

1B100

AGENDA



Landfill Closure/Seep Collection Project Team

Wednesday, February 15, 1995
Small West Conference Room
10:00 AM

1. Overview of Issue Paper for Operable Unit 7 (Peg Witherill)

- Discussion of impacts.

2. Outline of Landfill Closure IM/IRA/EA DD (S. M. Stoller)

3. Discussion of Agency Interface Meeting Agenda (Roundtable)

- *February 22, 1995, 1:00, EPA Conference Center*

- This meeting will be a general information meeting. Item to be discussed are: **1)** the fractured zone and how OU 7 will address it during closure, **2)** feedback from the RCRA regulatory analysis sent to the agencies, **3)** brief presentation on causes of slurry wall failures **4)** overview of methodology to determine the preferred alternative.

- *March 1, 1995, 1:00, EPA Conference Center*

- At this meeting we will present our preferred alternative.

4. Assignment of Action Items.

Next meetings: February 22, 1995, 1:00, EPA Conference Center
 March 1, 1995, 1:00, EPA Conference Center
 March 6, 1995, 10:00, Interlocken-Small West Conference Room

ADMIN RECCRD
BZ-A-000419

1/19

February 22, 1995
2510-95/23

Ms. Laurie Peterson-Wright
EG&G Rocky Flats, Inc.
P.O. Box 464, Bldg. 080
Golden, Colorado 80402-0464

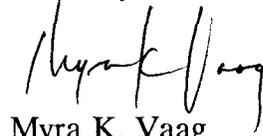
Subject: Submittal of February 15, 1995 Meeting Minutes
Technical Working Group Meeting for Operable Unit No. 7
(MTS Contract 353017TB3)

Dear Ms. Peterson-Wright:

Enclosed are meeting minutes to document the February 15, 1995, technical working group meeting for the OU 7 landfill closure interim measure/interim remedial action and environmental assessment.

If you have any questions, please contact me at your convenience.

Sincerely,



Myra K. Vaag
Project Manager

Enclosure

cc:	W. Bartholomew w/o	EG&G	B. Caruso	Stoller
	R. Cygnarowicz	EG&G	A. Crockett	Stoller
	T. Lindsay	EG&G	M. Eisenbeis	Stoller
	P. Martin	EG&G	S. Franklin	Stoller
	P. Corser	TerraMatrix	C. Gee	Stoller
	J. Kendall	TerraMatrix	J. Jankousky	Stoller
			D. Palmer	Stoller
			L. Ross w/o	Stoller
			B. Stephanus w/o	Stoller
			MKV Chron w/o	Stoller
			OU7 Project File	

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Minutes for the OU 7 Seep Collection/Landfill Closure IM/IRA
Technical Working Group Meeting
February 15, 1995

The following topics were discussed:

Overview of Issue Paper for PAM

Status - DOE updated the team on the status of DOE's Management Strategy for the PAM. DOE believes the existing document is not practical because management decisions were made to take action under the dispute resolution without fully analyzing the potential risk of no action. DOE is now addressing three primary questions: (1) Is the dispute resolution binding? (2) Is the leachate a *contained in* or F039 waste? and (3) Are surface water standards binding? DOE will consult with the Office of the Chief Counsel.

Human Health Risk Assessment - EG&G conducted a Human Health Risk Assessment (HHRA) on the seep and East Landfill Pond data. All risks calculated for a trespasser swimming in the seep or pond water are within the acceptable risk range. Using the maximum contaminant concentrations, the HHRA indicated there is a small amount of risk associated with a resident using the pond as his sole drinking water supply. Using the maximum or average concentrations, the HHRA showed a risk is associated with a resident using the seep as his sole drinking water supply.

DOE stated that the HHRA may be overly conservative because the risks are analyzed over a 30-year exposure period and the seep collection system will only be in operation one to two years. In addition, DOE will maintain control of the site until 2100 making the trespasser and residential scenarios unlikely.

EG&G will finalize the HHRA before the regulatory agency meeting on Wednesday, February 22.

Technical Support - DOE requested Stoller's assistance in providing additional data to support the Contained in Management Strategy. DOE requested HELP and particle transport models of the No Action scenario. TerraMatrix has completed the HELP model as part of the cap analysis. Stoller will model the particle transport over 2 years and over 30 years.

Impacts on IM/IRA - Stoller stated that DOE's change in management strategy for the PAM will primarily affect the groundwater portion of the IM/IRA. Previous DOE direction has been to assume treatment of the groundwater at OU 1 and delay risk analysis until post closure. An options analysis of other treatment options probably would be necessary once the groundwater risk assessment is complete. TerraMatrix indicated that only minor changes to the cap and slurry wall would be necessary.

Constructed Wetlands - DOE questioned the viability of using constructed wetlands for groundwater treatment in light of the low concentrations coming out of the pond. DOE has received internal input on this issue ranging from *You can't use waters of the U.S. to treat hazardous waste* (Environmental Restoration) to *It would be a great opportunity to demonstrate that RFETS promotes environmental technologies such as bioremediation* (E&E).

Stoller stated that, based on limited analysis, it appears that the pond is acting as a settling basin and it is the pond and not the associated wetlands that are providing the primary removal mechanism. If it is possible to leave the pond in place, another cell could be added to address manganese and americium, and then the water could be discharged to a constructed wetlands below the dam. The constructed wetlands would be designed to address downstream groundwater contamination and act as a polishing step for the pond water.

Stoller stated potential problems with leaving the pond in place and/or using constructed wetlands, including:

- Wetlands are considered innovative for removal of metals; design data is sketchy and often contradictory. Long term effectiveness is unknown.
- The ability of wetlands to remove radioactive material is unknown.
- Discharge requirements are unknown. Would an NPDES permit be required?
- Regulatory requirements for addressing existing contaminated sediments are unknown.
- Periodic removal and disposal of sediments and organics will be necessary to maintain hydraulic flows in the wetland. Possible classification as a RCRA hazardous waste due to high metals and/or sulfide content.
- Possible metals accumulation by plants and animals.
- Potential for release of metals to surface water during high flows or to groundwater by leaching.
- Presently the pond collects surface water in addition to the groundwater, is this considered dilution.

Stoller stated that the pond/constructed wetland concept would have to be viewed by DOE as an innovative approach that may fail to meet the discharge requirements. DOE suggested that an alternative be developed and presented at the agency meeting to get feedback from regulators.

Agency Interface Meetings

Schedule - EG&G has scheduled two meetings with the regulatory agencies for 1:00 P.M. on February 22 and March 1 at the EPA Conference Center.

February 22 Agenda - Three items of old business will be discussed: (1) RCRA determination, (DOE) (2) Well Abandonment (CDPHE), and (3) IDM (EG&G). Most of the meeting will focus on the OU 7 alternatives development. The presentation will follow the general outline presented at the January 25 and February 1 team meetings with the addition of a constructed wetlands option. However, the slurry wall will be addressed in greater detail. DOE will close the meeting with a discussion of the PAM.

Consolidation - Stoller noted that the alternative development is based on regulatory approval of the consolidation of the soils and sediments under the cap without triggering LDRs. CDPHE/EPA have not given written approval to this management strategy.

Slurry Wall - TerraMatrix will contrast the design, construction, and possible failure of the existing groundwater intercept system slurry walls with the proposed OU 7 slurry wall. Emphasis will be placed on the advances of slurry wall technology, successful applications, and the importance of QA/QC. The differences between this application and OU 4 will also be discussed. Stoller will discuss the affects of the fault on the slurry wall and proposed mitigation measures.

Format - DOE suggested a slightly more formal method of presentation in order to allow all the information to be presented without being sidetracked. Overheads with handouts will be used. If necessary, a dry run will be held on Tuesday February 21 at 3:00 at EG&G. DOE has a new policy that technical people should not attend agency meetings, so Stoller should attempt to limit the number of people attending.

March 1 Agenda - The four to five alternatives that pass the initial screening presented at the February 22 meeting will be evaluated in detail. A decision matrix will be prepared and a preferred alternative will be selected with input from the regulatory agencies.

Landfill Closure IM/IRA/EA

Stoller distributed a draft Table of Contents for comment. EG&G provided Stoller with a copy of the Natural Resource Trustee Memorandum of Understanding and directed that the appropriate information and the Preble's mitigation policy be included in the IM/IRA/EA. In response to a question from Stoller, EG&G suggested that the schedule be modified so that the draft Landfill Closure IM/IRA/EA Decision Document be submitted to EG&G and DOE on June 30th for concurrent review.

Action Items

The formal meeting minutes are the forum for tracking action items. A list of the action item, the person responsible for the action, and the status of the action item is included below. The list will be updated weekly. When an action has been completed, it will be stated as such, and the item will be removed from the action item list the following week.

- 01-121 Completed.
- 122 Determine possible trucking route from Western Aggregates to the present landfill east of Colorado Highway 93 (T. Lindsay, EG&G). Completed.
- 123-157 Completed.
- 158 Determine allowable activities for radiological contaminants in soils/sediments (L. Peterson-Wright, EG&G). The no-rad-added policy is being reconsidered based on the reorganization of the cognizant professionals. In progress.
- 159-184 Completed.
- 185 Provide Stoller with a copy of the OU 4 IM/IRA/EA Decision Document (L. Peterson-Wright, EG&G). EG&G provided the report. Completed.
- 186 Completed.
- 187 Determine if a small French drain would decrease head buildup in groundwater west of the landfill using the existing groundwater model (J. Jankousky, Stoller). In progress.
- 188-191 Completed.
- 192 Solicit a response from CDPHE and EPA on the wells proposed for abandonment (P. Witherill, DOE). DOE received a letter of approval from CDPHE. Completed.
- 193 Completed.
- 194 Find out what the acceptance criteria are for the Rocky Flats sewage treatment plant (L. Peterson-Wright, EG&G). In progress.

- 195 Provide DOE with HELP model of the No Action Alternative (J. Kendall, TerraMatrix). TerraMatrix faxed the information to EG&G/DOE on February 21. Completed.
- 196 Provide DOE with particle tracking of the No Action Alternative (J. Jankousky, Stoller). Stoller faxed a memo to DOE on February 21. Completed.
- 197 Determine if closure plan requirements should be included in the Decision Document or if they must be in a separate document (P. Witherill, DOE). Closure plan requirements should be included in the decision document. Completed.
- 198 Prepare agenda for February 22 agency meeting. (L. Peterson-Wright, EG&G, and M. Eisenbeis, Stoller). Agenda was prepared. Completed.

Next Meeting

The next team meeting will be at 10:00 a.m. on March 6, 1995, in the EG&G small west conference room.

Agency Meetings

Two agency interface meetings have been scheduled for 1:00 p.m. on February 22, 1995, and March 1, 1995, in the EPA conference center. A dry run is scheduled for 3:00 p.m. on February 21.

List of Attendees

Name	Organization	Phone
Mary Eisenbeis	Stoller	546-4474
John Jankousky	Stoller	546-4412
John Kendall	TerraMatrix	763-5140
Tom Lindsay	EG&G	966-6985
Laurie Peterson-Wright	EG&G Project Manager	966-8553
Peg Witherill	DOE Project Manager	966-6585

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Table 1: Comparison of Analytical Results for Alluvial Well 53194 to UTL_{max} Values

All units ug/L unless otherwise noted.

Symbol	Analyte	Dec. 1994 Result		Jan. 1995 Result		UHSU UTL _{max}		Result > UTL _{max}		Standard	
		Total	Disolved	Total	Disolved	Total	Disolved	Total	Disolved	Total	Disolved
Ag	Silver	3.84	3.84	3.8 U	3.8 U	7	2,682				
Al	Aluminum	754	32.5B	2,300	40.2 B	26,324	1,868				
Sb	Antimony			32.8 U	32.7 U	52	55				
As	Arsenic	2.17B	1.56B	1.4 U	1.4 U	8	1,024				
Ba	Barium	102B	70.4B	102 B	58.2 B	311	186				
Be	Beryllium	0.2B	0.2B	0.73 B	0.24 B	4	4				
Ca	Calcium	48,900	44,400	44,900	40,500	148,662	152,175				
Cd	Cadmium	<3.8	<3.8	3.8 U	3.8 U	4	5				
Co	Cobalt	<4.1	<4.1	4.1 U	4.1 U	44	48				
Cr	Chromium	<2.9	<2.9	4.2 B	2.9 U	192	14				
Cu	Copper	17.8B	14.7B	19.0 B	13.9 B	42	44				
Cs	Cesium	<30.5	<30.5	30.5 U	30.5 U	866	1,005				
Fe	Iron	724	23.6B	2,740	303	32,398	1,730				
Hg	Mercury	<0.10	<0.10	0.10 U	0.13 B	0.2	21.1				
K	Potassium	2030B	1190B	2660 U	2670 U	5,243	475,297				
Li	Lithium	160	160	151	139	177	196				
Mg	Magnesium	21,900	21,300	21,100	19,000	33,725	34,481				
Mn	Manganese	150	87	74.0	26.6	643	292				
Mo	Molybdenum	<9.5	<9.5	9.5 U	9.5 U	204	202				
Na	Sodium	188,000	184,000	173,000	160,000	147,829	160,693	yes	yes	None	None
Ni	Nickel	<15.2	<15.2	15.2 U	15.2 U	101	38				
Pb	Lead	50.5	<3	2.6 B	1.0 U	20	289	yes	yes	28	
Se	Selenium	2.94B	3	6.0	4.1 B	131	533				
Si	Silicon	9,820	8,430	12,000	7,110	62,830	Not Listed				
Sn	Tin	78.1B	<47.0	47.0 U	47.0 U	170	1,787				
Sr	Strontium	528	497	498	436	1,110	2,022				
Tl	Thallium	<0.7	<0.7	2.9 B	4.4 B	9	1,044				
V	Vanadium	11.0B	10.3B	12.9 B	10.6 B	71	43				
Zn	Zinc	24.2	9.0B	21.0	18.9 B	184	66				
	B = Between IDL and CRDL										
	U = not detected										

Table 1: Comparison of Analytical Results for Alluvial Well 53194 to UTL_{max} Values

All units ug/l, unless otherwise noted.

Symbol	Analyte	Dec. 1994 Result		Jan. 1995 Result		UHSU UTL _{max}		Result > UTL _{max}		Standard	
		Total	Disolved	Total	Disolved	Total	Disolved	Total	Disolved	Total	Disolved
Water Quality Parameters											
	Chloride	24,600		24,100		63,635					
	Fluoride	2,090		2,130		2,024		yes			2,000
	Sulfate	101,000		104,000		613,607					
	Bicarbonate	412,000		420,000		677,749					
	Carbonate	10000 U		10000 U		12,641					
	Total Dissolved Solids	690,000		643,000		1,290,550					
	Total Suspended Solids	50,000		86,000		1,402,588					
	Sulfide	35,000				Not Listed		?			
	Cyanide	5000 U		5000 U		12					
	Nitrate/Nitrite			250 U							
	U = not detected										
Radionuclides (units are pCi/l)											
AM-241		1.51E-02								4.00E-02	
PU-238		-3.22E-03		8.20E-04 **	1.37E-03 **					4.72E-02	
PU239/240		8.05E-03		2.73E-04 **	1.14E-03 **					6.50E-02	
U-234		1.50E+01		1.28E+01						1.45E+02	
U-235		4.30E-01		4.17E-01						5.20E+00	
CS-134		-1.17E-01								Not Listed	
CS-137DDA		-2.33E-02								1.10E+00	
U-238DA		1.05E+01		9.13E+00						1.14E+02	
	Alpha	1.49E+01								3.91E+02	
	Beta	5.37E+00								2.21E+02	
	Strontium(assume 89,90)	1.73E-01								1.20E+00	
	Tritium	1.43E+01		2.34E+02						1.34E+04	
Rad duplicate sample											
AM-241		6.44E-03								4.00E-02	
PU-238		2.32E-03								4.72E-02	
PU239/240		4.63E-03								6.50E-02	
	Strontium	9.41E-01								1.20E+00	
	Tritium	-1.95E+01								1.34E+04	
** Indicates that result is less than overall error.											

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Table 2: Comparison of Analytical Results for Unweathered Bedrock Well 53094 to UTL₁₉₉₄ Values

All units ug/L unless otherwise noted

Symbol	Analyte	Dec. 1994 Result		Jan. 1995 Result		UHSU UTL ₁₉₉₅		Result > UTL ₁₉₉₅		Standard	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Metals											
Ag	Silver	<3.8		3.8 U	3.8 U	236	16				
Al	Aluminum	1,780		924	39.4 B	13,788	214				
Sb	Antimony			32.8 U	32.7 U	1,269	56				
As	Arsenic	2.5		1.5 B	1.7 U	11	8				
Ba	Barium	286		299	275	1,424	136				
Be	Beryllium	0.46		0.73 B	.37 B	122	Not listed				
Ca	Calcium	97,300		101,000	96,200	127,687	104,319				
Cd	Cadmium	<3.8		3.8 U	3.8 U	1,308	5				
Co	Cobalt	<4.1		4.1 U	4.1 U	1,237	53				
Cr	Chromium	17.2		3.7 B	2.9 U	1,210	13				
Cu	Copper	19.8		19.3 B	13.4 B	1,338	23				
Cs	Cesium	<31.0		30.5 U	30.5 U	Not listed	1,006				
Fe	Iron	2,150		1,320	188	18,339	135				
Hg	Mercury	0.13		0.12 B	0.13 B	0/25 Detects	0.70	yes	NO	0.01	
K	Potassium	8,490		7,100	5,630	8,801	7,544				
Li	Lithium	84.6		94.2 B	83.4	150	134				
Mg	Magnesium	20,600		22,200	21,100	28,140	19,990				
Mn	Manganese	163		288	236	615	32				
Mo	Molybdenum	24.0		20.0 B	15.3	1,241	163				
Na	Sodium	474,000		433,000	433,000	659,404	601,966				
Ni	Nickel	35.2		15.2 U	15.2 U	1,266	39				
Pb	Lead	2.5		1.1 B	1.0 U	22	9				
Se	Selenium	1.0		1.8 B	1.4 U	5	6				
Si	Silicon	7,470		5,750	3,900	44,790	Not listed				
Sn	Tin	<47.0		47.0 U	47.0 U	221	199				
Sr	Strontium	1,180		1,240	1,160	1,725	1,471				
Tl	Thallium	<0.9		4.2 B	5.7 B	11	Not listed				
V	Vanadium	17.0		19.1 B	12.9 B	1,274	48				
Zn	Zinc	27.0		16.9 B	22.1	1,401	47				
U = not detected											
B = Between IDL and CRDL											

Table 2: Comparison of Analytical Results for Unweathered Bedrock Well 53094 to UTL_{99/99} Values

All units ug/l unless otherwise noted.

Symbol	Analyte	Dec. 1994 Result		Jan. 1995 Result		UHSU UTL _{99/99}		Result > UTL _{99/99}		Standard	
		Total	Disolved	Total	Disolved	Total	Disolved	Total	Disolved	Total	Disolved
	Beta	1.59E+01				1.11E+02					

* Indicates that UTL_{99/99} not calculated; value in parentheses is mean + 2 x standard deviation.

** Indicates that result is less than overall error.

Table 1
OU7 Upper Hydrostratigraphic Unit (UHSU) Groundwater

Chemical	Maximum Concentration (µg/l)	Residential Groundwater PPRG ¹ (µg/l)	Analyte Evaluated in Risk Assessment ²	UTL ₉₉₉₉	Location
ACETONE	24	3,650		16	B206889
ANTIMONY	66.8	14.6	X	52	B207089
CALCIUM	167,000	---		148,662	B206789
CHLORIDE	530,000	---		63,635	B207089
CHLOROETHANE	3	27,800			0786
ETHYLBENZENE	0.3	1,580			B206889
FLUORIDE	3,400	2,190	X	2,024	4087
LITHIUM	223	730		177	B206789
MAGNESIUM	44,900	---		33,725	B206789
NITRATE/NITRITE ³	290,000	58,400	X	55,685	B206889
ORTHOPHOSPHATE	150	---		53	4287
POTASSIUM	6,730	---		5,243	B207089
SELENIUM	815	182	X	131	B206789
SILVER	10.9	182		7	B206789
SODIUM	465,000	---		147,829	B207089
STRONTIUM	1,870	21,900		1,110	B207089
SULFATE	19,000,000	---		613,607	B207089
TOTAL DISSOLVED SOLIDS	5,100,000	---		1,290,550	B206989

¹ Programmatic Risk-Based Preliminary Remediation Goals (PPRGs) are from DOE (February 1995).

² Only analytes with oral toxicity values were evaluated in the risk assessment.

³ PPRG for nitrate was used because it is the analyte assumed to be present.

Note: Analytes without UTL₉₉₉₉ values were compared to mean plus two standard deviation values. This comparison resulted in the elimination of americium-241 for the UHSU.

Table 2
OU7 Lower Hydrostratigraphic Unit (LHSU) Groundwater

Chemical	Maximum Concentration/Activity (µg/L)	Residential Groundwater PPRG ¹ (µg/L)	Analyte Evaluated in Risk Assessment ²	UTL ₉₉₉₉ ³	Location
1,1,1-TRICHLOROETHANE	9	---			0886
1,1-DICHLOROETHENE	2	0.0677	X		0886
ACETONE	13	3.650		12	0886
CARBONATE	23,000	---		17,826	0886
CHLORIDE	1,100,000	---		532,358	4187
CHLOROBENZENE	1	51.6			4187
METHYLENE CHLORIDE	19	6.22	X	12	0886
ORTHOPHOSPHATE	80	---		51	4187
RADIUM-226 ³ (pCi/L)	1.5	0.397	X	1.48 ³	4187
TOLUENE	4	965			0886
URANIUM-238 ³ (pCi/L)	1.2	2.38		0.866 ³	4187

¹ Programmatic Risk-Based Preliminary Remediation Goals (PPRGs) are from DOE (February 1995).

² Only analytes with oral toxicity values were evaluated in the risk assessment.

³ Analytes without UTL₉₉₉₉ values were compared to mean plus two standard deviation values.

This comparison for the LHSU resulted in the inclusion of radium-226 and uranium-238 and the exclusion of plutonium-238.

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