

March 19, 1991

Meeting Minutes Transmittal/Approval  
 Unit Managers Meeting: Past Practices - General Topics  
 450 Hills St., Room 47  
 Richland, Washington  
 February 20, 1991

From/ Appvl.: Robert K. Stewart Date: 3/20/91  
 Robert K. Stewart, R.I. Coordinator, DOE-RL (A6-95)

Appvl.: Douglas R. Sherwood Date: 3/20/91  
 Douglas R. Sherwood, Representative, EPA (B5-01)

Appvl.: Larry Goldstein Date: 3/20/91  
 Larry Goldstein, CERCLA Unit Supervisor, Washington Dept. of Ecology

The purpose of this meeting was to discuss general topics which are common to all operable units.

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

- Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
- Attachment #2 - Agenda for the meeting
- Attachment #3 - Attendance List
- Attachment #4 - Commitments/Agreements Status List
- Attachment #5 - Status of Hanford Site Flyover Drawing Upgrades
- Attachment #6 - Status of the Hanford Site Specific Guidance Documents for RI/FS Activities
- Attachment #7 - Quality Assurance Requirements Document (QARD) FY 1991 Program Update
- Attachment #8 - Site Background Investigation Status

Prepared by: Greg Fiddell Date: 3/20/91  
 SWEC GSSC

Concurrence by: J. Hall Date: 4/16/91  
 WHC ER Programs



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Distribution:

Dave Einan, EPA (B5-01)  
Pam Innis, EPA (B5-01)  
Doug Sherwood, EPA (B5-01)  
Dan Duncan, EPA, Region 10, RCRA  
Chuck Cline, WDOE (two copies)  
Dave Nylander, WDOE (Kennewick)  
R.O. Patt, Oregon Water Resources Dept.  
Ward Staubitz, USGS  
Donna Lacombe, PRC  
Doug Fassett, SWEC (A4-35)  
C.E. Clark, DOE-RL (A6-95)  
D.L. Clark, DOE-RL (A5-55)  
Julie Erickson, DOE-RL (A6-95)  
R.D. Freeberg, DOE-RL (A6-95)  
R.E. Gerton, DOE-RL (A6-80)  
Jim Goodenough, DOE-RL (A6-95)  
R.D. Izatt, DOE-RL (A6-95)  
Mary Harmon, DOE-HQ (EM-442)  
Paul Pak, DOE-RL (A6-95)  
Jim Rasmussen, DOE-RL (A6-95)  
Bob Stewart, DOE-RL (A6-95)  
Mike Thompson, DOE-RL (A6-95)  
S.H. Wisness, DOE-RL (A6-95)  
J.M. Hennig, DOE-RL (A5-21)  
John Stewart, USACE  
Melvin Adams, WHC (H4-55)  
Frank Calapristi, WHC (B2-35)  
Steve Clark, WHC (H4-55)  
Larry Hulstrom WHC (H4-55)  
Wayne Johnson, WHC (H4-55)  
Alan Krug, WHC (H4-55)  
Merl Lauterbach, WHC (H4-55)  
Linda Powers, WHC (B2-35)  
Fred Roeck, WHC (H4-55)  
KaeRae Parnell, WHC (H4-18)  
Jim Patterson, WHC (B2-15)  
Steve Weiss, WHC (H4-55)  
Tom Wintczak, WHC (B2-15)  
R.D. Wojtasek, WHC (B2-15)  
Don Kane, EMO (K1-74)  
Terri Stewart, PNL (K2-12)  
Michael A. Neely, PNL (K6-96)

ADMINISTRATIVE RECORDS: 1100-EM-1, 300-FF-1, 300-FF-5, 200-BP-1, 100-HR-1,  
100-HR-3, 100-BC-1, 100-BC-5, 100-NR-1, 100-NR-3; Care of Susan Wray, WHC (H4-  
51C)

Please inform Doug Fassett (SWEC) of deletions or additions to the  
distribution list.

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Attachment #1

Meeting Summary and Summary of Commitments and Agreements

General Topics Unit Managers Meeting  
February 20, 1991

Army Corps of Engineers Transition

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1. John Stewart reported that the transition of oversight responsibilities at 1100-EM-1 to the Corps is moving ahead with the involvement of the Department of Energy (DOE) and Westinghouse Hanford Company (WHC). The selection of an environmental subcontractor by the Corps is in progress. The 100-FR-1 work plan is expected to be delivered on April 15.
  2. A meeting is planned on February 25 with the Corps, WHC and DOE to discuss the task for surveying. John Stewart recommends a phased approach to the surveying. The Corps is anxious to begin the surveying work as soon as DOE defines a task with funding. Roger Freeberg (DOE) and Bob Stewart (DOE) said the procurement of funding was in progress. Nancy Werdel (DOE) and Jim Patterson (WHC) said Keiser Engineers will develop the technical requirements for the survey work by the 25th of February.

**Action Item GT.95:** Arrange a briefing on the site surveying and Keiser's progress in developing technical requirements for the surveying.  
Action: K.M. Thompson

DOE Independent Cost Model Review

3. Roger Freeberg (DOE) gave an update on the DOE cost model review. Due to comments by the Corps, Ecology and EPA three aspects of cost estimation were reviewed by DOE contractors. These include: 1) the model; 2) regulator influence on cost (compliance with NEPA); and, 3) HR-1 and HR-3 cost estimates. Some of the recommendations may be addressed by the DOE by the aggregate area management approach. The report on the DOE review was sent to the regulators.
4. Jim Patterson (WHC) met with the review team and incorporated as many recommendations as possible. Also, Jim Patterson said costs for work plans were based on the costs of past work plans.

Safety Documentation

5. Rich Carlson (WHC) reported that it was decided that additional safety documentation would be done and that the documentation would be developed in parallel with the RI/FS work plans. The 200-BP-1 safety analysis is expected to be completed by the end of April. The 300-FF-1 safety analysis is expected to be completed in July. The 300-FF-5 operable unit is not expected to require a safety analysis. A letter

will be written documenting that no safety analysis is required for non-intrusive activities.

6. Merl Lauterbach (WHC) reported on safety analysis at the 100 areas and the 1100 area. No impact to the schedules for the RI/FS work at the 100 areas is expected in the near future due to the safety analyses. If intrusive work has to be done earlier than June in the Horn Rapids Landfill, in the 1100 Area, the schedule will be impacted by the associated safety analysis. Rich Carlson said the safety consultants would be contacted to prevent any delay due to safety analyses. Doug Sherwood (EPA) said a letter was needed by EPA if there delays due to safety analyses. For example, there have been delays in work at 200-BP-1, 300-FF-1 and 300-FF-5.
7. Regarding milestones, the EPA suggested avoiding putting off work that could be done as part of the RI phase I. Putting off large amounts of work until the RI phase II would cause the RI schedule to be missed.

#### Hanford Site Mapping Update

8. Bob Henckel (WHC) presented an update on Hanford site mapping (see Attachment #5). The maps will be topographic, they will include buildings, roads and general physical features. Additional personnel and workstations are being obtained to more quickly complete the project. Mike Thompson (DOE) said there would be a separate effort (by the Corps) to survey the existing monitoring wells.

#### Work Plan Guidance Documentation

9. Mel Adams gave a presentation on the work plan guidance document (see Attachment #6). The document describes all the steps needed to complete a work plan or a remedial investigation. The document does not specifically apply to aggregate area management studies, but it would still provide guidance for these. The completed RI/FS guidance document will be distributed to DOE and the regulators for review. It is expected to be completed in June. Periodic updates of the document are planned. Ward Staubitz (USGS) suggested that the guidance document require more details on the risk assessment model used since this has been a deficiency of past work plans.

#### QARD Status

10. Ron Cote' (WHC) gave a presentation on the Quality Assurance Requirements Document (see Attachment #7). QA elements of applicable documents were extracted and then combined to produce the QARD. It will be issued and provided to the regulators by DOE-RL on March 18. The application of the QARD to projects being implemented in the Environmental Restoration Program is being addressed. A training plan for the QARD will be developed. There are plans for committees to accept comments from users of the document and to update the document annually.

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Aggregate Area Management Strategy

11. Mike Thompson (DOE) gave an update on the Aggregate Area Management Strategy (AAMS). The AAMS document was revised based on DOE and Ecology comments. It is now in internal review, however copies also have been provided to the regulators for review.

Site Background Investigation Status

12. Jim Hoover (WHC) gave a presentation on the "baseline documentation of the utility of determining background for soil and groundwater" (see Attachment #8). Substantial cost savings were expected to be achieved by establishing site wide background levels for inorganics rather than establishing a background for each operable unit. Available data from remedial investigations is being used for the first part of the background investigation; however, offsite samples will eventually be taken to verify these onsite background levels.

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**Attachment #2**

**Agenda**

**General Topics Unit Managers Meeting  
February 20, 1991**

General Topics

9:00 - 9:30

**Approval of January's Unit Managers Meeting Minutes - Doug Fassett**

**ACE Transition - Bob Stewart/John Stewart, ACE**

**DOE Independent Cost Model Review - Roger Freeberg**

**Implementation of New Safety Documentation - Tom Wintczak**

9:30 - 10:00

**Hanford Site Mapping Update - Bob Henckel**

**Work Plan Guidance Documentation - Mel Adams**

10:00 - 11:00

**QARD Status - Ron Cote'**

**Aggregate Area Management Strategy - Mike Thompson**

11:00 - 12:00

**Site Background Investigations Status - Jim Hoover/Fred Ruck**

12:00 - 1:00

**Lunch**

1:00 - 2:00

**Action Item Status - Doug Fassett**

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## Attachment #3

## Attendance List

General Topics Unit Managers Meeting  
February 20, 1991

Name	Org.	O.U.	Phone
Allender, Robert	B&C	Ecology Support	(503) 244-7005
Erickson, Julie K.	DOE-RL	Unit Manager	(509) 376-3603
Freeberg, Roger	DOE-RL	ERD	(509) 376-7167
Goodenough, Jim	DOE-RL	Unit Manager	(509) 376-7087
Pak, Paul	DOE-RL	100-NR	(509) 376-4798
Stewart, Robert K.	DOE-RL	1100-EM-1	(509) 376-6192
Werdel, Nancy	DOE-RL	Env. Rest.	(509) 376-5500
Cline, Chuck	Ecology	CERCLA Unit	(206) 438-7556
Cross, Steve	Ecology	CERCLA Unit	(206) 459-6675
Goldstein, Larry	Ecology	CERCLA Unit	(206) 438-7018
Nylander, Dave	Ecology	CERCLA Unit	(509) 546-2992
Innis, Pamela	EPA	Unit Manager	(509) 376-5466
Sherwood, Doug	EPA	Unit Manager	(509) 376-9529
LaCombe, Donna	PRC	EPA Cont.	(206) 624-2692
Clyde Moore	Parametrix	WDOE Support	(206) 455-2550
Fassett, Doug	SWEC	GSSC to DOE-RL	(509) 376-3136
Fryer, Bill	SWEC	GSSC to DOE-RL	(509) 376-9707
King, Joe	SWEC	GSSC to DOE-RL	(509) 376-4726
Healy, Kevin	USACE	DOE Support	(205) 955-5170
Stewart, John	USACE	PM	(509) 522-6331
Drost, Brian	USGS	EPA Support	(206) 593-6510
Staubitz, Ward	USGS	EPA Support	(206) 593-6510
Adams, M.N.	WHC	Env. Eng.	(509) 376-8361
Bergmann, L.M.	WHC	ER Prog.	(509) 376-0777
Carlson, R.A.	WHC	Env. Eng.	(509) 376-9027
Cote', Ron	WHC		(509) 376-5398
Downey, H.D.	WHC	ER Prog.	(509) 376-2186
Henckel, R.P.	WHC	EEG-TBS	(509) 376-2091
Hoover, Jim	WHC		(509) 376-2668
Lauterbach, Merle	WHC		(509) 376-5257
Patterson, Jim	WHC	ER Program	(509) 376-0568
Ruck, Fred	WHC		(509) 376-9876
Wintczak, Tom	WHC		(509) 376-0902

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Attachment #4

Action Items Status List

General Topics Unit Managers Meeting  
February 20, 1991

Item No.	Action/Source of Action	Status
GT.18	WHC will develop a small team for the purpose of developing a Hanford-specific work plan preparation guidance document. The committee is to include members from EPA/Ecology, SWEC/IT, and PNL/EMO as well as WHC. Action: Tom Wintczak (1/24/90, GT-UMM)	Closed The Lessons Learned document will be integrated into this document (7/17/90). WHC has restarted the effort to prepare a work plan guidance document. The status of the document was given at the 2/20/91 GT-UMM. Mel Adams (WHC) will send the document to the regulators (2/16/91).
GT.31	DOE/WHC is to develop an implementation plan for the strategy associated with the logic diagram on source/groundwater operable unit integration and streamlining. This plan is to include schedule and budget impacts associated with implementation. Action: K.M. Thompson, (3/20/90, GT-UMM)	Open WHC is pulling the implementation plan together (12/18/90). A meeting of involved parties is scheduled on 2/21/91 (2/20/91).
GT.38	If possible, at the May Unit Managers Meeting a presentation on the approved, preferred alternative method for disposal of the reactors will be given. Action: Jim Goodenough (4/18/90, GT-UMM)	Open The final disposal decision (proposed action) has not yet been made. A presentation will be made to the Unit Managers at the earliest meeting following formalization of the proposed action (9/19/90). The final EIS was forwarded to EH-1 on 2/7/91 for final approval (2/20/91).

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- GT.38A      The presentation per Action Item #GT.38 is to include discussion on how NEPA compliance, land use, and the final disposition of the reactors is being addressed by DOE. (10/16/90, GT.UMM)      Open  
One piece removal of the reactors is proposed; land use needs to be addressed (2/20/91).
- GT.43      A follow up meeting will be scheduled with EPA, Ecology, DOE and WHC to discuss the apparent conflicts between NEPA and RCRA/CERCLA activities. Action: Julie Erickson/Paul Dunigan (4/18/90, GT-UMM)      Open  
Headquarters is working on draft guidance for the EA and Phase III Feasibility Study to be incorporated into one document. Julie Erickson will set up a meeting when guidance has been received. (10/16/90)
- GT.49      The plan for the Background Strategy is to be delivered to DOE for review by June 1990. This plan is to include a brief discussion of estimated costs and associated schedules for determining background in both media. Action: Jim Hoover, WHC (5/16/90, GT-UMM)      Open  
WHC delivered the first draft of the document to DOE the first week in January. A presentation on the background strategy is planned for the February UMM (1/23/91). The regulators expect to see the document by March 15 (2/20/91).
- GT.63      WHC to draft a letter for DOE to send to EPA and Ecology proposing to treat the 200-UP-2/200W Area and the Associated Groundwater contamination as an Aggregate Area Management Study (AAMS). Action: Julie Erickson (8/15/90, GT.UMM)      Open  
The letter has been transmitted to DOE. TPA changes are being proposed (12/17/90). A final strategy is delayed pending the development of an overall direction by ER for implementation (1/23/91). Progress on the AAMS strategy is to be updated at the March UMM (2/20/91).
- GT.68      A training plan on the Quality Assurance Requirements Document (QARD) will be developed and shared with the regulators for their review. Action: Ron Cote' (9/19/90 GT.UMM)      Open  
The development of the plan is being expedited (11/14/90).

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- GT.70 Discuss the prioritization and preparation of operable unit work plans. Link this to the streamlining strategy and include it as a topic for the next UMM. Action: Larry Goldstein and Doug Sherwood (10/16/90, GT.UMM) Open  
No decision will be reached prior to Ecology's receipt of the change order package. A better understanding of the schedules of soon to be approved work plans is needed by Ecology (1/23/91). It is imperative to EPA that prioritization be discussed before a plan is implemented by DOE. EPA suggested a meeting be arranged (2/20/91).
- GT.71 Provide the ENCORE project plan and copies of all deliverables to EPA and Ecology. Action: Nancy Werdel (10/16/90, GT.UMM) Open  
The project managers received a presentation by Jack Waite (11/14/90). The project plan has not yet been delivered to the regulators (1/23/91).
- GT.72 WHC will set up a meeting to coordinate RDDT&E supported and operable unit specific performance assessment (PA) activities, and assess the direction of the activities. Action: Jim Patterson (11/14/90) Open  
WHC and DOE met on Dec. 6. The response to the EPA report is being drafted. WHC and DOE are developing a position which will be presented at the Feb. UMM (12/17/90). A presentation is planned for the March UMM (2/20/91).
- GT.74 Provide the proposal to the regulators to improve comment/disposition resolution process on documents. Action: Bob Stewart, Tom Wintczak, John Stewart (11/14/90) Open  
A draft proposal has been prepared. The document is in internal review and will be transmitted to the regulators when the review is complete. (12/17/90)
- GT.75 Ecology and EPA are to provide comments on the draft EII 4.3 and a strategy paper regarding the handling of RI/FS derived waste. Action: Larry Goldstein, Pam Innis (EPA) (11/14/90) Open  
Comments on the document were received from Ecology on 12/10/90. Responses are being developed by WHC/DOE-RL (12/17/90). Paul Day (EPA) is preparing a letter response (1/23/91). The DOE response to regulator comments will not be issued until after receipt of the EPA comments (2/16/91).

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- GT.76 Ecology and EPA are to provide comments on the revised EIIs 4.2 and 5.4 related to the handling of drilling decontamination fluids. Action: Larry Goldstein, Doug Sherwood (11/14/90) Open  
Comments on the document were received from Ecology on 1/10/90. A draft response was provided to Ecology on 1/23/91. A final response is under development by a task group for DOE (1/23/91). The final DOE response to the regulators will not be issued until receipt of the EPA response (2/16/91).
- GT.77 DOE is to prepare a proposal for the handling of existing drums of decontamination rinsate. Action: Mike Thompson (11/14/90) Open  
No change (1/23/91).
- GT.80 Review time requirements for production of UMM meeting minutes with TPA signatories. Discuss longer time allotment with project managers. Action: Bob Stewart (11/14/90) Open  
A request has been made by Bob Stewart that the DOE-RL TPA Project Manager revise the TPA.
- GT.82 Determine a date for a presentation/briefing limited to investigation/characterization research and development. Action: Mark Hanson/Bob Stewart (12/18/90) Open  
Bob Stewart will coordinate with Mark Hanson to set a date for the presentation (1/23/91).
- GT.83 A detailed briefing will be held at next month's unit managers meeting regarding the DOE Independent Cost/Model Review. The briefing will factor the Cost/Model Review into the DOE 5-year Plan. Action: Tom Wintczak/Rich Hudson (12/18/90) Closed (2/20/91)  
A briefing will be provided by Mr. Wintczak at the January Unit Managers Meeting (1/22/91). The report will be transmitted to Ecology and EPA (1/23/91).

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- GT.84 A technical task team will be formed with personnel from DOE, Ecology, EPA, USACE, WHC, and the GSSC to prepare a strategy for handling all types of investigation-derived wastes. Proposed task team member names will be presented at the January UMM. Action: Tom Wintczak, John Stewart, Doug Sherwood, Bob Stewart, and Larry Goldstein. (12/18/90)
- Closed  
The task team includes: Bob Stewart (DOE), Mike Gasser (SWECC), Larry Goldstein (Ecology), Laura Russell (WHC), Steve Guzek (WHC), Wendel Greenwald (USACE).
- GT.85 Assign a lead to develop an agenda/attendance list for a scoping meeting to address the operable unit prioritization and the work plan review procedure. Action: Doug Sherwood (12/18/90)
- Open  
To be discussed at the next Unit Managers Meeting in March (2/20/91).
- GT.87 (HR1.24): Check into reviewing the QA requirements document (QARD) to be issued to EPA and Ecology. Action: J. D. Goodenough (8/16/90, HR1-UMM)
- Open  
A presentation on the QARD is to be given in March. The QARD is expected by Ecology in the third week in March (2/20/91).
- GT.88 Provide a report at the February UMM on the application of the newly identified safety requirements to past practice activities. Specifically, address how the requirements will apply to approved RI/FS and IRA activities, and how existing and forthcoming work plans need to be revised. Action: T. Wintczak, M. Lauterbach, R. Carlson (1/23/91)
- Open  
EPA expects a letter from DOE which indicates how the schedules for the operable units will be affected (2/20/91).

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- GT.89 Provide Ecology and EPA with a schedule for completing photogrammetric and surveying requirements necessary to develop the 100 Areas Base Map. These requirements include: 1) Aerial photography; 2) ground proofing; 3) converting historical and new data to Lambert Coordinates; and, 4) digitizing historical and new data for use in a G.I.S. system. Action: Bob Henckel (1/23/91) Open  
A presentation was made at the February UMM by B. Henckel and Ecology expects a schedule to be presented at the March UMM (2/20/91).
- GT.90 DOE is to develop a plan for well head elevation surveys and develop a response regarding funding availability for this work. Due at the February 1991 UMM. Action: K.M. Thompson (1/23/91) Open  
Funds for the surveys have been provided to each operable unit; the surveys will be done on a operable unit by operable unit basis (2/20/91).
- GT.91 Set up a meeting between EPA, WHC, Ecology and DOE on how the determination is made to include certain data in HEIS and on what data validation entails. Action: Bob Henckel, Julie Erickson (1/23/91) Open
- GT.92 Develop recommendations to coordinate non-ER-funded activities such as the soil stabilization action near the 200W Area T-Plant. Include suggestions for methods to inform the public (e.g., use of TPA quarterly meetings.) Action: Jim Patterson (1/23/91) Open  
The action was brought to the attention of Linda Powers by WHC. WHC will provide information to the individuals responsible for the TPA quarterly meetings after the interim action has been completed. B. Stewart requested that this action be tracked (2/20/91).

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- GT.93 WHC is to develop a recommendation on the use of English vs. metric units for future Past Practices work/reports at the Hanford Site. Action: Jim Patterson (FF5, 1/23/91) Open  
J. Patterson found the DOE order which requires WHC and all of their subcontractors to go metric. D. Sherwood confirmed that EPA would go metric by 1993. B. Stewart said all DOE programs would have to come to agreement on the units used (2/20/91).
- GT.93A The issue of English vs. metric units is to be presented to the Data Administration Council and possibly the DOE site data council. Action: B. Henckel (2/20/91) Open
- GT.93B The issue of English vs. metric is to be discussed with Mel Adams (WHC) and the personnel working on the guidance documents to determine how the units used can be standardized from one document to the next. Action: J. Patterson (2/20/91) Open
- GT.94 (1HR3.36) The GSSC is to determine what changes in procedure would be required to provide OU Coordinators a copy of the corrected UMM minutes at least 24 hours in advance of the following month's UMM. Action: Doug Fassett (GSSC) (1/24/91) Closed  
The draft minutes are to be distributed within two weeks of the UMM. Comments on the draft are to be made at least three working days before the following UMM. The second draft of the minutes is to be distributed at least 24 hours before the UMM (2/20/91).
- GT.95 Arrange a briefing on the site surveying task and Kaiser's progress in developing technical requirements for the surveying. Action: K.M. Thompson (2/20/91) Open
- GT.96 Provide D. Einan (EPA) and Ecology with a controlled copy of the OSM procedures. Action: J. Erickson, J. Kessner (3FF1, 2/21/91) Open

- GT.97 Ecology is to respond to the letter from L. Hulstrom which requests a determination on whether or not Enduraseal is designated a hazardous substance. The Enduraseal is being considered for use on the roads to the 300 Area process trenches and on other areas. Action: L. Goldstein (3FF1, 2/21/91) Open
- GT.98 Track the progress of informing the DOE computer people that Ecology needs to be connected to HLAN and cc: mail. Action: B. Stewart (2/20/91) Open.

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## STATUS OF HANFORD SITE FLYOVER DRAWING UPGRADES \*

AREA	# DWG SHEETS	KEH FLYOVER DWG STATUS	CURRENT STATUS	ESTIMATED HOURS	ESTIMATED HOURS FOR HEIS
200 East & West Area	37	Released	Complete	-	962
400 Area	02	Released	Complete	-	56
300 Area	08	Released	Delivered	480	200
200 Area Extensions	12	Released	Delivered	240	100
100 Area	54	Not Released	Due 2/22/91	2,160	865

\* "Drawing Upgrades" includes labeling of buildings, roads and other physical features in addition to Standardizing Symbolology and Title Block Format.

**STATUS OF HANFORD SITE SPECIFIC  
GUIDANCE DOCUMENTS FOR RI/FS ACTIVITIES**

- **IN RESPONSE TO A DOE-RL AUDIT AND A WHC CONCERN, GUIDANCE DOCUMENTS ARE BEING PREPARED TO DEVELOP GREATER CONSISTENCY IN RI/FS DOCUMENTS**
  
- **THE FOLLOWING DOCUMENTS ARE BEING PREPARED:**
  - **STANDARD DESCRIPTION OF HANFORD SITE GEOLOGY**
  - **HISTORICAL RESOURCES SUMMARY**
  - **WORK FLOW MODEL FOR RI/FS ACTIVITIES**
  - **COMMON LIST OF ATTACHMENTS FROM RI/FS WORK PLANS**
  - **GUIDANCE FOR PREPARATION OF HANFORD RI/FS WORK PLANS**

**STATUS OF HANFORD SITE SPECIFIC  
GUIDANCE DOCUMENTS FOR RI/FS ACTIVITIES (CONTINUED)**

● **TARGET DATES:**

- **STANDARD DESCRIPTION OF HANFORD GEOLOGY:  
DRAFT COMPLETED FEB. 15**
  
- **WORK FLOW MODEL FOR RI/FS ACTIVITIES:  
DRAFT COMPLETED FEB. 15**
  
- **HISTORICAL RESOURCES SUMMARY:  
DRAFT COMPLETED MAR. 1**
  
- **COMMON LIST OF ATTACHMENTS TO RI/FS WORK PLANS:  
DRAFT COMPLETED FEB. 15**
  
- **GUIDANCE FOR PREPARATION OF HANFORD RI/FS WORK PLANS:  
DRAFT COMPLETED JUNE**

**STATUS OF HANFORD SITE SPECIFIC  
GUIDANCE DOCUMENTS FOR RI/FS ACTIVITIES (CONTINUED)**

- **THE PURPOSE OF THESE DOCUMENTS:**
  - **PROVIDE GREATER TECHNICAL CONSISTENCY BETWEEN WORK PLANS**
  - **PROVIDE INSTRUCTION AND TRAINING TO NEW STAFF MEMBERS/ENGINEERS**
  
- **ISSUES:**
  - **ESTABLISHMENT OF RANGES OF SAMPLE ADEQUATELY FOR VARIOUS SITES HAS PROVEN TO BE DIFFICULT AND CONTROVERSIAL**
  - **THE "GUIDANCE" DOCUMENT SHOULD BE USED FOR JUST THAT**

**SITE BACKGROUND  
INVESTIGATION  
STATUS**

- **ACTIVITY UPDATE**
- **BACKGROUND DOCUMENT SYNOPSIS**
- **RESULTS TO DATE**
- **CURRENT ACTIVITIES**

POOR COPY RECEIVED

## **ACTIVITY UPDATE**

- **Emphasis placed on Baseline Documentation for Soil and Groundwater Background**
- **Draft document on models, approach, and motivation for the characterization and use of a Site background for soil and groundwater & preliminary results**

## **BACKGROUND**

### **Types:**

- **Natural**
- **Local or Area**

### **Uses:**

- **Define contamination**
- **Establish remediation goals**

## **ISSUE OVERVIEW**

### **Site- vs. Unit-Based Background**

**Current Approach to Characterization & Use of Background:**

**| Establish local background for each T/S/D & Operable Unit**

- **Local/Area background appropriate & necessary for monitoring operating facilities & plumes**
- **Site Background is more appropriate for environmental restoration closure activities;  
All units are in, on, or impact a single vadose zone and/or a single unconfined aquifer on the Hanford Site**

## **SITE- VS. UNIT-BASED BACKGROUND:**

- **Data Quality Objectives  
(monitoring vs. remediation)**
  - **Representativeness; Characterization on same scale of compositional variability**
  - **Consistency:**
    - (1) **Different local backgrounds result in many different & inconsistent definitions of contamination (even for superimposed units)**
    - (2) **Single set of criteria (background thresholds) for soil and groundwater**
- **Cost**

## **IMPLICATIONS**

**Only media contaminated above levels of Site background should be considered for remediation or ACL's, risk assessment**

- Minimizes misidentification of uncontaminated samples as contaminated**
- Minimizes allocation of resources for dealing with contamination within range of natural background (i.e., that pose no threat to human health or the environment)**

## **SITE APPROACH TO CHARACTERIZATION AND USE OF BACKGROUND**

- **Vadose Zone: Single Compositional Population**
- **Natural Variability of soil in vadose zone and groundwater in unconfined aquifer exists on the scale of the Site**
- **Composition of soil and groundwater both have finite concentration ranges and upper limits (for each analyte)**

## **JUSTIFICATION FOR USE OF SITE BACKGROUND**

- **DQO's**
  - **Objectives**
  - **Representativeness**
  - **Conceptual model**
- **Soil: Population concept**
- **Groundwater: Commonality of compositional evolution, limiting concentrations (e.g., concept of reaction paths & equilibrium)**

## **SOIL BACKGROUND MODEL**

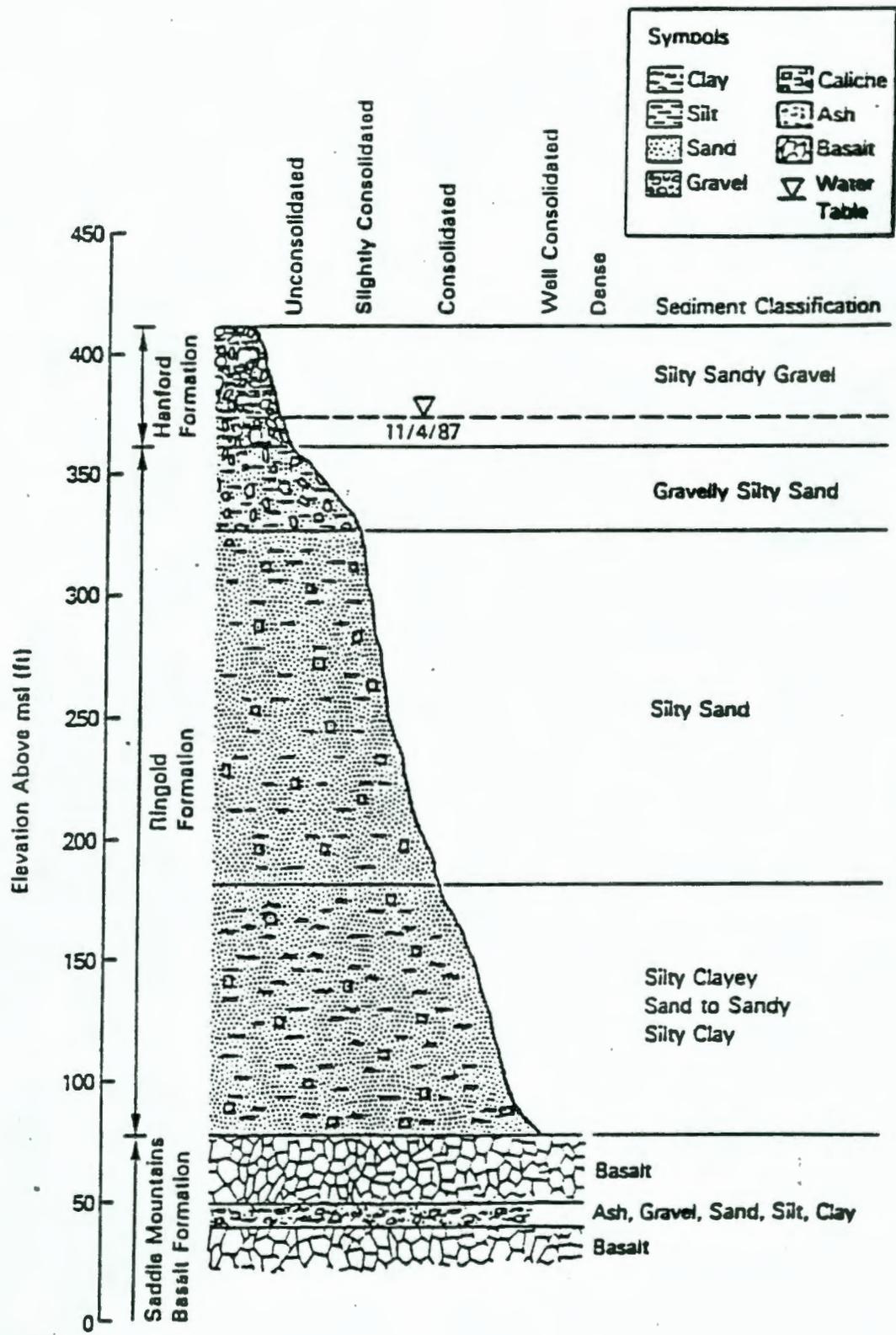
- 1) What Does Hanford Vadose Zone Represent?**
- 2) What Do Soil Compositions Represent?**
- 3) What is the nature and extent of compositional variability of Hanford vadose zone soil compositions?**
- 4) Relationships?**

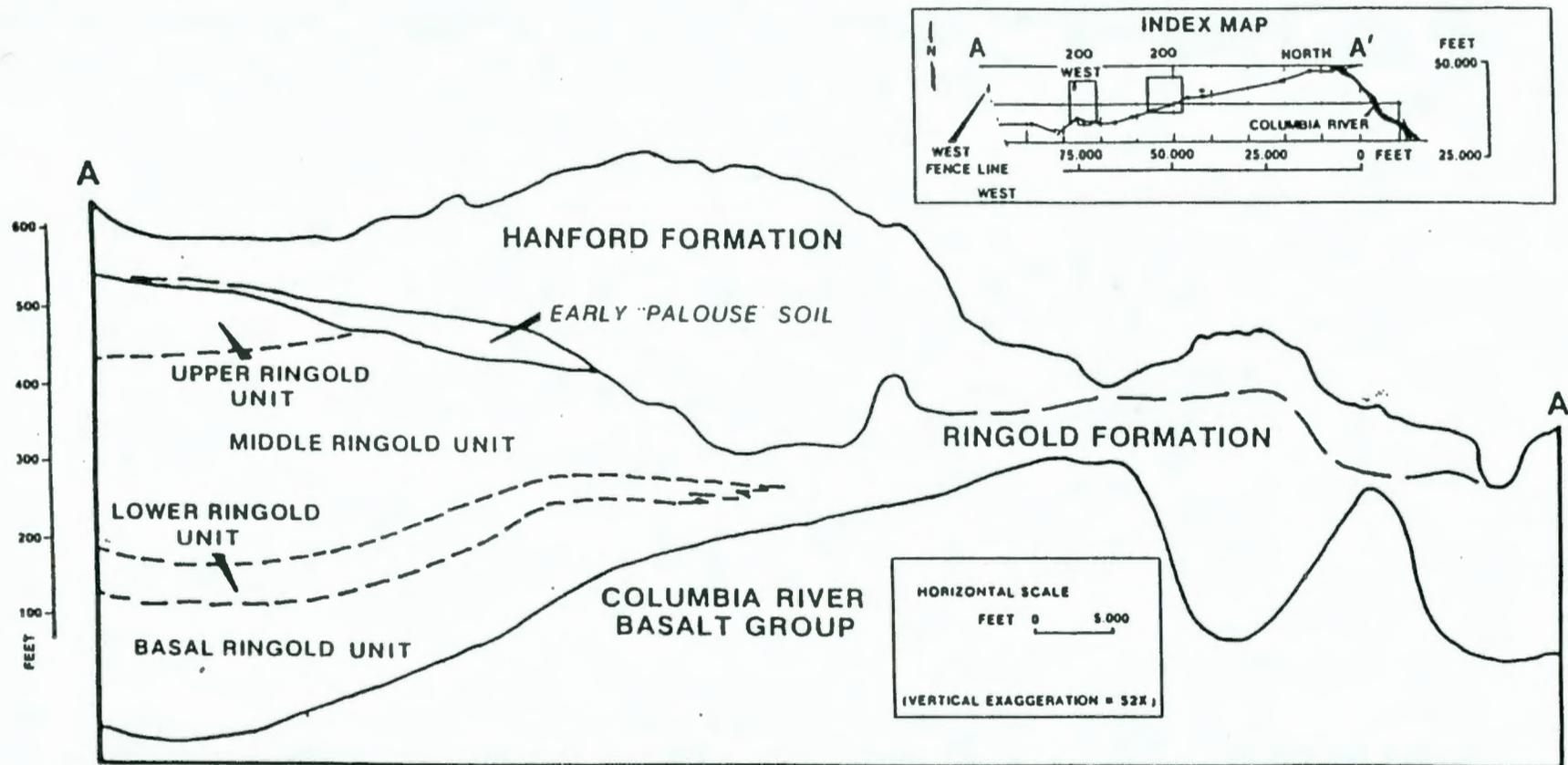
## WHAT DOES HANFORD VADOSE ZONE REPRESENT?

### Vadose Zone

- Hanford Formation
- Eolian veneer
- Other subordinate material (Ringold Fm., basalts, ash, alluvial deposits, caliche)

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RHO-ST-23

GENERALIZED GEOLOGIC CROSS SECTION THROUGH THE HANFORD SITE

## **WHAT DO SOIL COMPOSITION REPRESENT?**

**Finer-grained size fraction:**

- Leachate composition**
- Bulk (XRF)**

# **WHAT IS THE NATURE AND EXTENT OF COMPOSITIONAL VARIABILITY OF HANFORD VADOSE ZONE SOIL COMPOSITIONS?**

- **Compositions of vadose zone soils related by:**
  - **Origin & source of sediments**
  - **Depositional process; lateral & vertical variability**
  - **Systematic variability in composition**
  - **Compositional series=Differing proportions of:**
    - 1) **basaltic sand**
    - 2) **quartz-feldspar silt-sand**

**Hanford Formation: Ice Age Cataclysmic Flood  
Deposits**

**Recent Eolian Deposits: Derived from Flood  
Deposits**

## **GROUNDWATER BACKGROUND MODEL**

- 1) Compositional Variation in groundwater of Unconfined Aquifer**
- 2) Nature and extent of compositional variability**
- 3) Relationships**

9-1-12-19-6-9-3

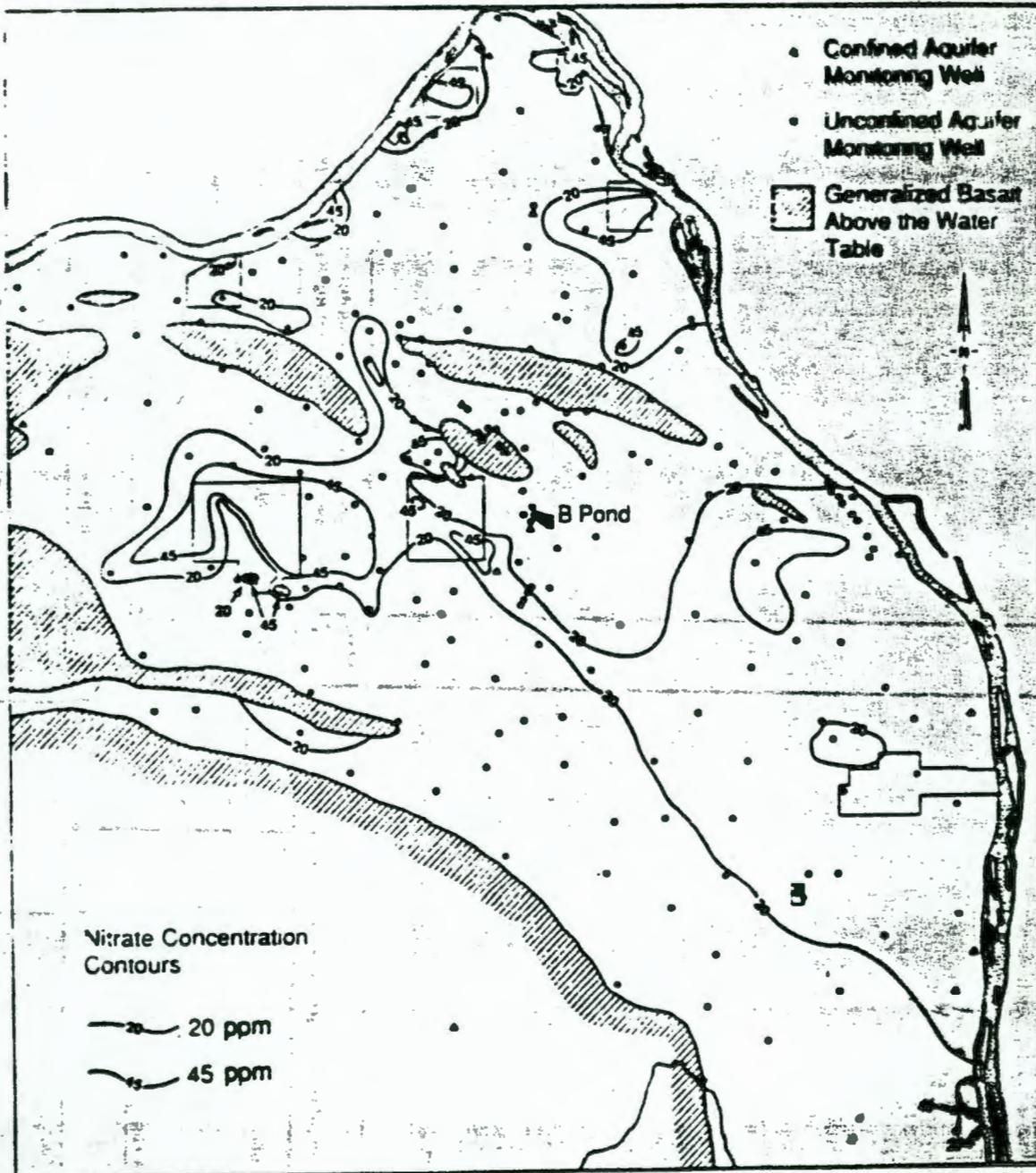


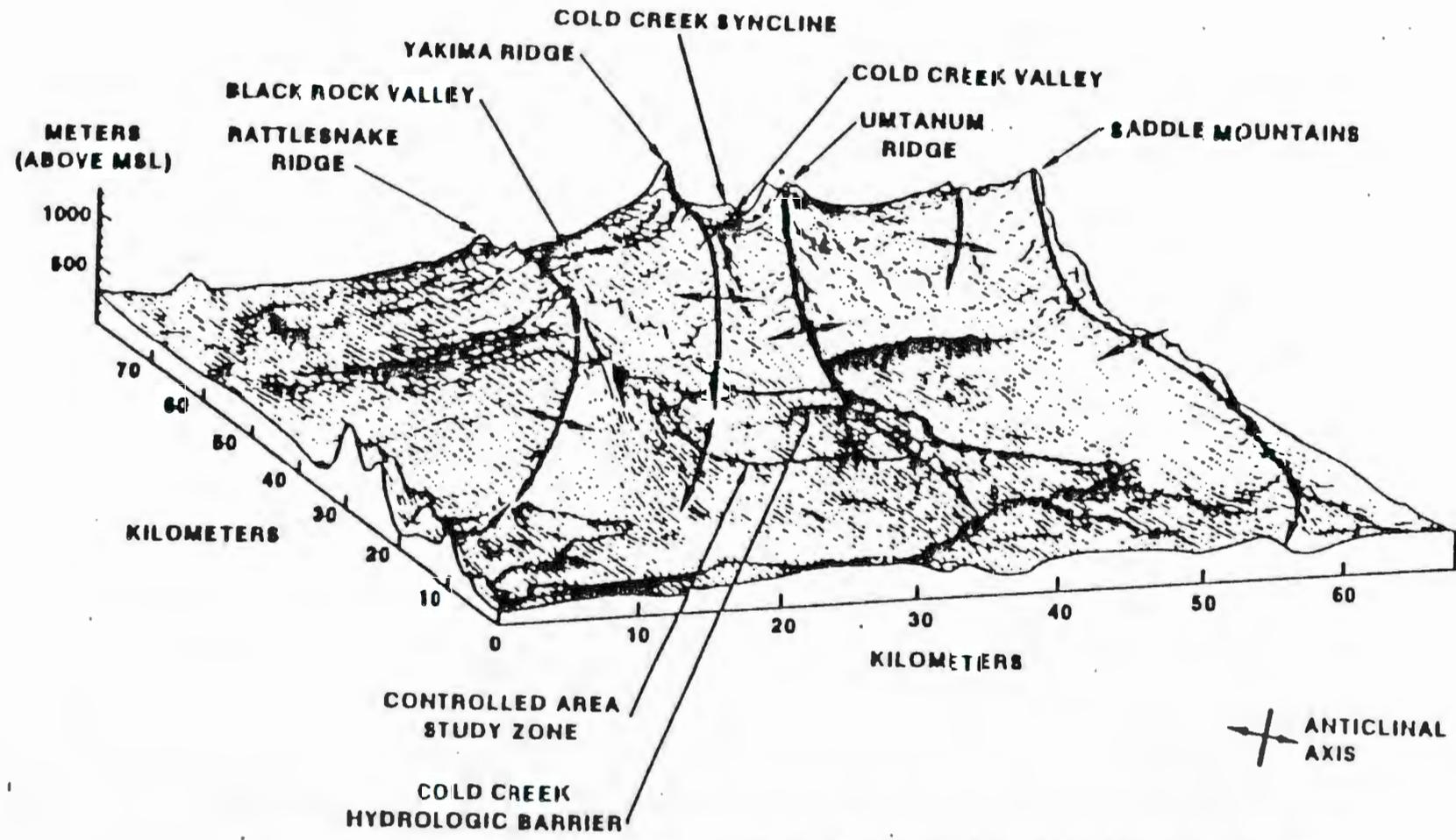
FIGURE 5.6. Nitrate ( $\text{NO}_3^-$ ) Concentrations in the Hanford Site Unconfined Aquifer for 1988

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## **UNCONFINED AQUIFER GROUNDWATER: COMPOSITION INFLUENCES**

- **Natural Recharge**
  - precipitation & runoff, springs
  - other surface waters; rivers
- **Chemical Evolution of groundwater within the aquifer**
  - water-rock/soil interaction
  - water-gas interaction (redox effects)
- **Interaquifer communication**
- **Artificial Recharge (not background)**
  - contamination
  - uncontaminated water

# LAND SURFACE PERSPECTIVE MAP OF THE HANFORD SITE



FC-2

Figure C-2. Land Surface Perspective Map of the Hanford Site Showing the Main Systems of Natural Recharge to the Groundwater on the Hanford Site from Rainwater Run-off. (Vertical exaggeration = 10X.)

9 1 1 2 1 7 3 0 6 8 6

## PRIMARY CONCEPTS

1) **Groundwater compositions evolve along reaction paths laterally and vertically**

2) **Range of Compositions**

• **Lowest Concentrations:**

- **Recharge (most analytes)**

- **Uppermost groundwater (air buffered);  
most analytes**

• **Largest concentrations;**

- **Most highly evolved parts of aquifer (most  
analytes); farthest from recharge & deepest**

- **Communication with confined aquifer  
(many analytes)**

- **Uppermost groundwater (selected analytes)**

FC-3

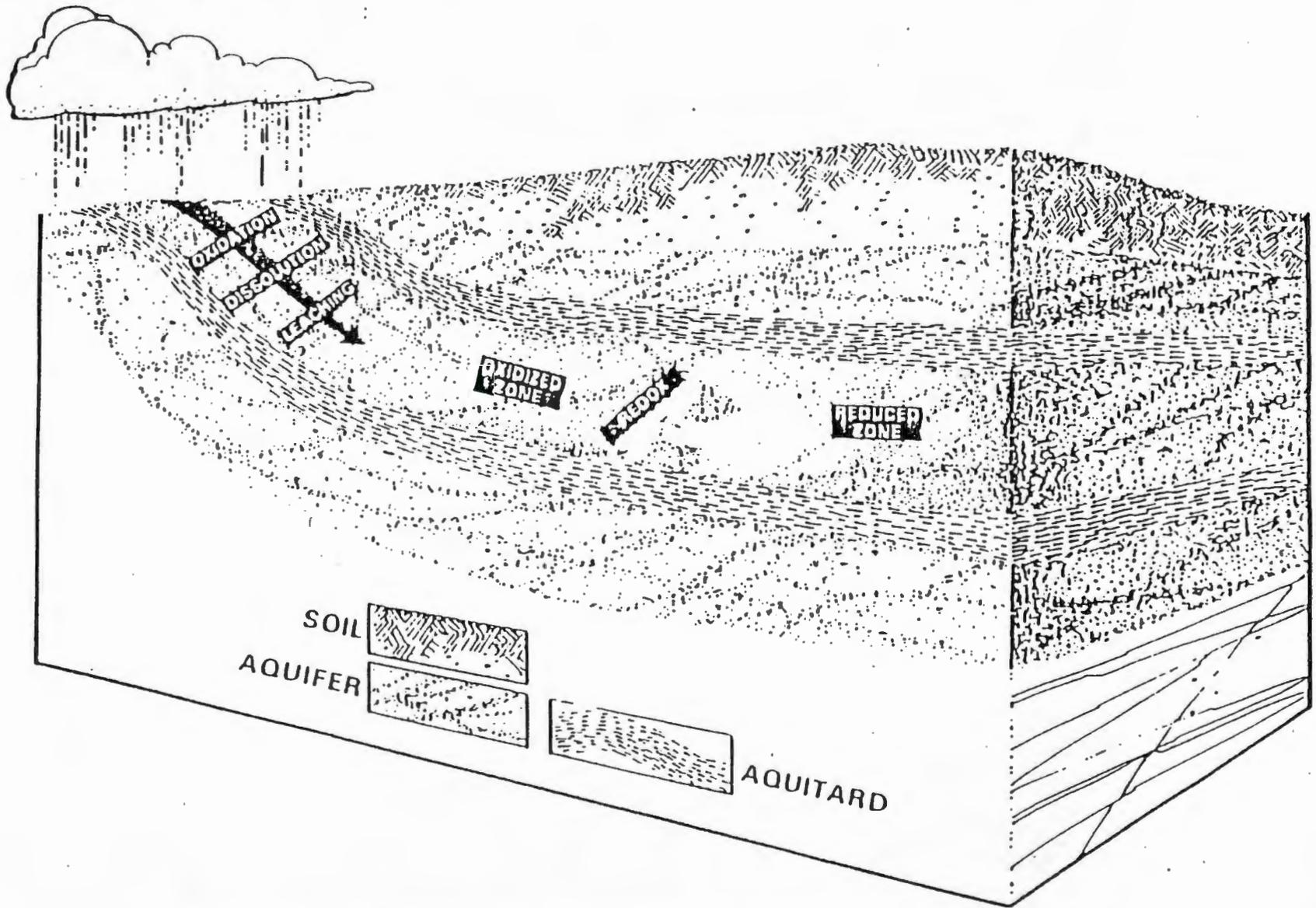


Figure C-3. Schematic Illustration of the Typical Evolutionary Process of 'Soft' Rainwater to 'Hard' Groundwater along its flow path in an aquifer.

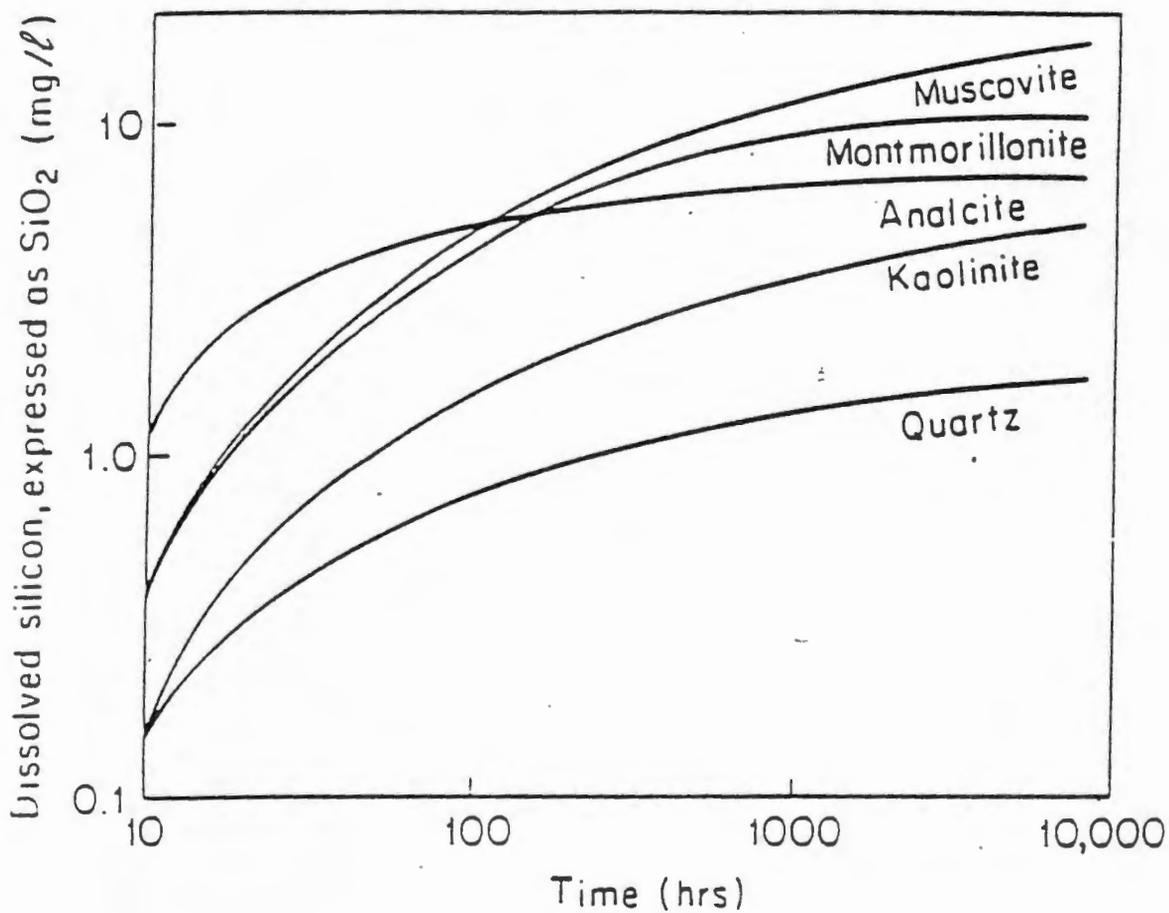
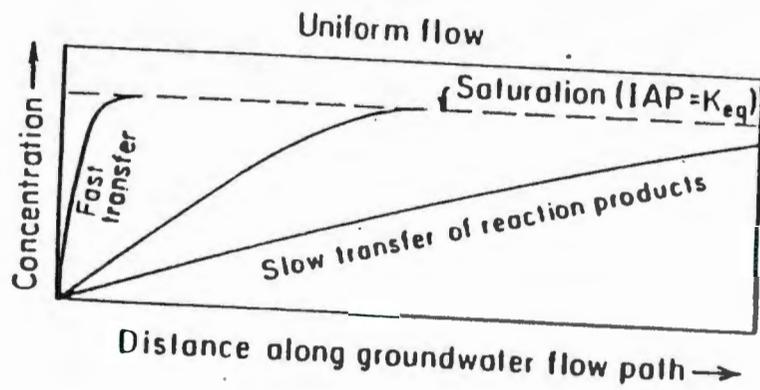
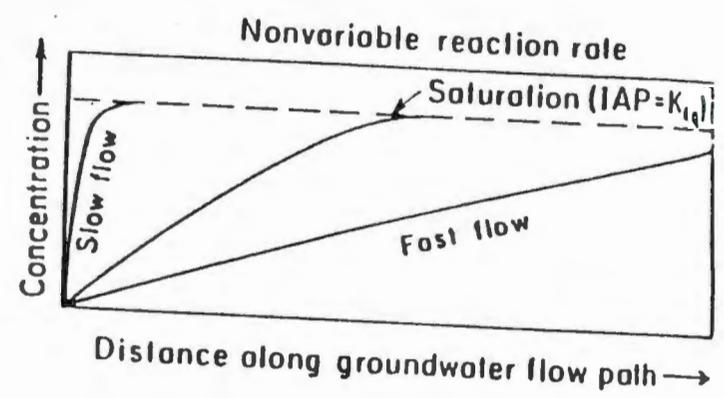


Figure C-6. Release of Silica During the Dissolution of Silicate Minerals in Distilled Water at 25 °C. (Bricker 1967)



(a)



(b)

FC-7

Figure C-7. Schematic Diagram Showing the Influence of (a) Effective Reaction Rate and (b) Flow Rate on the Distance Along the Flow Path for Saturation to be Attained.

## **PRELIMINARY RESULTS**

- **Soil background**
  - **Model evaluation; Justification for existence of natural background**
  - **Methodology; Statistical Distribution**
  - **Provisional Site background for soil**
  
- **Groundwater Model**
  - **Model evaluation; existing data**
  - **Geochemical constraints**

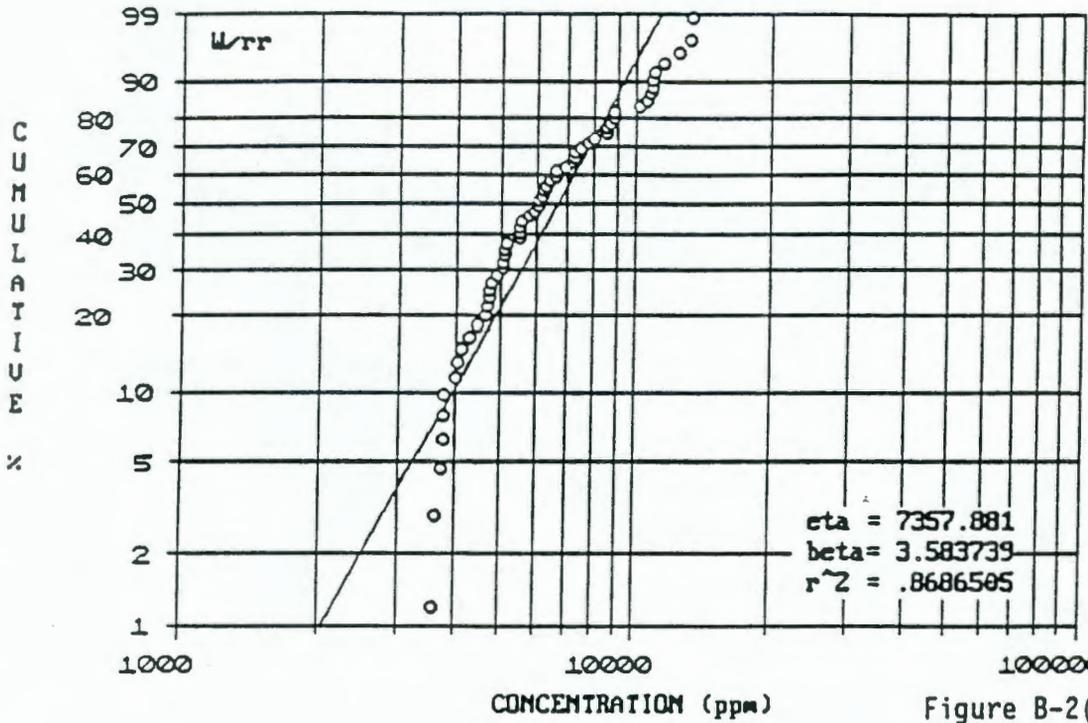
Table 3-1. Provisional Hanford Site Soil Background Threshold Values.

Constituent <sup>1</sup>	Concentration threshold (95/95) <sup>2</sup> ppm	Correlation coefficient (r) <sup>3</sup>	Maximum value (nugget effect) ppm
Aluminum	16,573	.994	
Arsenic	4	.980	8.1
Barium	169	.990	229
Beryllium	2	.959	
Cadmium	8	.985	
Calcium	11,210	.990	14,000
Chromium	20	.985	48.3
Cobalt	16	.975	
Copper	21	.959	
Iron	29,781	.995	
Potassium	2,740	.990	
Magnesium	6,480	.990	6,910
Manganese	424	.975	533
Nickel	18	.985	25.3
Lead	10	.992	12.7
Strontium	43	.995	
Vanadium	82	.985	
Zinc	50	.998	112
Ammonium	3	.980	
Chloride	38	.983	
Nitrate	<DL	--	
Sulfate	40	.990	
Fluoride	5	.975	

1. Analytes for RCRA analysis per SW-846 6010 plus selected anions.
2. Based upon requirements in the Model Toxics Control Act.
3. Based upon use of the Weibull Distribution.

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ALUMINUM  
2-PARAMETER WEIBULL

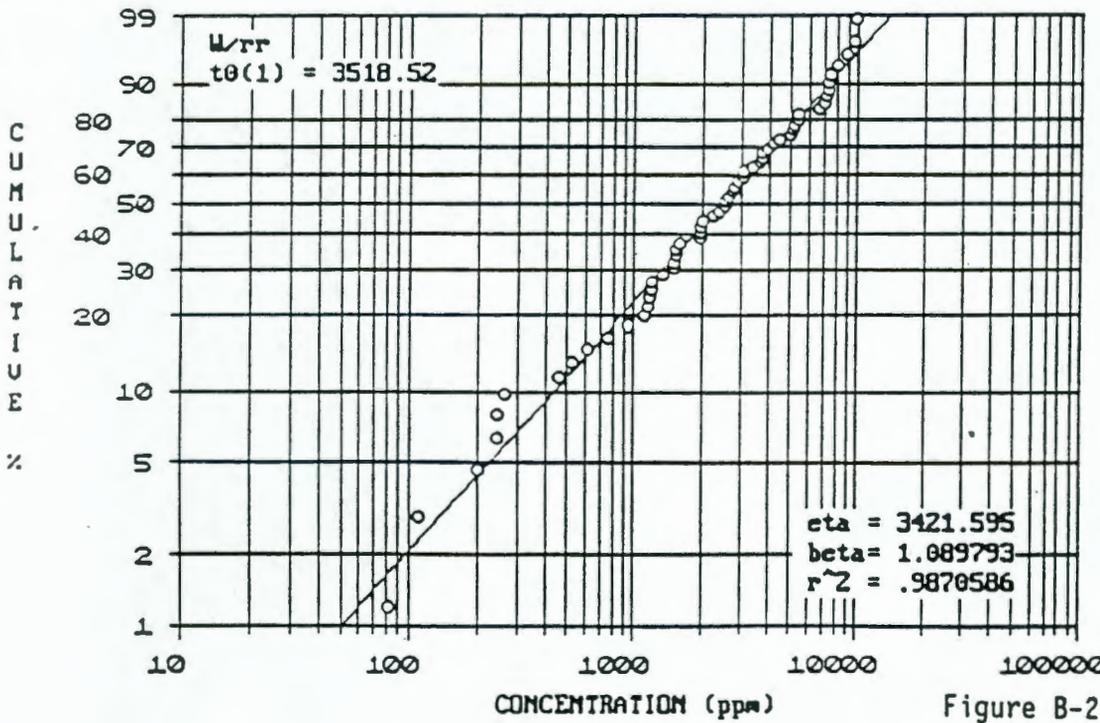


Cumulative distribution plot of aluminum in site-wide soil background samples without a t-shift

1990  
1231  
TL

Figure B-2(a)

ALUMINUM  
3-PARAMETER WEIBULL



Same cumulative distribution plot of Aluminum in site-wide background samples with a t-shift

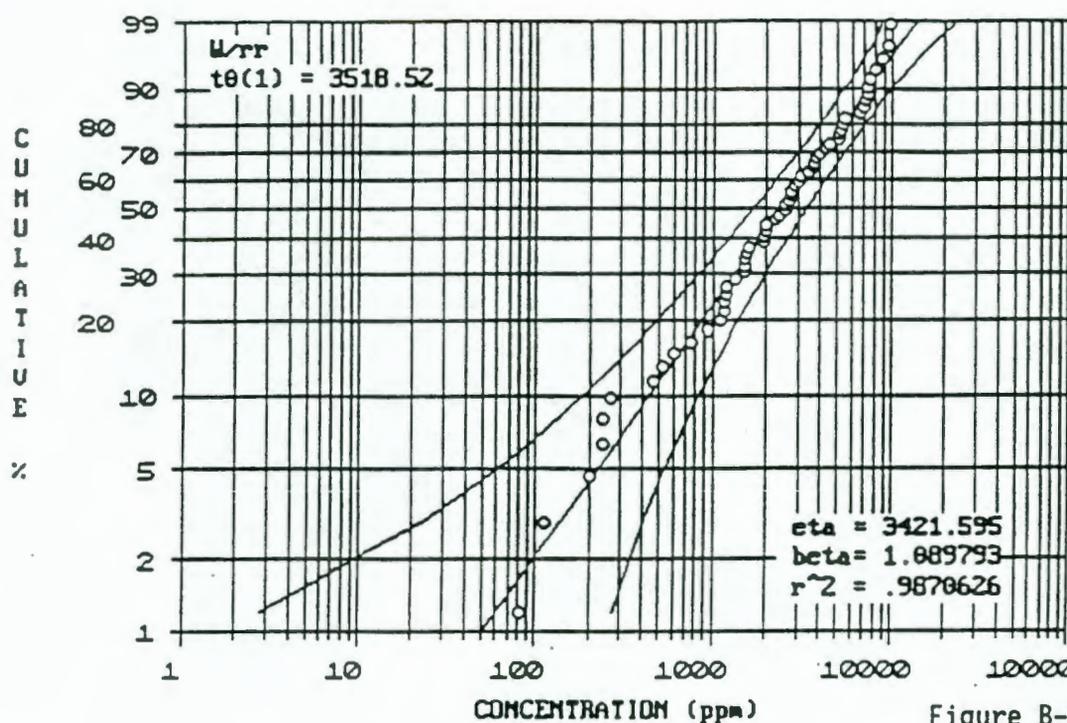
1990  
1231  
TL

Figure B-2(b)

Figure B-2. Cumulative Distribution Plots of Aluminum Concentrations in Side-Wide Soil Background.

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ALUMINUM  
3-PARAMETER WEIBULL

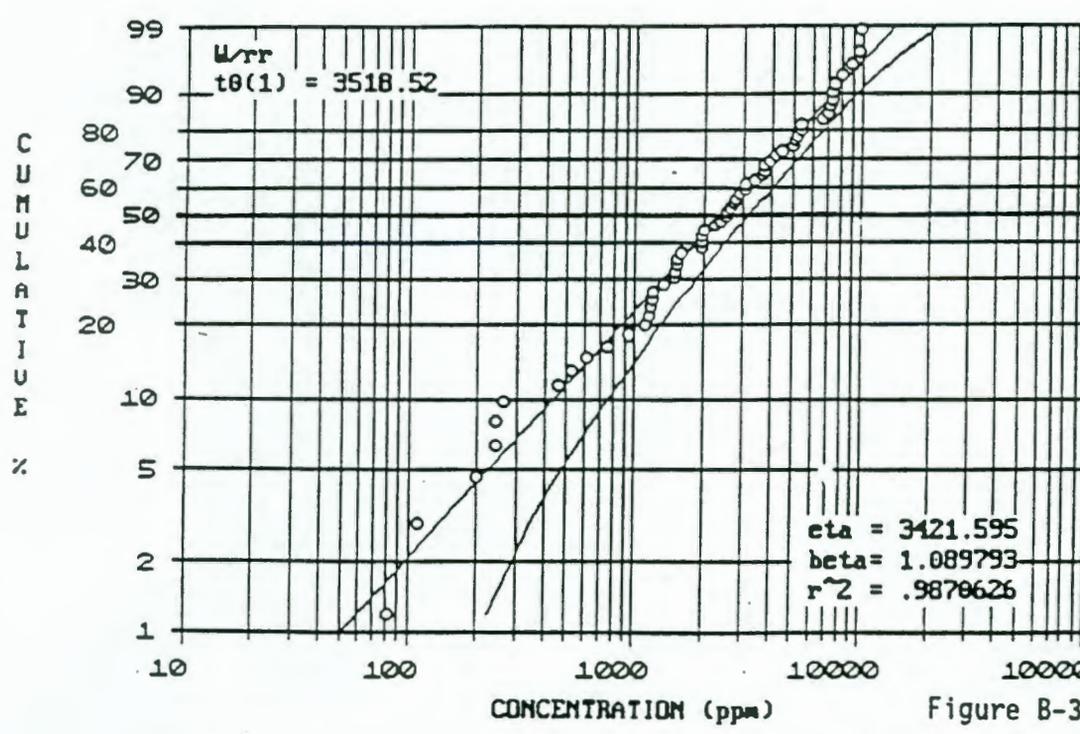


LEGEND  
L: 97.5  
U: 97.5  
○  
Shifted with upper and lower confidence bands

1990  
1231  
TL

Figure B-3(a)

ALUMINUM : 3-PARAM. WEIBULL  
95/95 U.C.L. = 12550 + To = 16069 ppm



LEGEND  
U: 95  
○  
Shifted with upper confidence limit used for obtaining the 95/95 threshold value.

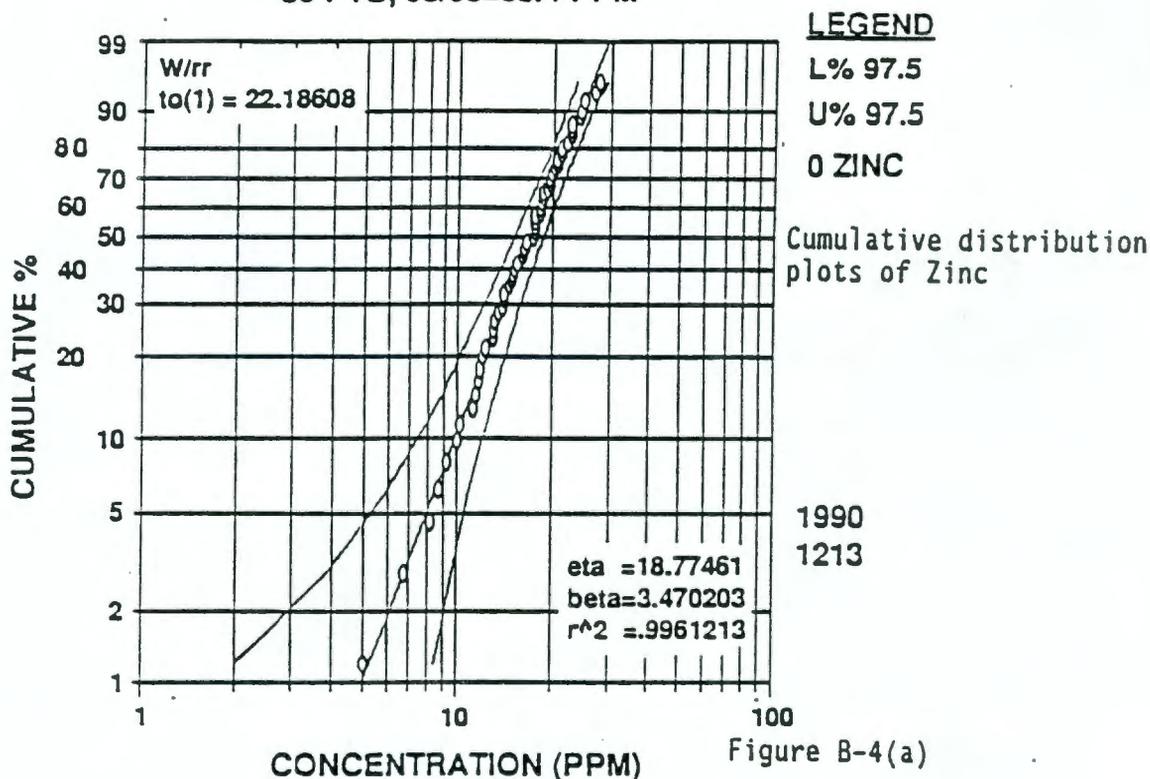
1990  
1231  
TL

Figure B-3(b)

Figure B-3. Cumulative Distribution Plots of Aluminum Concentrations in Site-Wide Soil Background.

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ZINC: 4 SITES  
59 PTS; 95/95=50.4 PPM



MANGANESE: 4 SITES  
59 PTS; 95/95=424 PPM; 1 SUSP

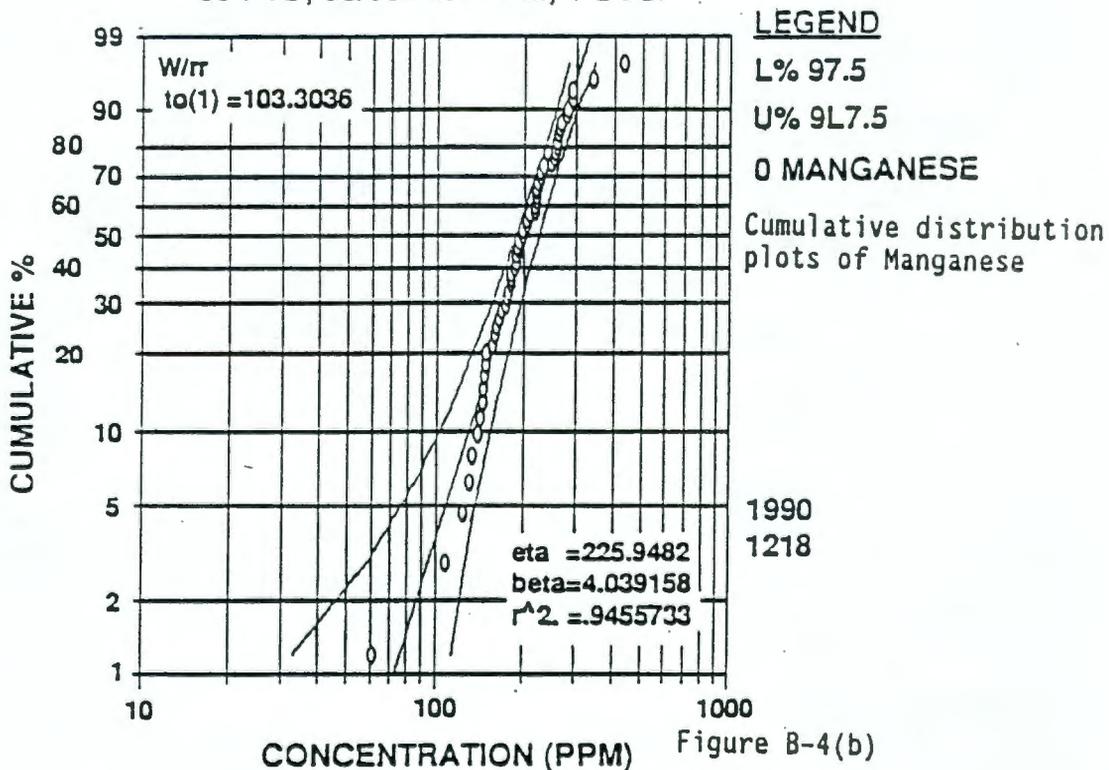
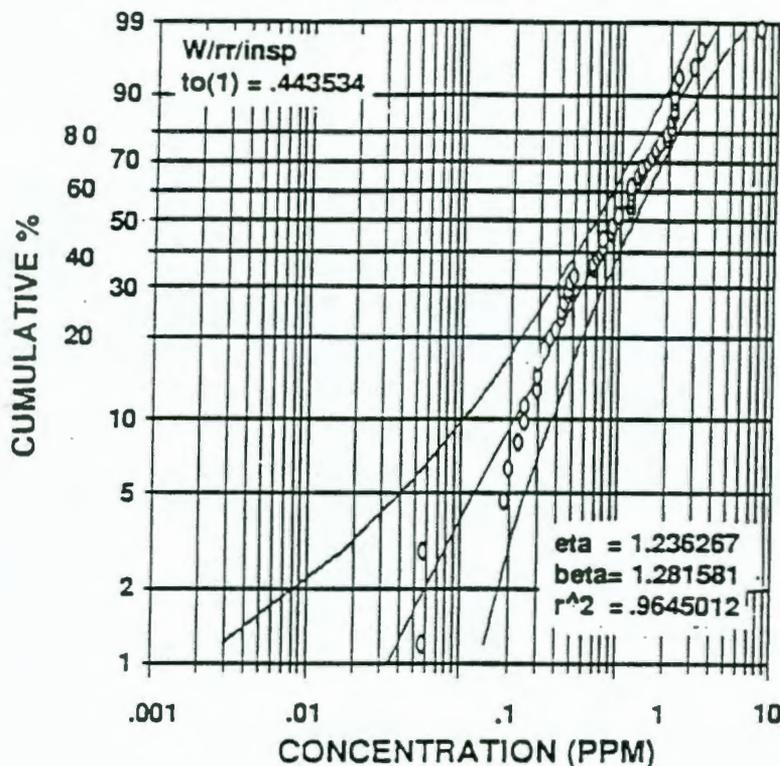


Figure B-4. Cumulative Distribution Plots of Zinc and Manganese Concentrations in Side-Wide Soil Background.

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ARSENIC: 4 SITES; LOD=.5  
59 PTS; 95/95=4.17 PPM

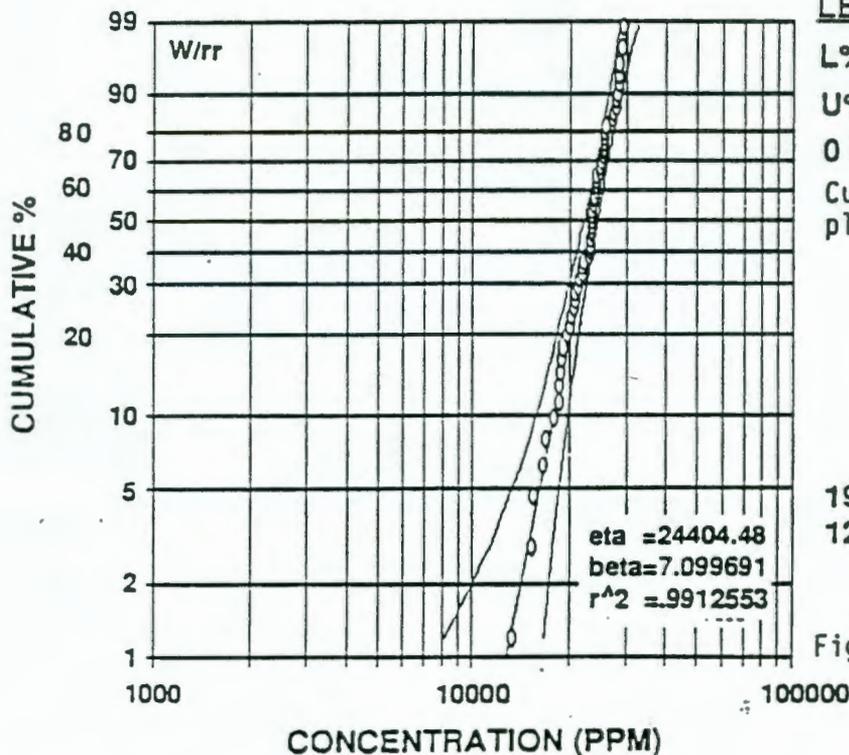


**LEGEND**  
L% 97.5  
U% 97.5  
0 ARSENIC  
Cumulative distribution  
plots of Arsenic

1990  
1218

Figure B-5(a)

IRON: 4 SITES  
59 PTS; 95/95=29781 PPM



**LEGEND**  
L% 97.5  
U% 97.5  
0 IRON  
Cumulative distribution  
plots of Iron

1990  
1213

Figure B-5(b)

Figure B-5. Cumulative Distribution Plots of Arsenic and Iron Concentrations in Site-Wide Soil Background.

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LEAD: 4 SITES;LOD=2.4  
52 PTS;95/95=18.14 PPM

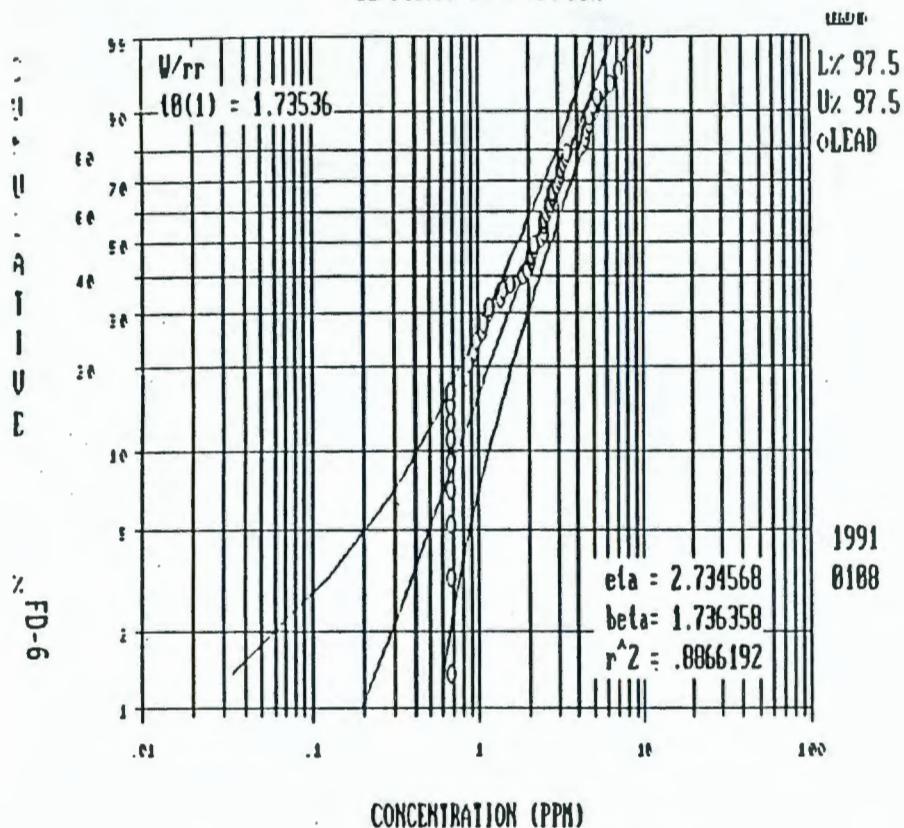


Figure D-6(a) illustrates the effect of less-than-detection limit (<DL) data.

LEAD: 4 SITES;LOD=2.4  
52 PTS;95/95=18.14 PPM

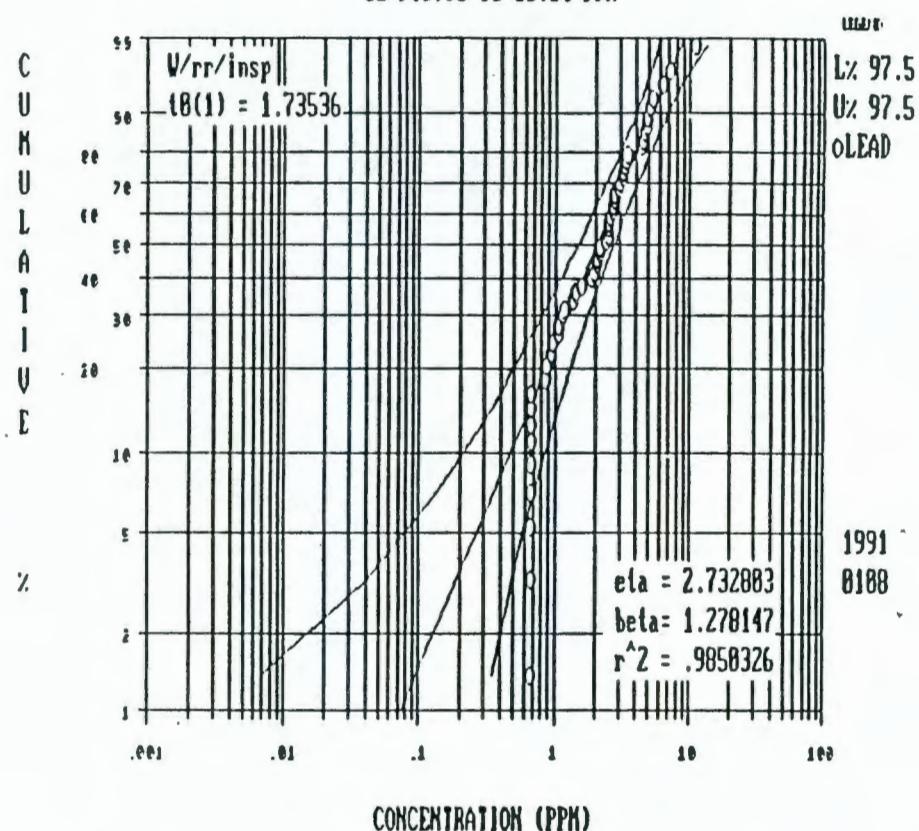


Figure D-6(b) illustrates the effect of appropriately evaluating the less-than-detection limit (<DL) data.

Figure D-6. Cumulative Distribution Plots of Lead Concentrations in Site-Wide Soil Background.

Table 3-1. Provisional Hanford Site Soil Background Threshold Values.

Constituent <sup>1</sup>	Concentration threshold (95/95) <sup>2</sup> ppm	Correlation coefficient (r) <sup>3</sup>	Maximum value (nugget effect) ppm
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Zinc	50	.998	112
Ammonium	3	.980	
Chloride	38	.983	
Nitrate	<DL	--	
Sulfate	40	.990	
Fluoride	5	.975	

1. Analytes for RCRA analysis per SW-846 6010 plus selected anions.
2. Based upon requirements in the Model Toxics Control Act.
3. Based upon use of the Weibull Distribution.

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## **SUMMARY & CONCLUSIONS**

- **Site-based approach for the characterization and use of background is a viable and more appropriate approach for use in environmental restoration and closure activities than the unit-based approach**
- **A provisional Site background for soil has been developed**
- **Efforts are underway for systematic soil sampling and analysis to improve the technical and statistical basis for Site soil background**
- **Groundwater background model evaluation in progress**

## **CURRENT ACTIVITIES**

- o Systematic soil sampling and analysis (soil)**
- o Compilation and determination of supporting geological information**
- o Other characterization efforts important in evaluation or corroboration of conceptual model**

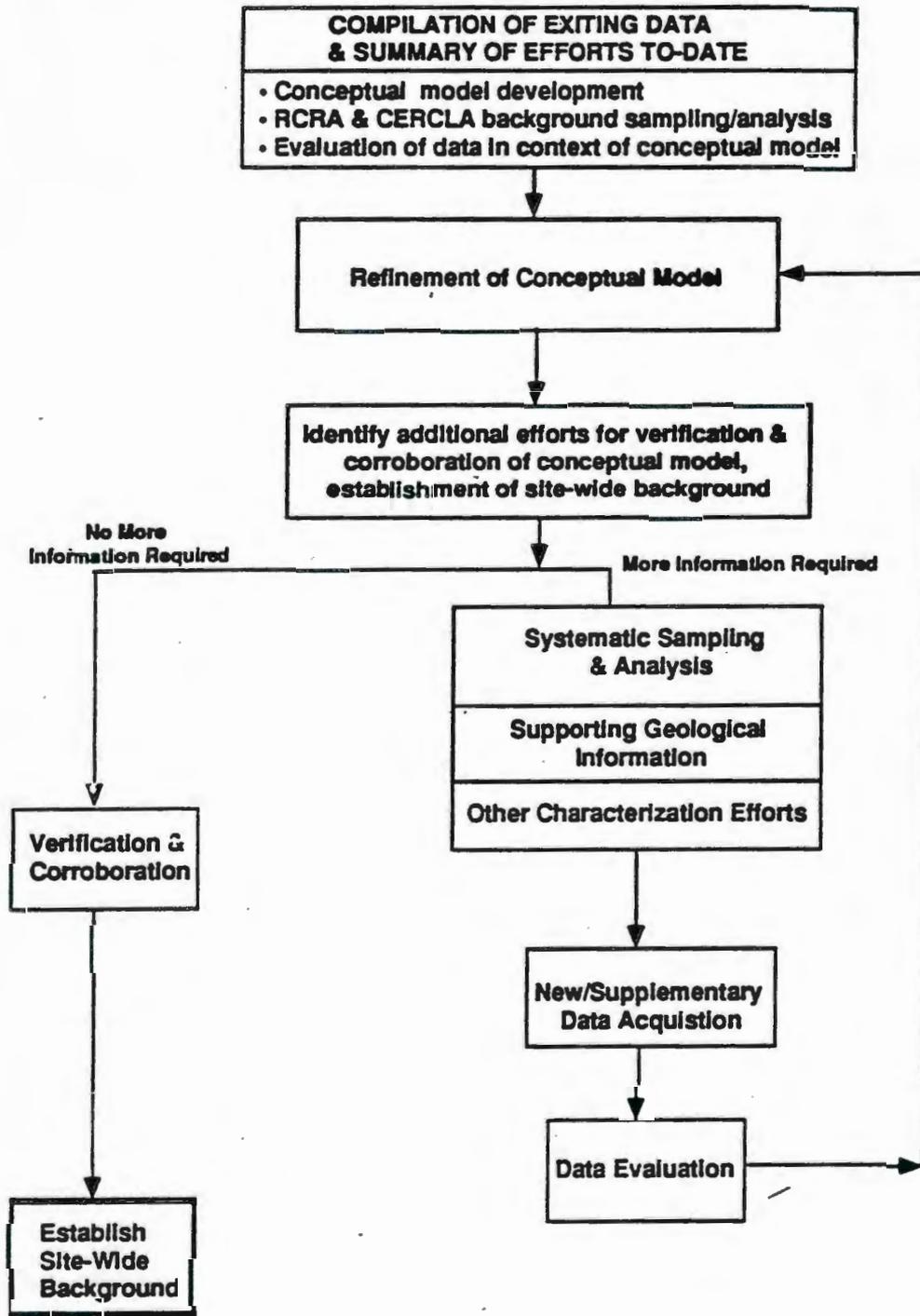


Figure E-1. Site-Wide Soil Background Activities.

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## SOIL SAMPLING/ANALYSIS: CRITERIA

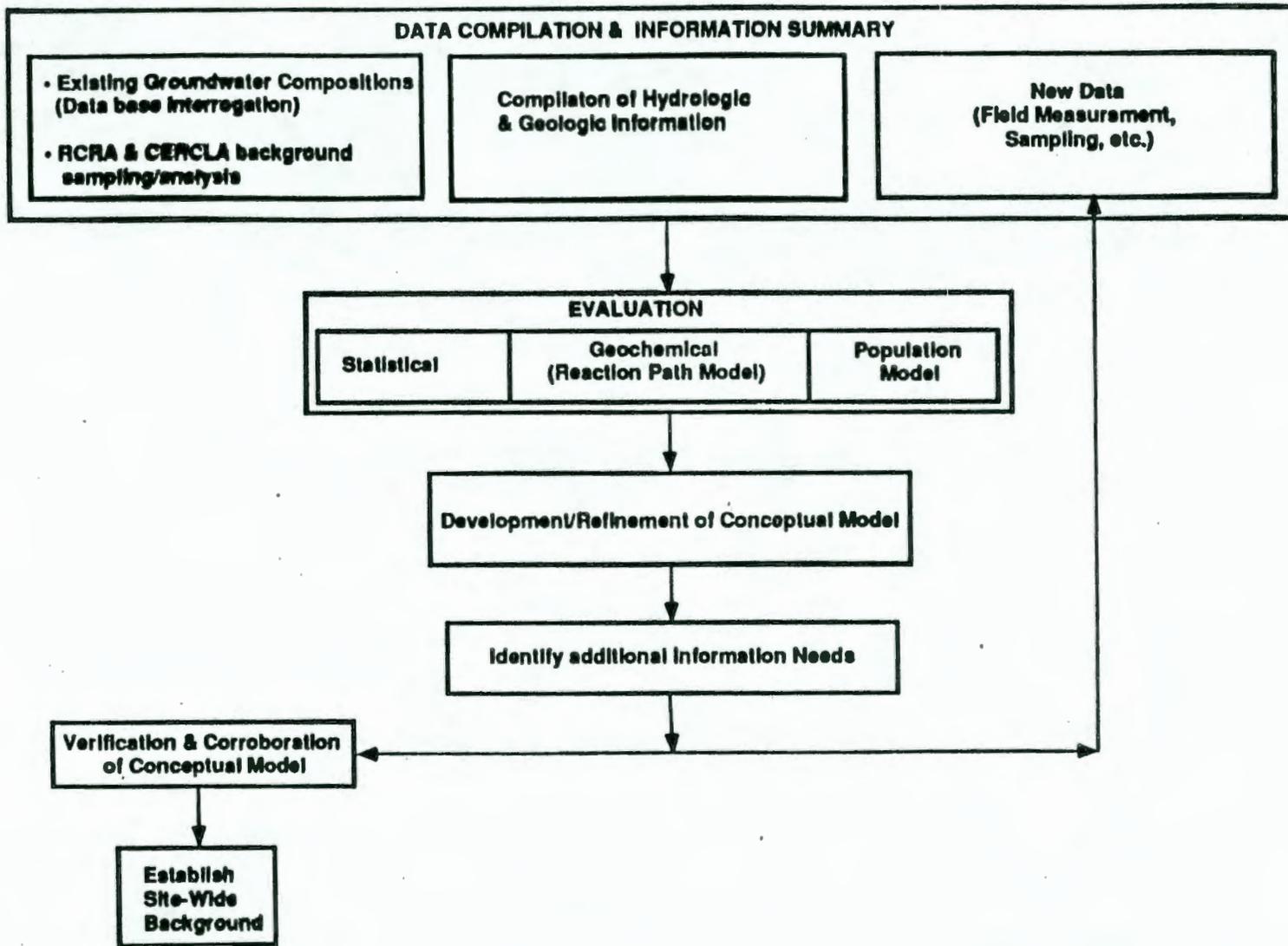
- o Sites of no known or suspected contamination; no proximity to the Hanford waste generating facilities
- o Sites of existing surface excavations where the upper few feet, to tens of feet, of the vadose zone are exposed, or can be readily exposed and sampled
- o Locations or sites which are representative of the variety of soil/sediment types, including end-member types
- o Locations or sites which provide reasonable lateral coverage
- o Locations or sites which permit the sampling of the vertical sequence of soil/sediment
- o Parts of vadose zone most frequently impacted by Hanford Activities (e.g., upper vadose zone)
- o At least one suite of borehole samples which extend to a greater depth than otherwise available from surface excavations.
- o Other sampling opportunities

## **ACTIVITY ORGANIZATION**

- o Description of site background working model**
- o Field reconnaissance and identification of sampling sites**
- o Preparation of Sampling and Analysis Plan (including DQO, QAPP)**
- o Preparation of laboratory analysis work order**
- o Arrangements for non-protocol analyses and measurements**
- o Field sampling**
- o Laboratory analysis/data generation**
- o Data validation**
- o Compilation of new and existing data, data entry, and data screening**
- o Data interpretation (includes statistical and geochemical analyses)**
- o Summary and documentation of results**

## **PRELIMINARY SAMPLING BREAKDOWN**

- o Surface/near-surface sampling from outcrops and existing Site-borrow pits (80 samples)**
- o Borehole sampling analysis activities (limited to analysis of sample splits)**
  - Savage Island Borehole; eastern site-boundary borehole (12 Samples)**
  - Deep Microbiology/background borehole; northern Site-boundary, through entire vadose zone (40 Samples)**
  - WHC CERCLA RI/FS borehole/groundwater well activities**
    - Other RCRA & CERCLA activities; e.g., Soil Column Disposal Site drilling; HWVP; 200-E & 200-W**



FE-2

Figure E-2. Site-Wide Groundwater Background Activities.

**Environmental Restoration Remedial Action  
Quality Assurance Requirements Document  
FY 1991 Program Update**

**R. F. Coté  
February 20, 1991**

# Quality Assurance Requirements Document

- Objectives
- Background
- Benefits
- Closing
- Status of activities

# Quality Assurance Requirements Document Objective

- **Develop a document which:**
  - ✓ **Establishes a uniform approach for the design and development of Quality Assurance Program Plan(s) applicable to ERRA Program objectives**

# Quality Assurance Requirements Document Background

- The ERRA Program is obligated to comply with multiple and overlapping QA program requirements promulgated by:
  - ✓ U.S. Department of Energy Orders
  - ✓ U.S. Environmental Protection Agency
  - ✓ Washington State Department of Ecology
  - ✓ Hanford Federal Facility Agreement and Consent Order legal and action plan articles relative to QA

# **Quality Assurance Requirements Documents Benefits**

- ✓ Provide a user friendly, single source reference for complex and multiple QA requirements**
- ✓ Centralized responsible function for identifying, evaluating and promulgating quality requirement changes within the ERRA Program**
- ✓ Eliminate confusion and provide identification and tailoring of QA requirements for the ERRA Program**
- ✓ Provides a visible example of DOE's proactive management commitment to quality**

# **Quality Assurance Requirements Document Closing**

- ✓ Uniform, consistent system for management identification and action on quality requirements relating to:**
  - Strategic planning**
  - Funding**
  - Program status and assessment**
  - Standardized and uniform implementation as required by the Hanford Federal Facility Agreement and Consent Order**

# Quality Assurance Requirements Document Status

- ✓ Issue QARD March 18, 1991
- ✓ Participant Action Plan due 30 days after issue
- ✓ Implementation one year from date of issue
- ✓ Interim use of document will be guidance until implementation is achieved