April 21, 1992

Meeting Minutes Transmittal/Approval
1100-EM-1 Operable Unit Managers Meeting
345 Hills St., Richland, Washington
March 25, 1992

FROM/APPROVAL: Robert K. Stewart Date 4/22/92
Robert K. Stewart, 1100-EM-1 Operable Unit Manager, RL

APPROVAL: David R. Einan Date 22 Apr 92
Dave Einan, 1100-EM-1 Unit Manager, EPA

APPROVAL: Richard Hibbard Date 4/22/92
Richard Hibbard, 1100-EM-1 Unit Manager, WA Department of Ecology

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

Attachment #1	-	Meeting Summary/Summary of Commitments and Agreements.
Attachment #2	-	Agenda For 1100-EM-1 Meeting.
Attachment #3	-	Attendance List.
Attachment #4	-	Action Items Status List.
Attachment #5	-	1100-EM-1 Operable Unit RI/FS Progress.
Attachment #6	-	Analyses of Volatile Organic Compounds in Groundwater Samples.
Attachment #7	-	1100-EM-1 Groundwater Characterization: Analytical Status Summary.
Attachment #8	-	Telephone Conference Memorandum.
Attachment #9	-	Agreement/Approval: Horn Rapids Landfill Characterization.

PREPARED BY: Suzanne Clarke Date 4/22/92
Suzanne E. Clarke, GSSC

CONCURRENCE BY: John T. Stewart Date 4/22/92
John T. Stewart, 1100-EM-1 Unit Manager, USACE

ATTACHMENT #1

Meeting Summary/Summary of Commitments and Agreements
1100-EM-1 Operable Unit Managers Meeting
345 Hills St., Richland, Washington
March 25, 1992

1. SIGNING OF THE JANUARY AND FEBRUARY 1100-EM-1 MEETING MINUTES:

Corrections to the January and February minutes were discussed and the minutes were signed by the Unit Managers representing DOE, EPA, Ecology, USACE, and SWEC.

2. ACTION ITEM UPDATE (See Attachment #4):

11EM1.91 John Stewart	**Open**	**Level three change request in preparation.**
11EM1.96	Closed	Based on Agreement (Attachment #9)
11EM1.97C Bob Stewart	**Open**	**Open until latest version is published by WHC and transmitted to EPA and Ecology.**
11EM1.98	Closed	Closed on the basis of document transmittal to EPA and Ecology (see Attachment #4) and new action Item 11EM1.98A
11EM1.99	Canceled	Jim McBane met with Westinghouse Hanford Company (WHC) personnel to discuss his concerns on the subject of soil classification and physical properties of soil validation forms as discussed at the February 1100-EM-1 UMM. A resolution was reached and WHC is revising their field protocols. This rapid action by WHC to address J. McBane's concerns makes an issues paper unnecessary.

3. NEW ACTION ITEMS (INITIATED MARCH 26, 1992):

11EM1.98A John Stewart	**Provide EPA and Ecology with both comments and revised pages of the Work Plan Supplement containing incorporated comments.**
11EM1.100: John Stewart	**Schedule a meeting between DOE, EPA, Ecology, USACE and SNP to discuss risk assessment issues raised at this meeting. (Specifically, matching levels of sophistication for groundwater modeling to risk assessment requirements.)**

4. SCHEDULE STATUS UPDATE (Attachment #5):

Validation of Analytical Data (Attachment #4; Action Item 11EM1.97C): John Stewart reported that a delay (from mid-March to April 1) in the issuance of the WHC data validation methodology document update will delay initiation of analytical data package validation by USACE. This delay will not affect the TPA Milestone for completion of the Phase II RI/Phase III FS Report. The delay will impact the development of the vadose zone conceptual model;

however, USACE anticipates that the model will be completed in advance of the date shown on the schedule.

Similarly, Wendell Greenwald reported that the delay in initiation of data validation will not impact completion of the risk assessment. The risk assessment is anticipated to be completed in advance of the scheduled date of early August.

Transfer of Data Packages from OSM to EDMC to USACE: At the February UMM, W. Greenwald reported that USACE had assisted OSM to transfer data packages (received by OSM to that date) to EDMC. The transfer of data packages from EDMC to USACE was completed on March 24, 1992. A list of data packages yet to be received by OSM was distributed at the February UMM. These data are from the radiochemical analyses of samples from the September and November sampling rounds. To date, OSM has received approximately half of these data packages. USACE will initiate another round of data package transfer from OSM to EDMC.

5. GROUNDWATER CONTAMINANT PLUME AT HORN RAPIDS LANDFILL (HRL):

Concentration of TCE Versus Time (Attachment #6): W. Greenwald reported that new data is consistent with results from previous rounds indicating that the TCE concentration in the groundwater plume at HRL is decreasing with time.

Comparability of TCE Analysis: Susan Keith observed that split samples collected during the November round from a monitoring well at HRL and analyzed independently by WHC and Siemens Nuclear Power show comparable concentrations for TCE (Siemens [TCE] = 65 µg/L; WHC [TCE] = 69 µg/L).

Identification of the ß⁻ Emitter (Attachment #7): Bruce Prentice presented preliminary results concerning the identification of the ß⁻ emitter contaminant present in the groundwater at HRL. The data must be considered preliminary as the QC review is not complete.

A single peak at the energy corresponding to ^{99}Tc was observed in HRL groundwater samples via liquid scintillation counting (energy scanning method); no other peaks were observed. **These data support the hypothesis that 1) the ß⁻ emitting isotope is ^{99}Tc, and 2) No other ß⁻ emitting isotopes are present.**

The data on page 2 of Attachment #7 represents the range of counts in pCi/L found in the wells listed on that page (for each respective analytical method). The last column represents the difference between analyses for gross beta and ^{99}Tc specific analyses. The uncertainty for both methods is ± 20-25% as determined by split/duplicate analyses. **The data support the hypothesis that the total ß⁻ can be explained by the presence of a single isotope, ^{99}Tc.**

A second ß⁻ emitter (in addition to ^{99}Tc) was detected in a sample from a monitoring well at SNP via liquid scintillation counting (this confirms that the methodology utilized by PNL does detect additional peaks at higher energy, if present).

W. Greenwald observed that the analytical results indicate that the concentrations of ^{99}Tc in the groundwater at HRL are well below the action levels of 3,790 pCi/L as defined in Appendix B, *Vol. 56*, No. 138 of the July 18, 1991 *Federal Register* (see Attachment #7A).

Risk Assessment: A discussion of what model should be utilized to transport the contaminant plume from HRL to the river for the industrial scenario resulted in the agreement documented in Attachment #4b and the following action item:

New Action Item: 11EM1.100:
John Stewart **Schedule a meeting between DOE, EPA, Ecology, USACE and SNP to discuss risk assessment issues raised at this meeting. (Specifically, matching levels of sophistication for groundwater modeling to risk assessment requirements.)**

6. UPDATE ON ACTIVITIES AT SNP:

Susan Keith reported that SNP is currently in the process of installing 6 or 7 groundwater monitoring wells. The location of these wells was changed after reanalysis of DOE well locations. The large diameter well (for the pump test) will be located closer to the lagoons. Siemens is anticipating that the pump test will occur in mid-April.

SNP will monitor the new wells two weeks after installation (approximately mid-April) then continue with the quarterly monitoring schedule synchronized with USACE.

Siemens is in the process of preparing the Hazardous Substance Source Investigation Work Plan (HSSIWP), distribution of the draft document is anticipated to be in early-to-mid April. Siemens plans to give a presentation to USACE and TPA members concerning: 1) HSSIWP, and 2) the assumptions SNP will utilize for their risk assessment approach.

7. REGULATOR COMMENTS CONCERNING THE WORK PLAN SUPPLEMENT:

Dave Einan and Rich Hibbard agreed that no comments would be submitted from EPA and Ecology. It was noted that Donna Lacombe had not yet evaluated the changes made to the detection and quantitation limits. It was also noted that EPA and Ecology had not reviewed the documents since DOE's comments had been incorporated. The result was the following Action Item:

New Action Item: 11EM1.98A:
John Stewart **Provide EPA and Ecology with both comments and revised pages of the Work Plan Supplement containing incorporated comments.**

8. CONVERSATION RECORDS (Attachment #8) AND AGREEMENT (Attachment #9):

Two conversation records and one agreement are attached for entry into the permanent record.

ATTACHMENT #2

AGENDA FOR 1100-EM-1 UNIT MANAGERS MEETING

March 25, 1992
3:00 to 4:30 pm
450 Hills St./Rm. 47

03:00 - 03:05 Introduction

03:05 - 03:15 Overall Project Status

3:15 - 03:40 Status of Field Work

- Analytical Results Data Package Validation
- Summary of Groundwater Analytical Results
- Identification of Beta Emitter
- Summary of Vadose Zone Analytical Results
- Field Classification Issue

03:40 - 03:50 Status of Combined RI/FS Report Activities

- Risk Assessment

03:50 - 04:10 Siemens Nuclear Power Corporation Status

04:10 - 04:20 Outstanding Issues

- Post Report - Groundwater Sampling
- EPA Comments on Conversation Record
- Medical-Like Waste Agreement

04:20 - 04:30 Action Item Status

Attachment #3

1100-EM-1 Unit Managers Meeting
Official Attendance Record
March 25, 1992

Please print clearly and use black ink

PRINTED NAME	SIGNATURE	ORGANIZATION	O.U. ROLE	TELEPHONE
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dave Einan	[illegible]	EPA	[illegible]	509-376-3883
[illegible]	[illegible]	[illegible]	[illegible]	(206) 753-1428
Robert K Stewart	Robert K. Stewart	DOE-RL/ERD	DOE Unit Mgr	509-376-619
[illegible]	[illegible]	PNL ACL	[illegible]	509 376 [illegible]
David [illegible]	David [illegible]	USACE	[illegible]	509 372 6974
[illegible]	[illegible]	WHC	[illegible]	[illegible]
[illegible]	[illegible]	PRC	EPA Contract	(206) 624-2692
[illegible]	[illegible]	[illegible]		(206) 633 [illegible]
[illegible] Staubitz	[illegible]	[illegible]	[illegible]	(206) 59[illegible]
[illegible]	[illegible]	PARAMETRIX	Ecology support	(206) 455 [illegible]
[illegible]	[illegible]	PRC	[illegible]	[illegible]
[illegible] Hibbard		Ecology	[illegible]	(206) 453-2367
[illegible]	[illegible]	Ecology	[illegible]	[illegible]
John [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Ecology	Hydrogeo	206 438-75[illegible]
Robert K Stewart	Robert K Stewart	DOE-RL/ERD	DOE Unit Mgr	509-376-6192
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ATTACHMENT #4

Actions Items Status List
1100-EM-1 Operable Unit
March 25, 1992

Item No.	Action/Source of Action	Status
11EM1.91	A level three change request is to be submitted for the revised schedule to show additional activities. Action: John Stewart (11/20/91).	Open.
11EM1.96	EPA is to provide direction concerning the handling of the medical type waste in the Horn Rapids Landfill (HRL). Action: Dave Einan (12/17/91).	Open.
11EM1.97	Check the validation procedure Golder is employing for non-rad waste, and determine if, and how it is being used on-site. Action: Wendell Greenwald (12/17/91).	Closed.
11EM1.97A	Copies of the Regulator comments on Golder's non-rad validation procedure are to be provided to Wendell Greenwald (USACE). Action: Dave Einan and Billie Mauss (1/22/91).	Closed. Provided on 1/29/92.
11EM1.97B	Wendell Greenwald is to verify that comments by the Regulators have been included in the validation procedure Golder is employing for non-rad analysis (1/22/92).	Closed.
11EM1.97C	Most current version of WHC data validation methodology document to be sent to EPA and Ecology so that they can ensure their comments were incorporated. Action: Bob Stewart (2/26/92).	Open.
11EM1.98	Latest version of 1100-EM-1 Supplemental Work Plan (containing the QAPjP and FSP) showing changes in detection limits will be forwarded to EPA and Ecology for their review. Action: John Stewart (2/26/92).	Open. FAXed on 3/2/92.
11EM1.98A	Provide EPA and Ecology with both comments and revised pages of the Work Plan Supplement containing incorporated comments. Action: John Stewart (3/25/92).	Open.
11EM1.99	Prepare issues and recommendation paper on soil classification topic introduced at this meeting. Action: Jim McBane (2/26/92).	Open.

11EM1.100	Schedule a meeting between DOE, EPA, Ecology, USACE and SNP to discuss risk assessment issues raised at this meeting. (Specifically, matching levels of sophistication for groundwater modeling to risk assessment requirements.) Action: John Stewart (3/25/92).	Open.

ATTACHMENT #4b

1100-EM-1 Unit Managers Meeting
Decisions/Agreements/Commitments
March 26, 1992

DECISIONS:

AGREEMENTS:

A SUITABLE ANALYTICAL COMPUTATION WILL BE USED TO PREDICT FLUX AND CONCENTRATION OF CONTAMINANTS TO THE RIVER, AND A PARTIAL MIXING COMPUTATION WITH THE RIVER TO DETERMINE EXPOSURE (CONCENTRATION OF CONTAMINANTS) AT THE NORTH RICHLAND WATER INTAKE.

COMMITMENTS:

Robert K Stewart
DOE Field Office, Richland

U. S. Environmental Protection Agency

Washington State Department of Ecology

~~Westinghouse Hanford Company~~
U.S. ARMY CORPS OF ENGINEERS

9212290

9212791031

OPEN PLAN (A)
Report: @RAPBAR1
Project: 1100EM1A
Time Now: 28MAR92
Date: 28MAR92
Time: 09:07:08
Page: 1

1100-EM-1 Operable Unit RI/FS Progress

Walla Walla District, Corps of Engineers

ACTIVITY	01 APR 91	01 JUL 91	01 OCT 91	01 JAN 92	01 APR 92	01 JUL 92	01 OCT 92	01 JAN 93
					Timenow			
GW01	MONITORING WELL INSTALLATION *COMPLETE*							
GW02	Coordinate Drilling *COMPLETE*							
GW03	Install FF-5 Wells No. 7 & 8 *COMPLETE*							
GW04	Install MW-19 thru MW-22 *COMPLETE*							
GW05	GROUNDWATER SAMPLING *COMPLETE*							
GW06	August/November Sampling *COMPLETE*							
GW07	Sample Analysis - Aug/Nov							
GW08	Sample Validation - Aug/Nov							
GW09	September Sampling *COMPLETE*							
GW10	Sample Analysis - September							
GW11	Sample Validation - September							
GW12	Summary and PARCC Evaluation							
GW13	COMPILE & QUALIFY ANF GW DATA *CO							
VZ01	GEOPHYSICAL INVESTIGATION *COMPLETE*							
VZ02	Safety Documentation *COMPLETE*							
VZ03	Field Work *COMPLETE*							
VZ04	Preliminary Report *COMPLETE*							
VZ05	Review Draft Report *COMPLETE*							
VZ06	BURIED TRENCH INVESTIGATIONS *COMPLETE*							
VZ07	Preparation for Field Work *COMPLETE*							
VZ08	Safety Documentation *COMPLETE*							
VZ09	Field Work *COMPLETE*							
VZ10	Sample Analysis *COMPLETE*							
VZ11	Sample Validation							
VZ12	Report							
ZRPT01	FINAL RI/FS REPORT *COMPLETE*							
ZRPT03	Dev Vadose Zone Conce							
ZRPT05	Dev GW Conceptual Mod							
ZRPT06	Resolve Land Use Dispute *COMPLETE*							
ZRPT07	Fate and Transport Analys							
ZRPT08	Risk Assessment							
ZRPT09	Develop Contaminants of Con							
ZRPT10	Develop Remedial Action Obj							
ZRPT11	Dev, Screen, & Evaluate Alts							
ZRPT12	Write Final							
ZRPT13	Proposed Plan							
ZRPT14	CENPW Review and Cmt Resolutn							
ZRPT15	CENPD Review and Cmt Resolutn							
ZRPT16	Document Clearance							
ZRPT17	DOE-RL/HQ Rev and Cmt Resolutn							
ZRPT18	SUBMITTAL TO REGULATORS							

Legend
-In progress
-Planned
-Critical
-Baseline

Bar Chart Key: Early Dates against Baseline

Signatures
Prep: _____
Aprv: _____

ANALYSES OF VOLATILE ORGANIC COMPOUNDS IN GROUND WATER SAMPLES

Well Number	Analysis, parts per billion (ppb) TCE								
	1st 2/90	2nd 5/90	3rd 8/90	4th 11/90	5th 3/91	6th 6/91	7th 8/91	7-1/2 9/91	8th 11/
MW-1	-	-	-	-		-			
MW-2	-	-	-	-		-			
MW-3	-	-	-	-		-			-
MW-4	-	-	-	-		-			-
MW-5	-	-	-	-		-			-
MW-6	-	-	-	-		-			-
MW-7	-	-	-	-		-			
MW-8	-	-	-	-		-			
MW-9	-	-	-	-		-		-	
MW-10	0.6J	2	2	-	-	2J	3J	-	3J
MW-11	0.9J	3	2	3	4J	3J	3J	4J	4J
MW-12	92	110	80	74	79	78	69	67	69
MW-13	90	91	81	69	68	70	69	66	63
MW-14	40	73	60	66	82	75	75	76	67
MW-15	84	80	82	59	60	62	70	66	64
MW-17	-	-	-	-		-			
MW-18					-	-			
MW-19						-	-	-	-
MW-20						3J	2J	3J	4J
MW-21						-	-	-	
MW-22						-	-	-	
S27-E14		0.9J	0.9J	1J		-			
S29-E12		-	-	-		-			
S30-E15A		-	-	-		-			
S31-E13		-	-	-		-			
S32-E13A		-	-	-		-			
S37-E14	-	-	-	-	-	-	-		
S40-E14	-	-	-	-	-	-	-		-
S41-E13A	-	-	-	-	-	-	-		-
S41-E13B	-	-	-		-	-	-		-
S43-E12	-	-	-	-	-	-	-		-
RWF East	-	-	-	-	-	-	-		
RWF West	-	-	-		-	-	-		
SNP # 14		22						17	
SNP # 15		58						30	
SNP # 16		53						32	
SNP # 23								-	
SNP # 24								-	
SNP # 9								13	
W-7A							-	-	
W-8A								-	

- = Not detected
J = Estimated Value

Values for rounds 1-4 from Data Validation Report, Fourth Quarter Groundwater Chemical Analysis, 1100-EM-1 Operable Unit, Phase I Remedial Investigation

Values for rounds 6-8 are derived from "Unvalidated" Data Packages

TCE: Trichloroethene - Drinking Water MCL, 5ppb

ug/L

Well	1987		1988	1989	1990									1991						
	9/87 *	12/87 *			2/90	4/90(s)	4/90(s)	5/90	6/90(s)	8/90	9/90(s)	10/31(s)	11/90	3/91	6/91	8/91	8/91(s)	9/91	11/91	11/91(s)
MW-1					0			0		0			0		0					
MW-2					0			0		0			0		0					
MW-3					0			0		0			0		0				0	
MW-4					0			0		0			0		0				0	
MW-5					0			0		0			0		0				0	
MW-6					0			0		0			0		0				0	
MW-7					0			0		0			0		0			0		
					0			0		0			0					0		
MW-9					0			0		0			0		0			0		
MW-10					0.6 J			2		2			0	0	2 J	3 J		0	3 J	
MW-11					0.9 J			3		2			3	4 J	3 J	3 J		4 J	4 J	
MW-12					92			110		80			74	79	78	69		67	69	
MW-13					90			91		81			69	68	70	69		66	63	
MW-14					40			73		60			66	82	75	75		76	67	
MW-15					84			80		82			59	60	62	70		66	64	
MW-16																				
MW-17					0			0		0			0		0					
MW-18														0	0					
MW-19															0	0		0	0	
MW-20															3 J	2 J		3 J	4 J	
MW-21															0	0		0		
MW-22															0	0		0		
S27-E14								0.9 J		0.9 J			1 J		0					
S29-E12								0		0			0		0					
S30-E15A								0		0			0		0					
S31-E13								0		0			0		0					
S32-E13A								0		0			0		0					
S37-E14					0			0		0			0		0	0				
S40-E14					0			0		0			0		0	0			0	
S41-E13A					0			0		0			0		0	0			0	
S41-E13B					0			0		0					0	0			0	
S43-E12					0			0		0			0		0	0			0	
RWF-EAST					0			0		0			0		0	0				
RWF-WEST					0			0		0			0		0	0				
TW-1	8.9	230				40	40										11			
TW-2						59	56										27			
TW-3											32						12			
TW-4											26						11			
TW-5											23						9.6			
TW-6											12						5.5			
TW-7											0						5.5			
TW-8		0															0			
TW-9		420				51	22										11	13		
TW-10																				
TW-11												20					10			
TW-12												24					16			
TW-13		0				0	0					0					0			
TW-14	54	79				39	33		22		14						12	17		
TW-15						76	72		58		44						25	30		
TW-16						73	30		53		33						12	32		
TW-17																	36			
TW-18																	36			
TW-19												11					7.9			
TW-20												5					4.1			
TW-21												2 J					1.6			
TW-22												0					0			
TW-23												0					0	0		
TW-24												0					0	0		
TW-25																	0			
TW-26																	12			
TW-27(1)																	13			
TW-30(2)																	0			
GM-1																				
GM-2																				
GM-3																				22 B
GM-4																				2 BJ
GM-5																				22 B
GM-6																				12 B
GM-7																				13 B
GM-8																				13 B
GM-9																				10 B
GM-10																				21 B
GM-11																				23 B
GM-12																				35 B

* = submission date (as opposed to sampling date)
B = Compound found in associated blank as well as in sample
J = Estimated Value
S = Data reported by or generated by Siemens
0 = Sampled but not detected

DRAFT

1100-EM-1 Operable Unit

ANALYSES OF VOLATILE ORGANIC COMPOUNDS IN GROUND WATER SAMPLES

Well Number	Analysis, parts per billion (ppb) PCE								
	1st 2/90	2nd 5/90	3rd 8/90	4th 11/90	5th 3/91	6th 6/91	7th 8/91	7-1/2 9/91	8th 11/91
MW-1	-	-	-	-		-			
MW-2	-	-	-	-		-			
MW-3	-	-	-	-		-			-
MW-4	1.J	1	0.9J	-		-			-
MW-5	0.8J	0.8J	0.8J	-					
MW-6	0.7J	0.8J	1	-					-
MW-7	-	-	-	-					
MW-8	-	-	-	-				-	
MW-9	-	-	-	-				-	
MW-10	-	-	-	-	-	-	0.9 J	-	-
MW-11	-	-	-	-	-	-	-	-	-
MW-12	-	-	-	-	-	-	-	-	-
MW-13	-	-	-	-	-	-	-	-	-
MW-14	-	-	-	-	-	-	-	-	-
MW-15	-	-	-	-	-	-	-	-	-
MW-17	-	-	-	-		-			
MW-18					2 J	-	-		4 J
MW-19						-	-	-	-
MW-20						-	-	-	-
MW-21						-	-	-	-
MW-22						-		-	
S27-E14		-	-	-		-			
S29-E12		-	-	-		-			
S30-E15A		-	-	-		-			
S31-E13		-	-	-		-			
S32-E13A		-	-	-		-			
S37-E14	-	-	-	-	-	-	-		
S40-E14	-	-	-	-	-	-	-		
S41-E13A	-	-	-	-	-	-	-		-
S41-E13B	-	-	-		-	-	-		-
S43-E12	-	-	-	-	-	-	-		-
RWF East	-	-	-	-	-	-	-		-
RWF West	-	-	-		-	-	-		-
SNP # 14		-						-	
SNP # 15		-						-	
SNP # 16		-						-	
SNP # 23								-	
SNP # 24								-	
SNP # 9									
W-7A								-	
W-8A								-	

-: Not detected
J: Estimated Value

Values for rounds 1-4 from Data Validation Report, Fourth Quarter Groundwater Chemical Analysis, 1100-EM-1 Operable Unit, Phase I Remedial Investigation

Values for rounds 6-8 are derived from "Unvalidated" Data Packages

PCE: Tetrachloroethene - Drinking Water MCL, 5ppb

ANALYSES OF VOLATILE ORGANIC COMPOUNDS IN GROUND WATER SAMPLES

Well Number	Analysis, parts per billion (ppb)								
	TCA								
	1st 2/90	2nd 5/90	3rd 8/90	4th 11/90	5th 3/91	6th 6/91	7th 8/91	7-1/2 9/91	8th 11/91
MW-1	-	-	-	-		-			
MW-2	-	-	-	-		-			
MW-3	-	-	-	-		-			-
MW-4	3.J	2	2	2.J		-			-
MW-5	4.J	4	3	3.J		3 J			3 J
MW-6	2.J	0.9J	2	-		-			
MW-7	-	-	-	-		-			
MW-8	0.8J	0.8J	0.8J	-				-	
MW-9	-	-	-	-				-	
MW-10	1	1	1	-	-	2 J	1 J	1 J	-
MW-11	0.8J	1	1	1.J	-	-	1 J	1 J	-
MW-12	-	-	2	2.J	-	3 J	2 J	2 J	-
MW-13	-	-	2	1.J	-	-	-	2 J	-
MW-14	-	-	1	-	-	-	-	2 J	-
MW-15	-	-	2	1.J	-	-	-	1 J	-
MW-17	-	-	-	-		-			
MW-18					-	-			
MW-19						-	-	-	-
MW-20						-	-	-	-
MW-21						-	-	-	-
MW-22						-	-	-	
S27-E14		-	-	-		-			
S29-E12		-	-	-		-			-
S30-E15A		-	-	-		-			
S31-E13		-	-	-		-			
S32-E13A		-	-	-		-			
S37-E14	-	-	-	-	-	-	-		
S40-E14	-	-	-	-	-	-	-		
S41-E13A	-	-	-	-	-	-	-		-
S41-E13B	-	-	-		-	-	-		-
S43-E12	-	-	-	-	-	-	-		-
RWF East	-	-	-	-	-	-	-		-
RWF West	-	-	-		-	-	-		
SNP # 14		7						5	
SNP # 15		5						3 J	
SNP # 16		-						-	
SNP # 23								-	
SNP # 24								-	
SNP # 9								2 J	
W-7A							-	-	
W-8A								-	

-: Not detected
J: Estimated Value

Values for rounds 1-4 from Data Validation Report, Fourth Quarter Groundwater Chemical Analysis, 1100-EM-1 Operable Unit, Phase I Remedial Investigation

Values for rounds 6-8 are derived from "Unvalidated" Data Packages

TCA: 1,1,1-Trichloroethane - Drinking Water MCL, 200 ppb

ANALYSES OF INORGANIC COMPOUNDS IN GROUND WATER SAMPLES

Well Number	Analysis, parts per million (ppm) NITRATE								
	1st 2/90	2nd 5/90	3rd 8/90	4th 11/90	5th 3/91	6th 6/91	7th 8/91	7-1/2 9/91	8th 11/91
MW-1	10	17	20	34.J		18			
MW-2	15	11	15	15.J		27			
MW-3	16	7	12	20.UJ		11			
MW-4	7	7	8	7.J		8			
MW-5	8	7	7	7.J		7			
MW-6	12	11	10	10.J		11			
MW-7	10	9	10	9.J		16			
MW-8	30	30	33	31.J		3			
MW-9	-	-	-	-		-			
MW-10	170	163	187	170.J	173	168			185*
MW-11	180	179	212	206.J	177	204			
MW-12	217	217	251	225.J	222	217			
MW-13	208	199	268	207.J	199	204			
MW-14	215	225	270	221.J	208	208			
MW-15	143	143	196	137.J	133				
MW-17	-	-	-	-		-			
MW-18					10				
MW-19									
MW-20									
MW-21									
MW-22									
S27-E14		33	41	25.J		53			
S29-E12		20	20	17.J					
S30-E15A		11	13	9.J					
S31-E13		20	19	15.J					
S32-E13A		21	18	18.J					
S37-E14	1	7	0.9	0.8J	5	1			
S40-E14	0.8	0.9	0.9	1.J	0.8	0.5			
S41-E13A	6	6	4.J	5.J	4	5			
S41-E13B	2	2	3	2.J	4	2			
S43-E12	16	21	26	25.J	23	25			15.7
FF-5 #7A						35	34		
FF-5 #8A									
RWF East	0.9	0.9	0.4	-	0.8	0.7	0.5		
RWF West	0.8	0.9	0.4	-	2	0.6	0.7		
SNP # 14		352							
SNP # 15		272							
SNP # 16		189							
SNP # 23									
SNP # 24									
SNP # 9									

-: Not detected
J: Estimated Value

Values for rounds 1-4 from Data Validation Report, Fourth Quarter Groundwater Chemical Analysis, 1100-EM-1 Operable Unit, Phase I Remedial Investigation

Values for rounds 6-8 are derived from "Unvalidated" Data Packages

Nitrate - Drinking Water MCL, 40 ppm

RADIOCHEMICAL ANALYSES OF GROUND WATER MONITORING WELL SAMPLES

Temp.	Gross Beta, pCi/l								
Well	1st	2nd	3rd	4th	5th	6th	7th	7-1/2	8th

1100-EM-1 Operable Unit

RADIOCHEMICAL ANALYSES OF GROUND WATER MONITORING WELL SAMPLES

Temp.	Gross Alpha, pCi/l								
Well	1st	2nd	3rd	4th	5th	6th	7th	7-1/2	8th
Number	2/90	5/90	8/90	11/90	3/91	6/91	8/91	9/91	11/
MW-1	8.4	-	3.1	-					
MW-2	4.4	-	-	-					
MW-3	17.0	-	-	3.5					
MW-4	2.9		4.3	3.8					
MW-5	3.9	-	-	-					
MW-6	3.6	-	-	-					
MW-7	4.8	-	3.3	-		4			
MW-8	3.8	-	-	-					
MW-9	-	-	-	-					
MW-10	11.9	-	-	6.6	-				
MW-11	12.2	-	6.6	4.2	-	6			
MW-12	7.6	4.8	-	6.5	-				
MW-13	9.1	4.1	6.5	5.8	6.4				
MW-14	6.3	4.9	9.6	9.2	-				
MW-15	9.3	-	3.7	5.0	-				
MW-17		-	-	-					
MW-18					6.6				
S27-E14		-	5.5	3.2					
S29-E12		-	-	-					
S30-E15A		-	-	-					
S31-E13		-	-	2.6					
S32-E13A		-	-	3.3					
S37-E14	-	-	-	-	-				
S40-E14	1.1		-	-	-				
S41-E13A	-	-	-	-	-				
S41-E13B	6.0	3.7	-	-	3.5				
S43-E12	2.6	-	-	-	-		2		
ANF # 14		5.3	22.9						
ANF # 15		37.0	36.7						
ANF # 16		10.0	4.0						
RWF East	-	-	-						
RWF West	-	-	-	-					
				-	-				
FFS-7A						2.1			
FFS-8A									

- = Below upper tolerance limit (for rounds 1-4)
- = Below error limit (for round 5)

Values for rounds 1-4 from Data Validation Report, Fourth Quarter Groundwater Chemical Analysis, 1100-EM-1 Operable Unit, Phase I Remedial Investigation

Radionuclide Maximum Contaminant Levels (MCL), 40 CFR 141, EPA 1986a:
Gross Alpha . . . . 15 pCi/l

RADIOCHEMICAL ANALYSES OF GROUND WATER MONITORING WELL SAMPLES

Temp. Well Number	Gross Beta, pCi/l								
	1st	2nd	3rd	4th	5th	6th	7th	7-1/2	8
	2/90	5/90	8/90	11/90	3/91	6/91	8/91	9/91	11/91
MW-1	12.7	-	12.1	9.2					
MW-2	8.2	-	9.3	11.9					
MW-3	14.7	7.9	12.5	15.0					
MW-4	-		10.6	-					
MW-5	-	-	-	8.9					
MW-6	-	-	-	10.4					
MW-7	6.1	-	7.9	9.1		6			
MW-8	-	-	9.4	-					
MW-9	-	-	7.6	-					
MW-10	30.2	85.2	95.4	88.9	63.0				
MW-11	35.2	86.5	74.7	81.0	60.0	51			
MW-12	34.6	87.6	91.0	77.6	61.0				
MW-13	28.8	71.0	81.2	85.8	61.0				
MW-14	25.1	89.4	90.8	89.0	70.0				
MW-15	23.2	51.4	63.6	57.6	46.0				
MW-17		-	-	8.1					
MW-18					13.0				
S27-E14		19.7	31.5	14.9					
S29-E12		-	10.5	-					
S30-E15A		-	-	-					
S31-E13		-	-	-					
S32-E13A		-	11.0	7.9					
S37-E14	-	-	-	-	-				
S40-E14	-		-	-	-				
S42-E13A	-	-	-	-	12.0				
S41-E13B	-	9.4	11.2	-	12.0				
S43-E12	8.3	8.3	10.5	13.8	8.3		12		
ANF # 14		6.5	58.9						
ANF # 15		126.7	98.4						
ANF # 16		58.4	19.1						
RWF East	-	-	8.1	-					
RWF West	-	-	-	-	-				
FFS-7A						15			
FFS-8A									

- = Below upper tolerance limit (for rounds 1-4)
- = Below error limit (for round 5)

Values for rounds 1-4 from Data Validation Report, Fourth Quarter Groundwater Chemical Analysis, 1100-EM-1 Operable Unit, Phase I Remedial Investigation

Radionuclide Maximum Contaminant Levels (MCL), 40 CFR 141, EPA 1986a:
Gross Beta . . . . 50 pCi/l

Analytical Status Summary

1100-EM-1 Groundwater Characterization

PNL Project 19432; DOE RFS TD3204

Method	Sample Quantity (Period: 9/91 11/91)		Expected	Status
Tc-99 by ICP-MS	20	9	4/1/92	Completed
Fixed-mass (not mass-scanning) mode; ultrasonic nebulizer.				
Total Beta	20	9	4/1/92	QC Review
Similar to EPA Method 900.0; Tc-99 efficiency correction.				
Tc-99 by 7-40.39	5	1	4/8/92	Report Prep.
Chemical separation of Tc-99 then Beta counting.				
Tritium	9	9	4/8/92	QC Review
Distillation separation then liquid scintillation.				
Gamma Analysis	20	9	4/8/92	ca 80% Anal.
Gamma energy analysis in standard geometry.				
Liquid Scintillation	5	1	4/8/92	QC Review
Concentration then liquid scintillation scanning.				
Sr-90	5	1	4/8/92	QC Review
Chemical separation the Beta counting.				

Preliminary Summary Results

1100-EM-1 Groundwater Characterization

PNL Project 19432; DOE RFS TD3204

(pico curies / liter)

Location	N	Beta	Tc-99	(Beta-Tc)
Plume (MW-10, MW-11, MW-12, MW-13, MW-14, MW-15, SNP-9) ← TW-9	14	75 to 138	83 to 147	-47 to 37
Up-Gradient (MW-8, MW-9)	2	6 to 11	15 to 17	-6 to -9

Plume Analogs: FF5-8A, MW-20 (high), SNP-15 (high; add. LSC peak) ← TW-15

Up-Gradient Analogs: FF5-7A, MW-19, MW-21, MW-22, SNP-24

Other: S27-E14 (ca 4x up-grad. beta, 1x up-grad. Tc-99; LSC peaks)

Attachment #7A

MCL for Tc^{99}

From the *Federal Register, Vol 56, No. 138*, Thursday, July 18, 1991, Appendix B:

> The allowable concentration in water for a 4 mrem ede/yr assuming an intake of 2 liters a day is 3790 pCi/liter. (ede = effective dose equivalent which is the sum of the products of the dose equivalents in individual organs and the organ weihting factor) A copy of this appendix is attached. This value represents a lifetime cancer risk of 1×10^{-4}.

Previously assumed concentration in water for a 4 mrem/yr dose was 900 pCi/liter. This was derived from the *Radiation Handbook*. The difference in the values seems to come from the fact that the value presented in this handbook is based on one target organ (GI Tract), while the value presented in the *Federal Register* is a weighted dose for all organs in the body.

NOTE: FROM SAFE DRINKING WATER ACT

Greek, prefix & abbreviation	Value	Shorthand exponential notation	Description
milli—m	1/1,000	10^{-3}	One part per thousand.
micro—Greek m	1/1,000,000	10^{-6}	One part per million.
nano—n	1/1,000,000,000	10^{-9}	One part per billion.
pico—p	1/1,000,000,000,000	10^{-12}	
femto—f	1/1,000,000,000,000,000	10^{-15}	
atto—a	1/1,000,000,000,000,000,000	10^{-18}	

Thus 1 picocurie is a millionth millionth of a curie and is abbreviated 1 pCi. Also 1 millirad (1 mrad) is one thousandth of a rad.

Because of the particle mass and charge, 1 rad deposited in tissue by alpha particles creates a more concentrated biological damage than 1 rad of gamma rays. To compensate for this difference in damage and subsequent effect, a new unit was created—the rem. This is called the dose equivalent. The absorbed dose is measured in rads and the dose equivalent is measured in rems.

The rad and rem are related by a quality factor as follows:

Number of rems = Q times the number of rads

Where Q is the quality factor which has been assigned the following value:

Q = 1 for beta particles and all electromagnetic radiations (gamma rays and x-rays)

Q = 10 for neutrons from spontaneous fission and for protons

Q = 20 for alpha particles and fission fragments

The quality factor is meant to approximately account for the relative harm caused by various types of radiation. The International System (SI) unit corresponding to the rem is the Sievert (Sv). One Sievert equals 100 rem.

Appendix B—Beta Particle and Photon Emitters

Nuclide	Ch (pCi/liter)
H-3	6.09E+04
BE-7	4.35E+04
N-13	1.52E+05
C-11	9.92E+04
C-14	3.20E+03
C-15	6.69E+06
O-15	4.95E+05
F-18	3.95E+04
NA-22	4.66E+02
NA-24	3.35E+03
SI-31	1.02E+04
P-32	8.41E+02
P-33	1.67E+03
S-35	1.29E+04
CL-36	1.85E+03
CL-38	2.12E+04
K-42	3.90E+03
CA-46	1.73E+03
CA-47	8.48E+02
SC-46	8.63E+02
SC-47	2.44E+03
SC-48	7.56E+02
V-48	6.44E+02
CR-51	3.80E+04
MN-52	7.33E+02
MN-54	2.01E+03
MN-56	5.64E+03
FE-55	9.25E+03

Appendix B—Beta Particle and Photon Emitters—Continued

Nuclide	Ch (pCi/liter)
FE-59	6.44E+02
CO-57	4.87E+03
CO-58	1.59E+03
CO-58M	6.49E+04
CO-60	2.18E+02
NI-59	2.70E+04
NI-63	9.91E+03
NI-65	8.81E+03
CU-64	1.19E+04
ZN-65	3.96E+02
ZN-69	6.31E+04
ZN-69M	4.22E+03
GA-67	7.02E+03
GA-72	1.19E+03
GE-71	4.36E+05
AS-73	7.86E+03
AS-74	1.41E+03
AS-76	1.06E+03
AS-77	4.33E+03
SE-75	5.74E+02
BR-82	3.15E+03
RB-82	4.36E+05
RB-86	4.85E+02
RB-87	5.01E+02
RB-88	2.91E+04
RB-89	5.27E+04
SR-82	2.41E+02
SR-85	2.83E+03
SR-85M	2.37E+06
SR-89	5.99E+02
SR-90	4.20E+01
SR-91	2.16E+03
SR-92	3.10E+03
Y-90	5.10E+02
Y-91	5.76E+02
Y-91M	1.32E+05
Y-92	2.87E+03
Y-93	1.20E+03
ZR-93	5.09E+03
ZR-95	1.46E+03
ZR-97	6.50E+02
NB-93M	1.05E+04
NB-94	7.07E+02
NB-95	2.15E+03
NB-95M	2.39E+03
NB-97	2.35E+04
NB-97M	1.37E+06
MO-99	1.83E+03
TC-95	6.97E+04
TC-95M	3.12E+03
TC-96	2.05E+03
TC-96M	1.76E+05
TC-97	3.25E+04
TC-97M	4.45E+03
TC-99	3.79E+03
TC-99M	8.96E+04
RU-97	7.96E+03
RU-103	1.81E+03
RU-105	4.99E+03
RU-106	2.03E+02
RH-103M	4.71E+05
RH-105	3.72E+03
RH-105M	5.51E+06

Appendix B—Beta Particle and Photon Emitters—Continued

Nuclide	Ch (pCi/liter)
RH-106	1.24E+06
PD-100	1.30E+03
PD-101	1.34E+04
PD-103	6.94E+03
PD-107	3.96E+04
PD-109	2.12E+03
AG-105	2.70E+03
AG-108	6.26E+05
AG-108M	7.23E+02
AG-109M	1.67E+07
AG-110	1.84E+06
AG-110M	6.12E+02
AG-111	1.08E+03
CD-109	2.27E+02
CD-115	9.56E+02
CD-115M	3.39E+02
IN-113M	5.24E+04
IN-114	9.76E+05
IN-114M	3.23E+02
IN-115	3.51E+01
IN-115M	1.64E+04
SN-113	1.74E+03
SN-121	6.06E+03
SN-121M	2.25E+03
SN-125	4.46E+02
SN-126	2.93E+02
SB-122	8.10E+02
SB-124	5.83E+02
SB-125	1.94E+03
SB-126	5.44E+02
SB-126M	6.85E+04
SB-127	8.16E+02
SB-129	3.09E+03
TE-125M	1.49E+03
TE-127	7.92E+03
TE-127M	6.63E+02
TE-129	2.72E+04
TE-129M	5.24E+02
TE-131	2.68E+04
TE-131M	9.71E+02
TE-132	5.80E+02
I-122	2.11E+05
I-123	1.07E+04
I-125	1.51E+02
I-126	8.10E+01
I-129	2.10E+01
I-130	1.19E+03
I-131	1.09E+02
I-132	8.19E+03
I-133	5.49E+02
I-134	2.14E+04
I-135	2.34E+03
CS-131	2.28E+04
CS-134	8.13E+01
CS-134M	1.01E+05
CS-135	7.94E+02
CS-136	5.16E+02
CS-137	1.19E+02
CS-138	2.56E+04
BA-131	2.95E+03
BA-133	1.52E+03
BA-133M	2.62E+03
BA-137M	2.15E+06

APPENDIX B—BETA PARTICLE AND PHOTON EMITTERS—Continued

Nuclide	Cn (pCi/liter)
BA-139	1.38E+04
BA-140	5.82E+02
LA-140	6.52E+02
CE-141	1.89E+03
CE-143	1.27E+03
CE-144	2.61E+02
PR-142	1.04E+03
PR-143	1.17E+03
PR-144	4.70E+04
PR-144M	1.12E+05
ND-147	1.25E+03
ND-149	1.17E+04
PM-147	5.24E+03
PM-148	5.05E+02
PM-148M	5.75E+02
PM-149	1.36E+03
SM-151	1.41E+04
SM-153	1.83E+03
EU-152	8.41E+02
EU-154	5.73E+02
EU-155	3.59E+03
EU-156	5.00E+02
GD-153	4.66E+03
GD-159	2.76E+03
TB-158	1.25E+03
TB-160	8.16E+02
DY-165	1.51E+04
DY-166	8.30E+02
HO-166	9.61E+02
ER-169	3.64E+03
ER-171	3.80E+03
TM-170	1.03E+03
TM-171	1.27E+04
YB-169	1.83E+03
YB-175	3.11E+03
LU-177	2.55E+03
HF-181	1.17E+03
TA-182	8.42E+02
W-181	1.90E+04
W-185	3.44E+03
W-187	2.66E+03
RE-183	5.40E+03
RE-186	1.86E+03
RE-187	5.82E+06
RE-188	1.79E+03
OS-185	2.46E+03
OS-191	2.38E+03
OS-191M	1.43E+04
OS-193	1.69E+03
IR-190	1.01E+03
IR-192	9.57E+02
IR-194	1.04E+03
PT-191	3.81E+03
PT-193	4.61E+04
PT-193M	3.02E+03
PT-197	3.40E+03
PT-197M	1.75E+04
AU-196	3.66E+03
AU-198	1.31E+03
HG-197	5.76E+03
HG-203	2.39E+02
TL-202	3.84E+03
TL-204	1.66E+03
TL-207	4.00E+05
TL-208	2.83E+05
TL-209	3.58E+05
PB-203	5.06E+03
PB-209	2.63E+04
PB-210	1.01E+00
PB-211	1.28E+04
PB-212	1.23E+02
PB-214	1.18E+04
BI-206	6.58E+02
BI-207	1.01E+03
BI-212	5.20E+03
BI-213	1.50E+04
BI-214	1.89E+04
FR-223	3.41E+03

APPENDIX B—BETA PARTICLE AND PHOTON EMITTERS—Continued

Nuclide	Cn (pCi/liter)
RA-225	9.14E+00
RA-228	7.96E+00
AC-227	1.27E+00
AC-228	3.27E+03
TH-231	4.07E+03
TH-234	4.01E+02
PA-233	1.51E+03
PA-234	2.66E+03
PA-234M	9.30E+05
U-237	1.78E+03
U-240	1.54E+03
NP-236	5.96E+03
NP-236	1.39E+03
NP-239	1.68E+03
NP-240	2.31E+04
NP-240M	1.74E+05
PU-241	6.28E+01
PU-243	1.84E+04
AM-242M	1.27E+00

Cn=Concentration in water for 4 mrem ede/y, assuming 2 liters daily intake.

APPENDIX C—ALPHA EMITTERS

NUCLIDE	Cm (pCi/liter)	Ci (pCi/liter)
SM-147	1.06E+02	1.04E+02
BI-210	1.94E+03	1.01E+03
BI-211	2.05E+05	1.56E+05
PO-210	1.40E+01	7.46E+00
PO-212	1.15E+14	6.78E+13
PO-213	8.03E+12	8.06E+12
PO-214	2.43E+11	1.86E+11
PO-215	9.17E+09	6.84E+09
PO-216	7.38E+07	5.30E+07
PO-218	9.50E+04	6.91E+04
AT-217	5.74E+08	4.27E+08
FR-221	4.50E+04	3.26E+04
RA-223	3.21E+01	2.41E+01
RA-224	5.48E+01	4.06E+01
RA-226	2.07E+01	1.57E+01
AC-225	1.85E+02	1.13E+02
TH-227	6.62E+02	4.03E+02
TH-228	1.53E+02	1.25E+02
TH-229	5.15E+01	4.93E+01
TH-230	9.27E+01	7.92E+01
TH-232	9.16E+01	8.80E+01
PA-231	1.02E+01	1.02E+01
U-232	1.02E+01	5.72E+00
U-233	2.56E+01	1.38E+01
U-234	2.59E+01	1.39E+01
U-235	2.65E+01	1.46E+01
U-236	2.74E+01	1.47E+01
U-238	2.62E+01	1.46E+01
NP-237	7.19E+00	7.06E+00
PU-236	3.33E+01	3.23E+01
PU-238	7.15E+00	7.02E+00
PU-239	6.48E+01	6.21E+01
PU-240	6.49E+01	6.22E+01
PU-242	6.83E+01	6.54E+01
PU-244	7.02E+00	6.87E+00
AM-241	6.45E+00	5.34E+00
AM-242	5.86E+03	5.34E+03
AM-243	6.49E+00	6.37E+00
CM-242	1.45E+02	1.33E+02
CM-243	5.47E+00	5.30E+00
CM-244	1.00E+01	9.84E+00
CM-245	6.35E+00	6.23E+00
CM-246	6.38E+00	6.27E+00
CM-247	5.93E+00	5.79E+00
CM-248	1.71E+00	1.67E+00
CF-252	1.70E+01	1.62E+01

Cm=Concentration in water for lifetime mortality risk=1×10^{-4}

Ci=Concentration in water for lifetime incidence risk=1×10^{-4}

Both assume 2 liters daily intake of water.

List of Subjects in 40 CFR Parts 141 and 142

Chemicals, Reporting and record keeping requirements, Water supply, Administrative practice and procedure.

Dated: June 17, 1991.

William K. Reilly,

Administrator, Environmental Protection Agency.

For the reasons set forth in the preamble, title 40 of the Code of Federal Regulations is proposed to be amended as follows:

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

1. The authority citation for part 141 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–4 and 300j–9.

2. Section 141.2 is amended by adding, in alphabetical order, a definition for "adjusted gross alpha" as follows:

§ 141.2 Definitions

* * * * *

Adjusted gross alpha: Adjusted gross alpha is defined as the result of a gross alpha measurement, less radium-228 and less uranium. Radon is not included in adjusted gross alpha.

* * * * *

3. Section 141.15 is amended by revising the introductory text to read as follows:

§ 141.15 Maximum contaminant levels for radium-226, radium-228, and gross alpha particle radioactivity in community water systems.

The following are the maximum contaminant levels for radium-226, radium-228, and gross alpha particle radioactivity, which shall remain effective until [insert date 18 months after publication of the final rule in the Federal Register]:

* * * * *

4. Section 141.16 is proposed to be amended by adding introductory text to read as follows:

§ 141.16 Maximum contaminant levels for beta particle and photon radioactivity from man-made radionuclides in community water systems.

The following maximum contaminant levels shall remain effective until [insert date 18 months after publication of the final rule in the Federal Register]:

* * * * *

5. Section 141.25 is amended by revising the section to read as follows:

TELEPHONE CONFERENCE MEMORANDUM

Company: US Army Corps of Engineers Address: Fed. Build. RM. 560

[ ] INCOMING [X] OUTGOING DATE: October 18, 1991 TIME: 1:30 pm

WITH: Dave Einan OF: EPA PHONE: 376-3883

WITH: OF: PHONE:

Copies to:	Name	Address
	Dave Einan	MSIN B5-01
	Bob Stewart	MSIN A5-19
	John Stewart	MSIN A5-20
	Kevin Singleton	MSIN H4-56

Subject: Decontamination of Backhoe During Excavation of Test Pits at Horn Rapids Landfill

Environmental Engineering	Wendell L. Greenwald	376-1252
Department		Telephone #

Summary of Conference

I contacted Dave Einan to discuss changing the decontamination procedure for the backhoe bucket which is used to excavate test pits at Horn Rapid Landfill. The decontamination requires a large amount of time and is expensive (a minimum of 1-1/2 hours down time which stops the entire work crew of 8 persons) and generates large quantities of decontamination fluids which must be containerized (if the decontamination is performed on site). This effort is excessive, because the process which controls the asbestos emissions is effectively decontaminating the backhoe bucket during the process of excavation.

A spray of water is directed at the backhoe bucket as it excavates a scoop of soil and transports it to the spoil pile. This spray of water prevents any visible emissions of dust which might contain asbestos and makes an additional decontamination step unnecessary. Dave indicated that the general concept was acceptable to him but he questioned what soaps would be used for decontamination.

I indicated that the EII 5.4, which is being followed at the site, allowed for non-phosphate soaps to be used in the decontamination process. In general, the decontamination fluid used would consist of the water used to control asbestos emissions. This water is mixed with a wetting agent (non-hazardous materials intended for use in asbestos abatement work). The manufacturer of the wetting agent recommends a 125 to one (volume of water to wetting agent), but a ratio of 4000 to one (volume of water to wetting agent) is presently being used (the ratio will vary depending upon the manufacturers recommendation and the direction be the site safety officer).

Dave Einan indicated that under these circumstances it would be acceptable to allow the asbestos laden fluids generated from the emissions control/decontamination of the backhoe bucket to return to the test pit being excavated.

TELEPHONE CONFERENCE MEMORANDUM

Company: US Army Corps of Engineers Address: RM 560, Fed. Buldg.

[ ] INCOMING [X] OUTGOING DATE: November 4, 1991 TIME:

WITH: Dave Einan OF: EPA PHONE: 376-3883

WITH: OF: PHONE:

Copies to:	Name	Address
	Bob Stewart	DOE-RL
	John Stewart	USACE
	Dave Einan	EPA

Subject: Substitution of November Groundwater Samples for September Samples

Environmental Engineering Branch

Department

Wendell L. Greenwald

376-1252

Telephone #

Summary of Conference

I called Dave Einan to discuss problems with the August groundwater samples at Horn Rapids Landfill which should be corrected by replacing them with samples collected in November. The Horn Rapids Landfill samples, collected in August, were preserved with H_2SO_4. It was planned to have PNL perform special analysis to quantify technetium-99 and, potentially, perform additional analysis for the gross ß emitter. But, PNL had concerns about H_2SO_4 interfering with the planned analysis. We wanted to replace these August samples with samples collected in November. The November samples for PNL analysis would not be preserved. Dave Einan stated that this would be acceptable so long as there was no schedule impact. I assured him that the schedule would not be delayed because of this action.

Dave asked why those samples were preserved with H_2SO_4. The Office of Sample Management has indicated that their office instructed the field team performing the sampling to use HNO_3. The field team, on the other hand, indicates that they were instructed by the Office of Sample Management to use the H_2SO_4. The investigation of this matter is continuing.

February 26, 1992

Agreement/Approval
1100-EM-1 Operable Unit: Horn Rapids Landfill Characterization

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FROM: John T. Stewart Date 26 Feb 92
John T. Stewart, USACE Project Manager for 1100-EM-1 O.U.

APPROVAL: Robert K. Stewart Date 2/27/92
Robert K. Stewart, 1100-EM-1 O.U. Manager (DOE-RL)

APPROVAL: David R. Einan Date 20 Mar 92
Dave Einan, 1100-EM-1 O.U. Manager, EPA

APPROVAL: [illegible] Date [illegible]
Richard Hibbard, 1100-EM-1 O.U. Manager, WA Dept. Ecology

9213.5

Agreements between EPA, Ecology and DOE-RL during the September 1991 Unit Manager Meeting specified excavation of test pit 6 at Horn Rapids Landfill to a depth of 10 feet. Medical-like waste material was encountered at a depth of 6.5 feet. It was decided at an October 29, 1992 meeting between EPA and DOE-RL to suspend further work in the test pit until the hazards posed by the medical-like waste could be more fully assessed. All samples collected were placed into the test pit and the test pit was backfilled.

Information indicates that the medical-like wastes do not represent a substantial hazard to human health and the environment because of the minimal quantities encountered, the judgement that the substances are not infectious, and the low probability that any infectious organisms would survive being buried for the length of time of these wastes. Additionally, conditions observed at this and other test pits indicate that it is very unlikely that buried drums exist and are being left uncharacterized at this test pit.

For these reasons it has been agreed between the three parties to consider the Horn Rapids Landfill characterization activity completed. No further characterization work will be conducted at test pit 6. Medical-like wastes at the Horn Rapids Landfill will be addressed in the 1100-EM-1 Operable Unit proposed (remediation) plan.

Distribution

1100-EM-1 Unit Managers Meeting
March 25, 1992

~~Ronald D. Izatt (A5-15) . . . . . Director, DOE-RL, ERD~~
June M. Hennig (A5-21) . . . . . DOE-RL, WMD
Roger D. Freeberg (A5-19) . . . . . Chief, Rstr. Br., DOE-RL, ERD
~~Steven H. Wisness (A5-15) . . . . . TPA Proj. Mgr., DOE-RL, EAP/TPA~~

Richard D. Wojtasek (B2-15) . . . . . Prgm. Mgr. WHC
John Stewart (K1-49) . . . . . 1100-EM-1 Prog. Mgr., USACE

Raimo Liias . . . . . USACE
Dave Einan . . . . . EPA (B5-01)
Donna Lacombe . . . . . PRC, support to EPA
Chuck Cline . . . . . WDOE
Ward Staubitz . . . . . USGS
Mike Thompson . . . . . DOE-RL (A5-15)
Diane Clark . . . . . DOE-RL (A5-55)
Mary Harmon . . . . . DOE-HQ (EM-442)
Lisa Chetnik Treichel . . . . . DOE-HQ (EM-442)
Tom Wintczak . . . . . WHC (B2-15)
Mel Adams . . . . . WHC (H4-55)
Steven Clark . . . . . WHC (H4-55)
Brian Sprouse . . . . . WHC (H4-22)
Bill Price . . . . . WHC (N3-05)
Jim Patterson . . . . . WHC (L4-92)
Michael Beavers . . . . . WHC (G1-66)
Earl Oxford . . . . . WHC (G4-11)
Don Praast . . . . . GAO (A1-80)
L.D. Arnold . . . . . WHC (B2-35)
Chuck Malody . . . . . SNP
Cliff Francis . . . . . SNP
Susan Keith . . . . . G&M, support to SNP

ADMINISTRATIVE RECORD: 1100-EM-1; Care of Susan Wray, WHC (H4-22)

This list appears to be out of date. Please contact Suzanne E. Clarke (SWEC 372-0630) to help ensure that only (and all) currently active participants appear on the distribution list.