rad COCs via Sum of Fractions.
 - RESRAD shallow risk analysis
 - Demonstration of attainment of Groundwater and River RAGs will utilize same model and approach as for the parent waste site.
- On completion of engineering calculation brief allow backfilling of PDU, at Subcontractor option.
- Upon completion of all PDU's for a parent waste site, submit a formal revision to the closeout/verification report, including the PDU engineering calculation brief as reference.

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Overburden Strategy

- Allow common overburden piles from multiple waste sites.
- Utilize *Primary Decision Unit (PDU)* concept based on area of decision unit per the Sampling and Analysis Plan (SAP) and Field Instruction Guide (FIG).
- Upon accumulation of a logical quantity of overburden the pile(s) will be surveyed to determine area.
- SAP and FIG will be followed to determine number of samples based on area.
- Samples will be collected (COC list will incorporate all COCs from any waste site that has contributed to the common overburden pile).
- An overburden section will be included in a planned verification package that will present the results of the overburden pile sampling. Presentation will be as in other verification packages.

1. TRENCH #1 IS 78.6 M WEST OF WELL D8-2
2. TRENCH #2 IS 14.7 M WEST OF WELL D8-2
3. TRENCH #3 IS 9.6 M EAST OF WELL D8-2
4. TRENCH #4 IS 24.2 M EAST OF WELL D8-2
5. TRENCH #5 IS 84.3 M EAST OF WELL D8-2
6. EACH TRENCH IS APPROXIMATELY 2x12.2x4.5 M



NOTE:
 1. VERTICAL DATUM: NGVD29
 2. SIDE SLOPE IS SHOWN 1:1

SCALE 1:1334
 13.5 0 13.5 27 54

U.S. DEPARTMENT OF ENERGY
 DOE FIELD OFFICE, RICHLAND
 HANFORD ENVIRONMENTAL RESTORATION PROGRAM

100 D/DR AREA
 100 AREA REMEDIAL ACTION
 116-D-7 TRENCH LOCATIONS

CH_17ERC.DWG