

Meeting Minutes Transmittal/Approval
Unit Manager's Meeting: 200 Aggregate Area/200 Area Operable Units
2440 Stevens Center Place, Room 1200, Richland, Washington
October, 1995

FROM/APPROVAL: Donna Wanek Date 11/24/95
Donna Wanek, 200 Aggregate Area Unit Manager, RL (H4-83)

APPROVAL: Paul R. Beaver Date 11/27/95
Paul R. Beaver, 200 Aggregate Area Unit Manager, EPA (B5-01)

APPROVAL: Sande Dhe Date 11/5/96
Dib Goswami, 200 Aggregate Area Unit Manager, WA Dept of Ecology

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

- Attachment #1 - Attendance Sheet
- Attachment #2 - Agenda
- Attachment #3 - Meeting Summary
- Attachment #4 - Action Item Status List
- Attachment #5 - Risk Based Decision Methodology Presentation
- Attachment #6 - 200-PO-1 Presentation
- Attachment #7 - 200-BP-5 list of Groundwater Wells sampled



Prepared by: Donna Wanek Date: 11/24/95

Concurrence by: George Henckel Date: 12/4/95
George Henckel, BHI Project Manager - 200 Areas, (H6-07)

Attachment #1

Attendee List
Unit Manager's Meeting: 200 Aggregate Area/200 Area Operable Units
October, 1995

Beaver, Paul	EPA	376-8665
Buckmaster, Mark	ERC	372-9272
Chiaramonte, Jerry	ERC	372-9283
Dahl, Suzanne	Ecology	736-5705
Einan, David	EPA	376-3883
Erb, Dave	ERC	372-9275
Faulk, Dennis	EPA	376-8631
Henckel, George	ERC	372-9381
Porter, Ken	ERC	372-9277
Todd, Mary	ERC	372-9678
Wanek, Donna	RL	376-5778

Attachment # 2
Unit Manager's Meeting: 200 Aggregate/200 Area Operable Units
October, 1995

1. 8:00 - 9:00, Risk Based Decision Analysis - Jerry Chiaramonte:
 - * Presentation of the methodology
2. 9:00 - 9:15, 200-PO-1 - M. Todd:
 - * General Status
3. 9:30 - 10:00, 200-BP-5 - D. Erb:
 - * Status of update to Groundwater Sampling and Analysis Plan

Attachment # 3
Unit Manager's Meeting: 200 Area Groundwater Operable Units
October, 1995

Risk Based Decision Analysis:

Jerry Chiaramonte provided a presentation on the Risk Based Decision Methodology. In general, the meeting participants agree with the methodology. Ecology has concerns over the use of analytical modeling. When field accurate dispersivities and Kd are available for Treatability Testing, this information should be included into the modeling. Also, Ecology has concerns since the Model's Toxic Control Act (MTCA) does not allow a clean up action to rely primarily upon dilution and dispersion. Hence comparing attenuated plume concentrations to compliance criteria is not within MTCA. One question identified during the presentation related to how retardation is factored into the risk calculations. Another request was that the risk isopleths be superimposed onto the site map. This would allow for a better representation of the associated risk as the contaminants move in the groundwater. One of the lessons learned from performing the assessments is: the DQO should include an identification of the parameters to be incorporated into the assessment.

200-PO-1 Operable Unit Status:

Mary Todd provided a status of the RCRA Field Investigation Report for the 200-PO-1 Operable Unit. The DQO summary is being finalized and should be submitted for RL and regulatory review within the next week. Mary agreed to provide Ecology with the trend plots for 200-PO-1 contaminants, which prepared in support of the DQO.

200-BP-5 Groundwater Monitoring:

Dave Erb provided a list of groundwater wells sampled during the 200-BP-5 April sampling event. The three parties have the action to review the list and the analytes being sampled. During a November meeting, the three parties will agree to the 200-BP-5 monitoring network for the fiscal year. ERC will prepare the Sampling and Analysis Plan based on those discussions.

Attachment #4

Action Item Status List
 Unit Manager's Meeting: 200 Aggregate Area/200 Area Operable Units
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ACTION NUMBER	ACTION	DUE DATE	STATUS
BP5-1	Provide comments on TPA change request to Donna Wanek	9/25/95	closed 9/27/95
BP5-2	Provide three parties with list of wells and analytes sampled by Sitewide monitoring program	10/19/95	closed 10/19/95
BP5-3	Three parties to review monitoring network and meet to establish FY 1996 network	11/30/95	
ZP1-1	ERC to provide graph of concentrations observed at influent well	10/19/95	closed 9/28/95
ZP1-2	ERC to provide mass of CCl ₄ removed	9/22/95	closed 9/28/95
ZP1-3	ERC to schedule presentation of IRM treatment design	10/26/95	
ZP1-4	Provide formal responses to regulatory comments of the ZP-1 CDR	10/01/95	Closed 9/28/95
ZP1-5	Provide regulators with field screening results, summary reports, and well plots for groundwater sampling		
ZP1-6	Provide opportunity for regulatory review of drilling SOW prior to issuance of the contract		
ZP2-1	EPA requested a meeting to discuss how the PSVE will be tied into the VES		
ZP2-2	Provide EPA and Ecology with the budget profile in the outyears		
ZP2-3	ERC to set up a tour of the WSU column tests	9/29/95	9/28/95 closed
CC1-1	EPA and Ecology review of alternatives for delisting of CCl ₄	10/19/95	
RA-1	RL took an action to set up a presentation of the Risk Based Decision Analysis for the regulators	10/19/95	closed 10/19/95

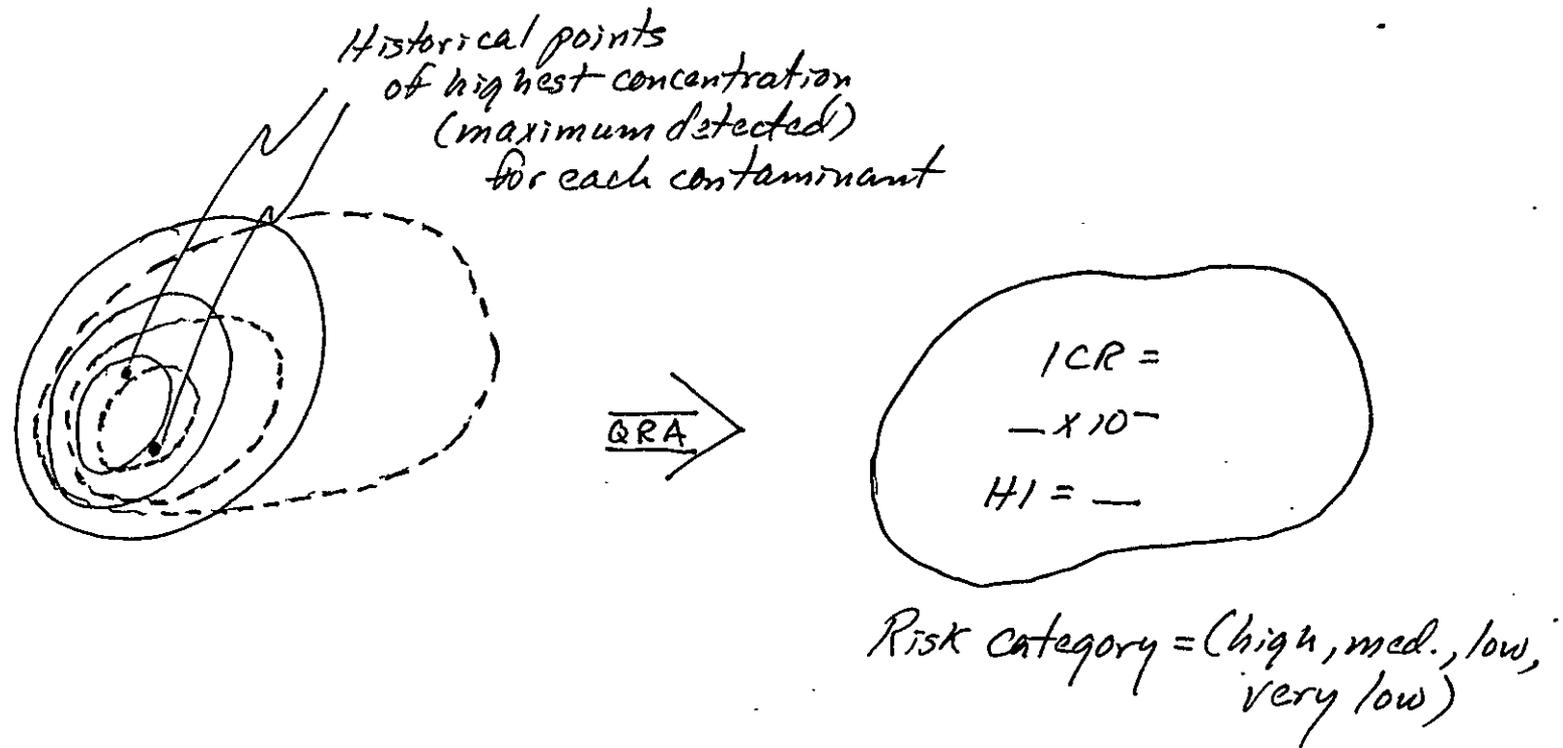
RISK-BASED DECISION ANALYSIS

October 19, 1995

WHY A NEW RISK ANALYSIS METHODOLOGY?

- **Need a risk-based tool for groundwater that is useful for remedial action planning**
- **The QRA approach is very limited and does not provide sufficient information for planning**

THE QRA REPRESENTS AN ENTIRE PLUME BY A SINGLE RISK VALUE



THE RISK-BASED DECISION ANALYSIS IMPROVES UPON THE QRA IN TWO WAYS

- **The spatial distribution of contamination is preserved throughout the risk analysis**
- **The method provides for prediction of future risks from a migrated plume**

THE SPATIAL DISTRIBUTION OF CONTAMINATION IS PRESERVED

The cornerstone of RBDA is sample specific risk characterization

- **Risks are calculated for each analyte in each well.**
- **A simple spreadsheet process is used to calculate risks of current plumes**
- **The plume is contoured in terms of risk rather than concentration; risks are cumulative for the set of contaminants in a given well.**
- **The RBDA is consistent with HSRAM in that all the same risk scenarios and risk parameters are used.**

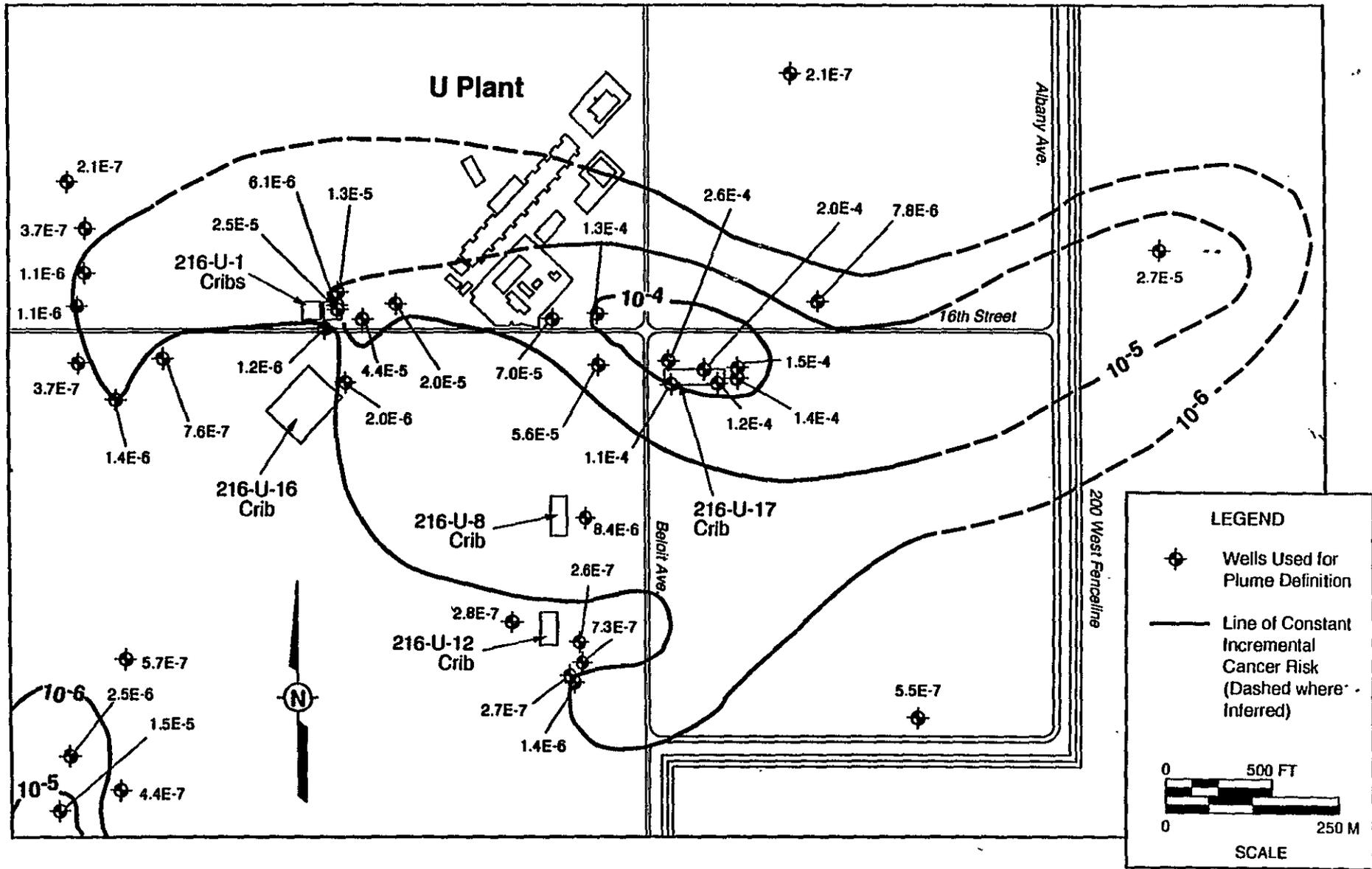


Figure 1
Lifetime Incremental Cancer Risk for Reasonable Maximum Exposure to Uranium-234,-235,-238, and Technetium-99 in Groundwater, Existing Conditions, Industrial Ingestion Scenario

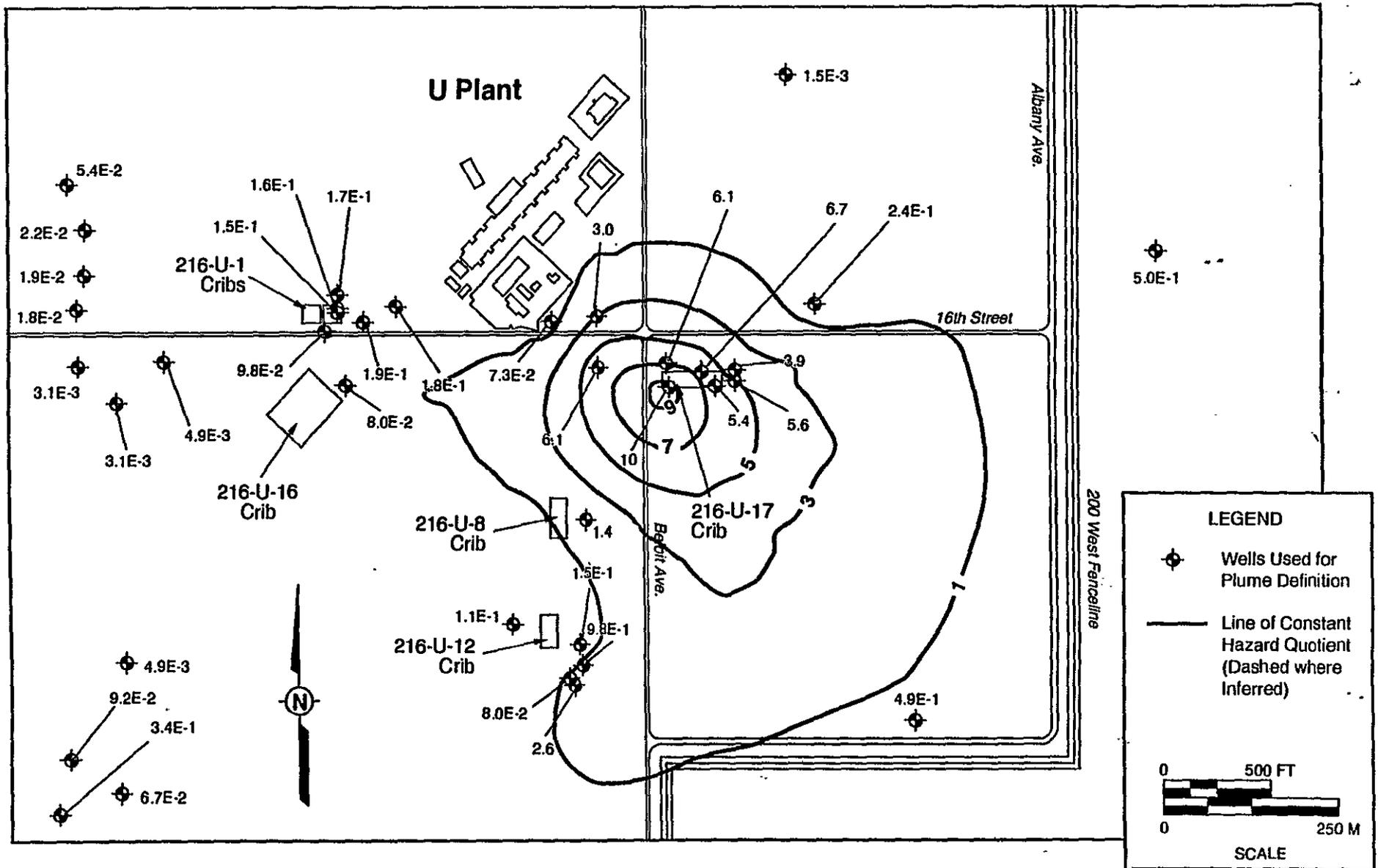


Figure 2
Hazard Quotient for Reasonable Maximum Exposure to Nitrate in Groundwater, Existing Conditions, Industrial Ingestion Scenario

THE METHOD PROVIDES FOR PREDICTION OF FUTURE RISKS FROM A MIGRATED PLUME

- **Analytical modeling is used to approximate plume migration**
- **Risks are then estimated and contoured in the migrated plume in the same way as for the current plume.**

ANALYTICAL MODELING PROVIDES A RAPID AND INEXPENSIVE TOOL FOR ESTIMATING PLUME MIGRATION

- **The setup and runs can be completed in a few days**
- **Provides a good approximation of the plume when hydrogeologic properties are not known with great accuracy**
- **The accuracy of the results is adequate for planning purposes.**

ANALYTICAL MODELING FOR 200 AREA PLUMES

CONMIG (CONtaminant MIGgration) model used for UP-1, BP-5, ZP-1 plumes

- **Flow and transport model which allows customizing the plume source**
 - **Allows source grid which can vary the cell size and cell concentrations to more closely approximate the size and shape of the existing plume**
 - **Use of a grid allows estimating concentrations at any time or distance**
 - **Source grid = 5 X 5; cell concentration uses maximum of well data within a cell**
 - **Model grid = 10 transverse X 30 downgradient**

- **Model has capability to consider retarded contaminants**

- **Model allows for radioactive decay and biological degradation**

Figure 20 200-ZP-1 Groundwater Operable Unit Incremental Lifetime Cancer Risk for Reasonable Maximum Exposure to Carbon Tetrachloride, Chloroform, and Trichloroethylene in Groundwater, Future Boundary Conditions, Residential Ingestion Scenario

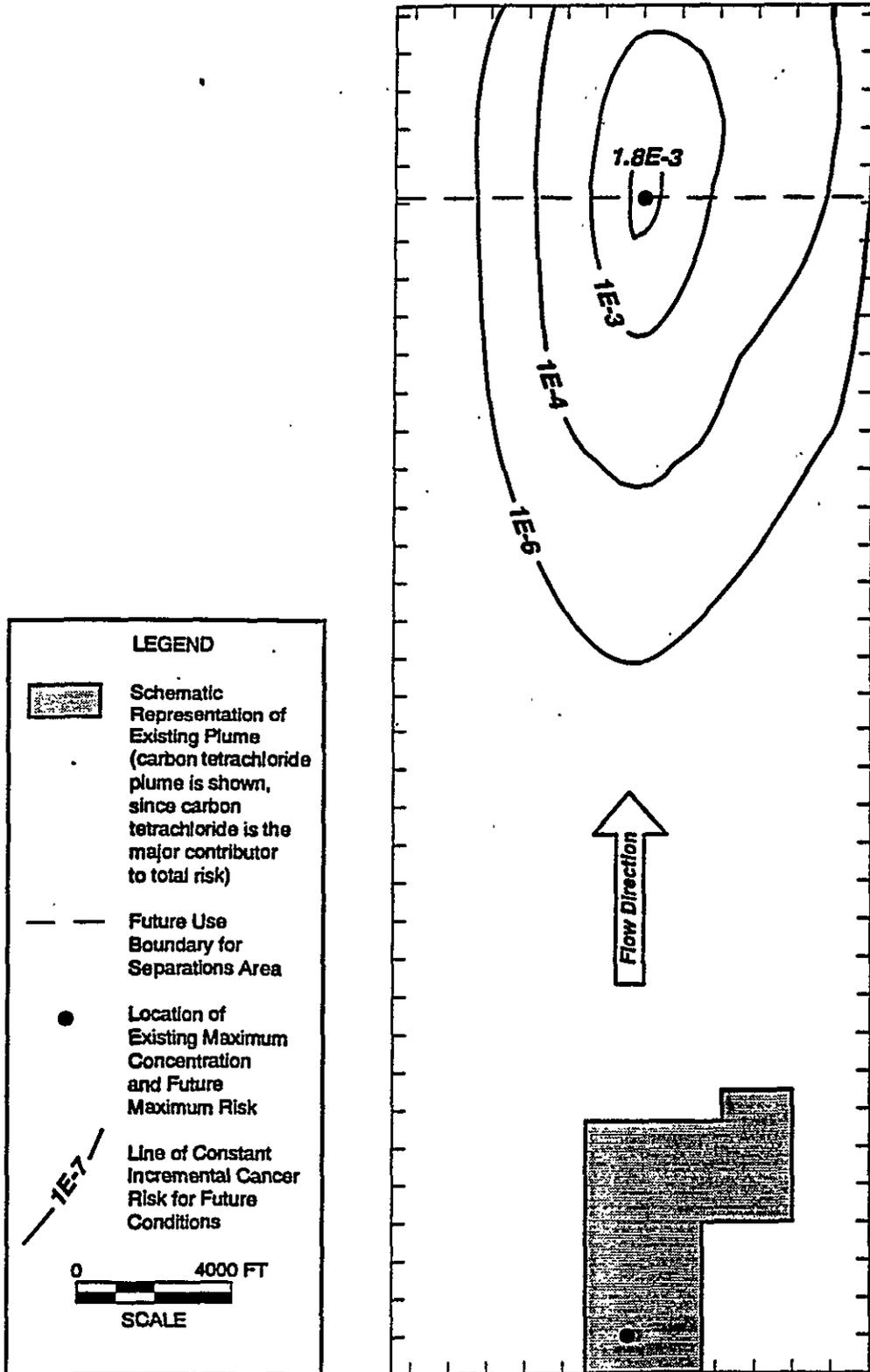
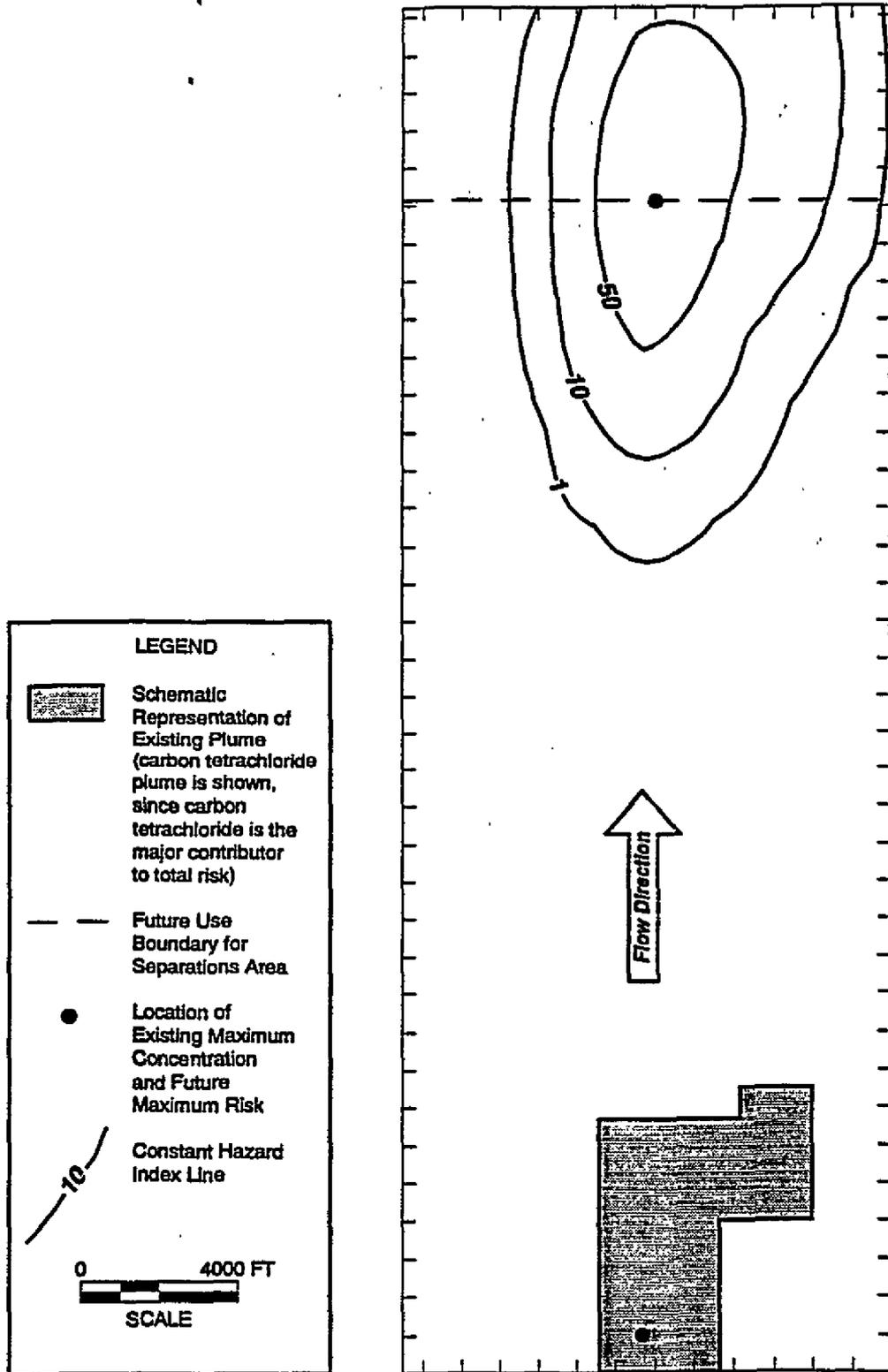


Figure 19 200-ZP-1 Groundwater Operable Unit Hazard Index for Reasonable Maximum Exposure to Carbon Tetrachloride and Chloroform in Groundwater, Future Boundary Conditions, Residential Ingestion Scenario



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THE INFORMATION PROVIDED BY THE RBDA CAN BE EFFECTIVELY USED FOR REMEDIATION PLANNING AND MONITORING

- **Justify the need for IRMs more quantitatively**
- **Determine target area or volume for remediation based on a target risk**
- **Check the performance of IRMs in achieving risk reduction**
- **Identify the breakpoint at which no further risk reduction is achievable**

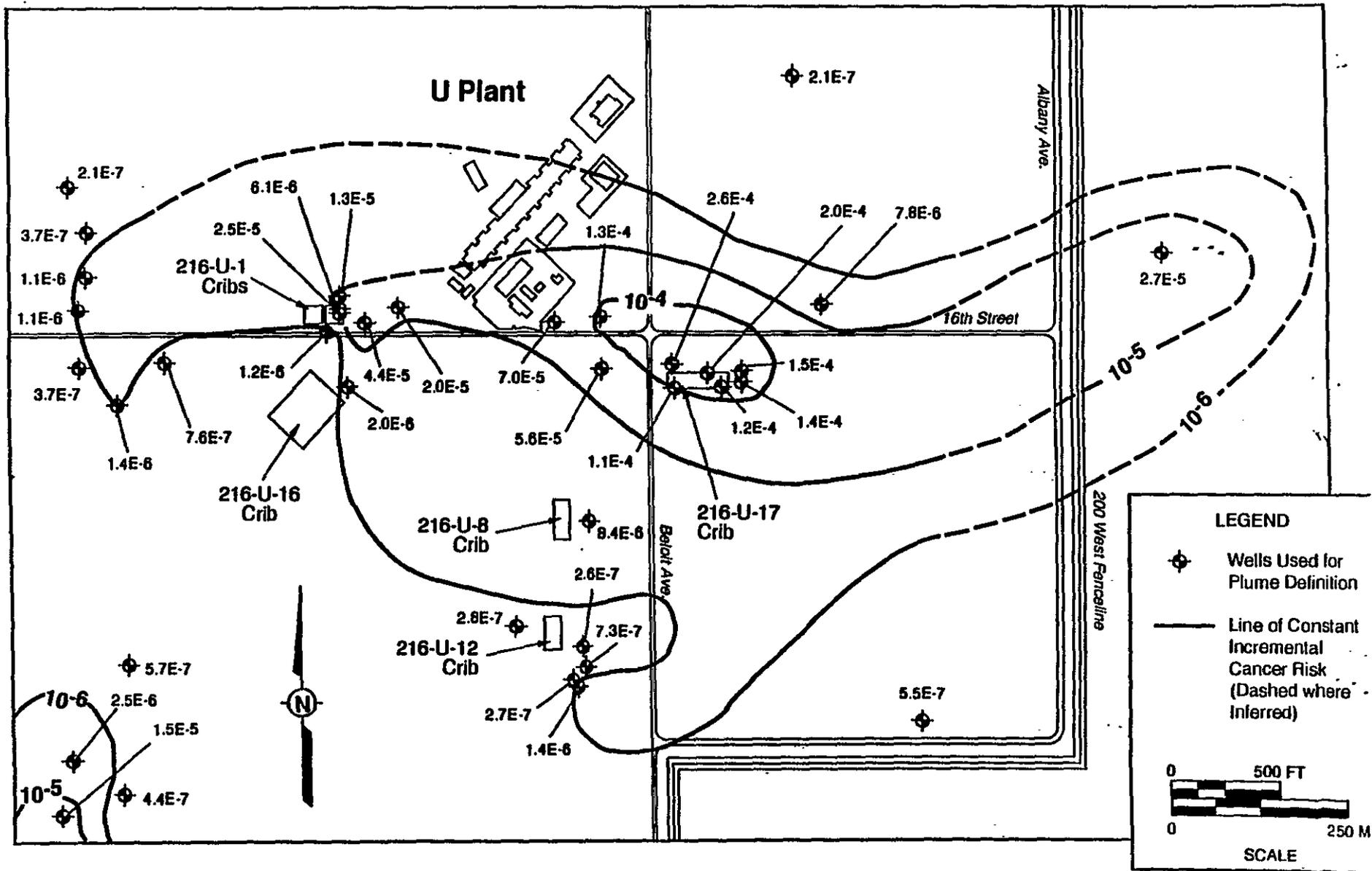
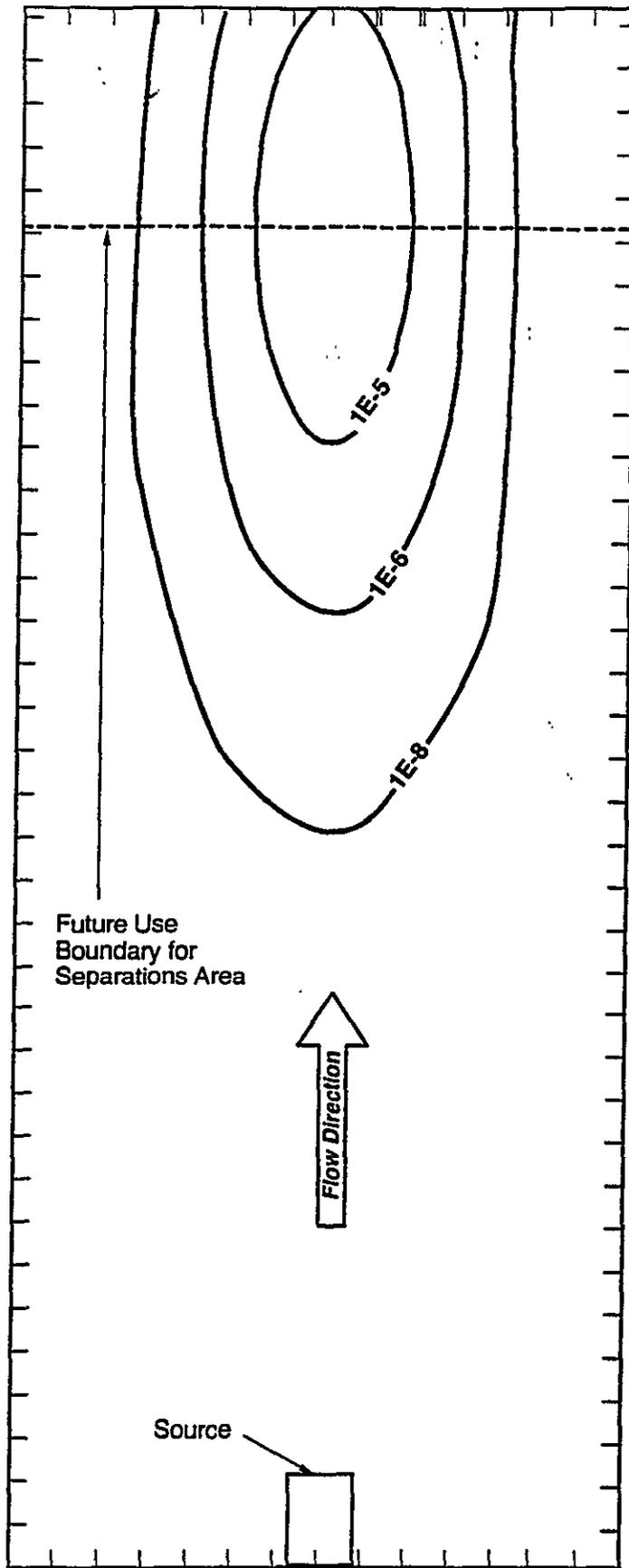


Figure 1 *200-UP-1*
Lifetime Incremental Cancer Risk for Reasonable Maximum Exposure to Uranium-234,-235,-238, and Technetium-99 in Groundwater, Existing Conditions, Industrial Ingestion Scenario



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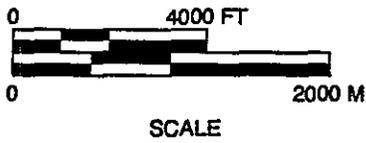
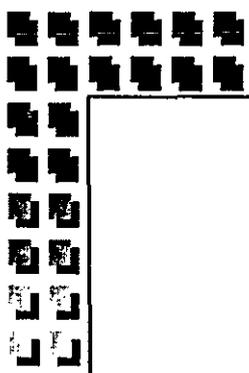


Figure 5

200-VR-1

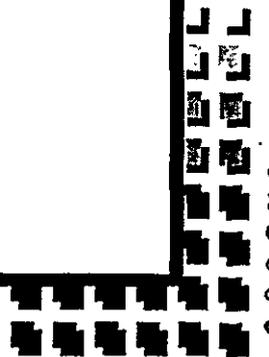
Lifetime Incremental Cancer Risk for Reasonable Maximum Exposure to Technetium-99 in Groundwater, Future Conditions at Point of Compliance, Residential Ingestion Scenario



200-PO-1 Operable Unit
Unit Managers Meeting
October 19, 1995

Prepared by:
Mary E. Todd, ERC
Operable Unit Team Lead

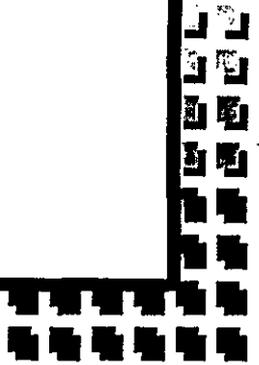
Attachment #6
October UMM

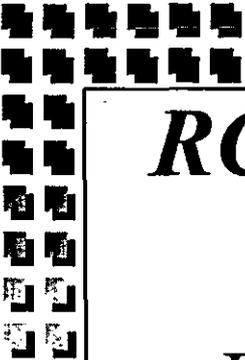


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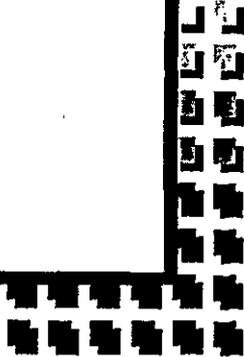


RCRA Field Investigation Report Status

- Task 3 - Trend Analysis
 - Preparing Historical Plume Maps
 - Bruce Ford is Refining Current Plume Maps
 - Task 4 - Monitoring Evaluation
 - Evaluating Minimum Requirements for Monitoring Operable Unit
 - Task 5 - Document Preparation
 - Refining Geologic/Hydrologic Discussions
 - Updated TSD Descriptions
- 



RCRA Field Investigation Report Status (Continued)

- Issues
 - Arsenic: ARAR Below Detection Limit and Available BG (attached)
 - Manganese and Vanadium Eliminated From Historical Plume Evaluation
- 

**200-PO-1 Operable Unit
Arsenic Concentrations Above Regulatory Concerns**

Well	Max. Conc. (ppb)	Date	Most Recent
299-25-29P	14	10/13/93	Same
299-E18-4	15	6/21/94	11 ppb in 12/94
299-E25-30P	46	4/12/88	16 ppb in 10/93*
299-E25-33	15	6/27/91	14 ppb in 10/93
299-E25-35	17	7/19/91	11 ppb in 7/94
299-E25-40	23	8/27/92	12 ppb in 6/93*
299-E25-46	15	9/29/93	Same
699-43-42J	29	6/25/92	21 ppb in 8/93**

*Filtered sample; note that unfiltered was 11

**Filtered sample; note that unfiltered was 19

GROUNDWATER WELLS SAMPLED DURING 200-BP-5's APRIL, 1995 EVENT

216-BY Crib Plume

Analytes: ^{99}Tc , Gamma Spectral (^{60}Co), Cyanide, Nitrate, Metals, Anions,
Gross Alpha, Gross Beta, Nitrate/Nitrite, Uranium Scan

299-E32-02+	699-47-50
299-E33-05+	699-47-60
299-E33-07	699-48-50
299-E33-12	
299-E33-13	699-49-55B
299-E33-14	699-49-57A
299-E33-15	699-49-57B
299-E33-26	699-50-53A
299-E33-28+	699-50-53B
299-E33-29+	699-52-54
299-E33-30+	699-52-57
299-E33-34+	699-53-55A*
299-E33-35+	699-53-55B*
299-E33-38	699-53-55C*
299-E33-39	699-54-57
299-E33-40	699-54-58
299-E34-02+	699-55-55
	699-55-57*
	699-55-58
	699-59-58
	699-60-57
	699-60-60

699-49-55A (Not Sampled-Return Well for BY System)

216-B-5 Reverse Well Plume

Analytes: ^{90}Sr , Gamma Spectral (^{137}Cs), $^{239/240}\text{Pu}$, Metals, Anions, Gross Alpha,
Gross Beta

299-E28-1	299-E28-7 (Not sampled - Return well for B-5 system test)
299-E28-2	299-E28-25 (Not sampled - Return well for B-5 system test)
299-E28-6	
299-E28-23	

Candidate Wells for Monitoring 216-A-25 Gable Mountain Pond's ⁹⁰Sr Plume

699-53-47A
699-53-47B
699-53-48A
699-53-48B

699-54-48
699-54-49
699-55-50C
699-56-51

NOTES:

IDs in **BOLD** indicate wells penetrating into confined interbed.
* = Wells 699-53-55 cluster and 699-55-57 located in erosional window.
+ = Shared wells with RCRA; analyte list reduced to ⁹⁹Tc and ⁶⁰Co; other analyte results from sampling at RCRA groundwater monitoring units.
Treatability test return wells will not be sampled in FY-96.

WELL NAME	MONTH SAMPLED	ICP ^F	CN	A N I O N S	A L P H A	B E T A	I S O P U	S R 9 0	G A M M A	U	H 3	T C 9 9	I 1 2 9
699-49-57A	APRIL		X	X					X		X	X	X
699-50-53A	APRIL	X		X	X	X	X		X	X _a	X	X	X
699-50-53B	MAY	X		X		X			X	X _a	X		
699-53-47A	JUNE			X		X		X			X		
699-53-47B	FEB			X	X	X		X	X	*	X	X	X
699-53-48A	APRIL		X	X		X		X			X		
699-54-48	APRIL			X		X		X			X		
699-55-57	APRIL	X	X	X		X				*	X	X	X
699-60-60	APRIL										X		X

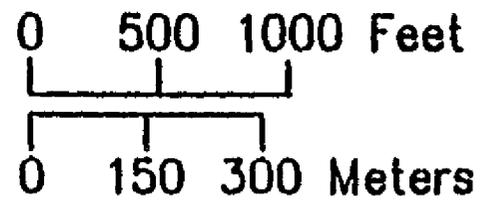
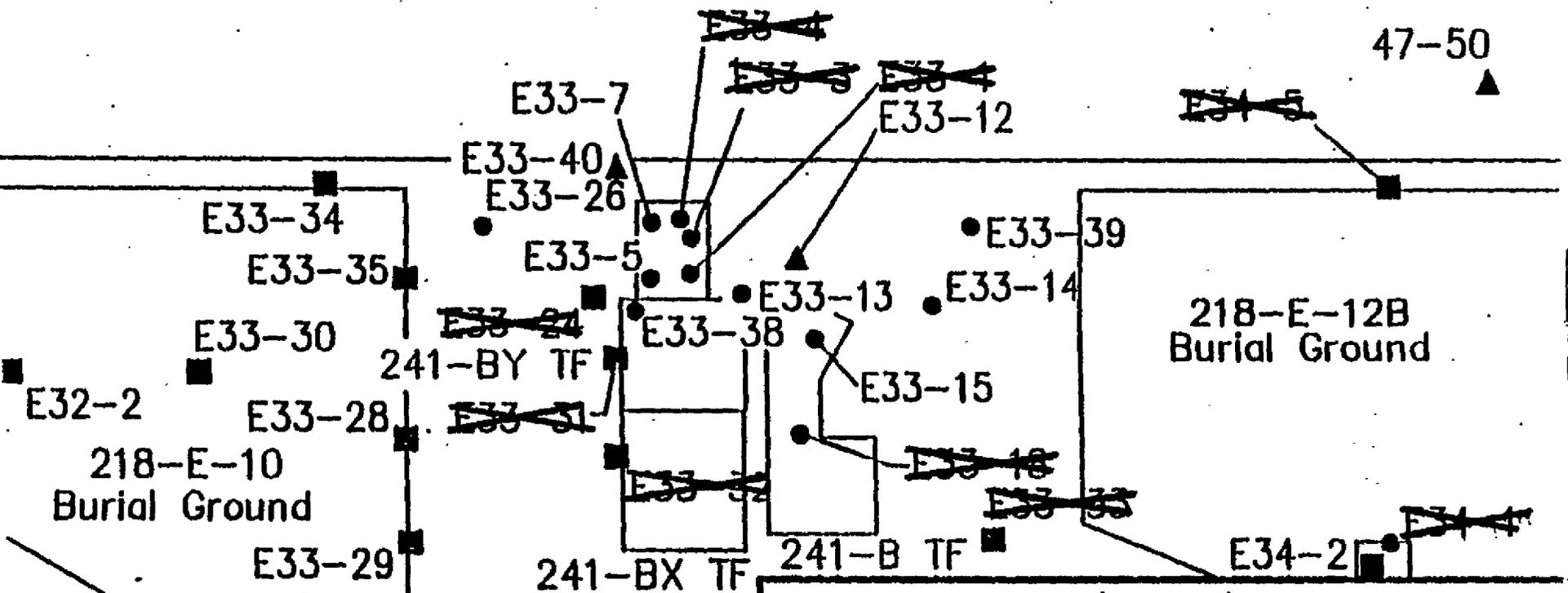
- * Isotopic uranium
- ICP^F ICP Metals Filtered
- CN Cyanide
- ALPHA Gross Alpha
- BETA Gross Beta
- ISO PU Isotopic Plutonium
- SR 90 Strontium 90
- GAMMA Gamma Scan
- U Uranium
- H3 Tritium
- TC 99 Technetium 99
- I 129 Iodine 129

9-5/A
9-57B

49-55A
49-55B

48-50

47-50



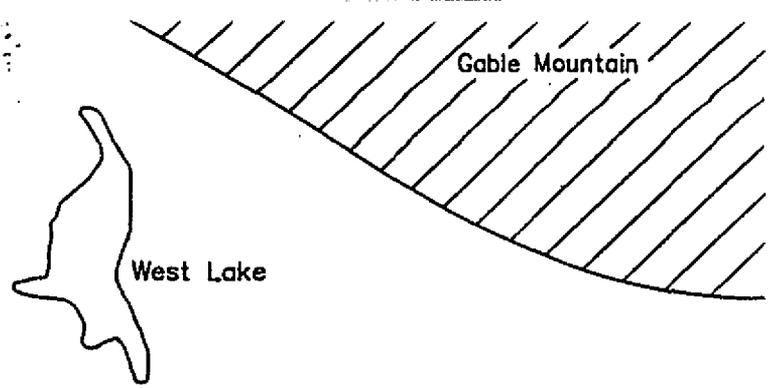
Legend

- ▲ Confined Aquifer Monitoring Well
- Unconfined Aquifer Monitoring Well
- Unconfined Aquifer Monitoring Well also Sampled for RCRA Projects
- Monitoring Well Located in Erosional Window

60-60

59-58

57-59



55-57

55-55

54-57

53-55A
53-55C 53-55B

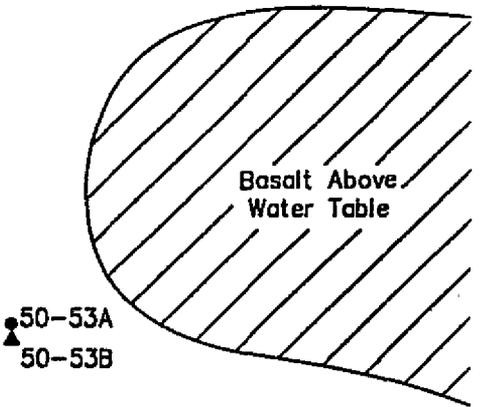
52-57

52-54

50-53A
50-53B

49-57A
49-57B

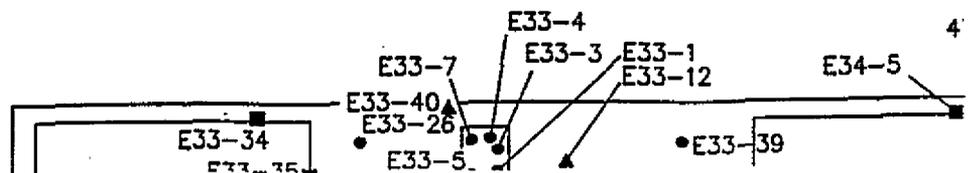
49-55A
49-55B



Legend

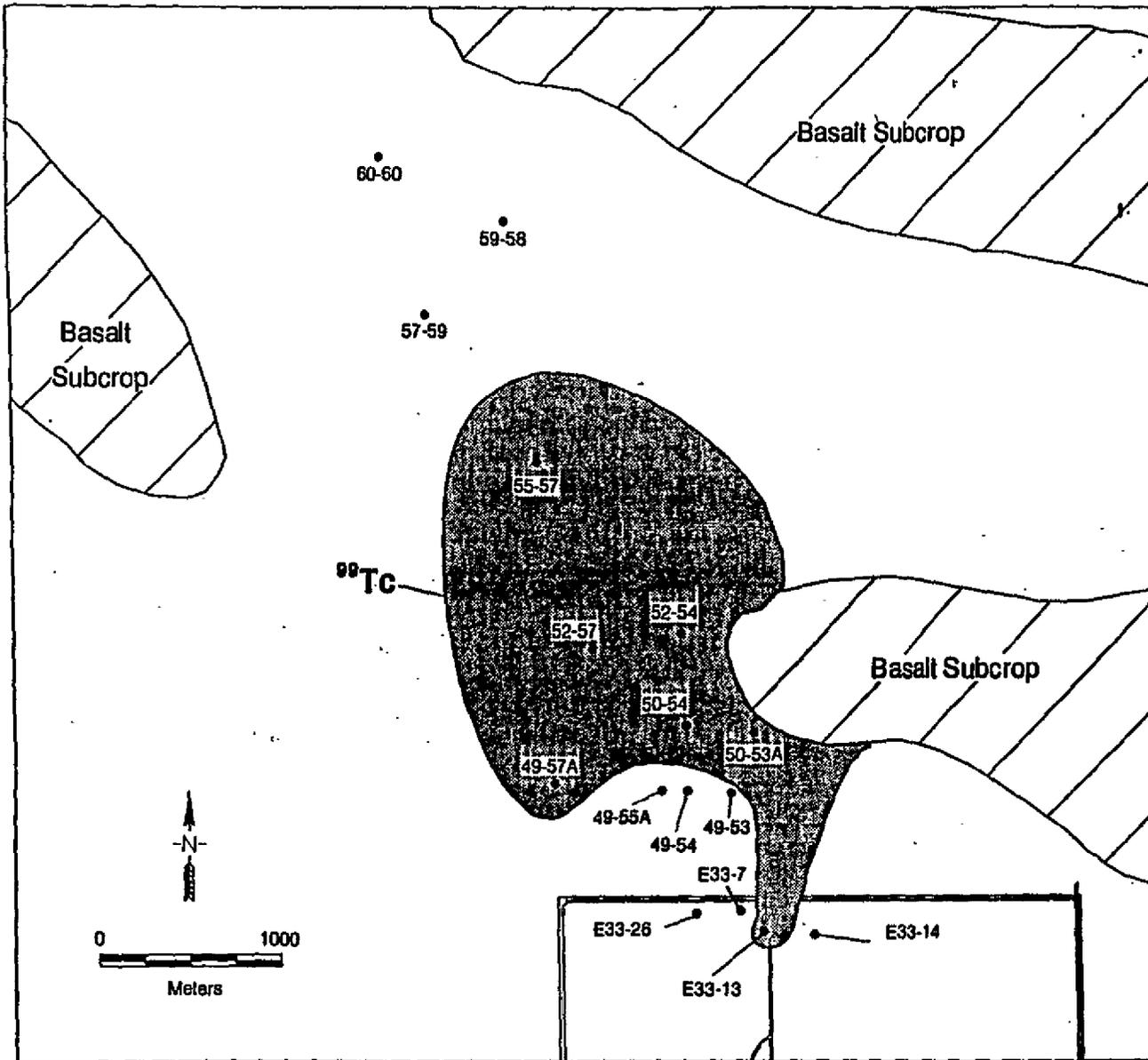
- ▲ Confined Aquifer Monitoring
- Unconfined Aquifer Monitoring
- Unconfined Aquifer Monitoring also Sampled for RCRA Proje
- Monitoring Well Located in Erosional Window

47-60



4E

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BY Cribs Contaminant Distribution Map April 1994

⁹⁹Tc:

Isopleth = 900 pCi/L

Data Values-

E33-7 (619)	50-53A (1690)
E33-13 (1380)	50-54 (1380)
E33-14(35)	52-54 (4310)
E33-26(775)	52-57 (NA)
49-53 (200)	55-57 (2100)
49-54 (480)	57-59 (NA)
49-55A (381)	59-58 (221)
49-57A (1525)	60-60 (144)

⁶⁰Co:

Isopleth = 100 pCi/L*

Data Values-

E33-7 (22)	50-53A (27)
E33-13 (9)	50-54 (NA)
E33-14(NA)	52-54 (74)
E33-26(NA)	52-57 (NA)
49-53(NA)	55-57 (50)
49-54(NA)	57-59 (NA)
49-55A (8)	59-58 (1)
49-57A (17)	60-60 (<DL)

*No ⁶⁰Co value exceeds 100 pCi/L.

Figure 4-7. 216-BY Cribs Contamination Distribution Map.

Distribution

Unit Manager's Meeting: 200 Aggregate Area/200 Area Operable Unit
October, 1995

Donna Wanek	DOE-RL, PRD (H4-83)
Mary Harmon	DOE-HQ (EM-442)
Richard Person	DOE-HQ (EM-442)
Paul Beaver	200 Aggregate Area Manager, EPA (B5-01)
Dib Goswami	WDOE (Kennewick)
Suzanne Dahl	WDOE (Kennewick)
Lynn Albin	Washington Dept. of Health
Curt Wittreich	BHI (H6-02)
George Henckel	BHI (H7-04)
Alvina Goforth	BHI (H6-08)
Tom Wintczak	BHI (H4-79)
Tom Page (Please route to:)	PNL (K1-31)
Cheryl Thornhill PNL (K1-19)	Steve Slate PNL (K1-19)
Mark Hanson PNL (K1-51)	Bill Stillwell PNL (K1-30)
	Ben Johnson PNL (K1-78)

Original Sent To: ADMINISTRATIVE RECORD: 200 AAMS Care of EDMC, WHC (H6-08)
