AR TARGET SHEET

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DOCUMENT # DOE/RL 88-41 Rev 1

EDMC # 13,538

SECTION 2 OF 2

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APPENDIX D-1

WELL CONSTRUCTION DIAGRAMS

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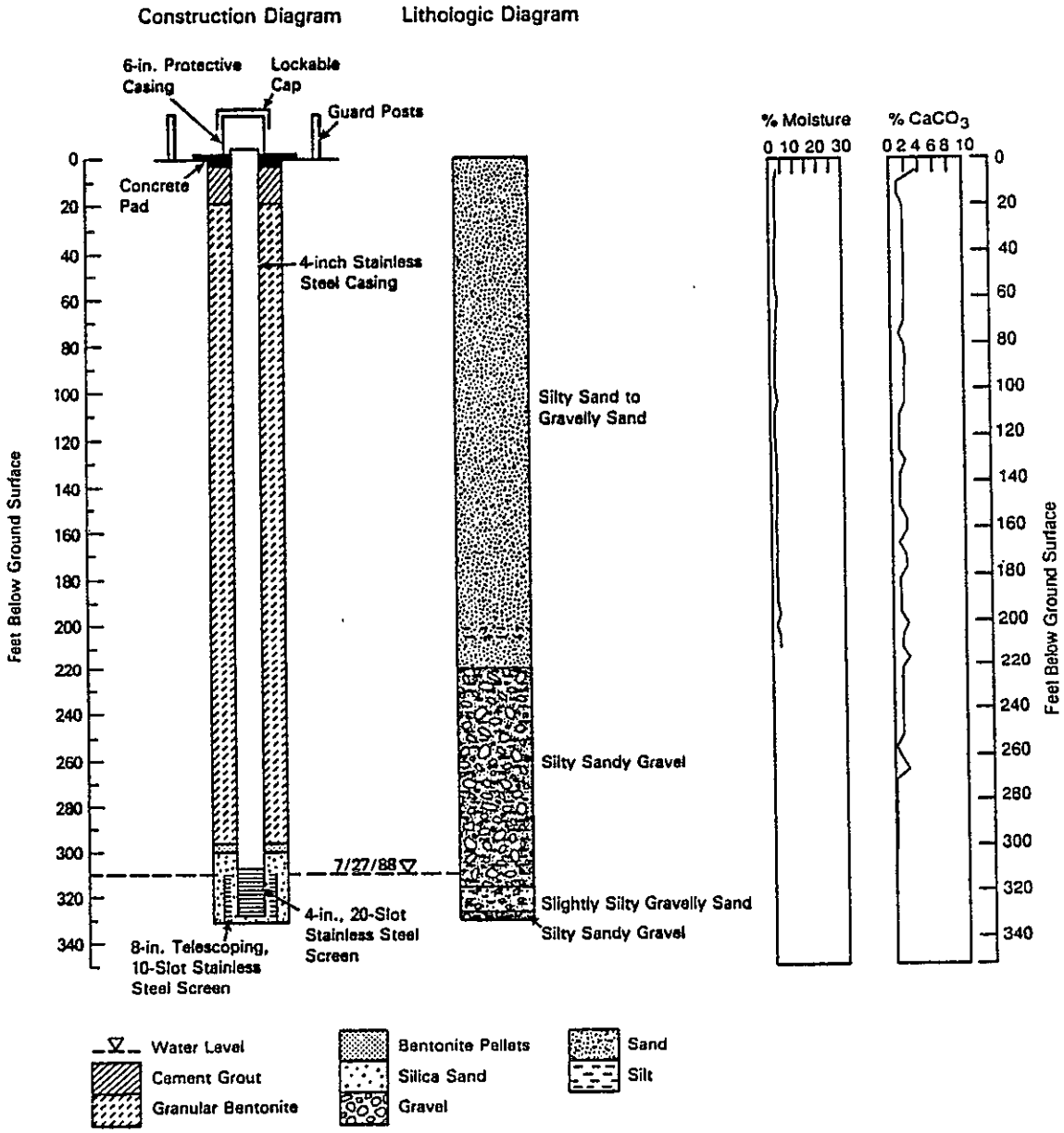
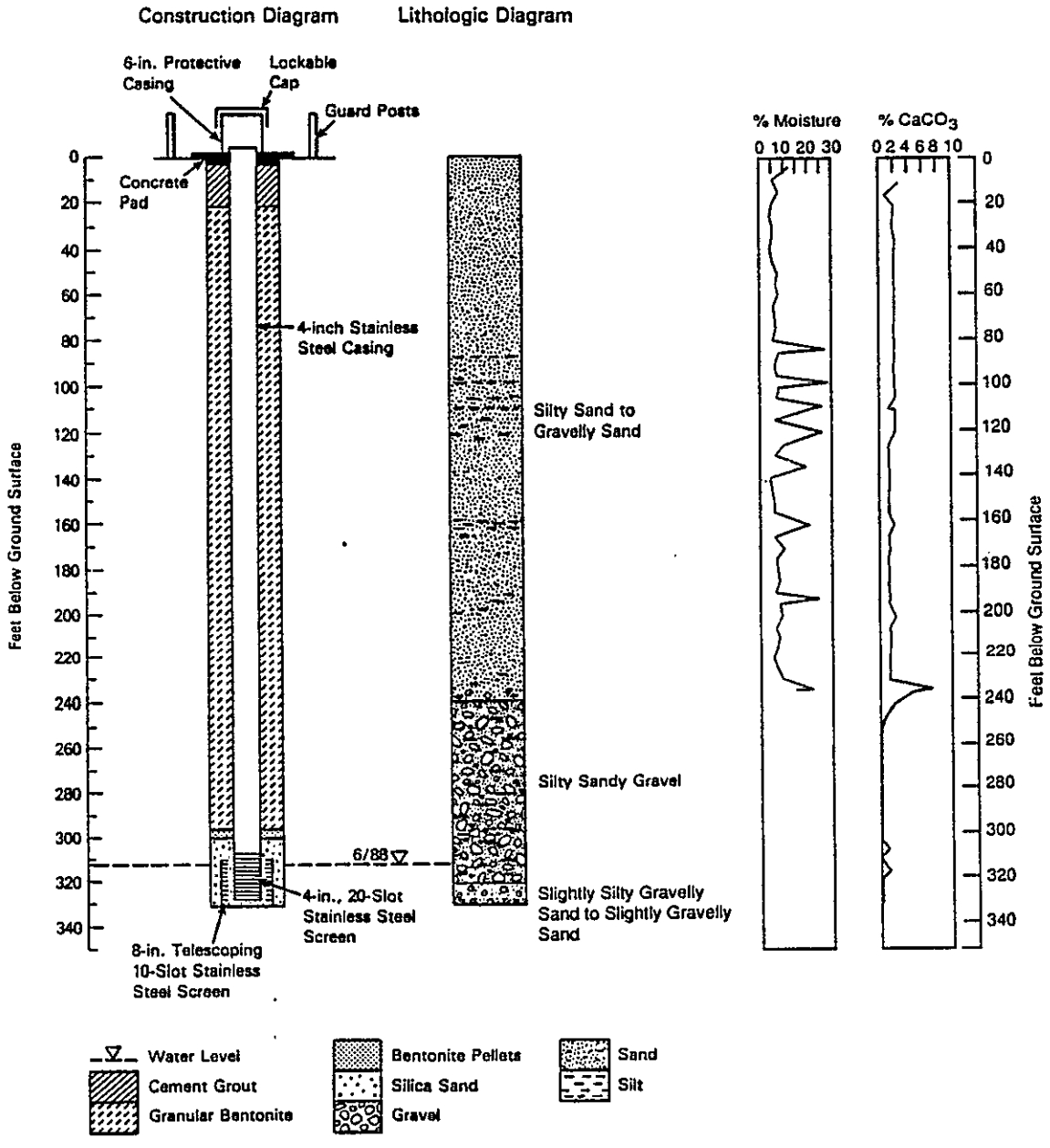


Well 299-E18-1



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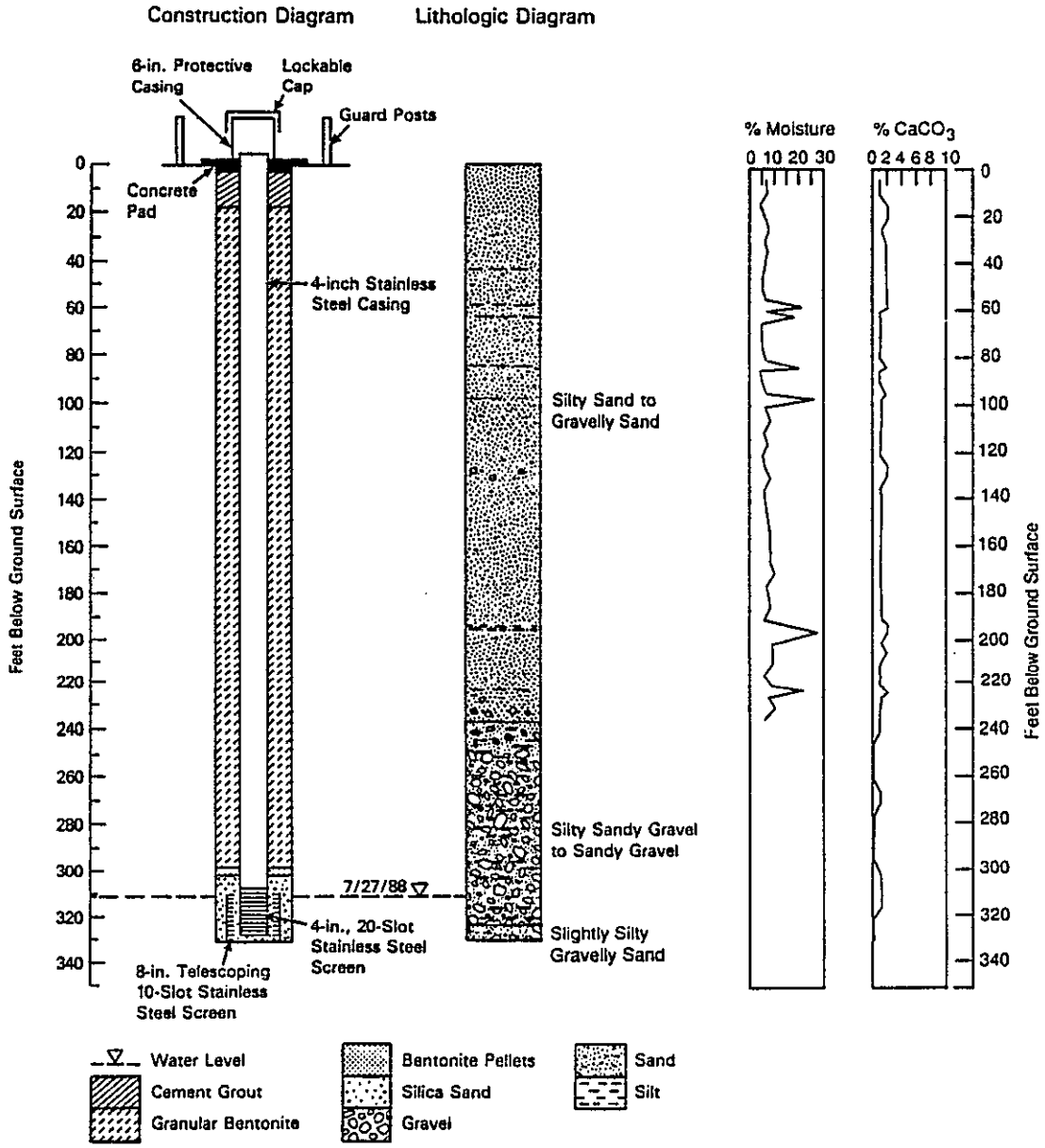

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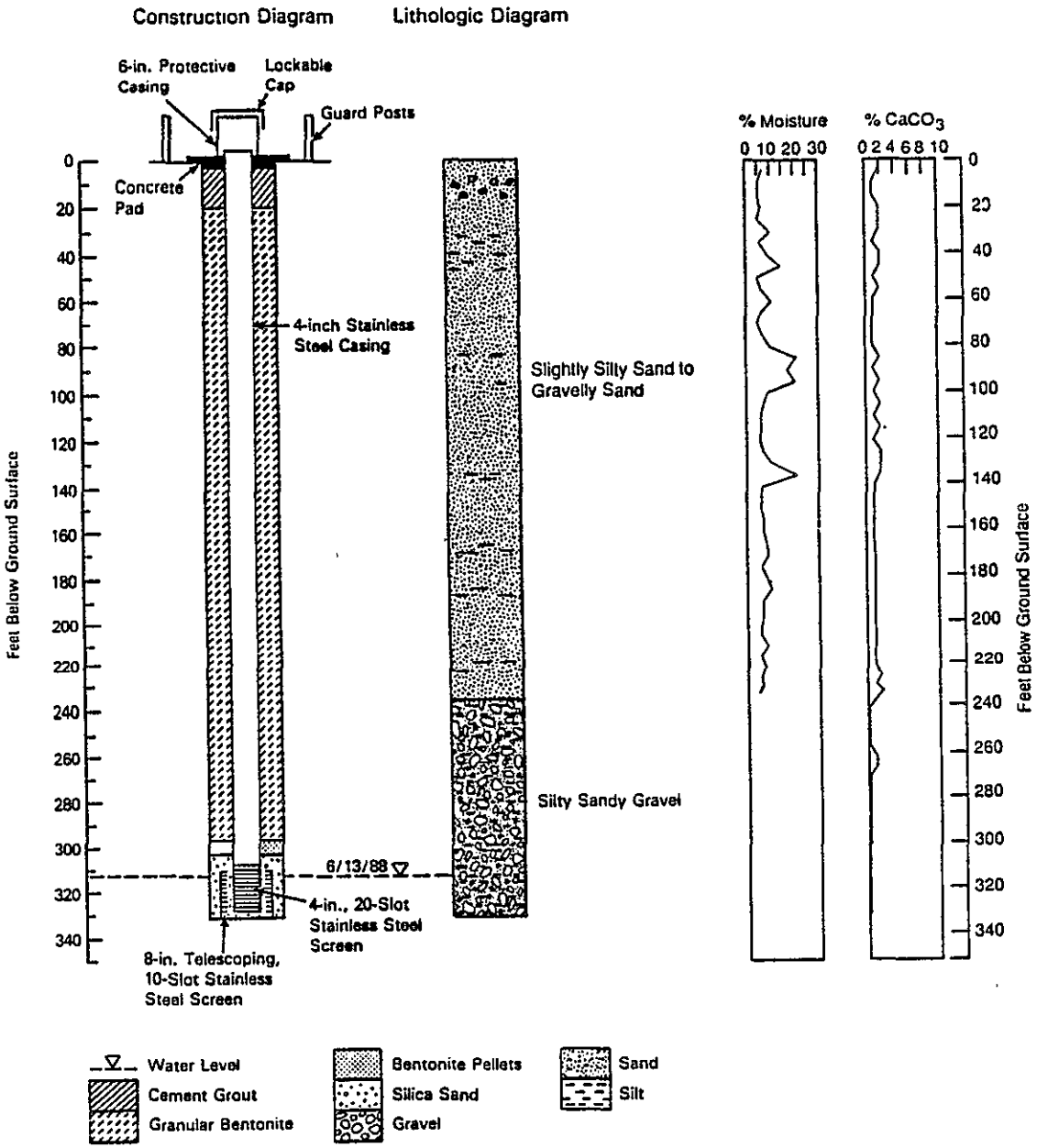

Well 299-E18-4

APPENDIX D-2

GROUNDWATER DATA

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Table D2-1. Summary of Sampling Results for the 2101-M Pond, August 1988. (sheet 1 of 4)

Constituent List=Contamination Indicator Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standard	Standards Agency	Exceeded	Full name
088	CONDLAB	umho	.	16	0		700	WDOE		Specific conductance, laboratory
191	CONDFLD	umho	1	16	0		700	WDOE	xxx	Specific conductance, field
199	PHFIELD		0.1	16	0		6.5-8.5	EPAS		pH, field
207	PH-LAB		0.01	16	0		6.5-8.5	EPAS		pH, laboratory
C69	TOC	ppb	1000	16	0		.			Total organic carbon
H42	TOXLDL	ppb	20	16	0		.			Total organic halogens, low DL

Constituent List=Drinking Water Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standard	Standards Agency	Exceeded	Full name
109	COLIFRM	MPN	2.2	4	4	***	1	EPA		Coliform bacteria
111	BETA	pCi/L	8	4	0		50	EPA		Gross beta
181	RADIUM	pCi/L	1	4	0		5	EPA		Total radium
212	ALPHA	pCi/L	4	4	0		15	EPA		Gross alpha
A06	BARIUM	ppb	6	4	0		1000	EPA		Barium
A07	CADMIUM	ppb	2	4	4	***	10	EPA		Cadmium
A08	CHROMUM	ppb	10	4	0		50	EPA	xxx	Chromium
A10	SILVER	ppb	10	4	4	***	50	EPA		Silver
A20	ARSENIC	ppb	5	4	1		50	EPA	xxx	Arsenic
A21	MERCURY	ppb	0.1	4	4	***	2	EPA		Mercury
A22	SELENUM	ppb	5	4	1		10	EPA	xxx	Selenium
A33	ENDRIN	ppb	0.1	4	4	***	0.2	EPA		Endrin
A34	METHLOR	ppb	3	4	4	***	100	EPA		Methoxychlor
A35	TOXAENE	ppb	1	4	4	***	5	EPA		Toxaphene
A36	a-BHC	ppb	0.1	4	4	***	4	EPA		Alpha-BHC
A37	b-BHC	ppb	0.1	4	4	***	4	EPA		Beta-BHC
A38	g-BHC	ppb	0.1	4	4	***	4	EPA		Gamma-BHC
A39	d-BHC	ppb	0.1	4	4	***	4	EPA		Delta-BHC
A51	LEADGF	ppb	5	4	3		50	EPA		Lead (graphite furnace)
C72	NITRATE	ppb	500	4	3		45000	EPA		Nitrate
C74	FLUORID	ppb	500	4	3		4000	EPA		Fluoride
H13	2,4-D	ppb	2	4	4	***	100	EPA		2,4-D [2,4-Dichlorophenoxyacetic acid]
H14	2,4,5TP	ppb	2	4	4	***	10	EPA		2,4,5-TP silvex
H20	FBARIUM	ppb	6	4	0		1000	EPA		Barium, filtered
H21	FCADMIU	ppb	2	4	4	***	10	EPA		Cadmium, filtered
H22	FCHROMI	ppb	10	4	4	***	50	EPA		Chromium, filtered
H23	FSILVER	ppb	10	4	4	***	50	EPA		Silver, filtered
H37	FARSENI	ppb	5	4	1		50	EPA		Arsenic, filtered
H38	FMERCUR	ppb	0.1	4	4	***	2	EPA		Mercury, filtered
H39	FSELENI	ppb	5	4	2		10	EPA	xxx	Selenium, filtered
H41	FLEAD	ppb	5	4	4	***	50	EPA		Lead, filtered

Table D2-1. Summary of Sampling Results for the 2101-M Pond, August 1988. (sheet 2 of 4)

Constituent List=Water Quality Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency	Exceeded	Full name
A11	SODIUM	ppb	200	4	0		.			Sodium
A17	MANGESE	ppb	5	4	0		50	EPAS	xxx	Manganese
A19	IRON	ppb	30	4	0		300	EPAS	xxx	Iron
C73	SULFATE	ppb	500	4	0		250000	EPAS		Sulfate
C75	CHLORID	ppb	500	4	0		250000	EPAS		Chloride
H24	FSODIUM	ppb	200	4	0		.			Sodium, filtered
H29	FMANGAN	ppb	5	4	2		50	EPAS	xxx	Manganese, filtered
H31	FIRON	ppb	30	4	0		300	EPAS		Iron, filtered
H67	LPHENOL	ppb	10	4	4	***	.			Phenol, low DL

Constituent List=Site Specific and Other Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency	Exceeded	Full name
A01	BERYLUM	ppb	5	4	4	***	.			Beryllium
A03	STRONUM	ppb	20	4	0		.			Strontium
A04	ZINC	ppb	5	4	1		5000	EPAS		Zinc
A05	CALCIUM	ppb	50	4	0		.			Calcium
A12	NICKEL	ppb	10	4	0		.			Nickel
A13	COPPER	ppb	10	4	4	***	1300	EPAP		Copper
A14	VANADUM	ppb	5	4	1		.			Vanadium
A15	ANTIONY	ppb	100	4	4	***	.			Antimony
A16	ALUMNUM	ppb	150	4	3		.			Aluminum
A18	POTASUM	ppb	100	4	0		.			Potassium
A50	MAGNES	ppb	50	4	0		.			Magnesium
C76	PHOSPHA	ppb	1000	4	4	***	.			Phosphate
H18	FZINC	ppb	5	4	2		5000	EPAS		Zinc, filtered
H19	FCALCIU	ppb	50	4	0		.			Calcium, filtered
H25	FNICKEL	ppb	10	4	3		.			Nickel, filtered
H26	FCOPPER	ppb	10	4	4	***	1300	EPAP		Copper, filtered
H27	FVANADI	ppb	5	4	1		.			Vanadium, filtered
H28	FALUMIN	ppb	150	4	4	***	.			Aluminum, filtered
H30	FPOTASS	ppb	100	4	0		.			Potassium, filtered
H32	FMAGNES	ppb	50	4	0		.			Magnesium, filtered
H33	FBERYLL	ppb	5	4	4	***	.			Beryllium, filtered
H35	FSTRONT	ppb	20	4	0		.			Strontium, filtered
H36	FANTIMO	ppb	100	4	4	***	.			Antimony, filtered

*** - Indicates all samples were reported as below contractual detection limits
xxx - Indicates that Drinking Water Standards were exceeded
EPA - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 26890
EPAR - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
EPAP - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
EPAS - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 National Secondary Drinking Water Regulations
[illegible]

Table D2-1. Summary of Sampling Results for the 2101-M Pond, August 1988. (sheet 3 of 4)

Quadruplicate Contamination Indicator Parameters

Well name	Collection Date	Duplicate sample number	CONDFLD umho 1/700w	CONDLAB umho ./700w	PH-LAB 0.01/8.5s	PHFIELD 0.1/8.5s	TOC ppb 1000/.	TOXLDL ppb 20/.
2-E18-1	16AUG88		812	534	7.9	7.8	▮532	▮1.3
		1	812	531	7.9	7.8	▮890	▮11.6
		2	811	529	7.9	7.9	▮382	▮11.4
		3	809	521	7.9	7.8	▮397	▮-4.8
2-E18-2	16AUG88		352	251	8.0	7.9	▮341	▮-4.7
		1	354	249	8.0	7.9	▮368	▮-0.9
		2	355	249	8.0	7.9	▮717	▮-1.8
		3	355	248	8.0	7.9	▮643	▮9.9
2-E18-3	16AUG88		279	200	8.0	7.9	▮546	▮2.9
		1	279	200	8.0	7.9	▮531	▮13.7
		2	280	204	8.0	7.9	▮498	37.2
		3	280	204	8.0	7.9	▮492	▮6.1
2-E18-4	16AUG88		303	219	8.0	7.8	▮453	▮0.9
		1	303	220	8.0	7.9	▮603	▮7.7
		2	303	219	8.0	8.0	▮440	▮-3.2
		3	303	218	8.0	8.0	▮642	▮12.7

The column headers consist of : Constituent Name
Analysis Units
Contractual Detection Limit/Drinking Water Standard(suffix)

Suffix
none - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 25690
r - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
p - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
s - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 (July, 1987) National Secondary Drinking Water Regulations
w - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Data flags
(- Less than Contractual Detection Limit, reported as Limit
▮ - Less than Contractual Detection Limit, measured value reported
◆ - For radioactive constituents, reported value is less than 2-sigma error

Table D2-1. Summary of Sampling Results for the 2101-M Pond, August 1988. (sheet 4 of 4)

Well name	Collection Date	Duplicate sample number	ALPHA pCi/L 4/15	ALUMINUM ppb 150/.	ARSENIC ppb 5/50	FARSENI ppb 5/50	BARIUM ppb 6/1000	FBARIUM ppb 6/1000	BETA pCi/L 8/50	FCALCIU ppb 50/.	CALCIUM ppb 50/.
2-E18-1	16AUG88		2.210	351	<5	<5	41	41	3.89	70,800	57,300
2-E18-2	16AUG88		0.416	<150	5	5	49	53	*1.13	25,700	22,900
2-E18-3	16AUG88		*0.352	<150	51	12	50	52	1.87	26,800	24,800
2-E18-4	16AUG88		0.917	<150	11	9	49	52	2.05	30,700	27,500

Well name	Collection Date	Duplicate sample number	CHLORID ppb 500/250000s	CHROMUM ppb 10/50	FLUORID ppb 500/4000	IRON ppb 30/300s	FIRON ppb 30/300s	LEADGF ppb 5/50	MAGNES ppb 50/.	FMAGNES ppb 50/.	FMANGAN ppb 5/50s
2-E18-1	16AUG88		6,550	30	<500	1250	33	<5.0	15,300	17,100	51
2-E18-2	16AUG88		2,060	30	575	250	39	<5.0	6,750	7,340	<5
2-E18-3	16AUG88		4,470	62	<500	983	40	<5.0	7,170	7,550	<5
2-E18-4	16AUG88		6,260	54	<500	493	67	9.5	7,810	8,340	8

Well name	Collection Date	Duplicate sample number	MANGESE ppb 5/50s	NICKEL ppb 10/.	FNICKEL ppb 10/.	NITRATE ppb 500/45000	FPOTASS ppb 100/.	POTASUM ppb 100/.	RADIUM pCi/L 1/5	FSELENI ppb 5/10	SELENIUM ppb 5/10
2-E18-1	16AUG88		70	15	<10	10,100	6,980	6,390	2.150	10.7	14.9
2-E18-2	16AUG88		6	16	<10	<500	5,280	4,920	1.240	7.0	8.9
2-E18-3	16AUG88		15	31	<10	<500	5,030	4,860	0.701	<5.0	48.6
2-E18-4	16AUG88		13	34	13	<500	5,580	5,250	0.753	<5.0	<5.0

Well name	Collection Date	Duplicate sample number	SODIUM ppb 200/.	FSODIUM ppb 200/.	FSTRONT ppb 20/.	STRONUM ppb 20/.	SULFATE ppb 500/250000s	FVANADI ppb 5/.	VANADUM ppb 5/.	ZINC ppb 5/5000s	FZINC ppb 5/5000s
2-E18-1	16AUG88		28,700	31,500	277	249	168,000	<5	<5	181	145
2-E18-2	16AUG88		18,000	19,700	145	133	23,500	13	15	<5	<5
2-E18-3	16AUG88		5,570	5,480	138	128	13,000	21	23	64	23
2-E18-4	16AUG88		6,010	6,310	163	146	13,500	19	20	21	<5

Table D2-2. Summary of Resampling Results for the 2101-M Pond, September 1988.

Standard List Constituents

Well name	Sample Date	Dup num	ALUMIN ppb 150/.	ALUMINUM ppb 150/.	ARSENIC ppb 5/50	ARSENI ppb 5/50	BARIUM ppb 6/1000	FBARIUM ppb 6/1000	CADMIU ppb 2/10	CADMIUM ppb 2/10	CALCIU ppb 50/.
2-E18-1	22SEP88		D	609	D	D	54	48	D	D	73700
2-E18-2	22SEP88		D	D	5	5	54	52	D	D	25600
2-E18-3	22SEP88		D	D	11	12	61	59	D	D	31000
2-E18-4	22SEP88		D	173	9	8	58	55	D	D	31300

Well name	Sample Date	Dup num	CALCIUM ppb 50/.	FCHROMI ppb 10/50	CHROMIUM ppb 10/50	COPPER ppb 10/1300p	FCOPPER ppb 10/1300p	IRON ppb 30/300s	FIRON ppb 30/300s	MAGNES ppb 50/.
2-E18-1	22SEP88		73800	D	104	D	D	1810	D	17000
2-E18-2	22SEP88		25400	D	87	D	D	535	D	6790
2-E18-3	22SEP88		29600	D	67	D	D	1440	32	7900
2-E18-4	22SEP88		31000	D	159	D	D	1580	68	8070

Well name	Sample Date	Dup num	FMAGNES ppb 50/.	FMANGAN ppb 5/50s	MANGESE ppb 5/50s	NICKEL ppb 10/.	FNICKEL ppb 10/.	FPOTASS ppb 100/.	POTASUM ppb 100/.	FSELENI ppb 5/10	SELENUM ppb 5/10
2-E18-1	22SEP88		16500	19	46	48	D	6870	7200	8.6	10
2-E18-2	22SEP88		6710	D	13	43	D	4930	5090	D	D
2-E18-3	22SEP88		8080	D	22	35	D	5220	5140	D	D
2-E18-4	22SEP88		8060	11	32	79	16	5570	5640	D	D

Well name	Sample Date	Dup num	SILVER ppb 10/50	FSILVER ppb 10/50	SODIUM ppb 200/.	FSODIUM ppb 200/.	FVANADI ppb 5/.	VANADIUM ppb 5/.	ZINC ppb 5/5000s	FZINC ppb 5/5000s
2-E18-1	22SEP88		D	D	38800	37400	D	5	73	46
2-E18-2	22SEP88		D	D	17700	17300	18	19	D	D
2-E18-3	22SEP88		D	D	5310	5360	37	36	34	D
2-E18-4	22SEP88		D	D	6760	6680	19	22	10	D

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 1 of 12)

Constituent List=Contamination Indicator Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency	Exceeded	Full name
088	CONDLAB	umho	.	16	0		700	WDOE		Specific conductance, laboratory
191	CONDFLD	umho	1	24	0		700	WDOE		Specific conductance, field
199	PHFIELD		0.1	24	0		6.5-8.5	EPAS	xxx	pH, field
207	PH-LAB		0.01	16	0		6.5-8.5	EPAS		pH, laboratory
C69	TOC	ppb	1000	20	0		.			Total organic carbon
H42	TOXLDL	ppb	20	20	0		.			Total organic halogens, low DL

Constituent List=Interim Primary Drinking Water Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency	Exceeded	Full name
109	COLIFRM	MPN	2.2	4	4	***	1	EPA		Coliform bacteria
111	BETA	pCi/L	8	6	0		50	EPA		Gross beta
181	RADIUM	pCi/L	1	6	0		5	EPA		Total radium
212	ALPHA	pCi/L	4	6	0		15	EPA		Gross alpha
A06	BARIUM	ppb	8	6	0		1000	EPA		Barium
A07	CADMIUM	ppb	2	6	6	***	10	EPA		Cadmium
A08	CHROMUM	ppb	10	6	0		50	EPA		Chromium
A10	SILVER	ppb	10	6	6	***	50	EPA		Silver
A20	ARSENIC	ppb	5	6	2		50	EPA		Arsenic
A21	MERCURY	ppb	0.1	6	6	***	2	EPA		Mercury
A22	SELENUM	ppb	5	6	4		10	EPA		Selenium
A33	ENDRIN	ppb	0.1	6	6	***	0.2	EPA		Endrin
A34	METHLOR	ppb	3	6	6	***	100	EPA		Methoxychlor
A35	TOXAENE	ppb	1	6	6	***	5	EPA		Toxaphene
A36	a-BHC	ppb	0.1	6	6	***	4	EPA		Lindane, alpha-BHC
A37	b-BHC	ppb	0.1	6	6	***	4	EPA		Lindane, beta-BHC
A38	g-BHC	ppb	0.1	6	6	***	4	EPA		Lindane, gamma-BHC
A39	d-BHC	ppb	0.1	6	6	***	4	EPA		Lindane, delta-BHC
A51	LEADGF	ppb	5	6	6		50	EPA		Lead (graphite furnace)
C72	NITRATE	ppb	500	6	4		45000	EPA		Nitrate
C74	FLUORID	ppb	500	6	4		4000	EPA		Fluoride
H13	2,4-D	ppb	2	6	6	***	100	EPA		2,4-D [2,4-Dichlorophenoxyacetic acid]
H14	2,4,5TP	ppb	2	6	6	***	10	EPA		2,4,5-TP silvex
H20	FBARIUM	ppb	6	6	0		1000	EPA		Barium, filtered
H21	FCADMIU	ppb	2	6	6	***	10	EPA		Cadmium, filtered
H22	FCHROMI	ppb	10	6	6		50	EPA		Chromium, filtered
H23	FSILVER	ppb	10	6	6	***	50	EPA		Silver, filtered
H37	FARSENI	ppb	5	6	2		50	EPA		Arsenic, filtered
H38	FMERCUR	ppb	0.1	6	6	***	2	EPA		Mercury, filtered
H39	FSELENI	ppb	5	6	4		10	EPA		Selenium, filtered
H41	FLEAD	ppb	5	6	6	***	50	EPA		Lead, filtered

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 2 of 12)

Constituent List=Water Quality Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency	Exceeded	Full name
A11	SODIUM	ppb	200	6	0		.			Sodium
A17	MANGESE	ppb	5	6	2		50	EPAS		Manganese
A19	IRON	ppb	30	6	0		300	EPAS	xxx	Iron
C67	PHENOL	ppb	10	4	4	***	.			Phenol
C73	SULFATE	ppb	500	6	0		250000	EPAS		Sulfate
C76	CHLORID	ppb	500	6	0		250000	EPAS		Chloride
H24	FSODIUM	ppb	200	6	0		.			Sodium, filtered
H29	FMANGAN	ppb	5	6	6	***	50	EPAS		Manganese, filtered
H31	FIRON	ppb	30	6	5		300	EPAS		Iron, filtered
H67	LPHENOL	ppb	10	1	1	***	.			Phenol, low DL

Constituent List=Site Specific and Other Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency	Exceeded	Full name
100	TRITIUM	pCi/L	500	5	0		20000	EPA		Tritium (H-3)
A01	BERYLUM	ppb	5	6	6	***	.			Beryllium
A03	STRONUM	ppb	20	6	0		.			Strontium
A04	ZINC	ppb	5	6	0		5000	EPAS		Zinc
A05	CALCIUM	ppb	50	6	0		.			Calcium
A12	NICKEL	ppb	10	6	0		.			Nickel
A13	COPPER	ppb	10	6	5		1300	EPAP		Copper
A14	VANADUM	ppb	5	6	1		.			Vanadium
A16	ANTIONY	ppb	100	6	6	***	.			Antimony
A16	ALUMNUM	ppb	150	6	6	***	.			Aluminum
A18	POTASUM	ppb	100	6	0		.			Potassium
A50	MAGNES	ppb	50	6	0		.			Magnesium
A61	TETRANE	ppb	5	15	15	***	5	EPA		Tetrachloromethane [Carbon Tetrachloride
A62	BENZENE	ppb	5	14	14	***	5	EPA		Benzene
A63	DIOXANE	ppb	500	14	14	***	.			Dioxane
A64	METHONE	ppb	10	15	15	***	.			Methyl ethyl ketone
A65	PYRIDIN	ppb	500	14	14	***	.			Pyridine
A66	TOLUENE	ppb	5	14	14	***	2000	EPAP		Toluene
A67	1,1,1-T	ppb	5	15	15	***	200	EPA		1,1,1-Trichloroethane
A68	1,1,2-T	ppb	5	15	15	***	.			1,1,2-Trichloroethane
A69	TRICENE	ppb	5	15	15	***	5	EPA		Trichloroethylene [1,1,2-Trichloroethene
A70	PERCENE	ppb	5	15	15	***	.			Perchloroethylene [Tetrachloroethene]
A71	OPXYLE	ppb	5	15	15	***	440	EPAP		Xylene-o,p
A72	ACROLIN	ppb	10	14	14	***	.			Acrolein
A73	ACRYILE	ppb	10	14	14	***	.			Acrylonitrile
A74	BISTHER	ppb	10	14	14	***	.			Bis(chloromethyl) ether
A75	BROMONE	ppb	10	14	14	***	.			Bromoacetone
A76	METHBRO	ppb	10	14	14	***	.			Methyl bromide
A77	CARBIDE	ppb	10	14	14	***	.			Carbon disulfide
A78	CHLBENZ	ppb	10	14	14	***	60	EPAP		Chlorobenzene
A79	CHLTHER	ppb	10	14	14	***	.			2-Chloroethyl vinyl ether
A80	CHLFORM	ppb	5	15	15	***	100	EPA		Chloroform [Trichloromethane]

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 3 of 12)

Constituent List-Site Specific and Other Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency Exceeded	Full name
A81	METHCHL	ppb	10	14	14	***	.		Methyl chloride (Chloromethane)
A82	CHMTHER	ppb	10	14	14	***	.		Chloromethyl methyl ether
A83	CROTONA	ppb	10	14	14	***	.		Crotonaldehyde
A84	DIBRCHL	ppb	10	14	14	***	0	EPAP	1,2-Dibromo-3-chloropropane
A86	DIBRETH	ppb	10	14	14	***	.		1,2-Dibromoethane
A88	DIBRMET	ppb	10	14	14	***	.		Dibromomethane
A87	DIBUTEN	ppb	10	14	14	***	.		1,4-Dichloro-2-butene
A88	DICDIFM	ppb	10	14	14	***	.		Dichlorodifluoromethane
A89	1,1-DIC	ppb	10	14	14	***	.		1,1-Dichloroethane
A90	1,2-DIC	ppb	10	14	14	***	5	EPA	1,2-Dichloroethane
A91	TRANDCE	ppb	10	14	14	***	70	EPAP	trans-1,2-Dichloroethene
A92	DICETHY	ppb	10	14	14	***	7	EPA	1,1-Dichloroethylene
A93	METHYCH	ppb	10	16	16	***	.		Methylene chloride
A94	DICPANE	ppb	10	14	14	***	6	EPAP	1,2-Dichloropropane
A96	DICPENE	ppb	10	14	14	***	.		1,3-Dichloropropene
A98	NNDIEHY	ppb	10	14	14	***	.		N,N-diethylhydrazine
A99	HYDRSUL	ppb	10	14	14	***	.		Hydrogen sulfide
B01	IODOMET	ppb	10	14	14	***	.		Iodomethane
B02	METHACR	ppb	10	14	14	***	.		Methacrylonitrile
B03	METHTHI	ppb	10	14	14	***	.		Methanethiol
B04	PENTACH	ppb	10	14	14	***	.		Pentachloroethane
B05	1112-tc	ppb	10	14	14	***	.		1,1,1,2-Tetrachloroethane
B06	1122-tc	ppb	10	14	14	***	.		1,1,2,2-Tetrachloroethane
B08	BROMORM	ppb	10	14	14	***	100	EPA	Bromoform (Tribromomethane)
B09	TRCMEOL	ppb	10	14	14	***	.		Trichloromethanethiol
B10	TRCMFLM	ppb	10	14	14	***	.		Trichloromonofluoromethane
B11	TRCPANE	ppb	10	14	14	***	.		Trichloropropane
B12	123-trp	ppb	10	14	14	***	.		1,2,3-Trichloropropane
B13	VINYIDE	ppb	10	14	14	***	2	EPA	Vinyl chloride
B14	M-XYLE	ppb	5	16	16	***	440	EPAP	Xylene-m
B15	DIETHY	ppb	10	14	14	***	.		Diethylarsine
B19	ACETILE	ppb	3000	14	14	***	.		Acetonitrile
C04	METACRY	ppb	10	14	14	***	.		Methyl methacrylate
C71	FORMALN	ppb	500	14	14	***	.		Formalin
C78	PHOSPHA	ppb	1000	6	6	***	.		Phosphate
H05	ETHOXID	ppb	3000	14	14	***	.		Ethylene oxide
H06	ETHMETH	ppb	10	14	14	***	.		Ethyl methacrylate
H16	TC	ppb	1000	4	0		.		Total carbon
H18	FZINC	ppb	5	6	0		5000	EPAS	Zinc, filtered
H19	FCALCIU	ppb	50	6	0		.		Calcium, filtered
H25	FNICKEL	ppb	10	6	0		.		Nickel, filtered
H26	FCOPPER	ppb	10	6	5		1300	EPAP	Copper, filtered
H27	FVANADI	ppb	5	6	2		.		Vanadium, filtered
H28	FALUMIN	ppb	150	6	6	***	.		Aluminum, filtered
H30	FPOTASS	ppb	100	6	0		.		Potassium, filtered
H32	FMAGNES	ppb	50	6	0		.		Magnesium, filtered
H33	FBERYLL	ppb	5	6	6	***	.		Beryllium, filtered
H35	FSTRONT	ppb	20	6	0		.		Strontium, filtered
H36	FANTIMO	ppb	100	6	6	***	.		Antimony, filtered

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 4 of 12)

Constituent List=Site Specific and Other Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Standard	Water Standards Agency Exceeded	Full name
H80	TURBID	ntu	0.1	1	0		.		Turbidity
H86	BROMIDE	ppb	1000	8	8	***	.		Bromide
H87	NITRITE	ppb	1000	8	8	***	.		Nitrite
H88	HEXONE	ppb	10	16	16	***	.		Hexone
I01	ACETONE	ppb	10	14	4		.		Acetone
I09	BUTANOL	ppb	5000	4	4	***	.		1-Butanol
I10	PROPANL	ppb	5000	4	4	***	.		2-Propanol
I21	TRIBUPH	ppb	10	4	4	***	.		Tributylphosphoric acid
I28	TAF	ppb	10	14	14	***	.		Tetrahydorfuran
I67	ETHANOL	ppb	5000	4	4	***	.		Ethanol
L20	MBP	ppb	5000	4	4	***	.		Monobutylphosphate
L21	DBP	ppb	5000	4	4	***	.		Dibutylphosphate

Constituent List=WAC 173-303-9905

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Standard	Water Standards Agency Exceeded	Full name
A23	THALIUM	ppb	5	5	5	***	.		Thallium
A24	THIOURA	ppb	200	4	4	***	.		Thiourea
A25	ACETREA	ppb	200	4	4	***	.		1-Acetyl-2-thiourea
A26	CHLOREA	ppb	200	4	4	***	.		1-(o-Chlorophenyl) thiourea
A27	DIETROL	ppb	200	4	4	***	.		Diethylstilbesterol
A28	ETHYREA	ppb	200	4	4	***	.		Ethylenethiourea
A29	NAPHREA	ppb	200	4	4	***	.		1-Napthyl-2-thiourea
A32	PHENREA	ppb	500	4	4	***	.		N-phenylthiourea
A40	DDD	ppb	0.1	4	4	***	.		DDD
A41	DDE	ppb	0.1	4	4	***	.		DDE
A42	DDT	ppb	0.1	4	4	***	.		DDT
A43	HEPTLOR	ppb	0.1	4	4	***	0	EPAP	Heptachlor
A44	HEPTIDE	ppb	0.1	4	4	***	0	EPAP	Heptachlor epoxide
A46	DIELRIN	ppb	0.1	4	4	***	.		Dieldrin
A47	ALDRIN	ppb	0.1	4	4	***	.		Aldrin
A48	CHLDANE	ppb	1	4	4	***	0	EPAP	Chlordane
A49	ENDO1	ppb	0.1	4	4	***	.		Endosulfan I (alpha)
A52	ENDO2	ppb	0.1	4	4	***	.		Endosulfan II (beta)
A54	AR1016	ppb	1	4	4	***	0	EPAP	Arochlor 1016
A55	AR1221	ppb	1	4	4	***	0	EPAP	Arochlor 1221
A56	AR1232	ppb	1	4	4	***	0	EPAP	Arochlor 1232
A57	AR1242	ppb	1	4	4	***	0	EPAP	Arochlor 1242
A58	AR1248	ppb	1	4	4	***	0	EPAP	Arochlor 1248
A59	AR1254	ppb	1	4	4	***	0	EPAP	Arochlor 1254
A60	AR1260	ppb	1	4	4	***	0	EPAP	Arochlor 1260
B20	ACETOPH	ppb	10	4	4	***	.		Acetophenone
B21	WARFRIN	ppb	10	4	4	***	.		Warfarin
B22	ACEFENE	ppb	10	4	4	***	.		2-Acetylaminofluorene
B23	AMINOYL	ppb	10	4	4	***	.		4-Aminobiphenyl
B24	AMIISOX	ppb	10	4	4	***	.		5-(Aminomethyl)-3-isoxazolol

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 5 of 12)

Constituent List=WAC 173-303-9906

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency Exceeded	Full name
B26	AMITROL	ppb	10	4	4	***	.		Amitrole
B28	ANILINE	ppb	10	4	4	***	.		Aniline
B27	ARAMITE	ppb	10	4	4	***	.		Aramite
B28	AURAMIN	ppb	10	4	4	***	.		Auramine
B29	BENZCAC	ppb	10	4	4	***	.		Benz[c]acridine
B30	BENZAAN	ppb	10	4	4	***	.		Benz[a]anthracene
B31	BENDICM	ppb	10	4	4	***	.		Benzene, dichloromethyl
B32	BENTHOL	ppb	10	4	4	***	.		Benzenethiol
B33	BENDINE	ppb	10	4	4	***	.		Benzidine
B34	BENZBFL	ppb	10	4	4	***	.		Benzo[b]fluoranthene
B35	BENZJFL	ppb	10	4	4	***	.		Benzo[j]fluoranthene
B36	PBENZQU	ppb	10	4	4	***	.		p-Benzoquinone
B37	BENZCHL	ppb	10	4	4	***	.		Benzyl chloride
B38	BIS2CHM	ppb	10	4	4	***	.		Bis(2-chloroethoxy) methane
B39	BIS2CHE	ppb	10	4	4	***	.		Bis(2-chloroethyl) ether
B40	BIS2EPH	ppb	10	4	4	***	.		Bis(2-ethylhexyl) phthalate
B41	BROPHEN	ppb	10	4	4	***	.		4-Bromophenyl phenyl ether
B42	BUTBENP	ppb	10	4	4	***	.		Butyl benzyl phthalate
B43	BUTDINP	ppb	10	4	4	***	.		2-sec-Butyl-4,6-dinitrophenol (DNBP)
B44	CHALETH	ppb	10	4	4	***	.		Chloroalkyl ethers
B46	CHLANIL	ppb	10	4	4	***	.		p-Chloroaniline
B46	CHLCRES	ppb	10	4	4	***	.		p-Chloro-m-cresol
B47	CHLEPOX	ppb	10	4	4	***	0	EPAP	1-Chloro-2,3-epoxypropane
B48	CHLNAPH	ppb	10	4	4	***	.		2-Chloronaphthalene
B49	CHLPHEN	ppb	10	4	4	***	.		2-Chlorophenol
B51	CRESOLS	ppb	10	4	4	***	.		Cresols
B52	CYCHDIN	ppb	10	4	4	***	.		2-Cyclohexyl-4,6-dinitrophenol
B53	DIBAHAC	ppb	10	4	4	***	.		Dibenz[a,h]acridine
B54	DIBAJAC	ppb	10	4	4	***	.		Dibenz[a,j]acridine
B55	DIBAHAN	ppb	10	4	4	***	.		Dibenz[a,h]anthracene
B56	DIBCGCA	ppb	10	4	4	***	.		7H-Dibenzo[c,g]carbazole
B57	DIBAEPY	ppb	10	4	4	***	.		Dibenzo[a,e]pyrene
B58	DIBAHPY	ppb	10	4	4	***	.		Dibenzo[a,h]pyrene
B59	DIBAIPY	ppb	10	4	4	***	.		Dibenzo[a,i]pyrene
B60	DIBPHTH	ppb	10	4	4	***	.		Di-n-butyl phthalate
B61	12-dben	ppb	10	4	4	***	.		1,2-Dichlorobenzene
B62	13-dben	ppb	10	4	4	***	.		1,3-Dichlorobenzene
B63	14-dben	ppb	10	4	4	***	.		1,4-Dichlorobenzene
B64	DICHBEN	ppb	20	4	4	***	.		3,3'-Dichlorobenzidine
B65	24-dchp	ppb	10	4	4	***	.		2,4-Dichlorophenol
B66	26-dchp	ppb	10	4	4	***	.		2,6-Dichlorophenol
B67	DIEPHTH	ppb	10	4	4	***	.		Diethyl phthalate
B68	DIHYSAF	ppb	10	4	4	***	.		Dihydrosafrole
B69	DIMETHB	ppb	10	4	4	***	.		3,3'-Dimethoxybenzidine
B70	DIMEAMB	ppb	10	4	4	***	.		p-Dimethylaminoazobenzene
B71	DIMBENZ	ppb	10	4	4	***	.		7,12-Dimethylbenz[a]anthracene
B72	DIMEYLB	ppb	10	4	4	***	.		3,3'-Dimethylbenzidine
B73	THIONOX	ppb	10	4	4	***	.		Thiofanox
B74	DIMPHAM	ppb	10	4	4	***	.		alpha,alpha-Dimethylphenethylamine

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 6 of 12)

Constituent List=WAC 173-303-9906

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency Exceeded	Full name
B75	DIMPHEN	ppb	10	4	4	***		.	2,4-Dimethylphenol
B76	DIMPHTH	ppb	10	4	4	***		.	Dimethyl phthalate
B77	DINBENZ	ppb	10	4	4	***		.	Dinitrobenzene
B78	DINCRES	ppb	10	4	4	***		.	4,6-Dinitro-o-cresol and salts
B79	DINPHEN	ppb	60	4	4	***		.	2,4-Dinitrophenol
B80	24-dint	ppb	10	4	4	***		.	2,4-Dinitrotoluene
B81	26-dint	ppb	10	4	4	***		.	2,6-Dinitrotoluene
B82	DIOPHTH	ppb	10	4	4	***		.	Di-n-octyl phthalate
B83	DIPHAMI	ppb	10	4	4	***		.	Diphenylamine
B84	DIPHHYD	ppb	10	4	4	***		.	1,2-Diphenylhydrazine
B85	DIPRNIT	ppb	10	4	4	***		.	Di-n-propylnitrosamine
B86	ETHMINE	ppb	10	4	4	***		.	Ethylenimine
B87	ETHMETS	ppb	10	4	4	***		.	Ethyl methanesulfonate
B88	FLUORAN	ppb	10	4	4	***		.	Fluoranthene
B89	HEXCBEN	ppb	10	4	4	***		.	Hexachlorobenzene
B90	HEXCBUT	ppb	10	4	4	***		.	Hexachlorobutadiene
B91	HEXCCYC	ppb	10	4	4	***		.	Hexachlorocyclopentadiene
B92	HEXCETH	ppb	10	4	4	***		.	Hexachloroethane
B93	INDENOP	ppb	10	4	4	***		.	Indeno(1,2,3-cd)pyrene
B94	ISOSOLE	ppb	10	4	4	***		.	Isosafrole
B95	MALOILE	ppb	10	4	4	***		.	Malononitrile
B96	MELPHAL	ppb	10	4	4	***		.	Melphalan
B97	METHAPY	ppb	10	4	4	***		.	Methapyrilene
B98	METHNYL	ppb	10	4	4	***		.	Methomyl
B99	METAZIR	ppb	10	4	4	***		.	2-Methylaziridine
C01	METCHAN	ppb	10	4	4	***		.	3-Methylcholanthrene
C02	METBISC	ppb	10	4	4	***		.	4,4'-Methylenebis(2-chloroaniline)
C03	METACTO	ppb	10	4	4	***		.	2-Methyllactonitrile
C05	METMSUL	ppb	10	4	4	***		.	Methyl methanesulfonate
C06	METPROP	ppb	10	4	4	***		.	2-Methyl-2-(methylthio) propionaldehyde-
C07	METHIOU	ppb	10	4	4	***		.	Methylthiouracil
C08	NAPHQUI	ppb	10	4	4	***		.	1,4-Naphthoquinone
C09	1-napha	ppb	10	4	4	***		.	1-Naphthylamine
C10	2-napha	ppb	10	4	4	***		.	2-Naphthylamine
C11	NITRANI	ppb	60	4	4	***		.	p-Nitroaniline
C12	NITBENZ	ppb	10	4	4	***		.	Nitrobenzene
C13	NITPHEN	ppb	60	4	4	***		.	4-Nitrophenol
C14	NNIBUTY	ppb	10	4	4	***		.	N-nitrosodi-n-butylamine
C15	NNIDIEA	ppb	10	4	4	***		.	N-nitrosodiethanolamine
C16	NNIDIEY	ppb	10	4	4	***		.	N-nitrosodiethylamine
C17	NNIDIME	ppb	10	4	4	***		.	N-nitrosodimethylamine
C18	NNIMETH	ppb	10	4	4	***		.	N-nitrosomethylethylamine
C19	NNIURET	ppb	10	4	4	***		.	N-nitroso-n-methylurethane
C20	NNIVINY	ppb	10	4	4	***		.	N-nitrosomethylvinylamine
C21	NNIMORP	ppb	10	4	4	***		.	N-nitrosomorpholine
C22	NNINICO	ppb	10	4	4	***		.	N-nitrosonornicotine
C23	NNIPIPE	ppb	10	4	4	***		.	N-nitrosopiperidine
C24	NITRPYR	ppb	10	4	4	***		.	Nitrosopyrrolidine
C25	NITRTOL	ppb	10	4	4	***		.	5-Nitro-o-toluidine

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 7 of 12)

Constituent List=WAC 173-303-9906

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standard	Standards Agency Exceeded	Full name
C26	PENTCHB	ppb	10	4	4	***	.		Pentachlorobenzene
C27	PENTCHN	ppb	10	4	4	***	.		Pentachloronitrobenzene
C28	PENTCHP	ppb	60	4	4	***	220	EPAP	Pentachlorophenol
C29	PHENTIN	ppb	10	4	4	***	.		Phenacetin
C30	PHENINE	ppb	10	4	4	***	.		Phenylenediamine
C31	PHTHEST	ppb	10	4	4	***	.		Phthalic acid esters
C32	PICOLIN	ppb	10	4	4	***	.		2-Picoline
C33	PRONIDE	ppb	10	4	4	***	.		Pronamide
C34	RESERPI	ppb	10	4	4	***	.		Reserpine
C35	RESORCI	ppb	10	4	4	***	.		Resorcinol
C36	SAFROL	ppb	10	4	4	***	.		Safrol
C37	TETRCHB	ppb	10	4	4	***	.		1,2,4,5-Tetrachlorobenzene
C38	TETRCHP	ppb	10	4	4	***	.		2,3,4,6-Tetrachlorophenol
C40	THIURAM	ppb	10	4	4	***	.		Thiuram
C41	TOLUDIA	ppb	10	4	4	***	.		Toluenediamine
C42	OTOLHYD	ppb	10	4	4	***	.		o-Toluidine hydrochloride
C43	TRICHLB	ppb	10	4	4	***	.		1,2,4-Trichlorobenzene
C44	245-trp	ppb	60	4	4	***	.		2,4,5-Trichlorophenol
C45	246-trp	ppb	10	4	4	***	.		2,4,6-Trichlorophenol
C46	TRIPHOS	ppb	10	4	4	***	.		O,o,o-triethyl phosphorothioate
C47	SYMTRIN	ppb	10	4	4	***	.		Sym-trinitrobenzene
C48	TRISPHO	ppb	10	4	4	***	.		Tris(2,3-dibromopropyl) phosphate
C49	BENZOPY	ppb	10	4	4	***	.		Benzo[a]pyrene
C50	CHLNAPZ	ppb	10	4	4	***	.		Chlornaphazine
C51	BIS2ETH	ppb	10	4	4	***	.		Bis(2-chloroisopropyl) ether
C52	HEXAENE	ppb	10	4	4	***	.		Hexachloropropene
C53	HYDRAZI	ppb	3000	4	4	***	.		Hydrazine
C54	HEXACHL	ppb	10	4	4	***	.		Hexachlorophene
C55	NAPHTHA	ppb	10	4	4	***	.		Naphthalene
C56	123TRI	ppb	10	4	4	***	.		1,2,3-Trichlorobenzene
C58	135TRI	ppb	10	4	4	***	.		1,3,5-Trichlorobenzene
C59	1234TE	ppb	10	4	4	***	.		1,2,3,4-Tetrachlorobenzene
C60	1235TE	ppb	10	4	4	***	.		1,2,3,5-Tetrachlorobenzene
C61	TETEPYR	ppb	2	4	4	***	.		Tetraethylpyrophosphate
C62	CHLLATE	ppb	30	4	4	***	.		Chlorobenzilate
C63	CARBPHT	ppb	2	4	4	***	.		Carbophenothion
C64	DISULFO	ppb	2	4	4	***	.		Disulfoton
C65	DIMETHO	ppb	2	4	4	***	.		Dimethoate
C66	METHPAR	ppb	2	4	4	***	.		Methyl parathion
C67	PARATHI	ppb	2	4	4	***	.		Parathion
C70	CYANIDE	ppb	10	6	6	***	.		Cyanide
C77	PERCHLO	ppb	1000	4	4	***	.		Perchlorate
C78	SULFIDE	ppb	1000	4	4	***	.		Sulfide
C79	KEROSEN	ppb	10000	4	4	***	.		Kerosene
C80	AMMONIU	ppb	60	6	6	***	.		Ammonium ion
C86	DIOXIN	ppb	0.1	4	4	***	.		Dioxin
C87	CITRUSR	ppb	1000	4	4	***	.		Citrus red
C90	PARALDE	ppb	2000	4	4	***	.		Paraldehyde
C91	STRYCHN	ppb	50	4	4	***	.		Strychnine

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 8 of 12)

Constituent List=WAC 173-303-9906

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection		Drinking Water Standards Standard	Agency Exceeded	Full name
C92	MALHYDR	ppb	600	4	4	***	.		Maleic hydrazide
C93	NICOTIN	ppb	100	4	4	***	.		Nicotinic acid
C94	ACRYIDE	ppb	10000	4	4	***	0	EPAP	Acrylamide
C96	ALLYLAL	ppb	2500	4	4	***	.		Allyl alcohol
C97	CHLACET	ppb	16000	4	4	***	.		Chloroacetaldehyde
C98	CHLPROP	ppb	4000	4	4	***	.		3-Chloropropionitrile
H03	ETHCARB	ppb	6000	4	4	***	.		Ethyl carbamate
H04	ETHCYAN	ppb	2000	4	4	***	.		Ethyl cyanide
H09	ISOBUTY	ppb	1000	4	4	***	.		Isobutyl alcohol
H11	PROPYLA	ppb	10000	4	4	***	.		n-Propylamine
H12	PROPYNO	ppb	8000	4	4	***	.		2-Propyn-1-ol
H16	2,4,5-T	ppb	2	4	4	***	.		2,4,5-T
H40	FTHALLI	ppb	5	5	5	***	.		Thallium, filtered

*** - Indicates all samples were reported as below contractual detection limits
xxx - Indicates that Drinking Water Standards were exceeded
EPA - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 26690
EPAR - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
EPAP - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
EPAS - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 National Secondary Drinking Water Regulations
WDOE - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 9 of 12)

Well name	Collection Date	Duplicate sample number	CONDFLD umho 1/700w	CONDLAB umho ./700w	PH-LAB 0.01/8.6s	PHFIELD 0.1/8.6s	TOC ppb 1000/.	TOXI DL ppb 20/.
2-E18-1	10NOV88		595	571	7.9	8.6	‖400	‖4
		1	594	588	7.9	8.6	‖300	‖0
		2	593	588	8.0	8.5	‖300	‖3
		3	594	583	7.9	8.5	‖300	‖3
2-E18-1	23NOV88		633	.	.	8.5	.	.
2-E18-2	10NOV88		283	269	7.8	8.4	‖200	‖7
		1	282	271	7.8	8.4	‖300	‖1
		2	282	270	7.9	8.4	‖300	‖2
		3	282	271	7.9	8.4	‖600	‖7
2-E18-2	22NOV88		267	.	.	8.0	‖200	‖7
		1	260	.	.	8.1	‖300	‖7
		2	260	.	.	8.1	‖300	‖2
		3	260	.	.	8.1	‖200	‖6
2-E18-2	23NOV88		279	.	.	8.5	.	.
2-E18-3	10NOV88		232	229	7.8	8.1	‖400	‖5
		1	232	233	7.8	8.1	‖600	‖7
		2	232	233	7.9	8.1	‖600	‖2
		3	232	234	7.9	8.1	‖600	‖4
2-E18-3	28NOV88		247	.	.	8.4	.	.
2-E18-4	09NOV88		270	242	7.9	8.2	‖600	‖4
		1	271	260	7.9	8.2	‖800	‖2
		2	271	261	8.0	8.2	‖500	‖3
		3	270	260	8.0	8.2	‖600	‖2
2-E18-4	23NOV88		262	.	.	8.4	.	.

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 10 of 12)

Well name	Collection Date	Duplicate sample number	ACETONE ppb 10/.	ALPHA pCi/L 4/15	ARSENIC ppb 6/60	FARSENI ppb 6/60	BARIUM ppb 6/1000	FBARIUM ppb 6/1000	BETA pCi/L 8/50	FCALCIU ppb 60/.	CALCIUM ppb 60/.
2-E18-1	10NOV88		#2	3.830	<6	<6	42	43	8.46	63,200	67,400
	10NOV88	1	#2	3.900	<6	<6	38	38	10.70	68,400	67,700
	10NOV88	2	#3	.	.	.	.	.	.	.	.
	10NOV88	3	#1	.	.	.	.	.	.	.	.
	23NOV88		<10	.	.	.	.	.	.	.	.
	23NOV88	M	<6	.	.	.	.	.	.	.	.
2-E18-2	10NOV88		#2	1.690	6	6	61	61	6.22	25,600	24,300
	10NOV88	1	#2	.	.	.	.	.	.	.	.
	22NOV88		.	1.810	6	6	62	63	4.97	24,600	24,300
	23NOV88		11	.	.	.	.	.	.	.	.
	23NOV88	M	<6	.	.	.	.	.	.	.	.
2-E18-3	10NOV88		#4	*0.292	11	14	62	66	6.68	28,000	27,000
	10NOV88	1	<10	.	.	.	.	.	.	.	.
	28NOV88		<10	.	.	.	.	.	.	.	.
	28NOV88	M	<6	.	.	.	.	.	.	.	.
2-E18-4	09NOV88		#6	1.900	11	9	61	62	7.60	28,700	29,000
	09NOV88	1	#3	.	.	.	.	.	.	.	.
	23NOV88		<10	.	.	.	.	.	.	.	.
	23NOV88	M	<6	.	.	.	.	.	.	.	.

Well name	Collection Date	Duplicate sample number	CHLORID ppb 500/250000s	FCHROMI ppb 10/50	CHROMIUM ppb 10/50	COPPER ppb 10/1300p	FCOPPER ppb 10/1300p	FLUORID ppb 500/4000	IRON ppb 30/300s	FIRON ppb 30/300s
2-E18-1	10NOV88		6,800	<10	30	<10	<10	<500	356	<30
	10NOV88	1	6,200	<10	20	12	<10	<500	265	<30
	10NOV88	2	.	.	.	.	.	.	.	.
	10NOV88	3	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-2	10NOV88		2,800	<10	20	<10	12	600	142	<30
	10NOV88	1	.	.	.	.	.	.	.	.
	22NOV88		2,700	11	41	<10	<10	600	218	<30
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-3	10NOV88		4,400	<10	21	<10	<10	<500	326	53
	10NOV88	1	.	.	.	.	.	.	.	.
	28NOV88		.	.	.	.	.	.	.	.
	28NOV88	M	.	.	.	.	.	.	.	.
2-E18-4	09NOV88		6,400	<10	21	<10	<10	<500	261	<30
	09NOV88	1	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 11 of 12)

Well name	Collection Date	Duplicate sample number	LEADGF ppb 5/50	MAGNES ppb 50/.	FMAGNES ppb 50/.	MANGESE ppb 5/50.	NICKEL ppb 10/.	FNICKEL ppb 10/.	NITRATE ppb 500/45000	FPOTASS ppb 100/.
2-E18-1	10NOV88		<5	15,200	15,300	12	25	16	8,400	6,540
	10NOV88	1	<5	14,700	14,700	12	19	15	8,400	6,380
	10NOV88	2	.	.	.	.	.	.	.	.
	10NOV88	3	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-2	10NOV88		<5	6,460	7,170	<5	20	17	<500	5,220
	10NOV88	1	.	.	.	.	.	.	.	.
	22NOV88		<5	6,890	6,910	5	20	10	<500	4,850
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-3	10NOV88		<5	7,180	7,850	<5	20	12	<500	5,290
	10NOV88	1	.	.	.	.	.	.	.	.
	28NOV88		.	.	.	.	.	.	.	.
	28NOV88	M	.	.	.	.	.	.	.	.
2-E18-4	09NOV88		6	7,850	7,940	5	16	11	<500	5,450
	09NOV88	1	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.

Well name	Collection Date	Duplicate sample number	POTASUM ppb 100/.	RADIUM pCi/L 1/5	FSELENI ppb 5/10	SELENUM ppb 5/10	SODIUM ppb 200/.	FSODIUM ppb 200/.	FSTRONT ppb 20/.	STRONUM ppb 20/.
2-E18-1	10NOV88		6,330	0.2720	7	7	25,900	28,100	256	249
	10NOV88	1	6,410	0.2070	6	7	27,000	28,700	241	241
	10NOV88	2	.	.	.	.	.	.	.	.
	10NOV88	3	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-2	10NOV88		4,560	0.1740	<5	<5	16,600	19,000	144	129
	10NOV88	1	.	.	.	.	.	.	.	.
	22NOV88		4,860	0.1400	<5	<5	17,600	17,600	136	136
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-3	10NOV88		4,620	0.2690	<5	<5	5,280	6,020	146	130
	10NOV88	1	.	.	.	.	.	.	.	.
	28NOV88		.	.	.	.	.	.	.	.
	28NOV88	M	.	.	.	.	.	.	.	.
2-E18-4	09NOV88		5,400	*0.0309	<5	<5	6,740	6,620	161	148
	09NOV88	1	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.

Table D2-3. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1988. (sheet 12 of 12)

Well name	Collection Date	Duplicate sample number	SULFATE ppb 500/250000s	TC ppb 1000/.	TRITIUM pCi/L 500/20000	TURBID ntu 0.1/.	FVANADI ppb 5/.	VANADUM ppb 5/.	ZINC ppb 5/5000s	FZINC ppb 5/5000s
2-E18-1	10NOV88		172,000	21,500	*-287	.	<5	6	79	26
	10NOV88	1	169,000	.	.	.	<5	<5	63	41
	10NOV88	2	.	.	.	.	.	.	.	.
	10NOV88	3	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-2	10NOV88		26,600	22,900	*-216	.	16	12	332	236
	10NOV88	1	.	.	.	.	.	.	.	.
	22NOV88		28,100	.	*391	1.5	17	20	96	67
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.
2-E18-3	10NOV88		14,700	21,200	*-341	.	24	22	33	5
	10NOV88	1	.	.	.	.	.	.	.	.
	28NOV88		.	.	.	.	.	.	.	.
	28NOV88	M	.	.	.	.	.	.	.	.
2-E18-4	09NOV88		17,000	22,200	847	.	25	25	32	16
	09NOV88	1	.	.	.	.	.	.	.	.
	23NOV88		.	.	.	.	.	.	.	.
	23NOV88	M	.	.	.	.	.	.	.	.

The column headers consist of : Constituent Name
Analysis Units
Contractual Detection Limit/Drinking Water Standard(suffix)

Suffix
none - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 26690
r - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
p - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
s - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 (July, 1987) National Secondary Drinking Water Regulations
w - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Data flags
< - Less than Contractual Detection Limit, reported as Limit
- Less than Contractual Detection Limit, measured value reported
* - For radioactive constituents, reported value is less than 2-sigma error

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 1 of 7)

Constituent List=Contamination Indicator Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
088	CONDLAB	umho	.	16	0	700	WDOE		Specific conductance, laboratory
191	CONDFLD	umho	1	16	0	700	WDOE		Specific conductance, field
199	PHFIELD		0.1	16	0	6.5-8.5	EPAS		pH, field
207	PH-LAB		0.01	16	0	6.5-8.5	EPAS		pH, laboratory
C69	TOC	ppb	2000	16	0	.			Total organic carbon
H42	TOXLDL	ppb	10	16	0	.			Total organic halogens, low DL

Constituent List=Interim Primary Drinking Water Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
109	COLIFRM	MPN	2.2	4	4 ***	1	EPA		Coliform bacteria
111	BETA	pCi/L	8	5	0	50	EPA		Gross beta
112	ALPHAHI	pCi/L	4	5	0	15	EPA		Gross alpha, high DL
181	RADIUM	pCi/L	1	5	0	5	EPA		Total radium
A06	BARIUM	ppb	6	5	0	1000	EPA		Barium
A07	CADMIUM	ppb	2	5	5 ***	10	EPA		Cadmium
A08	CHROMUM	ppb	10	5	0	50	EPA	xxx	Chromium
A10	SILVER	ppb	10	5	5 ***	50	EPA		Silver
A20	ARSENIC	ppb	5	5	1	50	EPA		Arsenic
A21	MERCURY	ppb	0.1	5	5 ***	2	EPA		Mercury
A22	SELENUM	ppb	5	5	4	10	EPA		Selenium
A33	ENDRIN	ppb	0.1	4	4 ***	0.2	EPA		Endrin
A34	METHLOR	ppb	3	4	4 ***	100	EPA		Methoxychlor
A35	TOXAENE	ppb	1	4	4 ***	5	EPA		Toxaphene
A36	a-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, alpha-BHC
A37	b-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, beta-BHC
A38	g-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, gamma-BHC
A39	d-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, delta-BHC
A51	LEADGF	ppb	5	5	5 ***	50	EPA		Lead (graphite furnace)
C72	NITRATE	ppb	500	4	2	45000	EPA		Nitrate
C74	FLUORID	ppb	500	4	3	4000	EPA		Fluoride
H13	2,4-D	ppb	2	4	4 ***	100	EPA		2,4-D [2,4-Dichlorophenoxyacetic acid]
H14	2,4,5TP	ppb	2	4	4 ***	10	EPA		2,4,5-TP silvex
H20	FBARIUM	ppb	6	5	0	1000	EPA		Barium, filtered
H21	FCADMIU	ppb	2	5	4	10	EPA		Cadmium, filtered
H22	FCHROMI	ppb	10	5	5 ***	50	EPA		Chromium, filtered
H23	FSILVER	ppb	10	5	5 ***	50	EPA		Silver, filtered
H37	FARSENI	ppb	5	5	1	50	EPA		Arsenic, filtered
H38	FMERCUR	ppb	0.1	5	5 ***	2	EPA		Mercury, filtered
H39	FSELENI	ppb	5	5	4	10	EPA		Selenium, filtered
H41	FLEAD	ppb	5	5	5 ***	50	EPA		Lead, filtered
H60	TURBID	ntu	0.1	1	0	1	EPA	xxx	Turbidity, nephelometric

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 2 of 7)

Constituent List=Water Quality Parameters

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
A11	SODIUM	ppb	200	6	0	.			Sodium
A17	MANGESE	ppb	5	6	1	50	EPAS		Manganese
A19	IRON	ppb	30	6	0	300	EPAS	xxx	Iron
C73	SULFATE	ppb	500	4	0	250000	EPAS		Sulfate
C76	CHLORID	ppb	500	4	0	250000	EPAS		Chloride
H24	FSODIUM	ppb	200	6	0	.			Sodium, filtered
H29	FMANGAN	ppb	5	6	5 ***	50	EPAS		Manganese, filtered
H31	FIRON	ppb	30	6	2	300	EPAS		Iron, filtered
H67	LPHENOL	ppb	10	4	4 ***	.			Phenol, low DL

Constituent List=Site Specific and Other Constituents

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
108	TRITIUM	pCi/L	500	1	0	20000	EPA		Tritium (H-3)
A01	BERYLUM	ppb	5	6	5 ***	.			Beryllium
A03	STRONUM	ppb	20	6	0	.			Strontium
A04	ZINC	ppb	5	6	0	5000	EPAS		Zinc
A06	CALCIUM	ppb	50	6	0	.			Calcium
A12	NICKEL	ppb	10	6	1	.			Nickel
A13	COPPER	ppb	10	6	3	1300	EPAP		Copper
A14	VANADUM	ppb	5	6	1	.			Vanadium
A15	ANTIONY	ppb	100	6	5 ***	.			Antimony
A16	ALUMNUM	ppb	150	6	5 ***	.			Aluminum
A18	POTASUM	ppb	100	6	0	.			Potassium
A50	MAGNES	ppb	50	6	0	.			Magnesium
C76	PHOSPHA	ppb	1000	4	4 ***	.			Phosphate
H16	TC	ppb	1000	1	0	.			Total carbon
H18	FZINC	ppb	5	6	0	5000	EPAS		Zinc, filtered
H19	FCALCIU	ppb	50	6	0	.			Calcium, filtered
H25	FNICKEL	ppb	10	6	4	.			Nickel, filtered
H26	FCOPPER	ppb	10	6	4	1300	EPAP		Copper, filtered
H27	FVANADI	ppb	5	6	0	.			Vanadium, filtered
H28	FALUMIN	ppb	150	6	5 ***	.			Aluminum, filtered
H30	FPOTASS	ppb	100	6	0	.			Potassium, filtered
H32	FMAGNES	ppb	50	6	0	.			Magnesium, filtered
H33	FBERYLL	ppb	5	6	5 ***	.			Beryllium, filtered
H35	FSTRONT	ppb	20	6	0	.			Strontium, filtered
H36	FANTIMO	ppb	100	6	5 ***	.			Antimony, filtered
H66	BROMIDE	ppb	1000	4	4 ***	.			Bromide
H67	NITRITE	ppb	1000	4	4 ***	.			Nitrite

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 3 of 7)

Constituent List=Site Specific and Other Constituents

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
H86	FBORON	ppb	10	5	1	.			Boron, filtered
H87	FCOBALT	ppb	20	5	5 ***	.			Cobalt, filtered
H88	FLITHI	ppb	10	5	5 ***	.			Lithium, filtered
H89	FMOLY	ppb	40	5	5 ***	.			Molybdenum, filtered
H90	FSILICO	ppb	50	5	0	.			Silicon, filtered
H91	FTIN	ppb	30	5	5 ***	.			Tin, filtered
H92	FTITAN	ppb	60	5	5 ***	.			Titanium, filtered
H93	FZIRCON	ppb	50	5	5 ***	.			Zirconium, filtered
P01	BORON	ppb	10	5	1	.			Boron
P02	COBALT	ppb	20	5	5 ***	.			Cobalt
P03	LITHIUM	ppb	10	5	5 ***	.			Lithium
P04	MOLY	ppb	40	5	5 ***	.			Molybdenum
P05	SILICON	ppb	50	5	0	.			Silicon
P06	TIN	ppb	30	5	5 ***	.			Tin
P07	TITAN	ppb	60	5	5 ***	.			Titanium
P08	ZIRCON	ppb	50	5	5 ***	.			Zirconium

Constituent List=WAC 173-303-9905 Constituents

Code	Constituent Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
A61	TETRAHE	ppb	5	1	1 ***	5	EPA		Tetrachloromethane [Carbon Tetrachloride
A62	BENZENE	ppb	5	1	1 ***	5	EPA		Benzene
A64	METHONE	ppb	10	1	1 ***	.			Methyl ethyl ketone
A66	TOLUENE	ppb	5	1	1 ***	2000	EPAP		Toluene
A67	1,1,1-T	ppb	5	1	1 ***	200	EPA		1,1,1-Trichloroethane
A68	1,1,2-T	ppb	5	1	1 ***	.			1,1,2-Trichloroethane
A69	TRICENE	ppb	5	1	1 ***	5	EPA		Trichloroethylene [1,1,2-Trichloroethene
A70	PERCENE	ppb	5	1	1 ***	.			Perchloroethylene [Tetrachloroethene]
A71	OPXYLE	ppb	5	1	1 ***	440	EPAP		Xylene-o,p
A80	CHLFORM	ppb	5	1	1 ***	100	EPA		Chloroform [Trichloromethane]
A89	1,1-DIC	ppb	5	1	1 ***	.			1,1-Dichloroethane
A90	1,2-DIC	ppb	5	1	1 ***	5	EPA		1,2-Dichloroethane
A91	TRANDCE	ppb	5	1	1 ***	70	EPAP		trans-1,2-Dichloroethene
A93	METHYCH	ppb	5	1	1 ***	.			Methylene chloride [Dichloromethane]
B13	VINYIDE	ppb	10	1	1 ***	2	EPA		Vinyl chloride
B14	M-XYLE	ppb	5	1	1 ***	440	EPAP		Xylene-m
C80	AMMONIU	ppb	50	1	1 ***	.			Ammonium ion
H15	2,4,5-T	ppb	2	4	4 ***	.			2,4,5-T
H62	LHYDRAZ	ppb	30	1	1 ***	.			Hydrazine, low DL
H68	HEXONE	ppb	10	1	1 ***	.			Hexone [Methyl isobutyl ketone]
I01	ACETONE	ppb	10	1	1 ***	.			Acetone by VOA
I28	TAF	ppb	10	1	1 ***	.			Tetrahydorfuran
I63	14DBEN	ppb	5	1	1 ***	75	EPA		1,4-Dichlorobenzene [p-Dichlorobenzene]

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 4 of 7)

*** - Indicates all samples were reported as below contractual detection limits
xxx - Indicates that Drinking Water Standards were exceeded
EPA - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 26690
EPAR - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
EPAP - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
EPAS - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 National Secondary Drinking Water Regulations
WDOE - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 5 of 7)

Quadruplicate Contamination Indicator Parameters

Well name	Collection Date	Duplicate sample number	CONDFLD umho 1/700w	CONDLAB umho ./700w	PH-LAB 0.01/8.5s	PHFIELD 0.1/8.5s	TOC ppb 2000/.	TOXLDL ppb 10/.
2-E18-1	16FEB89		537	514	7.90	7.00	▮200	▮5
		1	534	512	7.80	7.00	▮200	▮5
		2	532	510	7.70	6.90	▮200	▮0
		3	531	517	7.80	6.90	▮200	▮5
2-E18-2	16FEB89		256	252	8.10	8.00	▮600	▮4
		1	256	263	8.10	8.00	▮700	▮3
		2	256	256	8.10	8.00	▮900	▮5
		3	256	256	8.10	8.00	▮1000	▮3
2-E18-3	16FEB89		207	235	8.20	8.00	▮800	▮8
		1	206	232	8.20	8.00	▮800	▮5
		2	205	224	8.20	8.00	▮600	12
		3	205	230	8.10	8.00	▮600	11
2-E18-4	16FEB89		248	228	8.10	7.00	▮600	▮8
		1	248	263	8.10	7.00	▮600	▮9
		2	248	261	8.00	7.00	▮600	▮9
		3	248	242	8.00	7.00	▮600	▮8

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 6 of 7)

Regular Monitoring Data

Well name	Collection Date	Duplicate sample number	ALPHAHI pCi/L 4/15	ARSENIC ppb 5/50	FARSENI ppb 5/50	BARIUM ppb 6/1000	FBARIUM ppb 6/1000	BETA pCi/L 8/50	BORON ppb 10/.	FBORON ppb 10/.	FCADMIU ppb 2/10
2-E18-1	15FEB89		4.870	<5	<5	29	31	6.85	33	38	<2
2-E18-2	16FEB89		1.720	6	6	60	59	5.46	24	18	<2
	16FEB89	1	•1.200	6	6	61	62	•1.78	13	34	<2
2-E18-3	16FEB89		2.420	13	12	62	63	5.12	14	<10	2
2-E18-4	15FEB89		•0.879	11	10	51	52	5.85	<10	14	<2

Well name	Collection Date	Duplicate sample number	FCALCIU ppb 50/.	CALCIUM ppb 50/.	CHLORID ppb 500/250000s	CHROMUM ppb 10/50	COPPER ppb 10/1300p	FCOPPER ppb 10/1300p	FLUORID ppb 500/4000	IRON ppb 30/300s
2-E18-1	15FEB89		57,600	55,700	6,900	22	<10	<10	<500	162
2-E18-2	16FEB89		25,300	25,700	4,900	50	12	<10	700	303
	16FEB89	1	26,800	25,400	.	79	<10	<10	.	423
2-E18-3	16FEB89		29,800	29,600	6,500	104	<10	<10	<500	868
2-E18-4	15FEB89		27,400	27,800	9,500	42	13	11	<500	325

Well name	Collection Date	Duplicate sample number	FIRON ppb 30/300s	MAGNES ppb 50/.	FMAGNES ppb 50/.	MANGESE ppb 5/50s	NICKEL ppb 10/.	FNICKEL ppb 10/.	NITRATE ppb 500/45000	FPOTASS ppb 100/.
2-E18-1	15FEB89		<30	13,900	14,400	<5	<10	<10	11,400	5,800
2-E18-2	16FEB89		39	7,190	7,150	8	28	<10	<500	5,100
	16FEB89	1	40	7,220	7,510	9	40	<10	.	5,350
2-E18-3	16FEB89		41	8,320	8,270	18	54	13	<500	5,310
2-E18-4	15FEB89		<30	7,930	7,850	10	21	<10	800	5,390

Well name	Collection Date	Duplicate sample number	POTASUM ppb 100/.	RADIUM pCi/L 1/5	FSELENI ppb 5/10	SELENUM ppb 5/10	FSILICO ppb 50/.	SILICON ppb 50/.	SODIUM ppb 200/.	FSODIUM ppb 200/.	FSTRONT ppb 20/.
2-E18-1	15FEB89		5,570	0.247	7	7	14,000	13,600	25,800	27,100	241
2-E18-2	16FEB89		5,210	0.222	<5	<5	19,600	19,800	19,200	18,700	146
	16FEB89	1	5,220	0.343	<5	<5	20,700	19,600	19,000	19,800	153
2-E18-3	16FEB89		5,500	0.302	<5	<5	19,000	19,600	8,560	8,460	156
2-E18-4	15FEB89		5,370	0.276	<5	<5	17,200	17,100	11,400	9,640	145

Table D2-4. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, February 1989. (sheet 7 of 7)

Well name	Collection Date	Duplicate sample number	STRONUM ppb 20/.	SULFATE ppb 500/250000s	TC ppb 1000/.	TRITIUM pCi/L 500/20000	TURBID ntu 0.1/1	FVANADI ppb 5/.	VANADUM ppb 5/.	ZINC ppb 5/5000s	FZINC ppb 5/5000s
2-E18-1	16FEB89		240	149,000	23,800	o-55.7	1.4	8	<5	23	30
2-E18-2	16FEB89		146	31,800	.	.	.	24	29	27	11
	16FEB89	1	147	.	.	.	.	27	20	22	20
2-E18-3	16FEB89		161	12,500	.	.	.	31	32	22	6
2-E18-4	16FEB89		160	22,100	.	.	.	22	22	9	8

The column headers consist of : Constituent Name
Analysis Units
Contractual Detection Limit/Drinking Water Standard(suffix)

Suffix
none - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 26690
r - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
p - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
s - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 (July, 1987) National Secondary Drinking Water Regulations
w - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Data flags
< - Less than Contractual Detection Limit, reported as Limit
| - Less than Contractual Detection Limit, measured value reported
o - For radioactive constituents, reported value is less than 2-sigma error

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 1 of 7)

Constituent List=Contamination Indicator Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
088	CONDLAB	umho	.	16	0	700	WDOE		Specific conductance, laboratory
191	CONDFLD	umho	1	16	0	700	WDOE		Specific conductance, field
199	PHFIELD		0.1	16	0	6.5-8.5	EPAS		pH, field
207	PH-LAB		0.01	16	0	6.5-8.5	EPAS		pH, laboratory
C69	TOC	ppb	2000	16	1	.			Total organic carbon
H42	TOXLDL	ppb	10	16	0	.			Total organic halogens, low DL

Constituent List=Interim Primary Drinking Water Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
109	COLIFRM	MPN	2.2	4	4 ***	1	EPA		Coliform bacteria
111	BETA	pCi/L	8	5	0	50	EPA		Gross beta
112	ALPHAHI	pCi/L	4	5	0	15	EPA		Gross alpha, high DL
181	RADIUM	pCi/L	1	5	0	5	EPA		Total radium
A06	BARIUM	ppb	8	5	0	1000	EPA		Barium
A07	CADMIUM	ppb	2	5	5 ***	10	EPA		Cadmium
A08	CHROMUM	ppb	10	5	0	50	EPA		Chromium
A10	SILVER	ppb	10	5	5 ***	50	EPA		Silver
A20	ARSENIC	ppb	5	5	1	50	EPA		Arsenic
A21	MERCURY	ppb	0.1	5	5 ***	2	EPA		Mercury
A22	SELENUM	ppb	5	5	4	10	EPA		Selenium
A33	ENDRIN	ppb	0.1	5	5 ***	0.2	EPA		Endrin
A34	METHLOR	ppb	3	5	5 ***	100	EPA		Methoxychlor
A35	TOXAENE	ppb	1	5	5 ***	5	EPA		Toxaphene
A36	a-BHC	ppb	0.1	5	5 ***	4	EPA		Lindane, alpha-BHC
A37	b-BHC	ppb	0.1	5	5 ***	4	EPA		Lindane, beta-BHC
A38	g-BHC	ppb	0.1	5	5 ***	4	EPA		Lindane, gamma-BHC
A39	d-BHC	ppb	0.1	5	5 ***	4	EPA		Lindane, delta-BHC
A51	LEADGF	ppb	5	5	5 ***	50	EPA		Lead (graphite furnace)
C72	NITRATE	ppb	500	5	1	45000	EPA		Nitrate
C74	FLUORID	ppb	500	5	3	4000	EPA		Fluoride
H13	2,4-D	ppb	2	5	5 ***	100	EPA		2,4-D [2,4-Dichlorophenoxyacetic acid]
H14	2,4,5TP	ppb	2	5	5 ***	10	EPA		2,4,5-TP silvex
H20	FBARIUM	ppb	8	5	0	1000	EPA		Barium, filtered
H21	FCADMIU	ppb	2	5	5 ***	10	EPA		Cadmium, filtered
H22	FCHROMI	ppb	10	5	4	50	EPA		Chromium, filtered
H23	FSILVER	ppb	10	5	5 ***	50	EPA		Silver, filtered
H37	FARSENI	ppb	5	5	1	50	EPA		Arsenic, filtered
H38	FMERCUR	ppb	0.1	5	5 ***	2	EPA		Mercury, filtered
H39	FSELENI	ppb	5	5	4	10	EPA		Selenium, filtered
H41	FLEAD	ppb	5	5	5 ***	50	EPA		Lead, filtered
H80	TURBID	ntu	0.1	5	0	1	EPA	xxx	Turbidity, nephelometric

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 2 of 7)

Constituent List=Water Quality Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
A11	SODIUM	ppb	200	6	0	.			Sodium
A17	MANGESE	ppb	6	6	1	50	EPAS		Manganese
A19	IRON	ppb	30	6	0	300	EPAS	xxx	Iron
C73	SULFATE	ppb	500	6	0	250000	EPAS		Sulfate
C76	CHLORID	ppb	500	6	0	250000	EPAS		Chloride
H24	FSODIUM	ppb	200	6	0	.			Sodium, filtered
H29	FMANGAN	ppb	6	6	4	50	EPAS		Manganese, filtered
H31	FIRON	ppb	30	6	2	300	EPAS		Iron, filtered
H67	LPHENOL	ppb	10	6	6 ***	.			Phenol, low DL

Constituent List=Site Specific and Other Constituents

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
A01	BERYLUM	ppb	6	6	6 ***	.			Beryllium
A03	STRONUM	ppb	20	6	0	.			Strontium
A04	ZINC	ppb	6	6	0	5000	EPAS		Zinc
A06	CALCIUM	ppb	50	6	0	.			Calcium
A12	NICKEL	ppb	10	6	0	.			Nickel
A13	COPPER	ppb	10	6	3	1300	EPAP		Copper
A14	VANADUM	ppb	6	6	0	.			Vanadium
A16	ANTIONY	ppb	100	6	6 ***	.			Antimony
A18	ALUMNUM	ppb	150	6	6 ***	.			Aluminum
A18	POTASUM	ppb	100	6	0	.			Potassium
A60	MAGNES	ppb	50	6	0	.			Magnesium
C76	PHOSPHA	ppb	1000	6	6 ***	.			Phosphate
H18	FZINC	ppb	6	6	4	5000	EPAS		Zinc, filtered
H19	FCALCIU	ppb	50	6	0	.			Calcium, filtered
H26	FNICKEL	ppb	10	6	3	.			Nickel, filtered
H26	FCOPPER	ppb	10	6	4	1300	EPAP		Copper, filtered
H27	FVANADI	ppb	6	6	0	.			Vanadium, filtered
H28	FALUMIN	ppb	150	6	6 ***	.			Aluminum, filtered
H30	FPOTASS	ppb	100	6	0	.			Potassium, filtered
H32	FMAGNES	ppb	50	6	0	.			Magnesium, filtered
H33	FBERYLL	ppb	6	6	6 ***	.			Beryllium, filtered
H36	FSTRONT	ppb	20	6	0	.			Strontium, filtered
H36	FANTIMO	ppb	100	6	6 ***	.			Antimony, filtered
H59	ALKALIN	ppb	20000	4	0	.			Total alkalinity, as CaCO3
H66	BROMIDE	ppb	1000	6	6 ***	.			Bromide
H67	NITRITE	ppb	1000	6	6 ***	.			Nitrite
H86	FBORON	ppb	10	6	1	.			Boron, filtered
H87	FCOBALT	ppb	20	6	6 ***	.			Cobalt, filtered

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 3 of 7)

Constituent List=Site Specific and Other Constituents

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full name
H88	FLITHIU	ppb	10	6	6 ***	.		Lithium, filtered
H89	FMOLY	ppb	40	6	6 ***	.		Molybdenum, filtered
H90	FSILICO	ppb	60	6	0	.		Silicon, filtered
H91	FTIN	ppb	30	6	6 ***	.		Tin, filtered
H92	FTITAN	ppb	60	6	6 ***	.		Titanium, filtered
H93	FZIRCON	ppb	60	6	6 ***	.		Zirconium, filtered
P01	BORON	ppb	10	6	0	.		Boron
P02	COBALT	ppb	20	6	6 ***	.		Cobalt
P03	LITHIUM	ppb	10	6	6 ***	.		Lithium
P04	MOLY	ppb	40	6	6 ***	.		Molybdenum
P05	SILICON	ppb	60	6	0	.		Silicon
P06	TIN	ppb	30	6	6 ***	.		Tin
P07	TITAN	ppb	60	6	6 ***	.		Titanium
P08	ZIRCON	ppb	60	6	6 ***	.		Zirconium

Constituent List=WAC 173-303-9905 Constituents

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full name
A61	TETRANE	ppb	5	1	1 ***	5	EPA	Tetrachloromethane [Carbon Tetrachloride
A62	BENZENE	ppb	5	1	1 ***	5	EPA	Benzene
A64	METHONE	ppb	10	1	1 ***	.		Methyl ethyl ketone
A66	TOLUENE	ppb	5	1	1 ***	2000	EPAP	Toluene
A67	1,1,1-T	ppb	5	1	1 ***	200	EPA	1,1,1-Trichloroethane
A68	1,1,2-T	ppb	5	1	1 ***	.		1,1,2-Trichloroethane
A69	TRICENE	ppb	5	1	1 ***	5	EPA	Trichloroethylene [1,1,2-Trichloroethene
A70	PERCENE	ppb	5	1	1 ***	.		Perchloroethylene [Tetrachloroethene]
A71	OPXYLE	ppb	5	1	1 ***	440	EPAP	Xylene-o,p
A80	CHLFORM	ppb	5	1	1 ***	100	EPA	Chloroform [Trichloromethane]
A89	1,1-DIC	ppb	5	1	1 ***	.		1,1-Dichloroethane
A90	1,2-DIC	ppb	5	1	1 ***	5	EPA	1,2-Dichloroethane
A91	TRANDCE	ppb	5	1	1 ***	70	EPAP	trans-1,2-Dichloroethene
A93	METHYCH	ppb	5	1	1 ***	.		Methylene chloride [Dichloromethane]
B13	VINYIDE	ppb	10	1	1 ***	2	EPA	Vinyl chloride
B14	M-XYLE	ppb	5	1	1 ***	440	EPAP	Xylene-m
H15	2,4,5-T	ppb	2	6	6 ***	.		2,4,5-T
H68	HEXONE	ppb	10	1	1 ***	.		Hexone [Methyl isobutyl ketone]
I01	ACETONE	ppb	10	1	1 ***	.		Acetone by VOA
I28	TAF	ppb	10	1	1 ***	.		Tetrahydorfuran
L63	14DBEN	ppb	5	1	1 ***	75	EPA	1,4-Dichlorobenzene [p-Dichlorobenzene]

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 4 of 7)

*** - Indicates all samples were reported as below contractual detection limits
xxx - Indicates that Drinking Water Standards were exceeded
EPA - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 25690
EPAR - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
EPAP - based on proposed Maximum Contaminant Level Goals in 60 FR 46936
EPAS - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 National Secondary Drinking Water Regulations
WDOE - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 5 of 7)

Quadruplicate Contamination Indicator Parameters

Well name	Collection Date	Duplicate sample number	CONDFLD umho 1/700w	CONDLAB umho ./700w	PH-LAB 0.01/8.5s	PHFIELD 0.1/8.5s	TOC ppb 2000/.	TOXLDL ppb 10/.
2-E18-1	26MAY89		550	503	8.00	7.89	#500	#4
		1	549	474	8.00	7.89	#500	#3
		2	549	484	8.00	7.89	#300	#3
		3	549	498	8.00	7.89	#600	#3
2-E18-2	01JUN89		244	247	8.10	7.46	#400	15
		1	244	223	8.10	7.46	#800	14
		2	243	249	8.10	7.46	#500	12
		3	244	262	8.10	7.46	#400	13
2-E18-3	01JUN89		176	183	8.10	7.39	#500	11
		1	176	178	8.20	7.40	#500	#9
		2	178	176	8.10	7.40	#400	21
		3	176	201	8.20	7.41	#400	15
2-E18-4	26MAY89		255	298	8.20	8.05	#900	#6
		1	255	282	8.10	8.05	#900	#7
		2	255	294	8.10	8.05	#1000	12
		3	255	293	8.10	8.05	#900	16

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 6 of 7)

Regular Monitoring Data

Well name	Collection Date	Duplicat sample number	ALKALIN ppb 20000/.	ALPHAHI pCi/L 4/15	ARSENIC ppb 5/50	FARSENI ppb 5/50	BARIUM ppb 6/1000	FBARIUM ppb 6/1000	BETA pCi/L 8/50	BORON ppb 10/.	FBORON ppb 10/.
2-E18-1	26MAY89		102,000	5.530	<5	<5	28	25	6.58	37	34
2-E18-2	01JUN89		90,500	3.010	7	5	61	58	4.70	19	23
2-E18-3	01JUN89		96,600	0.931	14	14	53	55	6.81	18	<10
	01JUN89	1	.	1.100	13	13	53	58	5.36	13	11
2-E18-4	26MAY89		105,000	2.330	11	12	57	57	6.08	17	16

Well name	Collection Date	Duplicat sample number	FCALCIU ppb 50/.	CALCIUM ppb 50/.	CHLORID ppb 500/250000s	FCHROMI ppb 10/50	CHROMUM ppb 10/50	COPPER ppb 10/1300p	FCOPPER ppb 10/1300p	FLUORID ppb 500/4000
2-E18-1	26MAY89		60,400	58,000	7,100	<10	20	<10	<10	500
2-E18-2	01JUN89		26,300	27,700	8,000	<10	28	15	<10	700
2-E18-3	01JUN89		28,500	27,800	7,000	<10	30	<10	<10	<500
	01JUN89	1	27,900	27,700	6,900	12	36	<10	<10	<500
2-E18-4	26MAY89		31,700	31,600	14,600	<10	24	18	11	<500

Well name	Collection Date	Duplicat sample number	IRON ppb 30/300s	FIRON ppb 30/300s	MAGNES ppb 50/.	FMAGNES ppb 50/.	FMANGAN ppb 5/50s	MANGESE ppb 5/50s	NICKEL ppb 10/.	FNICKEL ppb 10/.	NITRATE ppb 500/45000
2-E18-1	26MAY89		546	<30	14,600	15,100	<5	12	13	<10	12,000
2-E18-2	01JUN89		124	<30	7,600	7,140	<5	9	11	<10	600
2-E18-3	01JUN89		284	39	7,720	7,740	<5	7	21	12	500
	01JUN89	1	294	31	7,790	7,600	<5	7	22	<10	<500
2-E18-4	26MAY89		121	32	8,650	9,350	8	<5	12	17	1,000

Well name	Collection Date	Duplicat sample number	FPOTASS ppb 100/.	POTASUM ppb 100/.	RADIUM pCi/L 1/5	FSELENI ppb 5/10	SELENUM ppb 5/10	FSILICO ppb 50/.	SILICON ppb 50/.	SODIUM ppb 200/.	FSODIUM ppb 200/.
2-E18-1	26MAY89		5,810	5,780	0.4710	7	6	16,400	15,000	27,800	28,500
2-E18-2	01JUN89		4,790	5,160	*0.0416	<5	<5	18,300	19,800	18,700	17,400
2-E18-3	01JUN89		5,060	4,960	0.2520	<5	<5	18,100	17,600	5,710	5,980
	01JUN89	1	5,010	5,100	0.1380	<5	<5	17,600	18,100	5,930	5,890
2-E18-4	26MAY89		5,980	5,490	*0.1470	<5	<5	17,800	18,300	6,790	14,400

Table D2-5. Constituent List and Summary of Sampling Results for the 2101-M Pond, May 1989. (sheet 7 of 7)

Well name	Collection Date	Duplicate sample number	FSTRONT ppb 20/.	STRONUM ppb 20/.	SULFATE ppb 500/250000s	TURBID ntu 0.1/1	FVANADI ppb 5/.	VANADUM ppb 5/.	ZINC ppb 5/5000s	FZINC ppb 5/5000s
2-E18-1	28MAY89		259	257	151,000	19.5	14	6	30	12
	28MAY89	1	.	.	.	19.2	.	.	.	.
2-E18-2	01JUN89		147	161	44,000	0.9	26	27	10	<5
2-E18-3	01JUN89		148	148	12,500	3.0	35	31	22	<5
	01JUN89	1	143	149	12,600	.	34	29	9	<5
2-E18-4	28MAY89		171	173	35,400	1.4	25	27	8	<5

The column headers consist of : Constituent Name
Analysis Units
Contractual Detection Limit/Drinking Water Standard(suffix)

Suffix
none - based on Maximum Contaminant Levels given in 40 CFR Part 141 (July,1987) National Primary Drinking Water Regulations as amended by 52 FR 25690
r - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
p - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
s - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 (July, 1987) National Secondary Drinking Water Regulations
w - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Data flags
< - Less than Contractual Detection Limit, reported as Limit
- Less than Contractual Detection Limit, measured value reported
* - For radioactive constituents, reported value is less than 2-sigma error

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 1 of 7)

Constituent List=Contamination Indicator Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
088	CONDLAB	umho	.	16	0	700	WDOE		Specific conductance, laboratory
191	CONDFLD	umho	1	16	0	700	WDOE		Specific conductance, field
199	PHFIELD		0.1	16	0	8.5	EPAS		pH, field
207	PH-LAB		0.01	16	0	8.5	EPAS		pH, laboratory
C89	TOC	ppb	2000	16	0	.			Total organic carbon
H42	TOXLDL	ppb	10	16	0	.			Total organic halogens, low DL

Constituent List=Interim Primary Drinking Water Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
109	COLIFRM	MPN	2.2	3	3 ***	1	EPA		Coliform bacteria
111	BETA	pCi/L	8	5	0	50	EPA		Gross beta
112	ALPHAHI	pCi/L	4	5	0	15	EPA		Gross alpha, high DL
181	RADIUM	pCi/L	1	5	0	5	EPA		Radium, total
A06	BARIUM	ppb	6	5	0	1000	EPA		Barium
A07	CADMIUM	ppb	2	5	5 ***	10	EPA		Cadmium
A08	CHROMUM	ppb	10	5	0	50	EPA	xxx	Chromium
A10	SILVER	ppb	10	5	5 ***	50	EPA		Silver
A20	ARSENIC	ppb	5	5	1	50	EPA		Arsenic
A21	MERCURY	ppb	0.1	5	5 ***	2	EPA		Mercury
A22	SELENUM	ppb	5	5	4	10	EPA		Selenium
A33	ENDRIN	ppb	0.1	4	4 ***	0.2	EPA		Endrin
A34	METHLOR	ppb	3	4	4 ***	100	EPA		Methoxychlor
A35	TOXAENE	ppb	1	4	4 ***	5	EPA		Toxaphene
A36	a-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, alpha-BHC
A37	b-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, beta-BHC
A38	g-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, gamma-BHC
A39	d-BHC	ppb	0.1	4	4 ***	4	EPA		Lindane, delta-BHC
A51	LEADGF	ppb	5	5	5 ***	50	EPA		Lead (graphite furnace)
C72	NITRATE	ppb	500	5	2	45000	EPA		Nitrate
C74	FLUORID	ppb	500	5	3	4000	EPA		Fluoride
H13	2,4-D	ppb	2	4	4 ***	100	EPA		2,4-D [2,4-Dichlorophenoxyacetic acid]
H14	2,4,5TP	ppb	2	4	4 ***	10	EPA		2,4,5-TP silvex
H20	FBARIUM	ppb	6	5	0	1000	EPA		Barium, filtered
H21	FCADMIU	ppb	2	5	5 ***	10	EPA		Cadmium, filtered
H22	FCHROMI	ppb	10	5	5 ***	50	EPA		Chromium, filtered
H23	FSILVER	ppb	10	5	5 ***	50	EPA		Silver, filtered
H37	FARSENI	ppb	5	5	1	50	EPA		Arsenic, filtered
H38	FMERCUR	ppb	0.1	5	5 ***	2	EPA		Mercury, filtered
H39	FSELENI	ppb	5	5	4	10	EPA		Selenium, filtered
H41	FLEAD	ppb	5	5	5 ***	50	EPA		Lead, filtered
H80	TURBID	ntu	0.1	4	0	1	EPA	xxx	Turbidity, nephelometric
P19	COLIMF	100mL	1	1	0	1	EPA		Coliform (Membrane Filter)

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 2 of 7)

Quadruplicate Contamination Indicator Parameters

Well name	Collection Date	Duplicate sample number	CONDFLD umho 1/700w	CONDLAB umho ./700w	PH-LAB 0.01/8.5s	PHFIELD 0.1/8.5s	TOC ppb 2000/.	TOXLDL ppb 10/.
2-E18-1	08AUG89		564	533	8.00	7.89	#300	#3
		1	567	532	8.00	7.89	#400	#4
		2	568	534	8.00	7.88	#300	#4
		3	567	536	8.00	7.88	#300	#2
2-E18-2	11AUG89		288	285	7.90	8.01	#300	#5
		1	285	284	8.00	8.00	#700	13
		2	286	288	8.00	8.00	#600	12
		3	288	288	8.00	8.00	#800	13
2-E18-3	08AUG89		156	232	8.10	8.20	#600	#8
		1	156	233	8.10	8.20	#600	#7
		2	156	232	8.10	8.20	#700	#3
		3	157	234	8.20	8.20	#600	#8
2-E18-4	08AUG89		171	253	8.00	8.09	#500	#6
		1	171	254	8.10	8.08	#400	10
		2	171	254	8.00	8.08	#600	#5
		3	171	251	8.10	8.09	#400	14

Regular Monitoring Data

Well name	Collection Date	Duplicate sample number	ALKALIN ppb 20000/.	ALPHAHI pCi/L 4/15	ARSENIC ppb 5/50	FARSENI ppb 5/50	BARIUM ppb 6/1000	FBARIUM ppb 6/1000	FBERYLL ppb 5/.	BETA pCi/L 8/50
2-E18-1	08AUG89		108,000	5.530	<5	<5	25	34	<5	7.46
2-E18-2	11AUG89		90,000	2.200	6	6	56	73	<5	9.44
2-E18-3	08AUG89		98,000	*0.846	11	11	54	61	<5	10.60
2-E18-4	08AUG89		105,000	1.880	10	10	59	64	5	3.37
	08AUG89	1	.	3.490	10	9	57	66	<5	6.64

Well name	Collection Date	Duplicate sample number	BORON ppb 10/.	FBORON ppb 10/.	FCALCIU ppb 50/.	CALCIUM ppb 50/.	CHLORID ppb 500/250000s	CHROMUM ppb 10/50	COLIMF 100mL 1/1
2-E18-1	08AUG89		38	42	69,500	57,000	6,000	100	.
2-E18-2	11AUG89		19	29	32,300	27,100	7,000	18	1
2-E18-3	08AUG89		13	20	29,900	27,100	6,800	95	.
2-E18-4	08AUG89		15	14	35,000	32,300	7,000	85	.
	08AUG89	1	15	19	34,900	32,000	7,000	80[a]	.

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 3 of 7)

Constituent List=Site Specific and Other Constituents

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full name
H89	FMOLY	ppb	40	6	6 ***	.		Molybdenum, filtered
H90	FSILICO	ppb	60	6	0	.		Silicon, filtered
H91	FTIN	ppb	30	6	6 ***	.		Tin, filtered
H92	FTITAN	ppb	60	6	6 ***	.		Titanium, filtered
H93	FZIRCON	ppb	60	6	6 ***	.		Zirconium, filtered
P01	BORON	ppb	10	6	0	.		Boron
P02	COBALT	ppb	20	6	6 ***	.		Cobalt
P03	LITHIUM	ppb	10	6	6 ***	.		Lithium
P04	MOLY	ppb	40	6	6 ***	.		Molybdenum
P06	SILICON	ppb	60	6	0	.		Silicon
P06	TIN	ppb	30	6	6 ***	.		Tin
P07	TITAN	ppb	60	6	6 ***	.		Titanium
P08	ZIRCON	ppb	60	6	6 ***	.		Zirconium

Constituent List=WAC 173-303-9905 Constituents

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full name
A61	TETRANE	ppb	5	1	1 ***	5	EPA	Tetrachloromethane [Carbon Tetrachloride
A62	BENZENE	ppb	5	1	1 ***	5	EPA	Benzene
A64	METHONE	ppb	10	1	1 ***	.		Methyl ethyl ketone
A66	TOLUENE	ppb	5	1	1 ***	2000	EPAP	Toluene
A67	1,1,1-T	ppb	5	1	1 ***	200	EPA	1,1,1-Trichloroethane
A68	1,1,2-T	ppb	5	1	1 ***	.		1,1,2-Trichloroethane
A69	TRICENE	ppb	5	1	1 ***	5	EPA	Trichloroethylene [1,1,2-Trichloroethene
A70	PERCENE	ppb	5	1	1 ***	.		Perchloroethylene [Tetrachloroethene]
A71	OPXYLE	ppb	5	1	1 ***	440	EPAP	Xylene-o,p
A80	CHLFORM	ppb	5	1	1 ***	100	EPA	Chloroform [Trichloromethane]
A89	1,1-DIC	ppb	5	1	1 ***	.		1,1-Dichloroethane
A90	1,2-DIC	ppb	5	1	1 ***	5	EPA	1,2-Dichloroethane
A91	TRANDCE	ppb	5	1	1 ***	70	EPAP	trans-1,2-Dichloroethene
A93	METHYCH	ppb	5	1	1 ***	.		Methylene chloride [Dichloromethane]
B13	VINYIDE	ppb	10	1	1 ***	2	EPA	Vinyl chloride
B14	M-XYLE	ppb	5	1	1 ***	440	EPAP	Xylene-m
C80	AMMONIU	ppb	50	1	1 ***	.		Ammonium ion
H15	2,4,5-T	ppb	2	4	4 ***	.		2,4,5-T
H62	LHYDRAZ	ppb	30	1	1 ***	.		Hydrazine, low DL
H68	HEXONE	ppb	10	1	1 ***	.		Hexone [Methyl isobutyl ketone]
I01	ACETONE	ppb	10	1	1 ***	.		Acetone by VOA
I28	TAF	ppb	10	1	1 ***	.		Tetrahydrofuran
L63	14DBEN	ppb	5	1	1 ***	75	EPA	1,4-Dichlorobenzene [p-Dichlorobenzene]

*** - Indicates all samples were reported as below contractual detection limits
xxx - Indicates that Drinking Water standards were exceeded
EPA - based on Maximum Contaminant Levels in 40 CFR Part 141, National Primary Drinking Water Regulations
EPAR - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
EPAP - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
EPAS - based on Secondary Maximum Contaminant Levels in 40 CFR Part 143, National Secondary Drinking Water Regulations
DOE - based on Derived Concentration Guides in draft DOE Order 5400.xx

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 4 of 7)

Constituent List=Water Quality Parameters

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
A11	SODIUM	ppb	200	5	0	.			Sodium
A17	MANGESE	ppb	5	5	1	50	EPAS		Manganese
A19	IRON	ppb	30	5	0	300	EPAS	xxx	Iron
C73	SULFATE	ppb	500	5	0	250000	EPAS		Sulfate
C76	CHLORID	ppb	500	5	0	250000	EPAS		Chloride
H24	FSODIUM	ppb	200	5	0	.			Sodium, filtered
H29	FMANGAN	ppb	5	5	4	50	EPAS		Manganese, filtered
H31	FIRON	ppb	30	5	3	.	EPAS		Iron, filtered
H57	LPHENOL	ppb	10	4	4 ***	.			Phenol, low DL

Constituent List=Site Specific and Other Constituents

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full name
108	TRITIUM	pCi/L	500	4	0	20000	EPA		Tritium (H-3)
A01	BERYLUM	ppb	5	5	5 ***	.			Beryllium
A03	STRONUM	ppb	10	5	0	.			Strontium
A04	ZINC	ppb	5	5	0	5000	EPAS		Zinc
A05	CALCIUM	ppb	50	5	0	.			Calcium
A12	NICKEL	ppb	10	5	0	.			Nickel
A13	COPPER	ppb	10	5	5 ***	1300	EPAP		Copper
A14	VANADUM	ppb	5	5	0	.			Vanadium
A15	ANTIONY	ppb	100	5	5 ***	.			Antimony
A16	ALUMNUM	ppb	150	5	5 ***	.			Aluminum
A18	POTASUM	ppb	100	5	0	.			Potassium
A50	MAGNES	ppb	50	5	0	.			Magnesium
C78	PHOSPHA	ppb	1000	5	5 ***	.			Phosphate
H16	TC	ppb	1000	1	0	.			Total carbon
H18	FZINC	ppb	5	5	0	5000	EPAS		Zinc, filtered
H19	FCALCIU	ppb	50	5	0	.			Calcium, filtered
H25	FNICKEL	ppb	10	5	4	.			Nickel, filtered
H26	FCOPPER	ppb	10	5	4	1300	EPAP		Copper, filtered
H27	FVANADI	ppb	5	5	0	.			Vanadium, filtered
H28	FALUMIN	ppb	150	5	5 ***	.			Aluminum, filtered
H30	FPOTASS	ppb	100	5	0	.			Potassium, filtered
H32	FMAGNES	ppb	50	5	0	.			Magnesium, filtered
H33	FBERYLL	ppb	5	5	4	.			Beryllium, filtered
H35	FSTRONT	ppb	10	5	0	.			Strontium, filtered
H36	FANTIMO	ppb	100	5	5 ***	.			Antimony, filtered
H58	ALKALIN	ppb	20000	4	0	.			Total alkalinity, as CaCO3 (Method B)
H66	BROMIDE	ppb	1000	5	5 ***	.			Bromide
H67	NITRITE	ppb	1000	5	5 ***	.			Nitrite
H86	FBORON	ppb	10	5	0	.			Boron, filtered
H87	FCOBALT	ppb	20	5	5 ***	.			Cobalt, filtered
H88	FLITHIU	ppb	10	5	5 ***	.			Lithium, filtered

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 5 of 7)

Well name	Collection Date	Duplicate sample number	FCOPPER ppb 10/1300p	FLUORID ppb 600/4000	IRON ppb 30/300s	FIRON ppb 30/.s	MAGNES ppb 50/.	FMAGNES ppb 50/.	FMANGAN ppb 5/50s	MANGESE ppb 5/50s
2-E18-1	08AUG89		<10	600	531	<30	13,700	16,200	<5	12
2-E18-2	11AUG89		<10	700	168	<30	7,330	8,670	<5	<5
2-E18-3	08AUG89		<10	<500	574	<30	7,400	8,000	<5	12
2-E18-4	08AUG89		11	<500	412	31	8,680	9,060	<5	10
	08AUG89	1	<10	<500	465 (a)	32	8,470	8,970	5	12

Well name	Collection Date	Duplicate sample number	NICKEL ppb 10/.	FNICKEL ppb 10/.	NITRATE ppb 500/45000	FPOTASS ppb 100/.	POTASUM ppb 100/.	RADIUM pCi/L 1/5	FSELENI ppb 5/10	SELENUM ppb 5/10
2-E18-1	08AUG89		44	<10	12,500	8,210	5,340	0.312	7	7
2-E18-2	11AUG89		18	<10	800	5,770	4,920	0.757	<5	<5
2-E18-3	08AUG89		49	<10	<500	5,100	5,020	0.239	<5	<5
2-E18-4	08AUG89		35	11	<500	5,570	5,650	0.378	<5	<5
	08AUG89	1	41	<10	570	5,480	5,460	*0.121	<5	<5

Well name	Collection Date	Duplica sample number	FSILICO ppb 50/.	SILICON ppb 50/.	SODIUM ppb 200/.	FSODIUM ppb 200/.	FSTRONT ppb 10/.	STRONUM ppb 10/.	SULFATE ppb 500/250000s	TC ppb 1000/.
2-E18-1	08AUG89		17,300	14,900	28,100	30,500	283	231	153,000	24,200
2-E18-2	11AUG89		22,600	18,900	17,500	20,800	184	147	45,000	.
2-E18-3	08AUG89		19,300	17,500	5,840	5,800	158	141	13,900	.
2-E18-4	08AUG89		20,200	19,100	6,130	6,250	183	169	14,900	.
	08AUG89	1	20,300	18,800	5,900	6,180	181	165	14,800	.

Well name	Collection Date	Duplicate sample number	TRITIUM pCi/L 500/20000	TURBID ntu 0.1/1	FVANADI ppb 5/.	VANADUM ppb 5/.	ZINC ppb 5/5000s	FZINC ppb 5/5000s
2-E18-1	08AUG89		*-1	3.0	14	12	22	19
2-E18-2	11AUG89		*35	2.7	26	24	16	11
2-E18-3	08AUG89		*-57	2.2	34	30	24	6
2-E18-4	08AUG89		*-48	2.1	32	29	12	16
	08AUG89	1	.	.	32	29	12	14

The column headers consist of : Constituent Name
Analysis Units
Contractual Detection Limit/Drinking Water Standard(suffix)

Suffix
none - based on Maximum Contaminant Levels in 40 CFR Part 141, National Primary Drinking Water Regulations
r - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-78-003
p - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
s - based on Secondary Maximum Contaminant Levels in 40 CFR Part 143, National Secondary Drinking Water Regulations
d - based on Derived Concentration Guides in draft DOE Order 5400.xx
w - based on additional Secondary Maximum Contaminant Levels in WAC 248-54, Public Water Supplies

Data flags
< - Less than Contractual Detection Limit, reported as Limit
* - Less than Contractual Detection Limit, measured value reported
e - For radioactive constituents, reported value is less than 2-sigma error

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 6 of 7)

Constituent Code, Name, Units[b]	n	df	tc	Average	Standard Deviation	Critical Mean
Conductivity, field µmho/cm	4	3	11.984	528.4	39.1	1,052.9
pH, field	4	3	15.145	7.804	0.657	[3.316,18.923]
Total Organic Carbon, ppb	4	3	11.984	387.6	156.2	2,480.5
Total Organic Halogens, ppb	4	3	11.984	3.59	0.99	16.8

(a) Background data collected between August 1988 and June 1989.
(b) The following abbreviations are used in this table:
df = Degrees of freedom (n-1).
n = Number of background replicate averages.
ppb = Parts per billion.
tc = Bonferroni critical t-value for appropriate df and 16 comparisons (4 parameters * 4 wells).
µmho/cm = Micromho per centimeter

Table D2-6. Constituent Lists and Summary of Sampling Results for the 2101-M Pond, August 1989. (sheet 7 of 7)

Constituent Code	Name	Units	Well Name	Sample Date	Reps	Replicate Average	Standard Deviation	Minimum	Maximum	Coefficient of Variation
088	CONDLAB	umho	2-E18-1	08AUG89	4	534	1.3	532	535	0.2
			2-E18-2	11AUG89	4	286	2.1	284	288	0.7
			2-E18-3	08AUG89	4	233	1.0	232	234	0.4
			2-E18-4	08AUG89	4	253	1.4	251	254	0.6
191	CONDFLD	umho	2-E18-1	08AUG89	4	567	1.7	564	568	0.3
			2-E18-2	11AUG89	4	286	1.4	285	288	0.5
			2-E18-3	08AUG89	4	156	0.5	156	157	0.3
			2-E18-4	08AUG89	4	171	0.0	171	171	0.0
199	PHFIELD		2-E18-1	08AUG89	4	7.89	0.01	7.88	7.89	0.1
			2-E18-2	11AUG89	4	8.00	0.01	8.00	8.01	0.1
			2-E18-3	08AUG89	4	8.20	0.00	8.20	8.20	0.0
			2-E18-4	08AUG89	4	8.09	0.01	8.08	8.09	0.1
207	PH-LAB		2-E18-1	08AUG89	4	8.00	0.00	8.0	8.0	0.0
			2-E18-2	11AUG89	4	7.98	0.05	7.9	8.0	0.6
			2-E18-3	08AUG89	4	8.13	0.05	8.1	8.2	0.6
			2-E18-4	08AUG89	4	8.05	0.06	8.0	8.1	0.7
C69	TOC	ppb	2-E18-1	08AUG89	4	325	50.1	300	400	15.4
			2-E18-2	11AUG89	4	575	222.0	300	800	38.6
			2-E18-3	08AUG89	4	600	81.6	500	700	13.6
			2-E18-4	08AUG89	4	450	57.7	400	500	12.8
H42	TOXLDL	ppb	2-E18-1	08AUG89	4	3.25	0.96	2	4	29.5
			2-E18-2	11AUG89	4	10.80	3.86	5	13	35.9
			2-E18-3	08AUG89	4	6.50	2.38	3	8	36.6
			2-E18-4	08AUG89	4	8.75	4.11	5	14	47.0

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 1 of 16)

---------- Constituent List= Contamination Indicator Parameters ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full Name
088	CONDLAB	UMHO	.	12	0	700	WDOE		Conductivity, Laboratory
191	CONDFLD	UMHO	1	17	0	700	WDOE		Specific conductance
199	PHFIELD		.100	17	0	6.5-8.5	EPAS		pH, Field Measurement
207	PH-LAB		.0100	12	0	6.5-8.5	EPAS		pH, Laboratory Measurement
C69	TOC	PPB	2000	17	17 ***	.			Total organic carbon
H42	TOXLDL	PPB	10	17	16	.			Total Organic Halogen, Low Det. Level

---------- Constituent List= Interim Primary Drinking Water Parameters ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full Name
109	COLIFRM	MPN	2.20	1	1 ***	1	EPA		Coliform bacteria
111	BETA	PCI/L	8	5	0	50	EPA		Gross beta
112	ALPHAHI	PCI/L	4	6	0	15	EPA		Alpha, High Detection Level
181	RADIUM	PCI/L	1	5	2	5	EPA		Radium
A06	BARIUM	PPB	6	5	0	1000	EPA		Barium
A07	CADMIUM	PPB	2	5	5 ***	10	EPA		Cadmium
A08	CHROMUM	PPB	10	5	0	50	EPA	xxx	Chromium
A10	SILVER	PPB	10	5	5 ***	50	EPA		Silver
A20	ARSENIC	PPB	5	5	1	50	EPA		Arsenic
A21	MERCURY	PPB	.100	5	5 ***	2	EPA		Mercury
A22	SELENUM	PPB	5	5	4	10	EPA		Selenium
A33	ENDRIN	PPB	.100	5	5 ***	.200	EPA		Endrin
A34	METHLOR	PPB	3	5	5 ***	100	EPA		Methoxychlor
A35	TOXAENE	PPB	1	5	5 ***	5	EPA		Toxaphene
A36	a-BHC	PPB	.100	5	5 ***	4	EPA		Alpha-BHC
A37	b-BHC	PPB	.100	5	5 ***	4	EPA		Beta-BHC
A38	g-BHC	PPB	.100	5	5 ***	4	EPA		Gamma-BHC
A39	d-BHC	PPB	.100	5	5 ***	4	EPA		Delta-BHC
A61	LEADGF	PPB	5	5	5 ***	50	EPA		Lead (graphite furnace)
C72	NITRATE	PPB	500	4	1	45000	EPA		Nitrate
C74	FLUORID	PPB	500	4	3	4000	EPA		Fluoride
H13	2,4-D	PPB	2	5	5 ***	100	EPA		2,4-D
H14	2,4,5TP	PPB	2	5	5 ***	10	EPA		2,4,5-TP silvex
H20	FBARIUM	PPB	6	5	0	1000	EPA		Barium, filtered
H21	FCADMIU	PPB	2	5	5 ***	10	EPA		Cadmium, filtered
H22	FCHROMI	PPB	10	5	5 ***	50	EPA		Chromium, filtered
H23	FSILVER	PPB	10	5	5 ***	50	EPA		Silver, filtered
H37	FARSENI	PPB	5	5	2	50	EPA		Arsenic, filtered

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 2 of 16)

---------- Constituent List= Interim Primary Drinking Water Parameters ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full Name
H38	FMERCUR	PPB	.100	6	6 ***	2	EPA		Mercury, filtered
H39	FSELENI	PPB	6	6	4	10	EPA		Selenium, filtered
H41	FLEAD	PPB	6	6	6 ***	60	EPA		Lead, filtered
H68	TURBID	NTU	.100	4	0	1	EPA	xxx	Turbidity
P19	COLIMF	PPB	1	2	2 ***	1	EPA		Coliform (Membrane Filter)

---------- Constituent List= Water Quality Parameters ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full Name
A11	SODIUM	PPB	200	6	0	.			Sodium
A17	MANGESE	PPB	5	5	2	50	EPAS		Manganese
A19	IRON	PPB	30	5	0	300	EPAS	xxx	Iron
C67	PHENOL	PPB	10	5	5 ***	.			Phenol
C73	SULFATE	PPB	500	4	0	250000	EPAS		Sulfate
C75	CHLORID	PPB	500	4	0	250000	EPAS		Chloride
H24	FSODIUM	PPB	200	5	0	.			Sodium, filtered
H29	FMANGAN	PPB	5	5	5 ***	50	EPAS		Manganese, filtered
H31	FIRON	PPB	30	5	4	300	EPAS		Iron, filtered

---------- Constituent List= Site Specific and Other Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full Name
010	CO-60	PCI/L	22.5	1	1 ***	100	EPAR		Cobalt-60
024	CS-137	PCI/L	20	1	1 ***	200	EPAR		Cesium-137
034	RU-106	PCI/L	172.5	1	1 ***	30	EPAR		Ruthenium-106
100	PU39-40	PCI/L	17	1	1 ***	1.20	DOE		Plutonium-239/40
102	PU-238	PCI/L	17	1	1 ***	1.60	DOE		Plutonium-238
104	U	PCI/L	.500	1	0	600	DOE		Uranium
106	AM-241	PCI/L	.100	1	0	30	DOE		Americium-241
108	TRITIUM	PCI/L	500	1	1 ***	20000	EPA		Tritium
121	SR 90	PCI/L	5	1	1 ***	8	EPA		Strontium-90
A01	BERYLUM	PPB	5	5	5 ***	.			Beryllium
A03	STRONUM	PPB	10	5	0	.			Strontium
A04	ZINC	PPB	5	5	0	5000	EPAS		Zinc
A05	CALCIUM	PPB	50	5	0	.			Calcium
A12	NICKEL	PPB	10	5	1	.			Nickel
A13	COPPER	PPB	10	5	5 ***	1300	EPAP		Copper
A14	VANADUM	PPB	5	5	0	.			Vanadium
A15	ANTIONY	PPB	100	5	5 ***	.			Antimony
A16	ALUMNUM	PPB	150	5	4	.			Aluminum

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 3 of 16)

---------- Constituent List= Site Specific and Other Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
A18	POTASUM	PPB	100	5	0	.		Potassium
A60	MAGNES	PPB	50	5	0	.		Magnesium
C78	PHOSPHA	PPB	1000	4	4 ***	.		Phosphate
H16	TC	PPB	1000	5	0	.		Total carbon
H17	TDS		5000	1	0	500000	EPAS	Total dissolved solids
H18	FZINC	PPB	5	5	4	5000	EPAS	Zinc, filtered
H19	FCALCIU	PPB	50	5	0	.		Calcium, filtered
H25	FNICKEL	PPB	10	5	5 ***	.		Nickel, filtered
H26	FCOPPER	PPB	10	5	5 ***	1300	EPAP	Copper, filtered
H27	FVANADI	PPB	5	5	0	.		Vanadium, filtered
H28	FALUMIN	PPB	150	5	5 ***	.		Aluminum, filtered
H30	FPOTASS	PPB	100	5	0	.		Potassium, filtered
H32	FMAGNES	PPB	50	5	0	.		Magnesium, filtered
H33	FBERYLL	PPB	5	5	5 ***	.		Beryllium, filtered
H35	FSTRONT	PPB	10	5	0	.		Strontium, filtered
H36	FANTIMO	PPB	100	5	5 ***	.		Antimony, filtered
H58	ALKALIN		20000	5	0	.		Alkalinity
H66	BROMIDE	PPB	1000	4	4 ***	.		Bromide
H67	NITRITE	PPB	1000	4	4 ***	.		Nitrite
H86	FBORON	PPB	10	5	0	.		Boron, filtered
H87	FCOBALT	PPB	20	5	5 ***	.		Cobalt, filtered
H88	FLITHIU	PPB	10	5	5 ***	.		Lithium, filtered
H89	FMOLY	PPB	40	5	5 ***	.		Molybdenum, filtered
H90	FSILICO	PPB	50	5	0	.		Silicon, filtered
H91	FTIN	PPB	30	5	5 ***	.		Tin, filtered
H92	FTITAN	PPB	60	5	5 ***	.		Titanium, filtered
H93	FZIRCON	PPB	50	5	5 ***	.		Zirconium, filtered
P01	BORON	PPB	10	5	0	.		Boron
P02	COBALT	PPB	20	5	5 ***	.		Cobalt
P03	LITHIUM	PPB	10	5	5 ***	.		Lithium
P04	MOLY	PPB	40	5	5 ***	.		Molybdenum
P05	SILICON	PPB	50	5	0	.		Silicon
P06	TIN	PPB	30	5	5 ***	.		Tin
P07	TITAN	PPB	60	5	5 ***	.		Titanium
P08	ZIRCON	PPB	50	5	5 ***	.		Zirconium
P12	ENDSFAN	PPB	.500	5	5 ***	.		Endosulfan
P13	PHORATE	PPB	2	5	5 ***	.		PHORATE

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 4 of 16)

---------- Constituent List= WAC 173-303-9906 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standard	Standards Agency Exceeded	Full Name
A23	THALIUM	PPB	5	5	5 ***	.		Thallium
A24	THIOURA	PPB	200	5	5 ***	.		Thiourea
A25	ACETREA	PPB	200	5	5 ***	.		1-acetyl-2-thiourea
A26	CHLOREA	PPB	200	5	5 ***	.		1-(o-chlorophenyl) thiourea
A27	DIETROL	PPB	200	5	5 ***	.		Diethylstilbesterol
A28	ETHYREA	PPB	200	5	5 ***	.		Ethylenethiourea
A29	NAPHREA	PPB	200	5	5 ***	.		1-naphthyl-2-thiourea
A32	PHENREA	PPB	500	5	5 ***	.		N-phenylthiourea
A40	DDD	PPB	.100	5	5 ***	.		DDD
A41	DDE	PPB	.100	5	5 ***	.		DDE
A42	DDT	PPB	.100	5	5 ***	.		DDT
A43	HEPTLOR	PPB	.100	5	5 ***		0 EPAP	Heptachlor
A44	HEPTIDE	PPB	.100	5	5 ***		0 EPAP	Heptchlor epoxide
A45	KEPONE	PPB	1	5	5 ***	.		Kepone
A46	DIELRIN	PPB	.100	5	5 ***	.		Dieldrin
A47	ALDRIN	PPB	.100	5	5 ***	.		Aldrin
A48	CHLOANE	PPB	1	5	5 ***		0 EPAP	Chlordane
A49	ENDO1	PPB	.100	5	5 ***	.		Endosulfan I
A52	ENDO2	PPB	.100	5	5 ***	.		Endosulfan II
A54	AR1016	PPB	1	5	5 ***		0 EPAP	Arochlor 1016
A55	AR1221	PPB	1	5	5 ***		0 EPAP	Arochlor 1221
A56	AR1232	PPB	1	5	5 ***		0 EPAP	Arochlor 1232
A57	AR1242	PPB	1	5	5 ***		0 EPAP	Arochlor 1242
A58	AR1248	PPB	1	5	5 ***		0 EPAP	Arochlor 1248
A59	AR1254	PPB	1	5	5 ***		0 EPAP	Arochlor 1254
A60	AR1260	PPB	1	5	5 ***		0 EPAP	Arochlor 1260
A61	TETRANE	PPB	5	5	5 ***		5 EPA	Carbon Tetrachloride by GC/MS
A62	BENZENE	PPB	5	5	5 ***		5 EPA	Benzene
A63	DIOXANE	PPB	500	5	5 ***	.		Dioxane
A64	METHONE	PPB	10	5	5 ***	.		Methyl ethyl ketone
A65	PYRIDIN	PPB	500	5	5 ***	.		Pyridine
A66	TOLUENE	PPB	5	5	5 ***	2000	EPAP	Toluene
A67	1,1,1-T	PPB	5	5	5 ***	200	EPA	1,1,1-trichloroethane
A68	1,1,2-T	PPB	5	5	5 ***	.		1,1,2-trichloroethane
A69	TRICENE	PPB	5	5	5 ***		5 EPA	Trichloroethylene
A70	PERCENE	PPB	5	5	5 ***	.		Tetrachloroethylene
A71	OPXYLE	PPB	5	5	5 ***	440	EPAP	Xylene-o,p
A72	ACROLIN	PPB	10	5	5 ***	.		Acrolein
A73	ACRYILE	PPB	10	5	5 ***	.		Acrylonitrile
A74	BISTHER	PPB	5	5	5 ***	.		Bis(chloromethyl) ether

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 5 of 16)

---------- Constituent List= WAC 173-303-9905 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
A75	BROMONE	PPB	5	5	5 ***	.		Bromoacetone
A76	METHBRO	PPB	10	5	5 ***	.		Methyl bromide
A77	CARBIDE	PPB	10	5	5 ***	.		Carbon disulfide
A78	CHLBENZ	PPB	5	5	5 ***	60	EPAP	Chlorobenzene
A79	CHLTHER	PPB	5	5	5 ***	.		2-chloroethyl vinyl ether
A80	CHLFORM	PPB	5	5	4	100	EPA	Chloroform
A81	METHCHL	PPB	10	5	5 ***	.		Methyl chloride
A82	CHMTHER	PPB	10	5	5 ***	.		Chloromethyl methyl ether
A83	CROTONA	PPB	10	5	5 ***	.		Crotonaldehyde
A84	DIBRCHL	PPB	10	5	5 ***	0	EPAP	1,2-dibromo-3-chloropropane
A85	DIBRETH	PPB	10	5	5 ***	.		1,2-dibromoethane
A86	DIBRMET	PPB	10	5	5 ***	.		Dibromomethane
A87	DIBUTEN	PPB	10	5	5 ***	.		1,4-dichloro-2-butene
A88	DICDIFM	PPB	10	5	5 ***	.		Dichlorodifluoromethane
A89	1,1-DIC	PPB	5	5	5 ***	.		1,1-dichloroethane
A90	1,2-DIC	PPB	5	5	5 ***	5	EPA	1,2-dichloroethane
A91	TRANDCE	PPB	5	5	5 ***	70	EPAP	Trans-1,2-dichloroethene
A92	DICETHY	PPB	10	5	5 ***	7	EPA	1,1-dichloroethylene
A93	METHYCH	PPB	5	5	3	.		Methylene Chloride
A94	DICPANE	PPB	5	5	5 ***	6	EPAP	1,2-dichloropropane
A95	DICPENE	PPB	5	5	5 ***	.		1,3-dichloropropene
A96	NNDIEHY	PPB	10	5	5 ***	.		N,N-diethylhydrazine
A97	1,1-DIM	PPB	10	5	5 ***	.		1,1-dimethylhydrazine
A98	1,2-DIM	PPB	10	5	5 ***	.		1,2-dimethylhydrazine
B01	IODOMET	PPB	10	5	5 ***	.		Iodomethane
B02	METHACR	PPB	10	5	5 ***	.		Methacrylonitrile
B03	METHTHI	PPB	10	5	5 ***	.		Methanethiol
B04	PENTACH	PPB	10	5	5 ***	.		Pentachloroethane
B05	1112-tc	PPB	10	5	5 ***	.		1,1,1,2-tetrachloroethane
B06	1122-tc	PPB	5	5	5 ***	.		1,1,2,2-tetrachloroethane
B08	BROMORM	PPB	5	5	5 ***	100	EPA	Bromoform
B09	TRCMEOL	PPB	10	5	5 ***	.		Trichloromethanethiol
B10	TRCMFLM	PPB	10	5	5 ***	.		Trichloromonofluoromethane
B12	123-trp	PPB	10	5	5 ***	.		1,2,3-trichloropropane
B13	VINYIDE	PPB	10	5	5 ***	2	EPA	Vinyl chloride
B14	M-XYLE	PPB	5	5	5 ***	440	EPAP	Xylene-m
B19	ACETILE	PPB	10	5	5 ***	.		Acetonitrile
B20	ACETOPH	PPB	10	5	5 ***	.		Acetophenone
B21	WARFRIN	PPB	10	5	5 ***	.		Warfarin
B22	ACEFENE	PPB	10	5	5 ***	.		2-acetylaminofluorene
B23	AMINOYL	PPB	10	5	5 ***	.		4-aminobyphenyl
B24	AMIISOX	PPB	10	5	5 ***	.		5-(aminomethyl)-3-isoxazolol
B25	AMITROL	PPB	10	5	5 ***	.		Amitrole
B26	ANILINE	PPB	10	5	5 ***	.		Aniline

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 6 of 16)

---------- Constituent List= WAC 173-303-9905 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
A75	BROMONE	PPB	5	5	5 ***	.		Bromoacetone
A76	METHBRO	PPB	10	5	5 ***	.		Methyl bromide
A77	CARBIDE	PPB	10	5	5 ***	.		Carbon disulfide
A78	CHLBENZ	PPB	5	5	5 ***	60	EPAP	Chlorobenzene
A79	CHLTHER	PPB	5	5	5 ***	.		2-chloroethyl vinyl ether
A80	CHLFORM	PPB	5	5	4	100	EPA	Chloroform
A81	METHCHL	PPB	10	5	5 ***	.		Methyl chloride
A82	CHMTHER	PPB	10	5	5 ***	.		Chloromethyl methyl ether
A83	CROTONA	PPB	10	5	5 ***	.		Crotonaldehyde
A84	DIBRCHL	PPB	10	5	5 ***	0	EPAP	1,2-dibromo-3-chloropropane
A85	DIBRETH	PPB	10	5	5 ***	.		1,2-dibromoethane
A86	DIBRMET	PPB	10	5	5 ***	.		Dibromomethane
A87	DIBUTEN	PPB	10	5	5 ***	.		1,4-dichloro-2-butene
A88	DICDIFM	PPB	10	5	5 ***	.		Dichlorodifluoromethane
A89	1,1-DIC	PPB	5	5	5 ***	.		1,1-dichloroethane
A90	1,2-DIC	PPB	5	5	5 ***	5	EPA	1,2-dichloroethane
A91	TRANDCE	PPB	5	5	5 ***	70	EPAP	Trans-1,2-dichloroethene
A92	DICETHY	PPB	10	5	5 ***	7	EPA	1,1-dichloroethylene
A93	METHYCH	PPB	5	5	3	.		Methylene Chloride
A94	DICPANE	PPB	5	5	5 ***	6	EPAP	1,2-dichloropropane
A95	DICPENE	PPB	5	5	5 ***	.		1,3-dichloropropene
A96	NNDIEHY	PPB	10	5	5 ***	.		N,N-diethylhydrazine
A97	1,1-DIM	PPB	10	5	5 ***	.		1,1-dimethylhydrazine
A98	1,2-DIM	PPB	10	5	5 ***	.		1,2-dimethylhydrazine
B01	IODOMET	PPB	10	5	5 ***	.		Iodomethane
B02	METHACR	PPB	10	5	5 ***	.		Methacrylonitrile
B03	METHTHI	PPB	10	5	5 ***	.		Methanethiol
B04	PENTACH	PPB	10	5	5 ***	.		Pentachloroethane
B05	1112-tc	PPB	10	5	5 ***	.		1,1,1,2-tetrachloroethane
B06	1122-tc	PPB	5	5	5 ***	.		1,1,2,2-tetrachloroethane
B08	BROMORM	PPB	5	5	5 ***	100	EPA	Bromoform
B09	TRCMEOL	PPB	10	5	5 ***	.		Trichloromethanethiol
B10	TRCMFLM	PPB	10	5	5 ***	.		Trichloromonofluoromethane
B12	123-trp	PPB	10	5	5 ***	.		1,2,3-trichloropropane
B13	VINYIDE	PPB	10	5	5 ***	2	EPA	Vinyl chloride
B14	M-XYLE	PPB	5	5	5 ***	440	EPAP	Xylene-m
B19	ACETILE	PPB	10	5	5 ***	.		Acetonitrile
B20	ACETOPH	PPB	10	5	5 ***	.		Acetophenone
B21	WARFRIN	PPB	10	5	5 ***	.		Warfarin
B22	ACEFENE	PPB	10	5	5 ***	.		2-acetylaminofluorene
B23	AMINOYL	PPB	10	5	5 ***	.		4-aminobyphenyl
B24	AMIISOX	PPB	10	5	5 ***	.		5-(aminomethyl)-3-isoxazolol
B25	AMITROL	PPB	10	5	5 ***	.		Amitrole
B26	ANILINE	PPB	10	5	5 ***	.		Aniline

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 7 of 16)

---------- Constituent List= WAC 173-303-9905 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
B27	ARAMITE	PPB	10	5	5 ***	.		Aramite
B28	AURAMIN	PPB	10	5	5 ***	.		Auramine
B29	BENZCAC	PPB	10	5	5 ***	.		Benz[c]acridine
B30	BENZAAN	PPB	10	5	5 ***	.		Benz[a]anthracene
B31	BENDICM	PPB	10	5	5 ***	.		Benzene, dichloromethyl
B32	BENTHOL	PPB	10	5	5 ***	.		Benzenethiol
B33	BENDINE	PPB	10	5	5 ***	.		Benzidine
B34	BENZBFL	PPB	10	5	5 ***	.		Benzo[b]fluoranthene
B35	BENZJFL	PPB	10	5	5 ***	.		Benzo[j]fluoranthene
B36	PBENZQU	PPB	10	5	5 ***	.		P benzoquinone
B37	BENZCHL	PPB	10	5	5 ***	.		Benzyl chloride
B38	BIS2CHM	PPB	10	5	5 ***	.		Bis(2-chloroethoxy) methane
B39	BIS2CHE	PPB	10	5	5 ***	.		Bis(2-chloroethyl) ether
B40	BIS2EPH	PPB	10	5	5 ***	.		Bis(2-ethylhexyl) phthalate
B41	BROPHEN	PPB	10	5	5 ***	.		4-bromophenyl phenyl ether
B42	BUTBENP	PPB	10	5	5 ***	.		Butyl benzyl phthalate
B43	BUTDINP	PPB	10	5	5 ***	.		2-sec-butyl-4,6-dinitrophenol
B44	CHALETH	PPB	10	5	5 ***	.		Chloroalkyl ethers
B45	CHLANIL	PPB	10	5	5 ***	.		P-chloroaniline
B46	CHLCRES	PPB	10	5	5 ***	.		P-chloro-m-cresol
B47	CHLEPOX	PPB	10	5	5 ***		0 EPAP	1-chloro-2,3-epoxypropane
B48	CHLNAPH	PPB	10	5	5 ***	.		2-chloronaphthalene
B49	CHLPHEN	PPB	10	5	5 ***	.		2-chlorophenol
B50	CHRYSEN	PPB	10	5	5 ***	.		Chrysene
B51	CRESOLS	PPB	10	5	5 ***	.		Cresols
B52	CYCHDIN	PPB	10	5	5 ***	.		2-cyclohexyl-4,6-dinitrophenol
B53	DIBAHAC	PPB	10	5	5 ***	.		Dibenz[a,h]acridine
B54	DIBAJAC	PPB	10	5	5 ***	.		Dibenz[a,j]acridine
B55	DIBAHAN	PPB	10	5	5 ***	.		Dibenz[a,h]anthracene
B56	DIBCGCA	PPB	10	5	5 ***	.		7H-dibenzo[c,g]carbazole
B57	DIBAEPY	PPB	10	5	5 ***	.		Dibenzo[a,e]pyrene
B58	DIBAHPY	PPB	10	5	5 ***	.		Dibenzo[a,h]pyrene
B59	DIBAIPY	PPB	10	5	5 ***	.		Dibenzo[a,i]pyrene
B60	DIBPHTH	PPB	10	5	5 ***	.		Di-n-butyl phthalate
B61	12-dben	PPB	10	5	5 ***	.		1,2-dichlorobenzene
B62	13-dben	PPB	10	5	5 ***	.		1,3-dichlorobenzene
B63	14-dben	PPB	10	5	5 ***		75 EPA	p-Dichlorobenzene
B64	DICHBEN	PPB	10	5	5 ***	.		3,3'-dichlorobenzidine
B65	24-dchp	PPB	10	5	5 ***	.		2,4-dichlorophenol
B66	26-dchp	PPB	10	5	5 ***	.		2,6-dichlorophenol
B67	DIEPHTH	PPB	10	5	5 ***	.		Diethyl phthalate
B68	DIHYSAF	PPB	10	5	5 ***	.		Dihydrosafrole
B69	DIMETHB	PPB	10	5	5 ***	.		3,3'-dimethoxybenzidine
B70	DIMEAMB	PPB	10	5	5 ***	.		P-dimethylaminoazobenzene

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 8 of 16)

---------- Constituent List= WAC 173-303-9906 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
B71	DIMBENZ	PPB	10	5	5 ***	.		7,12-dimethylbenz[a]anthracene
B72	DIMEYLB	PPB	10	5	5 ***	.		3,3'-dimethylbenzidine
B73	THIONOX	PPB	10	5	5 ***	.		Thiofanox
B74	DIMPHAM	PPB	10	5	5 ***	.		Alpha,alpha-dimethylphenethylamine
B76	DIMPHTH	PPB	10	5	5 ***	.		Dimethyl phthalate
B77	DINBENZ	PPB	10	5	5 ***	.		Dinitrobenzene
B78	DINCRES	PPB	10	5	5 ***	.		4,6-dinitro-o-cresol and salts
B79	DINPHEN	PPB	10	5	5 ***	.		2,4-dinitrophenol
B80	24-dint	PPB	10	5	5 ***	.		2,4-dinitrotoluene
B81	26-dint	PPB	10	5	5 ***	.		2,6-dinitrotoluene
B82	DIOPHTH	PPB	10	5	5 ***	.		Di-n-octyl phthalate
B83	DIPHAMI	PPB	10	5	5 ***	.		Diphenylamine
B84	DIPHHYD	PPB	10	5	5 ***	.		1,2-diphenylhydrazine
B85	DIPRNIT	PPB	10	5	5 ***	.		Di-n-propylnitrosamine
B86	ETHMINE	PPB	10	5	5 ***	.		Ethyleneimine
B87	ETHMETS	PPB	10	5	5 ***	.		Ethyl methanesulfonate
B88	FLUORAN	PPB	10	5	5 ***	.		Fluoranthene
B89	HEXCBEN	PPB	10	5	5 ***	.		Hexachlorobenzene
B90	HEXCBUT	PPB	10	5	5 ***	.		Hexachlorobutadiene
B91	HEXCCYC	PPB	10	5	5 ***	.		Hexachlorocyclopentadiene
B92	HEXCETH	PPB	10	5	5 ***	.		Hexachloroethane
B93	INDENOP	PPB	10	5	5 ***	.		Indeno(1,2,3-cd)pyrene
B94	ISOSOLE	PPB	10	5	5 ***	.		Isosafrole
B95	MALOILE	PPB	10	5	5 ***	.		Malononitrile
B96	MELPHAL	PPB	10	5	5 ***	.		Melphalan
B97	METHAPY	PPB	10	5	5 ***	.		Methapyrilene
B98	METHNYL	PPB	10	5	5 ***	.		Methiolonyl
B99	METAZIR	PPB	10	5	5 ***	.		2-methylaziridine
C01	METCHAN	PPB	10	5	5 ***	.		3-methylcholanthrene
C02	METBISC	PPB	10	5	5 ***	.		4,4'-methylenebis(2-chloroaniline)
C03	METACTO	PPB	10	5	5 ***	.		2-methyllactonitrile
C04	METACRY	PPB	10	5	5 ***	.		Methyl methacrylate
C05	METMSUL	PPB	10	5	5 ***	.		Methyl methanesulfonate
C06	METPROP	PPB	10	5	5 ***	.		2-methyl-2-(methylthio) propionaldehyde-
C07	METHIOU	PPB	10	5	5 ***	.		Methylthiouracil
C08	NAPHQUI	PPB	10	5	5 ***	.		1,4-naphthoquinone
C09	1-napha	PPB	10	5	5 ***	.		1-naphthylamine
C10	2-napha	PPB	10	5	5 ***	.		2-naphthylamine
C11	NITRANI	PPB	10	5	5 ***	.		P-nitroaniline
C12	NITBENZ	PPB	10	5	5 ***	.		Nitrobenzine
C13	NITPHEN	PPB	10	5	5 ***	.		p-Nitrophenol
C14	NNIBUTY	PPB	10	5	5 ***	.		N-nitrosodi-n-butylamine
C15	NNIDIEA	PPB	10	5	5 ***	.		N-nitrosodiethanolamine
C16	NNIDIEY	PPB	10	5	5 ***	.		N-nitrosodiethylamine

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 9 of 16)

---------- Constituent List= WAC 173-303-9905 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
C17	NNIDIME	PPB	10	5	5 ***	.		N-nitrosodimethylamine
C18	NNIMETH	PPB	10	5	5 ***	.		N-nitrosomethylethylamine
C19	NNIURET	PPB	10	5	5 ***	.		N-nitroso-N-methylurethane
C20	NNIVINY	PPB	10	5	5 ***	.		N-nitrosomethylvinylamine
C21	NNIMORP	PPB	10	5	5 ***	.		N-nitrosomorpholine
C22	NNINICO	PPB	10	5	5 ***	.		N-nitrosonornicotine
C23	NNIPIPE	PPB	10	5	5 ***	.		N-nitrosopiperidine
C24	NITRPYR	PPB	10	5	5 ***	.		Nitrosopyrrolidine
C25	NITRTOL	PPB	10	5	5 ***	.		5-nitro-o-toluidine
C26	PENTCHB	PPB	10	5	5 ***	.		Pentachlorobenzene
C27	PENTCHN	PPB	10	5	5 ***	.		Pentachloronitrobenzene
C28	PENTCHP	PPB	50	5	5 ***		220 EPAP	Pentachlorophenol
C29	PHENTIN	PPB	10	5	5 ***	.		Phenacetin
C30	PHENINE	PPB	10	5	5 ***	.		Phenylenediamine
C31	PHTHEST	PPB	10	5	5 ***	.		Phthalic acid esters
C32	PICOLIN	PPB	10	5	5 ***	.		2-picoline
C33	PRONIDE	PPB	10	5	5 ***	.		Pronamide
C34	RESERPI	PPB	10	5	5 ***	.		Reserpine
C35	RESORCI	PPB	10	5	5 ***	.		Resorcinol
C36	SAFROL	PPB	10	5	5 ***	.		Safrol
C37	TETRCHB	PPB	10	5	5 ***	.		1,2,4,5-tetrachlorobenzene
C39	TETRCHP	PPB	10	5	5 ***	.		2,3,4,6-tetrachlorophenol
C40	THIURAM	PPB	10	5	5 ***	.		Thiuram
C41	TOLUDIA	PPB	10	5	5 ***	.		Toluenediamine
C42	OTOLHYD	PPB	10	5	5 ***	.		O-toluidine hydrochloride
C43	TRICHLB	PPB	10	5	5 ***	.		1,2,4-trichlorobenzene
C44	245-trp	PPB	10	5	5 ***	.		2,4,5-trichlorophenol
C45	246-trp	PPB	10	5	5 ***	.		2,4,6-trichlorophenol
C46	TRIPHOS	PPB	10	5	5 ***	.		O,O,O-triethyl phosphorothioate
C47	SYMTRIN	PPB	10	5	5 ***	.		Sym-trinitrobenzene
C48	TRISPHO	PPB	10	5	5 ***	.		Tris(2,3-dibromopropyl) phosphate
C49	BENZOPY	PPB	10	5	5 ***	.		Benzo[a]pyrene
C50	CHLNAPZ	PPB	10	5	5 ***	.		Chlornaphazine
C51	BIS2ETH	PPB	10	5	5 ***	.		Bis(2-chloroisopropyl)ether
C52	HEXAENE	PPB	10	5	5 ***	.		Hexachloropropene
C54	HEXACHL	PPB	10	5	5 ***	.		Hexachlorophene
C55	NAPHTHA	PPB	10	5	5 ***	.		Naphthalene
C56	123TRI	PPB	10	5	5 ***	.		1,2,3-trichlorobenzene
C58	135TRI	PPB	10	5	5 ***	.		1,3,5-trichlorobenzene
C59	1234TE	PPB	10	5	5 ***	.		1,2,3,4-tetrachlorobenzene
C60	1235TE	PPB	10	5	5 ***	.		1,2,3,5-tetrachlorobenzene
C61	TETEPYR	PPB	2	5	5 ***	.		Tetraethylpyrophosphate
C62	CHLLATE	PPB	300	5	5 ***	.		Chlorobenzilate
C63	CARBPHT	PPB	2	5	5 ***	.		Carbophenothion

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 10 of 16)

---------- Constituent List= WAC 173-303-9906 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency	Exceeded	Full Name
C04	DISULFO	PPB	2	6	6 ***	.			Disulfoton
C05	DIMETHO	PPB	2	6	6 ***	.			Dimethoate
C06	METHPAR	PPB	2	6	6 ***	.			Methyl parathion
C07	PARATHI	PPB	2	6	6 ***	.			Parathion
C70	CYANIDE	PPB	10	6	6 ***	.			Cyanide
C71	FORMALN	PPB	500	6	6 ***	.			Formalin
C77	PERCHLO	PPB	500	6	6 ***	.			Perchlorate
C78	SULFIDE	PPB	1000	6	6 ***	.			Sulfide
C79	KEROSEN	PPB	10000	6	6 ***	.			Kerosene
C80	AMMONIU	PPB	50	6	6 ***	.			Ammonium ion
C87	CITRUSR	PPB	1000	6	6 ***	.			Citrus red
C90	PARALDE	PPB	10000	6	6 ***	.			Paraldehyde
C91	STRYCHN	PPB	50	6	6 ***	.			Strychnine
C92	MALHYDR	PPB	500	6	6 ***	.			Maleic hydrizide
C93	NICOTIN	PPB	100	6	6 ***	.			Nicotinic acid
C94	ACRYIDE	PPB	10000	6	6 ***		0	EPAP	Acrylamide
C95	ALLYLAL	PPB	10000	6	6 ***	.			Allyl alcohol
C98	CHLPROP	PPB	10000	6	6 ***	.			3-chloropropionitrile
D01	PCDD's	PPB	.0100	6	6 ***	.			Pcdd's
D02	PCDF's	PPB	.0100	6	6 ***	.			Pcdf's
D03	2378TCD	PPB	.0100	6	6 ***	.			2,3,7,8 TCDD
H03	ETHCARB	PPB	10000	6	6 ***	.			Ethyl carbamate
H04	ETHCYAN	PPB	10000	6	6 ***	.			Ethyl cyanide
H05	ETHOXID	PPB	10	6	6 ***	.			Ethylene oxide
H06	ETHMETH	PPB	10	6	6 ***	.			Ethyl methacrylate
H09	ISOBUTY	PPB	10000	6	6 ***	.			Isobutyl alcohol
H11	PROPYLA	PPB	10000	6	6 ***	.			N-propylamine
H12	PROPYNO	PPB	10000	6	6 ***	.			2-propyn-1-ol
H15	2,4,5-T	PPB	2	6	6 ***	.			2,4,5-T
H40	FTHALLI	PPB	5	6	6 ***	.			Thallium, filtered
H02	LHYDRAZ	PPB	30	6	6 ***	.			Hydrazine, Low Detection Level
H08	HEXONE	PPB	10	6	6 ***	.			Methyl Isobutyl Ketone
I01	ACETONE	PPB	10	6	6 ***	.			Acetone by VOA
I08	ISOPHER	PPB	10	6	6 ***	.			Isopherone
I09	BUTANOL	PPB	10000	6	6 ***	.			1-Butanol
I21	TRIBUPH	PPB	10	6	6 ***	.			Tributylphosphoric Acid
I28	TAF	PPB	10	6	6 ***	.			Tetrahydrofuran
I29	ACENAPH	PPB	10	6	6 ***	.			Acenaphthene
I30	FLRENE	PPB	10	6	6 ***	.			Fluorene
I31	ANTHRA	PPB	10	6	6 ***	.			Anthracene
I32	PYRENE	PPB	10	6	6 ***	.			Pyrene
I33	ETHBENZ	PPB	5	6	6 ***	680	EPAP		Ethyl benzene
I34	STYRENE	PPB	5	6	6 ***	140	EPAP		Styrene
I42	BDCM	PPB	5	6	6 ***	100	EPA		Bromodichloromethane.

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 11 of 16)

---------- Constituent List= WAC 173-303-9906 Constituents ----------

Constituent Code	Name	Units	Detection Limit	Samples	Below Detection	Drinking Water Standards Standard	Agency Exceeded	Full Name
I43	CDBM	PPB	5	5	5 ***	100	EPA	Chlorodibromomethane
I64	2NITPH	PPB	10	5	5 ***	.		o-Nitrophenol
I67	ETHANOL	PPB	10000	5	5 ***	.		Ethanol
I76	2MENAPH	PPB	10	5	5 ***	.		2-Methylnaphthalene
I82	PHENANT	PPB	10	5	5 ***	.		Phenanthrene
J43	BENZALC	PPB	10	5	5 ***	.		Benzyl Alcohol
J69	2HEXANO	PPB	50	5	5 ***	.		2-Hexanone
J71	BNZKFLU	PPB	10	5	5 ***	.		Benzo(k)Fluoranthene
J83	BGHIPER	PPB	10	5	5 ***	.		Benzo(Ghi)Perylene
J89	DINOSEB	PPB	10	5	5 ***	.		Dinoseb
J91	DIALLAT	PPB	10	5	5 ***	.		Diallate
K52	NNDIPHA	PPB	10	5	5 ***	.		N-NITROSODIPHENYLAMINE
K56	DIBENFR	PPB	10	5	5 ***	.		DIBENZOFURAN
K58	ACENATL	PPB	10	5	5 ***	.		ACENAPHTHYLENE
L20	MBP	PPB	10000	5	5 ***	.		Monobutyl Phosphate
L21	DBP	PPB	10000	5	5 ***	.		Dibutyl Phosphate
L45	ALLYLCL	PPB	100	5	5 ***	.		Allyl Chloride
L46	CLETHAN	PPB	10	5	5 ***	.		Chloroethane
L48	PROPCN	PPB	5	5	5 ***	.		Propionitrile
L49	VINYLAC	PPB	5	5	5 ***	.		Vinyl Acetate
L50	B2CLMEE	PPB	10	5	5 ***	.		Bis(2-chloro-1-methylethyl)ether
L52	DIPHOS	PPB	10	5	5 ***	.		O,O-Diethyl-O,2-pyrazinyl phosphorothion
L53	ISODRIN	PPB	10	5	5 ***	.		Isodrin
L54	ONITANI	PPB	10	5	5 ***	.		o-Nitroaniline
L55	MNITANI	PPB	10	5	5 ***	.		m-Nitroaniline
L58	4NITQUI	PPB	10	5	5 ***	.		4-Nitroquinoline 1-oxide
L57	ETHGLYC	PPB	10000	5	5 ***	.		Ethylene Glycol
L59	1PROPAN	PPB	10000	5	5 ***	.		1-Propanol
L60	1BUTYN	PPB	10000	5	5 ***	.		1-Butynol
L62	ACETONE	PPB	10	5	5 ***	.		Acetone - by ABN
L63	14DBEN	PPB	5	5	5 ***	75	EPA	p-Dichlorobenzene
L64	CHLROB	PPB	10	5	5 ***	60	EPAP	Chlorobenzene (by ABN)

*** - Indicates all samples were reported as below contractual detection limits
xxx - Indicates that Drinking Water Standards were exceeded--
EPA - based on Maximum Contaminant Levels in 40 CFR Part 141, National Primary Drinking Water Regulations
EPAR - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
EPAP - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
EPAS - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 National Secondary Drinking Water Regulations
DOE - based on Derived Concentration Guides, Draft DOE Order 5400.xx, October 10, 1988
WDOE - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 12 of 16)

Contamination Indicator Parameters

Well name	Collection date	Duplicate sample number	CONDFLD UMHO 1/700w	CONDLAB UMHO ./700w	PH-LAB .01/6.5-8.5s	PHFIELD .10/6.5-8.5s	TOC PPB 2000/.	TOXLDL PPB 10/.
2-E18-1	31OCT89		552	.	.	7.95	500	1
	29NOV89		563	542	7.30	8.09	200	3
	29NOV89	1	562	543	7.90	8.08	300	5
	29NOV89	2	561	550	7.90	8.09	300	4
	29NOV89	3	580	552	7.80	8.10	300	8
2-E18-2	27NOV89		278	.	.	8.14	400	6
	27NOV89	1	283	.	.	8.12	700	8
	27NOV89	2	285	.	.	8.13	400	8
	27NOV89	3	281	.	.	8.11	600	7
2-E18-3	27NOV89		230	247	8	8.08	700	7
	27NOV89	1	233	245	8	8.09	400	7
	27NOV89	2	235	247	8	8.09	400	6
	27NOV89	3	230	248	8.10	8.12	500	6
2-E18-4	21NOV89		236	278	7.90	8.09	400	8
	21NOV89	1	239	286	8	8.11	600	4
	21NOV89	2	234	287	8	8.10	700	11
	21NOV89	3	236	285	8	8.10	600	7

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 13 of 16)

Well name	Collection date	Duplicate sample number	FSELENI PPB 5/10	FPOTASS PPB 100/.	FSTRONT PPB 10/.	ALKALIN 20000/.	ALPHAHI PCI/L 4/15	ALUMNUM PPB 150/.	AM-241 PCI/L .10/30d	ARSENIC PPB 5/50
2-E18-1	31OCT89		6	5790	265	.	4.52	244	.0298	<5
	29NOV89		.	.	.	102000	.	.	.	.
2-E18-2	27NOV89		<5	4650	149	91000	1.32	<150	.	7
2-E18-3	27NOV89		<5	5030	147	104000	2.81	<150	.	13
	27NOV89	1	<5	4780	147	105000	2.28	<150	.	14
2-E18-4	21NOV89		<5	5450	154	98000	3.77	<150	.	10

Well name	Collection date	Duplicate sample number	FARSENI PPB 5/50	BARIUM PPB 6/1000	FBARIUM PPB 6/1000	BDCM PPB 5/100	BETA PCI/L 8/50	BORON PPB 10/.	FBORON PPB 10/.	CALCIUM PPB 50/.
2-E18-1	31OCT89		<5	29	28	<5	8.50	31	30	50900
	29NOV89		.	.	.	.	.	.	.	.
2-E18-2	27NOV89		<5	57	57	<5	4.71	18	19	27100
2-E18-3	27NOV89		11	57	58	<5	4.71	11	12	29200
	27NOV89	1	12	56	57	13	5.95	14	14	28400
2-E18-4	21NOV89		9	57	57	<5	4.92	14	14	30200

Well name	Collection date	Duplicate sample number	FCALCIU PPB 50/.	CHLFORM PPB 5/100	CHLORID PPB 500/250000s	CHROMUM PPB 10/50	CO-60 PCI/L 22.5/100r	CS-137 PCI/L 20/200r	IRON PPB 30/300s	FIRON PPB 30/300s
2-E18-1	31OCT89		64400	<5	8000	39	*.759	*1.18	802	35
	29NOV89		.	.	.	.	.	.	.	.
2-E18-2	27NOV89		27100	<5	.	16	.	.	77	<30
2-E18-3	27NOV89		29100	<5	5400	58	.	.	407	<30
	27NOV89	1	29000	25	5400	33	.	.	165	<30
2-F18-4	21NOV89		29100	<5	9600	64	.	.	323	<30

Well name	Collection date	Duplicate sample number	MAGNES PPB 50/.	FMAGNES PPB 50/.	MANGESE PPB 5/50s	METHYCH PPB 5/.	NICKEL PPB 10/.	NITRATE PPB 500/45000	POTASUM PPB 100/.	PU-238 PCI/L 17/1.6d
2-E18-1	31OCT89		14700	15600	18	<5	22	12200	5460	*-0.00144
	29NOV89		.	.	.	.	.	.	.	.
2-E18-2	27NOV89		7510	7280	<5	5	<10	.	5080	.
2-E18-3	27NOV89		7980	7910	12	13	30	600	4850	.
	27NOV89	1	7670	7800	<5	76	19	500	4660	.
2-E18-4	21NOV89		8100	7970	8	<5	33	<500	5510	.

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 14 of 16)

Well name	Collection date	Duplicate sample number	PU39-40 PCI/L 17/1.2d	RADIUM PCI/L 1/5	RU-106 PCI/L 172.5/30r	SELENUM PPB 5/10	SILICON PPB 50/.	FSILICO PPB 50/.	SODIUM PPB 200/.	FSODIUM PPB 200/.
2-E18-1	31OCT89		*.00308	.248	*-26.2	6	16200	16900	25900	27800
	29NOV89		.	.	.	.	.	.	.	.
2-E18-2	27NOV89		.	.367	.	<5	18200	18400	17100	16300
2-E18-3	27NOV89		.	*.0742	.	<5	17200	17200	5410	5700
	27NOV89	1	.	*.0598	.	<5	17000	17400	5560	5710
2-E18-4	21NOV89		.	.199	.	<5	17500	17300	10600	9260

Well name	Collection date	Duplicate sample number	SR 90 PCI/L 5/8	STRONUM PPB 10/.	SULFATE PPB 500/250000s	TC PPB 1000/.	TDS 5000/500000s	TRITIUM PCI/L 500/20000	TURBID NTU .10/1	U PCI/L .50/500d
2-E18-1	31OCT89		*.429	250	140000	24600	347000	*86.3	11	4.56
	29NOV89		.	.	.	.	.	.	.	.
2-E18-2	27NOV89		.	152	.	21500	.	.	.700	.
2-E18-3	27NOV89		.	150	15500	24800	.	.	2.10	.
	27NOV89	1	.	146	15500	25000	.	.	.	.
2-E18-4	21NOV89		.	158	23900	23800	.	.	1.10	.

Well name	Collection date	Duplicate sample number	VANADUM PPB 5/.	FVANADI PPB 5/.	ZINC PPB 5/5000s	FZINC PPB 5/5000s
2-E18-1	31OCT89		9	8	26	7
	29NOV89		.	.	.	.
2-E18-2	27NOV89		20	22	5	<5
2-E18-3	27NOV89		28	27	15	<5
	27NOV89	1	27	28	6	<5
2-E18-4	21NOV89		27	28	6	<5

Suffix
none - based on Maximum Contaminant Levels in 40 CFR Part 141, National Primary Drinking Water Regulations
r - based on National Interim Primary Drinking Water Regulations, Appendix IV, EPA-570/9-76-003
p - based on proposed Maximum Contaminant Level Goals in 50 FR 46936
s - based on Secondary Maximum Contaminant Levels given in 40 CFR Part 143 National Secondary Drinking Water Regulations
d - based on Derived Concentration Guides, Draft DOE Order 5400.xx, October 10, 1988
w - based on additional Secondary Maximum Contaminant Levels given in WAC 248-54, Public Water Supplies

Data Flags
< - Less than Contractual Detection Limit, reported as Limit
[- Less than Contractual Detection Limit, measured value reported
* - For radioactive constituents, reported value is less than 2-sigma error

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 15 of 16)

Constituent, Units[b]	n	df	tc	Average	Standard Deviation	Critical Mea
Conductivity in the field, µmho/cm	4	3	11.984	528.4	39.1	1,052.9
pH, field	4	3	15.145	7.804	0.657	3.316, 18.9
Total organic carbon, ppb	4	3	11.984	387.6	156.2	2,480.5
Total organic halogens, ppb	4	3	11.984	3.59	0.99	16.8

(a) Data collected August 1988 to June 1989. Values calculated based on 16 comparisons.
(b) The following notations are used in this table:
df = degrees of freedom (n-1).
n = number of background replicate averages.
tc = Bonferroni critical t-value for appropriate df and 16 comparisons.

Table D2-7. Constituent List and Summary of Sampling Results for the 2101-M Pond, November 1989. (sheet 16 of 16)

TABLE 13.7. Contamination Indicator Parameter Replicate Averages for the 2101-M Pond, November 1989

Constituent Code	Name	Units	Well Name	Sample Date	Reps	Replicate Average	Standard Deviation	Minimum	Maximum	Coefficient of Variation
088	CONDLAB	umho	2-E18-1	29NOV89	4	547	4.99	542	552	0.9
			2-E18-3	27NOV89	4	247	1.28	245	248	0.5
			2-E18-4	21NOV89	4	284	4.08	278	287	1.4
191	CONDFLD	umho	2-E18-1	29NOV89	4	562	1.29	560	563	0.2
			2-E18-2	27NOV89	4	282	2.99	278	285	1.1
			2-E18-3	27NOV89	4	234	3.37	230	238	1.4
			2-E18-4	21NOV89	4	236	2.06	234	239	0.9
199	PHFIELD		2-E18-1	29NOV89	4	8.09	0.008	8.08	8.10	0.1
			2-E18-2	27NOV89	4	8.13	0.013	8.11	8.14	0.2
			2-E18-3	27NOV89	4	8.10	0.017	8.08	8.12	0.2
			2-E18-4	21NOV89	4	8.10	0.008	8.09	8.11	0.1
207	PH-LAB		2-E18-1	29NOV89	4	7.68	0.25	7.3	7.8	3.3
			2-E18-3	27NOV89	4	8.02	0.05	8.0	8.1	0.6
			2-E18-4	21NOV89	4	7.98	0.05	7.9	8.0	0.6
C69	TOC	ppb	2-E18-1	29NOV89	4	275	50	200	300	18.2
			2-E18-2	27NOV89	4	525	150	400	700	28.6
			2-E18-3	27NOV89	4	500	141	400	700	28.3
			2-E18-4	21NOV89	4	575	126	400	700	21.9
H42	TOXLDL	ppb	2-E18-1	29NOV89	4	5.0	2.16	3	8	43.2
			2-E18-2	27NOV89	4	7.3	0.96	6	8	13.2
			2-E18-3	27NOV89	4	6.3	0.96	5	7	15.3
			2-E18-4	21NOV89	4	7.5	2.89	4	11	38.5

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 1 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-19-43	28-Dec-87	191	Specific conductance	1	UMHO	312
6-19-43	3-Feb-88	191	Specific conductance	1	UMHO	310
6-19-43	22-May-88	191	Specific conductance	1	UMHO	380
6-19-43	16-Sep-88	191	Specific conductance	1	UMHO	390
6-32-77	5-Feb-86	191	Specific conductance	1	UMHO	287
6-32-77	15-Nov-87	191	Specific conductance	1	UMHO	213
6-32-77	4-Jan-88	191	Specific conductance	1	UMHO	259
6-32-77	11-May-88	191	Specific conductance	1	UMHO	260
6-32-77	24-Aug-88	191	Specific conductance	1	UMHO	228
6-55-76	2-Dec-87	191	Specific conductance	1	UMHO	279
6-55-76	12-Feb-88	191	Specific conductance	1	UMHO	332
6-55-76	6-Jun-88	191	Specific conductance	1	UMHO	307
6-55-76	21-Nov-88	191	Specific conductance	1	UMHO	369
6-55-76	21-Nov-88	191	Specific conductance	1	UMHO	370
6-67-86	22-Dec-87	191	Specific conductance	1	UMHO	286
6-67-86	23-Feb-88	191	Specific conductance	1	UMHO	279
6-67-86	22-Jun-88	191	Specific conductance	1	UMHO	294
6-67-86	30-Aug-88	191	Specific conductance	1	UMHO	194
6-67-86	13-Jan-89	191	Specific conductance	1	UMHO	295
6-S3-25	8-Jun-87	191	Specific conductance	1	UMHO	492
6-S3-25	15-Sep-87	191	Specific conductance	1	UMHO	455
6-S31-1	17-Oct-85	191	Specific conductance	1	UMHO	235
6-S31-1	22-Jun-87	191	Specific conductance	1	UMHO	220
6-S31-1	24-Aug-87	191	Specific conductance	1	UMHO	197
6-S31-1	4-Aug-88	191	Specific conductance	1	UMHO	220
6-19-43	28-Dec-87	199	pH, Field Measurement	0.1		7.70
6-19-43	3-Feb-88	199	pH, Field Measurement	0.1		7.60
6-19-43	22-May-88	199	pH, Field Measurement	0.1		8.00
6-19-43	16-Sep-88	199	pH, Field Measurement	0.1		7.80
6-32-77	5-Feb-86	199	pH, Field Measurement	0.1		7.80
6-32-77	15-Nov-87	199	pH, Field Measurement	0.1		7.50
6-32-77	4-Jan-88	199	pH, Field Measurement	0.1		6.30
6-32-77	11-May-88	199	pH, Field Measurement	0.1		7.70
6-32-77	24-Aug-88	199	pH, Field Measurement	0.1		7.50
6-55-76	2-Dec-87	199	pH, Field Measurement	0.1		7.70
6-55-76	12-Feb-88	199	pH, Field Measurement	0.1		7.50
6-55-76	6-Jun-88	199	pH, Field Measurement	0.1		7.70
6-55-76	21-Nov-88	199	pH, Field Measurement	0.1		8.00
6-55-76	21-Nov-88	199	pH, Field Measurement	0.1		8.10
6-55-76	21-Nov-88	199	pH, Field Measurement	0.1		8.20
6-67-86	22-Dec-87	199	pH, Field Measurement	0.1		6.80
6-67-86	23-Feb-88	199	pH, Field Measurement	0.1		7.90
6-67-86	22-Jun-88	199	pH, Field Measurement	0.1		7.50

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 2 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-67-86	30-Aug-88	199	pH, Field Measurement	0.1		7.60
6-67-86	13-Jan-89	199	pH, Field Measurement	0.1		7.60
6-S3-25	8-Jun-87	199	pH, Field Measurement	0.1		7.20
6-S3-25	15-Sep-87	199	pH, Field Measurement	0.1		7.10
6-S31-1	17-Oct-85	199	pH, Field Measurement	0.1		7.70
6-S31-1	22-Jun-87	199	pH, Field Measurement	0.1		7.30
6-S31-1	24-Aug-87	199	pH, Field Measurement	0.1		7.30
6-S31-1	4-Aug-88	199	pH, Field Measurement	0.1		7.70
6-19-43	28-Dec-87	C69	Total organic carbon	2000	PPB	335<
6-19-43	3-Feb-88	C69	Total organic carbon	2000	PPB	237<
6-19-43	22-May-88	C69	Total organic carbon	2000	PPB	359<
6-19-43	16-Sep-88	C69	Total organic carbon	2000	PPB	200<
6-32-77	5-Feb-86	C69	Total organic carbon	2000	PPB	598<
6-32-77	15-Nov-87	C69	Total organic carbon	2000	PPB	276<
6-32-77	4-Jan-88	C69	Total organic carbon	2000	PPB	358<
6-32-77	11-May-88	C69	Total organic carbon	2000	PPB	263<
6-32-77	24-Aug-88	C69	Total organic carbon	2000	PPB	304<
6-55-76	2-Dec-87	C69	Total organic carbon	2000	PPB	228<
6-55-76	12-Feb-88	C69	Total organic carbon	2000	PPB	170<
6-55-76	6-Jun-88	C69	Total organic carbon	2000	PPB	234<
6-55-76	21-Nov-88	C69	Total organic carbon	2000	PPB	200<
6-55-76	21-Nov-88	C69	Total organic carbon	2000	PPB	300<
6-67-86	22-Dec-87	C69	Total organic carbon	2000	PPB	175<
6-67-86	23-Feb-88	C69	Total organic carbon	2000	PPB	431<
6-67-86	22-Jun-88	C69	Total organic carbon	2000	PPB	339<
6-67-86	30-Aug-88	C69	Total organic carbon	2000	PPB	455<
6-67-86	13-Jan-89	C69	Total organic carbon	2000	PPB	200<
6-S3-25	8-Jun-87	C69	Total organic carbon	2000	PPB	260<
6-S3-25	15-Sep-87	C69	Total organic carbon	2000	PPB	418<
6-S31-1	17-Oct-85	C69	Total organic carbon	2000	PPB	1500
6-S31-1	18-Jul-86	C69	Total organic carbon	2000	PPB	1000
6-S31-1	22-Jun-87	C69	Total organic carbon	2000	PPB	1380
6-S31-1	24-Aug-87	C69	Total organic carbon	2000	PPB	1190
6-S31-1	4-Aug-88	C69	Total organic carbon	2000	PPB	301<
6-19-43	28-Dec-87	H42	Total Organic Halogen	10	PPB	4<
6-19-43	3-Feb-88	H42	Total Organic Halogen	10	PPB	5.3<
6-19-43	22-May-88	H42	Total Organic Halogen	10	PPB	5<
6-32-77	15-Nov-87	H42	Total Organic Halogen	10	PPB	3<
6-32-77	4-Jan-88	H42	Total Organic Halogen	10	PPB	3.2<
6-32-77	11-May-88	H42	Total Organic Halogen	10	PPB	20<
6-55-76	2-Dec-87	H42	Total Organic Halogen	10	PPB	0.7<

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 3 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-55-76	12-Feb-88	H42	Total Organic Halogen	10	PPB	2.4<
6-55-76	6-Jun-88	H42	Total Organic Halogen	10	PPB	11.5<
6-55-76	21-Nov-88	H42	Total Organic Halogen	10	PPB	2<
6-55-76	21-Nov-88	H42	Total Organic Halogen	10	PPB	4<
6-55-76	21-Nov-88	H42	Total Organic Halogen	10	PPB	10<
6-67-86	22-Dec-87	H42	Total Organic Halogen	10	PPB	2<
6-67-86	23-Feb-88	H42	Total Organic Halogen	10	PPB	3.3<
6-67-86	22-Jun-88	H42	Total Organic Halogen	10	PPB	5.9<
6-S3-25	8-Jun-87	H42	Total Organic Halogen	10	PPB	20<
6-S3-25	15-Sep-87	H42	Total Organic Halogen	10	PPB	37.6
6-S31-1	22-Jun-87	H42	Total Organic Halogen	10	PPB	60.8
6-S31-1	24-Aug-87	H42	Total Organic Halogen	10	PPB	5.6<
6-S31-1	4-Aug-88	H42	Total Organic Halogen	10	PPB	0.9<
6-19-43	28-Dec-87	C75	Chloride	500	PPB	7880
6-19-43	3-Feb-88	C75	Chloride	500	PPB	6590
6-19-43	22-May-88	C75	Chloride	500	PPB	6550
6-19-43	16-Sep-88	C75	Chloride	500	PPB	6490
6-32-77	5-Feb-86	C75	Chloride	500	PPB	7480
6-32-77	15-Nov-87	C75	Chloride	500	PPB	7530
6-32-77	4-Jan-88	C75	Chloride	500	PPB	8130
6-32-77	11-May-88	C75	Chloride	500	PPB	7220
6-32-77	24-Aug-88	C75	Chloride	500	PPB	5810
6-55-76	2-Dec-87	C75	Chloride	500	PPB	22900
6-55-76	12-Feb-88	C75	Chloride	500	PPB	24500
6-55-76	6-Jun-88	C75	Chloride	500	PPB	23900
6-55-76	21-Nov-88	C75	Chloride	500	PPB	22200
6-67-86	22-Dec-87	C75	Chloride	500	PPB	4960
6-67-86	23-Feb-88	C75	Chloride	500	PPB	4860
6-67-86	22-Jun-88	C75	Chloride	500	PPB	5190
6-67-86	30-Aug-88	C75	Chloride	500	PPB	4770
6-67-86	13-Jan-89	C75	Chloride	500	PPB	4700
6-S3-25	8-Jun-87	C75	Chloride	500	PPB	24100
6-S3-25	15-Sep-87	C75	Chloride	500	PPB	22700
6-S31-1	17-Oct-85	C75	Chloride	500	PPB	4680
6-S31-1	22-Jun-87	C75	Chloride	500	PPB	5540
6-S31-1	24-Aug-87	C75	Chloride	500	PPB	5330
6-S31-1	4-Aug-88	C75	Chloride	500	PPB	5120
6-19-43	28-Dec-87	A17	Manganese	5	PPB	6
6-32-77	5-Feb-86	A17	Manganese	5	PPB	8
6-55-76	21-Nov-88	A17	Manganese	5	PPB	21

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 4 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-S31-1	17-Oct-85	A17	Manganese	5	PPB	5
6-S31-1	4-Aug-88	A17	Manganese	5	PPB	5<
6-19-43	3-Feb-88	H29	Manganese, filtered	5	PPB	5<
6-19-43	22-May-88	H29	Manganese, filtered	5	PPB	5<
6-19-43	16-Sep-88	H29	Manganese, filtered	5	PPB	7
6-32-77	15-Nov-87	H29	Manganese, filtered	5	PPB	5<
6-32-77	4-Jan-88	H29	Manganese, filtered	5	PPB	5<
6-32-77	11-May-88	H29	Manganese, filtered	5	PPB	5<
6-32-77	24-Aug-88	H29	Manganese, filtered	5	PPB	5<
6-55-76	2-Dec-87	H29	Manganese, filtered	5	PPB	47
6-55-76	12-Feb-88	H29	Manganese, filtered	5	PPB	20
6-55-76	6-Jun-88	H29	Manganese, filtered	5	PPB	30
6-55-76	21-Nov-88	H29	Manganese, filtered	5	PPB	15
6-67-86	22-Dec-87	H29	Manganese, filtered	5	PPB	5<
6-67-86	23-Feb-88	H29	Manganese, filtered	5	PPB	5<
6-67-86	22-Jun-88	H29	Manganese, filtered	5	PPB	5<
6-67-86	30-Aug-88	H29	Manganese, filtered	5	PPB	5<
6-67-86	13-Jan-89	H29	Manganese, filtered	5	PPB	5<
6-S31-1	22-Jun-87	H29	Manganese, filtered	5	PPB	5<
6-S31-1	24-Aug-87	H29	Manganese, filtered	5	PPB	5<
6-S31-1	4-Aug-88	H29	Manganese, filtered	5	PPB	5<
6-19-43	28-Dec-87	A11	Sodium	200	PPB	20100
6-32-77	5-Feb-86	A11	Sodium	200	PPB	21500
6-55-76	21-Nov-88	A11	Sodium	200	PPB	9950
6-S31-1	17-Oct-85	A11	Sodium	200	PPB	8580
6-S31-1	4-Aug-88	A11	Sodium	200	PPB	9440
6-19-43	3-Feb-88	H24	Sodium, filtered	200	PPB	17400
6-19-43	22-May-88	H24	Sodium, filtered	200	PPB	18400
6-19-43	16-Sep-88	H24	Sodium, filtered	200	PPB	21800
6-32-77	15-Nov-87	H24	Sodium, filtered	200	PPB	21600
6-32-77	4-Jan-88	H24	Sodium, filtered	200	PPB	19800
6-32-77	11-May-88	H24	Sodium, filtered	200	PPB	17700
6-32-77	24-Aug-88	H24	Sodium, filtered	200	PPB	19500
6-55-76	2-Dec-87	H24	Sodium, filtered	200	PPB	9160
6-55-76	12-Feb-88	H24	Sodium, filtered	200	PPB	9270
6-55-76	6-Jun-88	H24	Sodium, filtered	200	PPB	10100
6-55-76	21-Nov-88	H24	Sodium, filtered	200	PPB	10200
6-67-86	22-Dec-87	H24	Sodium, filtered	200	PPB	18000

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 5 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-67-86	23-Feb-88	H24	Sodium, filtered	200	PPB	15700
6-67-86	22-Jun-88	H24	Sodium, filtered	200	PPB	15700
6-67-86	30-Aug-88	H24	Sodium, filtered	200	PPB	18600
6-67-86	13-Jan-89	H24	Sodium, filtered	200	PPB	16000
6-S3-25	8-Jun-87	H24	Sodium, filtered	200	PPB	25300
6-S3-25	15-Sep-87	H24	Sodium, filtered	200	PPB	22200
6-S31-1	22-Jun-87	H24	Sodium, filtered	200	PPB	8990
6-S31-1	24-Aug-87	H24	Sodium, filtered	200	PPB	8500
6-S31-1	4-Aug-88	H24	Sodium, filtered	200	PPB	9060
6-19-43	28-Dec-87	C73	Sulfate	500	PPB	60400
6-19-43	3-Feb-88	C73	Sulfate	500	PPB	59000
6-19-43	22-May-88	C73	Sulfate	500	PPB	51500
6-19-43	16-Sep-88	C73	Sulfate	500	PPB	60500
6-32-77	5-Feb-86	C73	Sulfate	500	PPB	18900
6-32-77	15-Nov-87	C73	Sulfate	500	PPB	20300
6-32-77	4-Jan-88	C73	Sulfate	500	PPB	19700
6-32-77	11-May-88	C73	Sulfate	500	PPB	18600
6-32-77	24-Aug-88	C73	Sulfate	500	PPB	19800
6-55-76	2-Dec-87	C73	Sulfate	500	PPB	42900
6-55-76	12-Feb-88	C73	Sulfate	500	PPB	47300
6-55-76	6-Jun-88	C73	Sulfate	500	PPB	43000
6-55-76	21-Nov-88	C73	Sulfate	500	PPB	48100
6-67-86	22-Dec-87	C73	Sulfate	500	PPB	38000
6-67-86	23-Feb-88	C73	Sulfate	500	PPB	37800
6-67-86	22-Jun-88	C73	Sulfate	500	PPB	37300
6-67-86	30-Aug-88	C73	Sulfate	500	PPB	36100
6-67-86	13-Jan-89	C73	Sulfate	500	PPB	36200
6-S3-25	8-Jun-87	C73	Sulfate	500	PPB	82400
6-S3-25	15-Sep-87	C73	Sulfate	500	PPB	71900
6-S31-1	17-Oct-85	C73	Sulfate	500	PPB	16500
6-S31-1	22-Jun-87	C73	Sulfate	500	PPB	17700
6-S31-1	24-Aug-87	C73	Sulfate	500	PPB	16600
6-S31-1	4-Aug-88	C73	Sulfate	500	PPB	17200
6-19-43	28-Dec-87	A20	Arsenic	5	PPB	5<
6-32-77	5-Feb-86	A20	Arsenic	5	PPB	5<
6-55-76	21-Nov-88	A20	Arsenic	5	PPB	5<
6-S31-1	17-Oct-85	A20	Arsenic	5	PPB	5<
6-S31-1	4-Aug-88	A20	Arsenic	5	PPB	6

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 6 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-19-43	3-Feb-88	H37	Arsenic, filtered	5	PPB	5<
6-19-43	22-May-88	H37	Arsenic, filtered	5	PPB	5<
6-32-77	15-Nov-87	H37	Arsenic, filtered	5	PPB	5<
6-32-77	4-Jan-88	H37	Arsenic, filtered	5	PPB	5<
6-32-77	11-May-88	H37	Arsenic, filtered	5	PPB	5<
6-55-76	2-Dec-87	H37	Arsenic, filtered	5	PPB	5<
6-55-76	12-Feb-88	H37	Arsenic, filtered	5	PPB	5<
6-55-76	6-Jun-88	H37	Arsenic, filtered	5	PPB	5<
6-55-76	21-Nov-88	H37	Arsenic, filtered	5	PPB	5<
6-67-86	22-Dec-87	H37	Arsenic, filtered	5	PPB	5<
6-67-86	23-Feb-88	H37	Arsenic, filtered	5	PPB	5<
6-67-86	22-Jun-88	H37	Arsenic, filtered	5	PPB	5<
6-S3-25	8-Jun-87	H37	Arsenic, filtered	5	PPB	5<
6-S3-25	15-Sep-87	H37	Arsenic, filtered	5	PPB	5<
6-S31-1	22-Jun-87	H37	Arsenic, filtered	5	PPB	5<
6-S31-1	24-Aug-87	H37	Arsenic, filtered	5	PPB	6
6-S31-1	4-Aug-88	H37	Arsenic, filtered	5	PPB	6
6-19-43	28-Dec-87	A06	Barium	6	PPB	56
6-32-77	5-Feb-86	A06	Barium	6	PPB	21
6-55-76	21-Nov-88	A06	Barium	6	PPB	20
6-S31-1	17-Oct-85	A06	Barium	6	PPB	12
6-S31-1	4-Aug-88	A06	Barium	6	PPB	12
6-19-43	3-Feb-88	H20	Barium, filtered	6	PPB	54
6-19-43	22-May-88	H20	Barium, filtered	6	PPB	50
6-19-43	16-Sep-88	H20	Barium, filtered	6	PPB	58
6-32-77	15-Nov-87	H20	Barium, filtered	6	PPB	27
6-32-77	4-Jan-88	H20	Barium, filtered	6	PPB	7
6-32-77	11-May-88	H20	Barium, filtered	6	PPB	24
6-32-77	24-Aug-88	H20	Barium, filtered	6	PPB	22
6-55-76	2-Dec-87	H20	Barium, filtered	6	PPB	23
6-55-76	12-Feb-88	H20	Barium, filtered	6	PPB	24
6-55-76	6-Jun-88	H20	Barium, filtered	6	PPB	27
6-55-76	21-Nov-88	H20	Barium, filtered	6	PPB	19
6-67-86	22-Dec-87	H20	Barium, filtered	6	PPB	17
6-67-86	23-Feb-88	H20	Barium, filtered	6	PPB	13
6-67-86	22-Jun-88	H20	Barium, filtered	6	PPB	14
6-67-86	30-Aug-88	H20	Barium, filtered	6	PPB	17
6-67-86	13-Jan-89	H20	Barium, filtered	6	PPB	12
6-S3-25	8-Jun-87	H20	Barium, filtered	6	PPB	66
6-S3-25	15-Sep-87	H20	Barium, filtered	6	PPB	64
6-S31-1	22-Jun-87	H20	Barium, filtered	6	PPB	19

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 7 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-S31-1	24-Aug-87	H20	Barium, filtered	6	PPB	19
6-S31-1	4-Aug-88	H20	Barium, filtered	6	PPB	6<
6-19-43	28-Dec-87	A07	Cadmium	2	PPB	2<
6-32-77	5-Feb-86	A07	Cadmium	2	PPB	2<
6-55-76	21-Nov-88	A07	Cadmium	2	PPB	2<
6-S31-1	17-Oct-85	A07	Cadmium	2	PPB	2<
6-S31-1	4-Aug-88	A07	Cadmium	2	PPB	2<
6-19-43	3-Feb-88	H21	Cadmium, filtered	2	PPB	2<
6-19-43	22-May-88	H21	Cadmium, filtered	2	PPB	2<
6-19-43	16-Sep-88	H21	Cadmium, filtered	2	PPB	2<
6-32-77	15-Nov-87	H21	Cadmium, filtered	2	PPB	2<
6-32-77	4-Jan-88	H21	Cadmium, filtered	2	PPB	2<
6-32-77	11-May-88	H21	Cadmium, filtered	2	PPB	2<
6-32-77	24-Aug-88	H21	Cadmium, filtered	2	PPB	2<
6-55-76	2-Dec-87	H21	Cadmium, filtered	2	PPB	2<
6-55-76	12-Feb-88	H21	Cadmium, filtered	2	PPB	2<
6-55-76	6-Jun-88	H21	Cadmium, filtered	2	PPB	2<
6-55-76	21-Nov-88	H21	Cadmium, filtered	2	PPB	2<
6-67-86	22-Dec-87	H21	Cadmium, filtered	2	PPB	2
6-67-86	23-Feb-88	H21	Cadmium, filtered	2	PPB	2<
6-67-86	22-Jun-88	H21	Cadmium, filtered	2	PPB	2<
6-67-86	30-Aug-88	H21	Cadmium, filtered	2	PPB	2<
6-67-86	13-Jan-89	H21	Cadmium, filtered	2	PPB	2<
6-S3-25	8-Jun-87	H21	Cadmium, filtered	2	PPB	2<
6-S3-25	15-Sep-87	H21	Cadmium, filtered	2	PPB	2<
6-S31-1	22-Jun-87	H21	Cadmium, filtered	2	PPB	2<
6-S31-1	24-Aug-87	H21	Cadmium, filtered	2	PPB	2<
6-S31-1	4-Aug-88	H21	Cadmium, filtered	2	PPB	2<
6-19-43	28-Dec-87	A08	Chromium	10	PPB	10<
6-32-77	5-Feb-86	A08	Chromium	10	PPB	10<
6-55-76	21-Nov-88	A08	Chromium	10	PPB	10<
6-S31-1	17-Oct-85	A08	Chromium	10	PPB	10<
6-S31-1	4-Aug-88	A08	Chromium	10	PPB	10<
6-19-43	3-Feb-88	H22	Chromium, filtered	10	PPB	10<
6-19-43	22-May-88	H22	Chromium, filtered	10	PPB	10<
6-19-43	16-Sep-88	H22	Chromium, filtered	10	PPB	10<
6-32-77	15-Nov-87	H22	Chromium, filtered	10	PPB	10<

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 8 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-32-77	4-Jan-88	H22	Chromium, filtered	10	PPB	10<
6-32-77	11-May-88	H22	Chromium, filtered	10	PPB	10<
6-32-77	24-Aug-88	H22	Chromium, filtered	10	PPB	10<
6-55-76	2-Dec-87	H22	Chromium, filtered	10	PPB	10<
6-55-76	12-Feb-88	H22	Chromium, filtered	10	PPB	10<
6-55-76	6-Jun-88	H22	Chromium, filtered	10	PPB	10<
6-55-76	21-Nov-88	H22	Chromium, filtered	10	PPB	10<
6-67-86	22-Dec-87	H22	Chromium, filtered	10	PPB	18
6-67-86	23-Feb-88	H22	Chromium, filtered	10	PPB	20
6-67-86	22-Jun-88	H22	Chromium, filtered	10	PPB	21
6-67-86	30-Aug-88	H22	Chromium, filtered	10	PPB	26
6-67-86	13-Jan-89	H22	Chromium, filtered	10	PPB	25
6-S3-25	8-Jun-87	H22	Chromium, filtered	10	PPB	10<
6-S3-25	15-Sep-87	H22	Chromium, filtered	10	PPB	10<
6-S31-1	22-Jun-87	H22	Chromium, filtered	10	PPB	10<
6-S31-1	24-Aug-87	H22	Chromium, filtered	10	PPB	10<
6-S31-1	4-Aug-88	H22	Chromium, filtered	10	PPB	10<
6-S31-1	17-Oct-85	A09	Lead	30	PPB	30<
6-19-43	3-Feb-88	H41	Lead, filtered	5	PPB	5<
6-19-43	22-May-88	H41	Lead, filtered	5	PPB	5<
6-32-77	15-Nov-87	H41	Lead, filtered	5	PPB	5<
6-32-77	4-Jan-88	H41	Lead, filtered	5	PPB	5<
6-32-77	11-May-88	H41	Lead, filtered	5	PPB	5<
6-55-76	2-Dec-87	H41	Lead, filtered	5	PPB	5<
6-55-76	12-Feb-88	H41	Lead, filtered	5	PPB	5<
6-55-76	6-Jun-88	H41	Lead, filtered	5	PPB	5<
6-55-76	21-Nov-88	H41	Lead, filtered	5	PPB	5<
6-67-86	22-Dec-87	H41	Lead, filtered	5	PPB	5<
6-67-86	23-Feb-88	H41	Lead, filtered	5	PPB	5<
6-67-86	22-Jun-88	H41	Lead, filtered	5	PPB	5<
6-S3-25	8-Jun-87	H41	Lead, filtered	5	PPB	5<
6-S3-25	15-Sep-87	H41	Lead, filtered	5	PPB	5<
6-S31-1	22-Jun-87	H41	Lead, filtered	5	PPB	5<
6-S31-1	24-Aug-87	H41	Lead, filtered	5	PPB	5<
6-S31-1	4-Aug-88	H41	Lead, filtered	5	PPB	5<
6-19-43	28-Dec-87	A22	Selenium	5	PPB	5<
6-32-77	5-Feb-86	A22	Selenium	5	PPB	5<
6-55-76	21-Nov-88	A22	Selenium	5	PPB	5<

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 9 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-S31-1	17-Oct-85	A22	Selenium	5	PPB	5<
6-S31-1	4-Aug-88	A22	Selenium	5	PPB	5<
6-19-43	3-Feb-88	H39	Selenium, filtered	5	PPB	5<
6-19-43	22-May-88	H39	Selenium, filtered	5	PPB	5<
6-32-77	15-Nov-87	H39	Selenium, filtered	5	PPB	5<
6-32-77	4-Jan-88	H39	Selenium, filtered	5	PPB	5<
6-32-77	11-May-88	H39	Selenium, filtered	5	PPB	5<
6-55-76	2-Dec-87	H39	Selenium, filtered	5	PPB	5<
6-55-76	12-Feb-88	H39	Selenium, filtered	5	PPB	5<
6-55-76	6-Jun-88	H39	Selenium, filtered	5	PPB	5<
6-55-76	21-Nov-88	H39	Selenium, filtered	5	PPB	5<
6-67-86	22-Dec-87	H39	Selenium, filtered	5	PPB	5<
6-67-86	23-Feb-88	H39	Selenium, filtered	5	PPB	5<
6-67-86	22-Jun-88	H39	Selenium, filtered	5	PPB	5<
6-S3-25	8-Jun-87	H39	Selenium, filtered	5	PPB	5<
6-S3-25	15-Sep-87	H39	Selenium, filtered	5	PPB	5<
6-S31-1	22-Jun-87	H39	Selenium, filtered	5	PPB	5<
6-S31-1	24-Aug-87	H39	Selenium, filtered	5	PPB	5<
6-S31-1	4-Aug-88	H39	Selenium, filtered	5	PPB	5<
6-19-43	28-Dec-87	A21	Mercury	0.1	PPB	0.1<
6-32-77	5-Feb-86	A21	Mercury	0.1	PPB	0.1<
6-55-76	21-Nov-88	A21	Mercury	0.1	PPB	0.1<
6-S31-1	17-Oct-85	A21	Mercury	0.1	PPB	0.1<
6-S31-1	4-Aug-88	A21	Mercury	0.1	PPB	0.1<
6-19-43	3-Feb-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-19-43	22-May-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-32-77	15-Nov-87	H38	Mercury, filtered	0.1	PPB	0.1<
6-32-77	4-Jan-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-32-77	11-May-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-55-76	2-Dec-87	H38	Mercury, filtered	0.1	PPB	0.1<
6-55-76	12-Feb-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-55-76	6-Jun-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-55-76	21-Nov-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-67-86	22-Dec-87	H38	Mercury, filtered	0.1	PPB	0.1<
6-67-86	23-Feb-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-67-86	22-Jun-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-S3-25	8-Jun-87	H38	Mercury, filtered	0.1	PPB	0.1<
6-S3-25	15-Sep-87	H38	Mercury, filtered	0.1	PPB	0.1<
6-S31-1	22-Jun-87	H38	Mercury, filtered	0.1	PPB	0.1<

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 10 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-S31-1	24-Aug-87	H38	Mercury, filtered	0.1	PPB	0.1<
6-S31-1	4-Aug-88	H38	Mercury, filtered	0.1	PPB	0.1<
6-19-43	28-Dec-87	A10	Silver	10	PPB	10<
6-32-77	5-Feb-86	A10	Silver	10	PPB	10<
6-55-76	21-Nov-88	A10	Silver	10	PPB	10<
6-S31-1	17-Oct-85	A10	Silver	10	PPB	10<
6-S31-1	4-Aug-88	A10	Silver	10	PPB	10<
6-19-43	3-Feb-88	H23	Silver, filtered	10	PPB	10<
6-19-43	22-May-88	H23	Silver, filtered	10	PPB	10<
6-19-43	16-Sep-88	H23	Silver, filtered	10	PPB	10<
6-32-77	15-Nov-87	H23	Silver, filtered	10	PPB	10<
6-32-77	4-Jan-88	H23	Silver, filtered	10	PPB	10<
6-32-77	11-May-88	H23	Silver, filtered	10	PPB	10<
6-32-77	24-Aug-88	H23	Silver, filtered	10	PPB	10<
6-55-76	2-Dec-87	H23	Silver, filtered	10	PPB	10<
6-55-76	12-Feb-88	H23	Silver, filtered	10	PPB	10<
6-55-76	6-Jun-88	H23	Silver, filtered	10	PPB	10<
6-55-76	21-Nov-88	H23	Silver, filtered	10	PPB	10<
6-67-86	22-Dec-87	H23	Silver, filtered	10	PPB	10<
6-67-86	23-Feb-88	H23	Silver, filtered	10	PPB	10<
6-67-86	22-Jun-88	H23	Silver, filtered	10	PPB	10<
6-67-86	30-Aug-88	H23	Silver, filtered	10	PPB	10<
6-67-86	13-Jan-89	H23	Silver, filtered	10	PPB	10<
6-S3-25	8-Jun-87	H23	Silver, filtered	10	PPB	10<
6-S3-25	15-Sep-87	H23	Silver, filtered	10	PPB	10<
6-S31-1	22-Jun-87	H23	Silver, filtered	10	PPB	10<
6-S31-1	24-Aug-87	H23	Silver, filtered	10	PPB	10<
6-S31-1	4-Aug-88	H23	Silver, filtered	10	PPB	10<
6-19-43	28-Dec-87	A13	Copper	10	PPB	10<
6-32-77	5-Feb-86	A13	Copper	10	PPB	10<
6-55-76	21-Nov-88	A13	Copper	10	PPB	10<
6-S31-1	17-Oct-85	A13	Copper	10	PPB	10<
6-S31-1	4-Aug-88	A13	Copper	10	PPB	10<
6-19-43	3-Feb-88	H26	Copper, filtered	10	PPB	10<
6-19-43	22-May-88	H26	Copper, filtered	10	PPB	10<
6-19-43	16-Sep-88	H26	Copper, filtered	10	PPB	10<
6-32-77	15-Nov-87	H26	Copper, filtered	10	PPB	10<

Table D2-8. Concentrations Used for Calculation of Baseline Values. (sheet 11 of 11)

Well	Collection Date	Analyte No.	Analyte Name	Detect. Limit	Units	Conc.
6-32-77	4-Jan-88	H26	Copper, filtered	10	PPB	10<
6-32-77	11-May-88	H26	Copper, filtered	10	PPB	10<
6-32-77	24-Aug-88	H26	Copper, filtered	10	PPB	10<
6-55-76	2-Dec-87	H26	Copper, filtered	10	PPB	10<
6-55-76	12-Feb-88	H26	Copper, filtered	10	PPB	10<
6-55-76	6-Jun-88	H26	Copper, filtered	10	PPB	10<
6-55-76	21-Nov-88	H26	Copper, filtered	10	PPB	10<
6-67-86	22-Dec-87	H26	Copper, filtered	10	PPB	10<
6-67-86	23-Feb-88	H26	Copper, filtered	10	PPB	12
6-67-86	22-Jun-88	H26	Copper, filtered	10	PPB	10<
6-67-86	30-Aug-88	H26	Copper, filtered	10	PPB	10<
6-67-86	13-Jan-89	H26	Copper, filtered	10	PPB	10<
6-S3-25	8-Jun-87	H26	Copper, filtered	10	PPB	10<
6-S3-25	15-Sep-87	H26	Copper, filtered	10	PPB	10<
6-S31-1	22-Jun-87	H26	Copper, filtered	10	PPB	10<
6-S31-1	24-Aug-87	H26	Copper, filtered	10	PPB	10<
6-S31-1	4-Aug-88	H26	Copper, filtered	10	PPB	10<

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APPENDIX E-1

PHASE II SAMPLING PLAN FOR 2101-M POND AND ADJACENT RAINWATER RUN-OFF DITCH

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APPENDIX E-1

1.0 PHASE II SAMPLING PLAN FOR 2101-M POND

1.1 INTRODUCTION

This sampling plan is designed to complement the original site characterization effort at the 2101-M Pond done during 1988 (see Section B-5). Based on the information learned in the statistical analysis of the initial sampling data, the top 2 ft of the pond soil need further evaluation (see Section B-5f and Appendix C-5 for further information). To do this, the pond soil will be sampled to a depth of 2 ft. There will be two samples taken from each sampling point. The first sample will be from 0 - 6 in., and the second sample will be from 18 - 24 in. The pond water also will be sampled to determine the presence of any soluble constituents.

During the 1988 sampling effort the rainwater run-off ditch located south of the pond, was sampled to determine if its soils had been contaminated by any of the water from the 2101-M Pond. Because of problems with laboratory holding times, some of the data obtained from these samples was useful only as informational data. Therefore, the rainwater run-off ditch also will be sampled to close the data gaps that exist from the 1988 effort.

The sampling plan is laid out in the following way:

- Background Information
- Pond Water Sampling Design
- Soil Sampling Design
- Sampling Quality Assurance and Quality Control.

2.0 BACKGROUND INFORMATION

The 2101-M Pond environment is a unique environment on the Hanford Site. The average annual discharge volume to the pond is roughly 1.3 M gal. (Section B, Table B-1). Visually, the site is best described as a U-shaped surface impoundment, as opposed to a pond. The banks are mild to moderately steep in nature, depending on location. This, along with heavy vegetation, make getting large equipment on site without radically disturbing the area difficult (as was learned during the 1988 sampling effort). This uniqueness also leads to challenges in sampling the soil on a small interval while maintaining sample integrity.

2.1 SOIL DESCRIPTION

The near surface soils at 2101-M Pond range in texture from a gravelly-muddy sand to a slightly muddy-fine to very-fine sand. These soils have an approximate hydraulic conductivity (K) of about 1.1×10^{-2} to 3.5×10^{-5} cm/sec (Chamness et al. 1990). This sandy soil lends itself well to percolation of liquids because of high hydraulic conductivity. The soils beneath the 2101-M Pond vary in texture from coarse, medium, and fine sands in the upper 200 ft, to gravels and sandy gravels below this depth. The depth to groundwater in the area is 311 ft (95 m) below ground surface (Chamness et al. 1990).

2.2 SITE TOPOGRAPHY

The 2101-M Pond area has a general topography that is extremely flat, averaging roughly 3 ft of slope change in 1,000 ft of distance. The 2101-M Pond and the rainwater run-off ditch are the only major topographic points of consequence to natural surface drainage patterns. This natural topography has been altered by the construction of buildings, streets, and parking lots to the south and east end of the pond area. The drainage of these features is taken care of through subsurface drains that empty into the rainwater run-off ditch at its southern end (see Figures I-4 and I-8).

2.3 EFFLUENT SOURCES

There is one source of known inflow to the 2101-M Pond, and one potential source of inflow. These are the 2101-M Building drain (which is known), and surface waters by way of surface run-off and subsurface drains leading to the rainwater run-off ditch (that is indeterminate). Surface run-off into the pond is generally limited to precipitation off the berms to the north and south of the pond and the dirt road east of the pond.

The rainwater run-off ditch, as reviewed in previous sections, does not appear to currently be, or appear to have ever been, connected to the 2101-M Pond system. This ditch receives surface run-off water as described previously. The movement of this water through the barrier that separates the 2101-M Pond and the rainwater run-off ditch, is an unlikely occurrence as discussed in Section I.

3.0 POND WATER SAMPLING DESIGN

This section details the procedures and criteria that will be used in the sampling of surface waters at the 2101-M Pond. The following are informational objectives to the sampling of the pond water:

- Comparison of pond water analysis to historical effluent stream data

- Use pond water analysis as a screening device for the potential determination of any additional soil analytes.

In the case of 2101-M Pond, where the effluent water has been previously characterized at the effluent point, the relative composition of the pond water will be assumed to be consistent with the results of this characterization effort (see Section B-3a(4) for further discussion). To establish validity of this assumption, the samples will be analyzed for constituents found in Appendix IX of 40 CFR 264 plus certain constituents specific to the Hanford Site. Table E1-1 lists the target compounds or group of compounds to be evaluated in 2101-M Pond water.

3.1 POND WATER SAMPLE DESIGN

The nature of the 2101-M Pond environment will affect the method of sampling chosen. The following factors were considered in the development of this sampling plan:

- Pond size, shape, and dimensions
- Rates of inflows and outflows from the sample environment
- Flow velocities within the sample environment
- Accessibility of the sample locations.

Each of these bring about the selection of a sampling method by influencing the number of sampling points, the location of the sampling points, and the extent of the sampling.

3.1.1 Size, Shape, and Dimensions

From a water sampling standpoint, the 2101-M Pond is more closely described as a ditch. The bottom of the south arm is at a higher elevation than that of the north arm. Also, it is wider and slightly longer than the north arm. The east arm is basically at the same base elevation as the south arm, and the width is roughly 5 to 10 ft. Because of their proximity to the effluent discharge pipe, the east and south arm contain water on a perennial (or nearly so) basis. The north arm contains water only during those periods when discharge to the pond exceeds the carrying capacity of the other two arms. Therefore, sampling of pond water will most likely occur in the south and potentially the east arms, unless at the time of sampling the north arm also contains a sufficient amount of water.

Table E1-1. Analyte List for 2101-M Pond Water.

Ammonium	Sulfide
Arsenic	Thallium
Cyanide	Total organic carbon (TOC)
ICP Metals[a]	Total organic halides (TOX)
Fluoride[b]	pH
Lead	Reactivity
Mercury	Volatile organics
Selenium	
Semi-volatile organics	

NOTE: Information on the method of chemical analysis and the required precision, accuracy, and minimum detection limits can be found in Table E2-1.

[a]ICP targeted metals include:

Barium	Sodium
Chromium	Strontium
Copper	Vanadium
Nickel	Zinc.
Silver	

[b]Ion chromatography, includes bromide, chloride, fluoride, nitrate, nitrite, phosphate, and sulfate, but only fluoride is targeted because of its concentration level in the 2101-M Pond soils.

3.1.2 Inflow and Outflow Rates

The only established, consistent source of inflow to the 2101-M Pond is the 2101-M Building effluent pipe. An average flow rate from the pipe has never been measured. To determine an average flow rate into the pond from the discharge pipe, the average annual inflow to the pond from Table B-1 is used. This average estimate is 1,391,296 million gal/yr. This average is suspected to have varied over the 6 yr period of estimated quantities, and throughout each year because of variations in seasonal and diurnal demands on the building HVAC system.

There are no outlets from the pond to other surface water bodies. This makes the only points of discharge from the pond to the atmosphere by way of evaporation, and to the soil and underlying sediments by way of percolation. The rate of evaporation on the Hanford Site is estimated to be 60 in./yr (Field et al. 1990). For a facility the size of 2101-M Pond this would equate to roughly 60,780 gal/yr of evaporation. This is based on a 250-ft long trench, with a average width of 6.5 ft (a length of only 250 ft is used because the entire pond does not contain water on a perennial basis). Precipitation over the same time frame would add roughly 12,760 gal/yr of water, based on the Hanford Site average annual precipitation of 6.3 in./yr (Stone et al. 1983), and a surface area of 500 ft x 6.5 ft (the average surface area of the entire pond). Evapotranspiration through the local plant community is another source of water loss. The 2101-M Pond plant life consists of grasses, reeds, cattails, shrubs and trees. The annual evapotranspiration rate for the Hanford Site is calculated to be 54.75 in. which is roughly 0.15 in./d (Field et al. 1990). Assuming plant life occupies an area equal to approximately three-quarters that of the pond, 88,200 gal/yr of water evapotranspirate. By summing these three components, the annual water loss; other than percolation, would be calculated as follows:

Evaporation	60,780
Precipitation	-12,760 (inflow)
Evapotranspiration	88,200
Total	136,220 gal/yr (370 gal/d)

The minimum average annual inflow to the pond for the years 1982 - 1988 is 1,391,296 gal/yr as stated earlier. If 136,216 gal/yr of water leaves the 2101-M Pond environment through evaporation and evapotranspiration an estimated annual total of 1,255,080 gal/yr to percolates through the soils beneath the pond. Assuming that the soils beneath the 2101-M Pond have achieved a state of moisture content equilibrium over the 30 - 40 years that the pond has received discharges, and is not in a state of annual flux, the total contribution to the groundwater from the 2101-M Pond is 2-3 gpm.

These numbers seem to indicate that the inflow and outflow rates of the pond are virtually equal during average conditions. The only difference

being in the location of the flows. While the outflow is from the entire pond surface or through the pond soil, the inflow is concentrated at a single point. The water at this point is potentially chemically different from the water in the rest of the pond. Therefore, it is concluded that the water at the discharge must be evaluated separately from the rest of the pond.

3.1.3 Flow Velocities

The source of any measurable flow velocity within the pond is at the effluent pipe. But, because of the size of the effluent depression (1.5-ft deep) formed by over 30+ yr of service (roughly 8 - 10 ft in diameter) the water within the depression, and the pond, remains fairly still.

The previous information indicates inflow to the pond under average conditions is roughly 2.6 gpm. This yields an average retention time in the depression area of roughly 3.5 hr. Therefore, flow velocities out of the depression area are very small. Because the 2101-M Pond has no outlet other than to groundwater or to the atmosphere, flow velocities are determined to not be of concern when designing the sampling plan.

3.1.4 Sampling Point Accessibility

The accessibility of the desired sample points is a concern when selecting a sampling method. The 2101-M Pond is an excavated impoundment with both gradual to steep embankments depending on location. To avoid unnecessary contact with the pond water, and to avoid the accidental disturbance of the pond soils or the bank soils during sampling, sampling will need to be performed so that minimal disturbance to the surrounding soils is achieved.

3.1.5 Sample Point Selection

The previous information indicates that the pond should be divided into two areas for taking water samples. These two areas would be the area that is in the immediate vicinity of the discharge pipe, and the rest of the pond.

The entire pond, outside of the 10-ft radius of the discharge pipe, was candidate for these sample sites. There is a high probability that the north arm of the pond will not have any water in it at the time of sampling. Therefore, any sample area randomly selected in the north arm also will have a substitute area for it located in either the south or east arm. The east arm areas also may require that a substitute area be selected depending on the time of the year and the amount of water present at the time of sampling. If there is water present in the east arm, but not of sufficient depth or quantity, a substitution area may be required. All such selections will be documented in the field logbook with justification for the selection of the substitute sample area.

Because the linear dimension of the pond is roughly 500 ft, four random numbers between 1 and 50 were selected from a random number table. The random numbers table used to generate these numbers is presented in Table E1-2. To determine the random numbers, the process described in Section B5-a (1.1) was used. The starting point in the table was the 2nd row, 8th column. Each number represents a 10-ft section of the pond (the first 10 ft, the second 10 ft, and so on) from which a sample can be taken. Numbers for which a duplicate were required were 14, 20, 26; numbers not eligible for selection because of proximity to the discharge pipe were 27 and 28. Figure E1-1 shows the selected water sampling areas. Those areas followed by an (*) are substitutes for north arm areas, those followed by (**) are substitutes for east arm areas. A fifth water sample will be taken at the effluent.

3.1.6 Sampling Methods

To achieve proper sampling of the pond water while minimizing sources of error is complicated by the sometimes shallow depth of the 2101-M Pond. The preferred sampling method will be the use of a pair of tongs to hold the sample bottle while a sample is collected by submerging the sample bottle. If it is determined that there is insufficient depth to use this method, then a secondary method will be used at the same site. The substitute method to sample the pond water will involve the use of glass pipettes and a way of pulling the water into the pipettes by means of a pipette suction bulb. An array of pipettes of differing volumes will be employed so that each sample container can be filled with one use of the pipette if possible. The filling of the sample bottle with a pipette also will minimize the amount of disturbance to the water as it is put into the sample container. The pipette will be placed at the bottom of the sample bottle, and then the water will be slowly released into the container with the pipette remaining submerged.

4.0 SOIL SAMPLING DESIGN

This section details the procedures and criteria that will be used in the sampling of soils in the 2101-M Pond. The site has previously been characterized to a depth of 12 ft. For a discussion of that sampling effort, refer to Section B-5.

The objectives of Phase II sampling are described as follows:

- Characterize the top 2 ft of soils to identify any location or depth effects of target analytes in these soils

Table E1-2. Random Numbers Table.

03	47	43	73	86	36	96	47	36	61	46	98	63	71	62
97	74	24	67	62	42	81	14	57	20	42	53	32	37	32
16	76	62	27	66	56	50	26	71	07	32	90	79	78	53
12	56	85	99	26	96	96	68	27	31	05	03	72	93	15
55	59	56	35	64	38	54	82	46	22	31	62	43	09	90
16	22	77	94	39	49	54	43	54	82	17	37	93	23	78
84	42	17	53	31	57	24	55	06	88	77	04	74	47	67
63	01	63	78	59	16	95	55	67	19	98	10	50	71	75
33	211	12	34	29	78	64	56	07	82	52	42	07	44	38
57	60	86	32	44	09	47	27	96	54	49	17	46	09	62
18	18	07	92	46	44	17	16	58	09	79	83	86	19	62
26	62	38	97	75	84	16	07	44	99	83	11	46	32	24
23	42	40	64	74	82	97	77	77	81	07	45	32	14	08
52	36	28	19	95	50	92	26	11	97	00	56	76	31	38
37	85	94	35	12	83	39	50	08	30	42	34	07	96	88
70	29	17	12	13	40	33	20	38	26	13	89	51	03	74
56	62	18	37	35	96	83	50	87	75	97	12	25	93	47
99	49	57	22	77	88	42	95	45	72	16	64	36	16	00
16	08	15	04	72	33	27	14	34	09	45	59	34	68	49
31	16	93	32	43	50	27	89	87	19	20	15	37	00	49

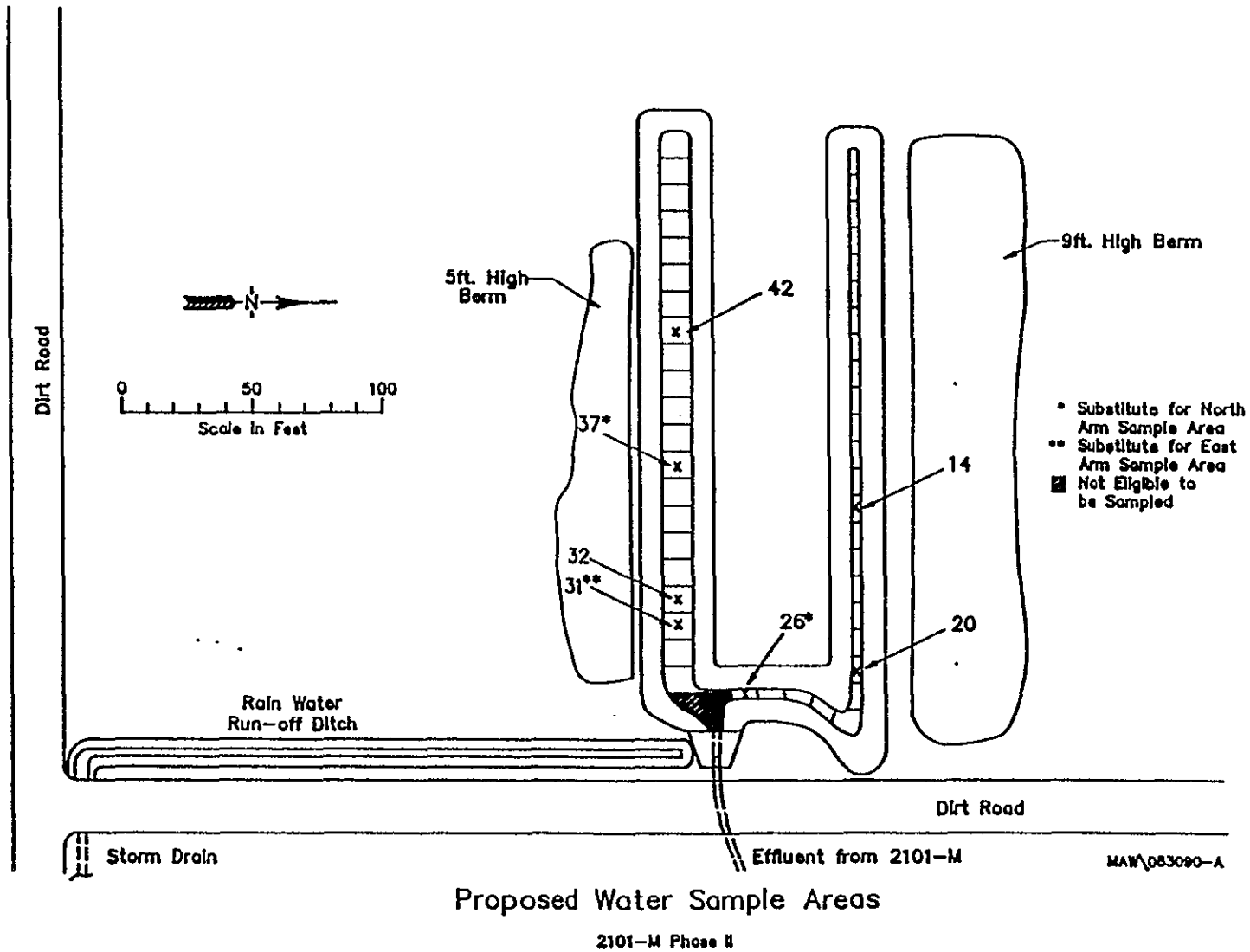


Figure E1-1. Proposed Pond Water Sample Areas.

- Analyze soil samples from the rainwater run-off ditch for those compounds whose holdings times were exceeded during the initial sampling effort

- Corroborate Phase I soil sample data analysis.

This previous sampling effort (summer 1988) seems to indicate a variability with location for some of the analytes. To pinpoint these potential variabilities, characterization of the top 2 ft of pond soil on a smaller sampling interval and greater spatial detail, is necessary.

The one basic criterion analyzed to choose the sampling strategy was pond geometry. The 2101-M Pond is a U-shaped ditch, into which the flows are unequal. As described earlier, the south arm of the system is the arm of preferential flow. It is wider, and slightly longer than the north arm. It is also the area of heavier vegetative growth. However, from the statistical analysis done for the first round of sampling this area of the pond has fewer background exceedances than the other areas. It is theorized that this is because of the leaching effects of the water, that this arm experiences.

The north arm has historically only contained water when the discharge volume is highest. The statistical analysis would seem to support the theory that because there is variable flow to this arm, there is less leaching of constituents, and therefore, potential buildup.

The discharge depression area deserves attention for entirely different reasons. Because it is the initial point of discharge and contains water on a perennial basis, preferential sorbing of constituents (especially metals) is theorized in this area. This is supported by the number of exceedances noted in the initial round of sampling (Section C-5).

4.1 SAMPLING DESIGN

Simple random, stratified random, judgmental, and systematic sampling were evaluated as possible methods for sampling the 2101-M Pond soil and rainwater run-off ditch. Based on statistical information from the initial round of sampling, a combination of judgmental and systematic sampling will be used.

This selected approach is based on the information from the initial round of sampling that suggests that the areas of greatest concern are in order: (1) the effluent discharge, (2) the north arm, (3) the east arm, and (4) the south arm. With this knowledge, sampling emphasis will be placed on the discharge area with the rest of the pond receiving uniform coverage.

4.2 SAMPLE LOCATIONS

4.2.1 Effluent Depression

The effluent depression point will be sampled once at its center (point G) and twice at its outer perimeter points F and H (Figure E1-2). The outer perimeter sample sites will be on the edges leading into the east and south arms. The next sample points (E and I) will be 10 ft beyond the perimeter points.

4.2.2 Pond Arms

The three arms of the pond will each contain a minimum of two sample points. The initial sample points (D and J) will be located 50 ft from the sample points E and I, along the centerline of the arm. Subsequent sampling points (A, B, C, K, L) will be located 50 ft apart (Figure E1-2). This configuration will yield 12 sample points and provide a spatial picture of the surface soils in the pond.

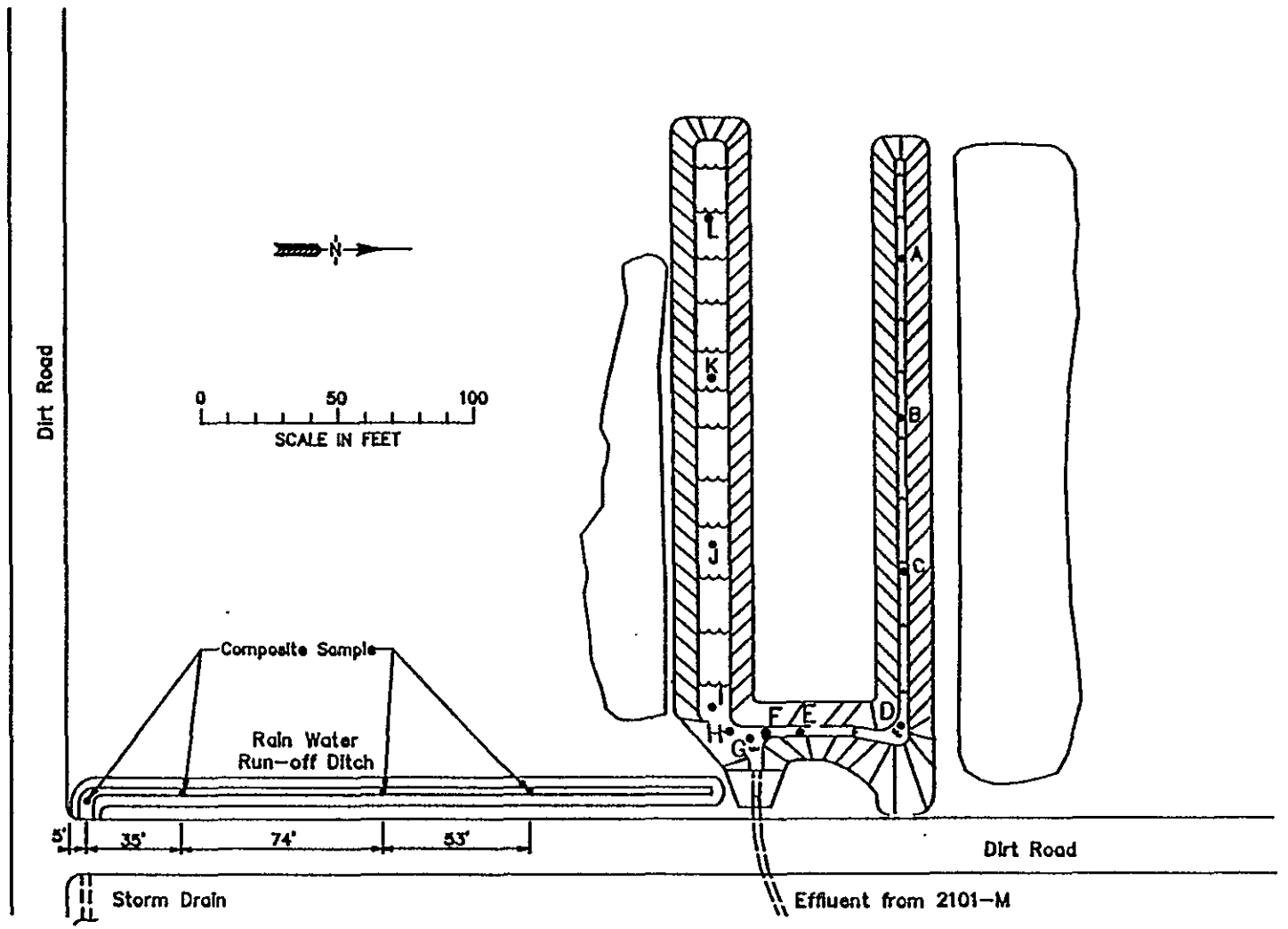
The sampling points will be located as close to the centerlines of the pond arms as possible. At points where cobbles make it impossible to obtain an adequate volume of material to perform analysis, a point as close as possible to the original one will be used.

4.2.3 Rainwater Run-off Ditch

Because the objective in resampling the rainwater run-off ditch is to close data gaps that exist because of exceeded sample holding times, the sampling effort for the ditch in this phase will duplicate the first effort. The sample points will be as close as possible to those used in the initial effort (Figure E1-2). A 1-ft sample will be taken from these points and homogenized, and then a composite taken.

4.3 SELECTION OF SAMPLING METHOD

The sampling method chosen to collect samples from the top 2 ft of the 2101-M Pond soil and the top foot of the rainwater run-off ditch is ASTM method D 1452-80 [Standard Practice for Soil Investigations and Sampling by Auger Borings (ASTM 1990)]. At each sampling site, two samples will be taken: One from 0-6 in. and the other at 18-24 in. To ensure adequate soil for laboratory analysis, more than one core may need to be taken at each site. Samples will be combined with their respective depths. The type of auger bit to be used will be an open tubular or orchard barrel type auger made of stainless steel and fitted with solid stainless-steel inner rings or a split sleeve. This method provides a disturbed but representative soil sample. Because of the vegetation and the steep banks that are present at the site, a mobile drill rig will not be used to drive the sampling



Proposed Soil Sample Points
2101-M Phase II

MAW\071190-A

Figure E1-2. Sample Points for 2101-M Pond.

equipment. The basic sampling methodology is described in WHC-CM-7-7, Environmental Investigations and Site Characterization Manual (WHC 1989) (Table E2-2).

4.4 SELECTION OF ANALYTICAL PARAMETERS FOR 2101-M POND SOIL

Section B-5 of the 2101-M Pond Closure Plan gives a detailed explanation of the principles used in the initial round of sampling activities at 2101-M Pond. The data from this initial sampling effort suggests that there are only a few potential constituents of concern because of exceedances of background threshold values in the soils at the 2101-M Pond (Appendix C-5). This should not be construed to exempt other constituents from further evaluation. Constituents that will compose the target analyte list for this Phase II sampling plan include the following general list:

- Constituents known to have been discharged to the pond
- Constituents determined to have exceeded the background threshold value (Phase I sampling data)
- Constituents whose presence in the initial sample results is of questionable validity or are present for unknown reasons
- Metals, because of theorized preferential sorbing
- Any constituents that are detected in 2101-M Pond water above established drinking water standard maximum contamination levels.

A list of those constituents that meet any of the above criteria, except for the last one, appear in Table E1-3.

There are six organic compounds that were identified in the initial round of sampling as being present in the 2101-M Pond soils (acetone, toluene, methylene chloride, ethanol, propanol, and butanoic acid). Three of which are naturally occurring organic compounds. These three are butanoic acid, ethanol, and propanol. Butanoic acid occurs naturally at concentrations of up to 600 ppb, ethanol at concentrations up to 52 ppm, and propanol at concentrations up to 54 ppm (Dragun 1988). For ethanol and propanol, the concentration levels found in the first round of sampling are more than 3 orders of magnitude below naturally occurring levels. Therefore, ethanol and propanol are not being proposed for revaluation in this phase of soil sampling. Because butanoic acid was detected at twice a natural level, it will be revaluated.

Table E1-3. Selected Constituents for Analysis in 2101-M Pond Soils.

Constituent	Criteria met
Acids (nitric, hydrochloric)[a]	1
Acetone	3
Methylene chloride	3
Toluene	3
Butanoic acid	3
Copper	2,4
Barium	1,4
Manganese	4
Silver	3,4
Strontium	2,4
Zinc	2,4
Calcium	2,4
Chromium	4
Sodium	4
Nickel	4
Vanadium	2,4
Aluminum	2,4
Potassium	4
Iron	2,4
Magnesium	2,4
Lead	2,4
Fluoride	2
Ammonium	2
TOC	2

[a]Because detection of a specific acid so long after discharge is not possible, pH is used to indicate acidic conditions.

TOC = total organic carbon
1 = known or highly suspected discharge to pond
2 = exceedance of background threshold level
3 = validity of presence in samples from initial sampling effort is questionable or is present for unknown reason
4 = metal (preferential sorbing in upper 2 ft suspected).

4.5 APPENDIX IX SAMPLE ANALYSIS

In addition to the target compound analysis that will be requested for the 2101-M Pond soil samples, a specified portion of the 2101-M Pond soil samples will be tested for constituents listed in Appendix IX of 40 CFR 264. This will be done to corroborate the data from the initial sampling effort. Sample points, which will have the Appendix IX list requested, will be the top 6 in. of sample points G and B (Figure E1-2). In addition, the top 2 ft of the dry background site also will be resampled on the same sample interval as the pond and have the Appendix IX analysis run on these two samples. The dry background location can be seen in Figure B-4 and Appendix C-2.

4.6 SAMPLING AND DATA ANALYSIS SCHEDULE

Figure B-22 (in Section B) establishes a sampling and data analysis schedule for 2101-M Phase II sampling. This schedule is preliminary in nature and will be dependant upon variables such as regulatory concurrence, analytical laboratory procurement, weather, etc.

5.0 SAMPLING QUALITY ASSURANCE AND QUALITY CONTROL

5.1 SAMPLE HANDLING

The handling of soil samples will follow the procedures outlined in WHC-CM-7-7, EII 5.2 (WHC 1989). Included in this environmental investigation instruction (EII) are outlines for addressing the following topics:

- Safety
- Records management
- Training
- Sampling procedure.

5.2 SAMPLE PACKAGING AND SHIPPING

Sample packaging and shipping procedures will be followed as required in WHC-CM-7-7 (WHC 1989).

5.3 CHAIN OF CUSTODY

Chain of Custody will be followed as required by WHC-CM-7-7 (WHC 1989).

5.4 FIELD LOGBOOK

A field logbook will maintained as required by WHC-CM-7-7 (WHC 1989).

5.5 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

The following sampling quality assurance/quality control (QA/QC) steps will be used to establish sample data integrity and to identify any anomalies within the sampling activities. This is in accordance with "EPA Administered Permit Programs: The Hazardous Waste Permit Program" (EPA 1989).

Control	Frequency of occurrence
Trip blanks (Pond water samples only)	1/d
Equipment blanks	1/20 samples
Split/duplicate samples	1/20 samples

All QA/QC samples will be handled as outlined above.

6.0 DATA ANALYSIS

Data analysis will follow the steps outlined in Section B-5c.

7.0 REFERENCES

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WHC, 1989, Environmental Investigations and Site Characterization Manual, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.

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APPENDIX E-2

QUALITY ASSURANCE PROJECT PLAN FOR NEAR SURFACE SOIL SAMPLING AND SURFACE WATER SAMPLING AT THE 2101-M POND AND RAINWATER RUN-OFF DITCH

QUALITY ASSURANCE PROJECT PLAN FOR NEAR SURFACE SOIL SAMPLING AND SURFACE WATER SAMPLING AT THE 2101-M POND AND RAINWATER RUN-OFF DITCH

Revision 0

Westinghouse Hanford Company
Environmental Engineering, Technology & Permitting Function
Richland, Washington

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DEFINITIONS OF TERMS

Accuracy. For the purposes of closure activities, accuracy may be interpreted as the measure of the bias in a system. Sampling accuracy normally is assessed through the evaluation of matrix spiked samples and reference samples.

Audit. For the purposes of closure activities, audits are considered to be systematic checks to verify the quality of operation of one or more elements of the total measurement system. In this sense, audits may be of two types: (1) performance audits, in which quantitative data are independently obtained for comparison with data routinely obtained in a measurement system or, (2) system audits, involving a qualitative onsite evaluation of laboratories or other organizational elements of the measurement system for compliance with established quality assurance program and procedure requirements. For environmental investigations at the Hanford Site, performance audit requirements are fulfilled by periodic submittal of blind samples to the primary laboratory or the analysis of split samples by an independent laboratory. System audit requirements are implemented through the use of standard surveillance procedures.

Comparability. For the purposes of closure activities, comparability is an expression of the relative confidence with which one data set may be compared with another.

Completeness. For the purposes of closure activities, completeness may be interpreted as a qualitative parameter expressing the percentage of measurements judged to be valid.

Deviation. For the purpose of closure activities, deviation refers to a planned departure from established criteria that may be required as a result of unforeseen field situations or that may be required to correct ambiguities in procedures that may arise in practical applications.

Equipment Blanks. Equipment blanks consist of pure deionized, distilled water washed through decontaminated sampling equipment and placed in containers identical to those used for actual field samples; they are used to verify the adequacy of sampling equipment decontamination procedures, and are normally collected at the same frequency as field duplicate samples.

Field Blanks. Field blanks consist of pure deionized, distilled water, transferred to a sample container at the site and preserved with the reagent specified for the analytes of interest; they are used to check for possible contamination originating with the reagent or the sampling environment, and are normally collected at the same frequency as field duplicate samples.

Duplicate Sample. Field duplicate samples are samples retrieved from the same sampling location using the same equipment and sampling technique and analyzed independently. Laboratory duplicate samples are samples taken successively from the same sample bulb. Duplicate samples generally are used to verify the repeatability or reproduceability of analytical data and

normally are analyzed with each analytical batch or every 20 samples, whichever is greater.

Matrix Spiked Samples. Matrix spiked samples are a type of laboratory quality control sample; the samples are prepared by splitting a sample received from the field into two homogeneous aliquots (i.e., replicate samples), and adding a known quantity of a representative analyte of interest to one aliquot in order to calculate percentage of recovery.

Nonconformance. A nonconformance is a deficiency in characteristic, documentation, or procedure that renders the quality of material, equipment, services, or activities unacceptable or indeterminate. When the deficiency is of a minor nature; does not effect a permanent or significant change in quality if it is not corrected; can be brought into conformance with immediate corrective action; it shall not be categorized as a nonconformance. However, if the nature of the condition is such that it cannot be immediately and satisfactorily corrected, it shall be documented in compliance with approved procedures and brought to the attention of management for disposition and appropriate corrective action.

Precision. Precision is a measure of the repeatability or reproducibility of specific measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. Precision normally is expressed in terms of standard deviation, but also may be expressed as the coefficient of variation (i.e., relative standard deviation) and range (i.e., maximum value minus minimum value). Precision is assessed by means of duplicate/replicate sample analysis.

Quality Assurance . For the purposes of closure activities, Quality Assurance (QA) refers to the total integrated quality planning, quality control, quality assessment, and corrective action activities that collectively ensure that the data from monitoring and analysis meets all end user requirements and/or the intended end use of the data.

Quality Assurance Project Plan. The quality assurance project plan (QAPP) is an orderly assembly of management policies, project objectives, methods, and procedures that defines how data of known quality will be produced for a particular project or investigation.

Quality Control. For the purposes of closure activities, Quality Control (QC) refers to the routine application of procedures and defined methods to the performance of sampling, measurement, and analytical processes.

Reference Samples. Reference samples are a type of laboratory quality control sample prepared from an independent, traceable standard at a concentration other than that used for analytical equipment calibration, but within the calibration range. Such reference samples are required for every analytical batch or every 20 samples, whichever is greater.

Replicate Sample. Replicate samples are two aliquots removed from the same sample container in the laboratory and analyzed independently.

Representativeness. For the purposes of closure activities, representativeness may be interpreted as the degree to which data accurately and precisely represent a characteristic of a population parameter, variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of a sampling program.

Split Sample. A split sample is produced through homogenizing a field sample and separating the sample material into two equal aliquots. Field split samples usually are routed to separate laboratories for independent analysis, generally for the purposes of auditing the performance of the primary laboratory relative to a particular sample matrix and analytical method (see the glossary entry for audit). In the laboratory, samples generally are split to create matrix spiked samples (see the glossary entry matrix spiked samples).

Validation. For the purposes of closure activities, validation refers to a systematic process of reviewing a body of data against a set of criteria to provide assurance that the data are acceptable for their intended use. Validation methods may include review of verification activities, editing, screening, cross-checking, or technical review.

Verification. For the purposes of closure activities, verification refers to the process of determining whether procedures, processes, data, or documentation conform to specified requirements. Verification activities may include inspections, audits, surveillances, or technical review.

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1.0 PROJECT DESCRIPTION

1.1 PROJECT OBJECTIVE

The primary objective of the Phase II sampling of the 2101-M Pond environment is to determine the presence (or lack thereof) of constituents in the top 2 ft of the soil column of the 2101-M Facility.

1.2 BACKGROUND INFORMATION

The location of 2101-M Pond and general background information are provided in the closure plan developed for the facility (see Sections A and B).

1.3 QUALITY ASSURANCE PROJECT PLAN APPLICABILITY AND RELATIONSHIP TO THE WESTINGHOUSE HANFORD COMPANY QUALITY ASSURANCE PROGRAM

This quality assurance project plan (QAPP) applies specifically to the field activities and laboratory analyses performed as part of sampling and testing investigations supporting the closure of the 2101-M Pond at the Hanford Site. The plan is designed to be implemented in conjunction with the specific requirements of the 2101-M Pond Closure Plan. The QAPP is prepared in compliance with the Environmental Engineering, Technology and Permitting Function Quality Assurance Program Plan (WHC-EP-0383) (which is in preparation). This plan describes the means selected to implement the overall QA program requirements defined by the Westinghouse Hanford Quality Assurance Manual (WHC 1989b), as applicable to environmental investigations, while accommodating the specific requirements for project plan format and content agreed upon in the Hanford Federal Facility Agreement and Consent Order (Ecology et al. 1989). The program plan contains a matrix of procedural resources [from WHC-CM-4-2 and from the Westinghouse Hanford Environmental Investigations and Site Characterization Manual (WHC 1989a)] that have been drawn upon to support this QAPP. This QAPP is subject to mandatory review and revision before use on subsequent phases of the investigation. Distribution and revision control of this plan will be in compliance with procedures QR 6.0, "Document Control," and QI 6.1, "Quality Assurance Document Control," all from WHC-CM-4-2 (WHC 1989b). All plans and procedures referenced in the QAPP are available for regulatory review on request by the direction of the Technical Lead.

1.4 SAMPLING AND TESTING ACTIVITIES

Field sampling activities will include surface water sampling and near surface soil sampling. A complete description of all activities is provided in Appendix E-1 of the 2101-M Pond Closure Plan.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The following sections describe the organizations and their responsibilities in conducting investigations at 2101-M Pond.

2.1 PROJECT MANAGEMENT RESPONSIBILITIES

The Environmental Engineering, Technology and Permitting Function of Westinghouse Hanford Company (Westinghouse Hanford) has primary responsibilities for conducting this investigation. An organizational chart is included as Figure E2-1. The following describe responsibilities of key test personnel and organizations.

Closure Plan Lead (Regulatory Permitting/NEPA Group)--The Closure Plan Lead is responsible for overall project organization and interface with the regulatory agencies and the DOE.

Technical Lead--The Technical Lead is responsible for overall direction of sampling and testing activities; responsibilities include the planning and authorization of all work and management of any subcontracted activities, as well as overall technical schedule and budgetary performance.

Quality Assurance Officer--The Quality Assurance Officer is responsible for overall direction of sampling and testing activities; responsibilities include the planning and authorization of all work and management of any subcontracted activities, as well, as overall technical schedule and budgetary performance.

Heath and Safety Officer (Environmental Division/Environmental Field Services)--The Health and Safety Officer is responsible for determining potential health and safety hazards from volatile, and/or toxic compounds during sample handling and sampling decontamination activities and has the responsibility and authority to halt field activities because of unacceptable health and safety concerns.

Field Team Leader--The field team leader is responsible for onsite direction of sampling technicians in compliance with the requirements of the closure plan, this QAPP, and implementing all Environmental Investigations Instructions (EIIs).

Office of Sample Management (OSM)--The Westinghouse Hanford OSM is responsible for coordinating sample shipments between the field team and the analytical laboratory, resolution of any chain-of-custody issues, and for validation of all analytical data as discussed in Section 8.0.

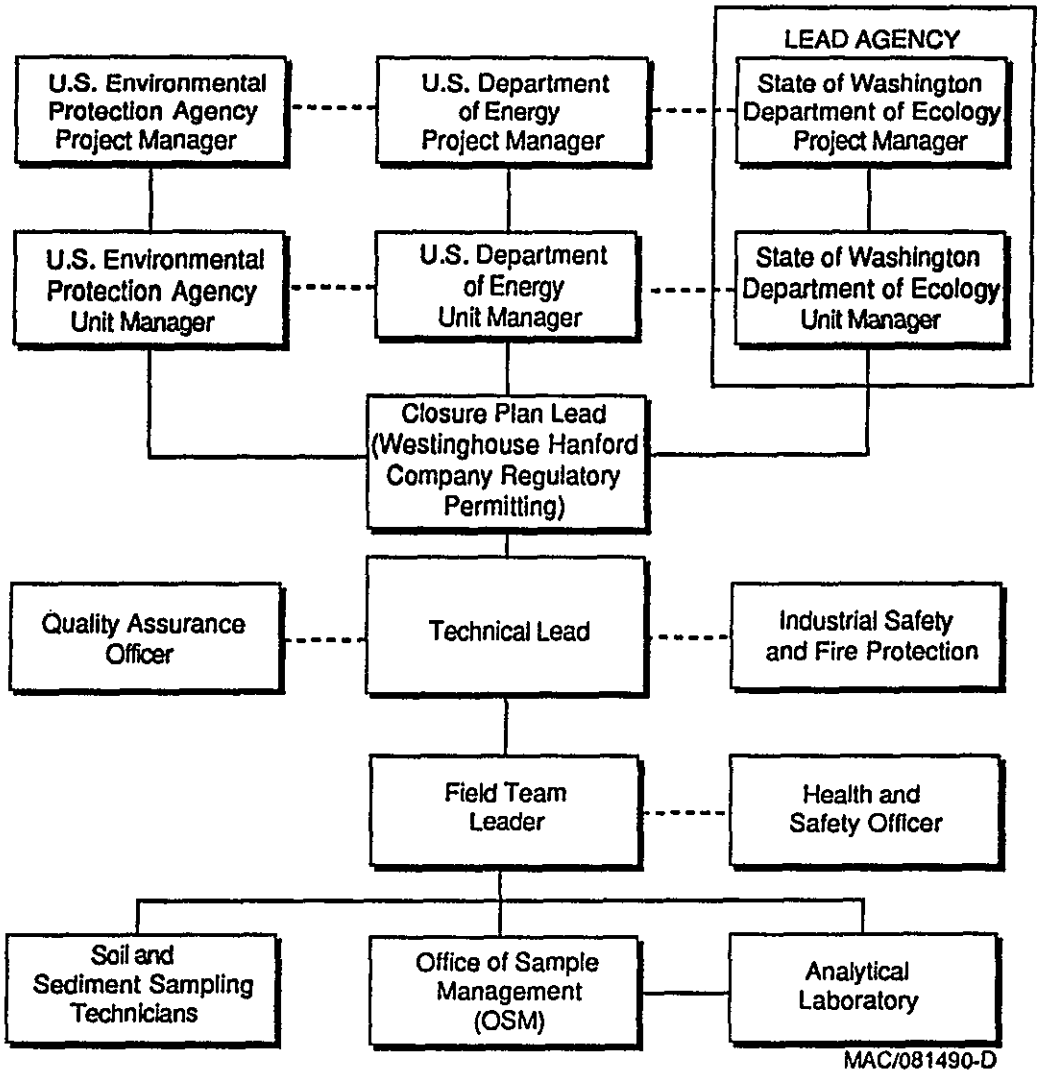

Figure E2-1. Project Organization, Sampling at 2101-M Pond.

2.2 ANALYTICAL LABORATORIES

Samples shall be routed to an approved Westinghouse Hanford, participant contractor, or subcontractor laboratory, who shall be responsible for performing the analyses identified in this plan in compliance with work orders or contractual requirements and Westinghouse Hanford-approved procedures (Section 4.1.2). At the direction of the Technical Lead, services of alternate qualified laboratories may be procured for the performance of split sample analyses for performance audit purposes. If such an option is selected, the QA plan and applicable analytical procedures from the alternate laboratory also shall be approved by Westinghouse Hanford before their use in compliance with Section 4.1.2 requirements. All analytical laboratory work shall be subject to the surveillance controls invoked by QI 7.3, "Source Surveillance and Inspection" (WHC 1989b).

2.3 OTHER SUPPORT CONTRACTORS

Support contractors may be assigned project responsibilities at the direction of the Technical Lead. Such services shall be in compliance with standard Westinghouse Hanford procurement procedure requirements as discussed in Section 4.1.2. All work shall be performed in compliance with Westinghouse Hanford approved QA plans and/or procedures, subject to controls of QI 7.3, "Source Surveillance and Inspection" (WHC 1989b).

3.0 OBJECTIVES FOR MEASUREMENTS

The purpose of this investigation is to assess the existence, nature, and extent of any contamination in the near surface soils of the 2101-M Pond and rainwater run-off ditch, and the chemical composition of the pond water as it relates to the surrounding environment. As noted in Section 4.6 of Data Quality Objectives for Remedial Response Activities: Volume I, Development Process (EPA 1987), universal goals for precision, accuracy, representativeness, completeness, and comparability cannot be practically established at the outset of an investigation. However, data is available from previously negotiated analytical contracts for Hanford Site investigations, the data quality objectives guidance document cited previously (EPA 1987), and from typical capabilities currently expected for laboratories involved in environmental analyses that may be used as minimum guidelines for the selection of analytical methods appropriate for this investigation. Table E2-1 provides preliminary target values for detection limits, precision, and accuracy that are intended for use in initial procurement negotiations with the analytical laboratory. After individual laboratory statements of work are negotiated, and procedures are developed and approved as noted in Section 4.1 and Table E2-2, this section will be revised to reference approved detection limit, precision, and accuracy criteria as project requirements.

Table E2-1. Analytes of Interest and Analytical Methods for 2101-M Pond. (sheet 1 of 2)

Analytical category	Analyte of interest	Standard reference method[a]	Minimum detection limit[c]	Precision[c]	Accuracy[c]	Comments
Volatile organics	Acetone	8240	50mg/Kg	± 25% RPD	±25%	d
	Methylene chloride (Dichloromethane)	8240	25 mg/Kg	± 25% RPD	±25%	d
Purgeable Aromatics	Toluene	8020	25 mg/Kg	±25% RPD	±25%	d
Semi-volatile organics	Butanoic acid	8270	e	e	e	d
Total organic carbon (TOC)		9060	1.0 mg/Kg	±25% RPD	±25%	d
Total organic halides (TOX)[p]		9030	h	±25% RPD	±25%	d
Inorganics	Aluminium	6010	45.0 mg/Kg	±25% RPD	±25%	d
	Barium	6010	2.0 mg/Kg	±25% RPD	±25%	d
	Chromium	6010	7.0 mg/Kg	±25% RPD	±25%	d
	Calcium	6010	10.0 mg/Kg	±25% RPD	±25%	d
	Copper	6010	6.0 mg/Kg	±25% RPD	±25%	d
	Iron	6010	7.0 mg/Kg	±25% RPD	±25%	d
	Magnesium	6010	30.0 mg/Kg	±25% RPD	±25%	d
	Manganese	6010	2.0 mg/Kg	±25% RPD	±25%	d
	Lead	7421	1.0 mg/Kg	±25% RPD	±25%	d
	Nickel	6010	15.0 mg/Kg	±25% RPD	±25%	d
	Potassium	6010	f	±25% RPD	±25%	d
	Silver	6010	7.0 mg/Kg	±25% RPD	±25%	d
	Sodium	6010	29.0 mg/Kg	±25% RPD	±25%	d
	Strontium	6010	2.0 mg/Kg	±25% RPD	±25%	d
	Vanadium	6010	8.0 mg/Kg	±25% RPD	±25%	d
	Zinc	6010	2.0 mg/Kg	±25% RPD	±25%	d
	Arsenic[p]	7060	2.0 mg/Kg	±25% RPD	±25%	d
	Cyanide[p]	9010	250 mg/Kg	±25% RPD	±25%	d
	Mercury[p]	7470	0.04 mg/Kg	±25% RPD	±25%	d
	Selenium[p]	7740	1.0 mg/Kg	±25% RPD	±25%	d
	Thallium[p]	7841	2.0 mg/Kg	±25% RPD	±25%	d

Table E2-1. Analytes of Interest and Analytical Methods for 2101-M Pond. (sheet 2 of 2)

Analytical category	Analyte of interest	Standard reference method[a]	Minimum detection limit[c]	Precision[c]	Accuracy[c]	Comments
Inorganics (cont.)	Sulfide[p]	9030	500 mg/Kg	±25% RPD	±25%	d
	Fluoride	300[g]	1.0 mg/g	±25% RPD	±25%	d
	Ammonium	ASTM D1426	0.5 mg/Kg	±25% RPD	±25%	d
	pH	9045				d

[a]Unless otherwise specified, methods are from Test Methods for Evaluating Solid Waste (SW-846) (EPA 1986).

[b]Analytical methods shall be in compliance with approved Westinghouse Hanford or Westinghouse Hanford-approved participant contractor or subcontractor procedures. All procedures shall be reviewed and approved in compliance with requirements specified in the Westinghouse Hanford QA program for CERCLA RI/FS activities.

[c]Mimimum requirements for method detection levels, precision, and accuracy will be method-specific, and shall be negotiated and established in the procedure review and approval process. Target values are indicated where appropriate; precision is expressed in terms of relative percent different (RPD) and accuracy as percentage recovery.

[d]Analyses shall be performed by an approved participant contractor or subcontractor laboratory.

[e]Not a normally analyzed for constituent, therefore there are no established values.

[f]Highly dependant on operating conditions and plasma position.

[g]From Methods for Chemical Analysis of Water and Waste, EPA 600/4-79-020 (EPA 1983a).

[h]Species dependant.

[p]Pond water target analyte only.

Table E2-2. Investigative Procedures for 2101-M Pond Water and Near Surface Soil Sampling.

Procedure	Title[a]	Task 1: Surface water sampling	Task 2: Soil sampling
EII 1.2	Preparation and revision of environmental investigation instructions	X	X
EII 1.4	Deviation from environmental investigation instruction	X	X
EII 1.5	Field logbooks	X	X
EII 1.6	Records management	X	X
EII 1.7	Indoctrination, training and qualification	X	X
EII 2.1	Preparation of health and safety plans	X	X
EII 3.1	User calibration of health and safety measuring and test equipment (M&TE)	X	X
EII 5.0	Sample identification and entry into the (HEIS) database	X	X
EII 5.1	Chain of custody	X	X
EII 5.2	Soil and sediment sampling		X
EII 5.5	Decontamination of equipment for RCRA/CERCLA sampling	X	X
EII 5.11	Sample packaging and shipping	X	X

[a]Procedures are EIIs selected from the latest approved version of WHC-CM-7-7 (WHC 1989a).

Goals for data representativeness are addressed qualitatively by the specification of sampling locations and intervals within Appendix E-1 of the closure plan. Objectives for completeness for this investigation shall require that contractually or procedurally established requirements for precision and accuracy be met for at least 90% of the total number of requested determinations. Failure to meet this criterion shall be documented in data summary reports as described in Section 8.1, and shall be considered in the validation process discussed in Section 8.2. Corrective action measures shall be initiated by the Technical Lead as appropriate, as noted in Section 13.0. Approved analytical procedures shall require the use of the reporting techniques and units consistent with the Environmental Protection Agency (EPA) reference methods listed in Table E2-1 to facilitate the comparability of data sets in terms of precision and accuracy.

4.0 SAMPLING PROCEDURES

The following sections provide information on procedure approvals and controls, investigative procedures, and additions and changes to procedures.

4.1 PROCEDURE APPROVALS AND CONTROL

Procedure approvals and controls are discussed in the following sections.

4.1.1 Westinghouse Hanford Procedures

The Westinghouse Hanford procedures that will be used to support the closure plan have been selected from the quality assurance program index (QAPI) included in the Westinghouse Hanford, Environmental Engineering, Technology and Permitting Function Quality Assurance Program Plan (WHC-EP-0330). Selected procedures include Environmental investigation and instructions (EIIs) from the Environmental Investigations and Site Characterization Manual (WHC 1989a), and quality requirements (QR) and quality instructions (QI) from the Westinghouse Hanford Quality Assurance Manual (WHC 1989b). Procedure approval, revision, and distribution control requirements applicable to EIIs are addressed in EII 1.2, "Preparation and Revision of Environmental Investigation Instructions" (WHC 1989a); requirements applicable to QIs and QRs are addressed in QR 5.0, "Instructions, Procedures, and Drawings"; QI 5.1, "Preparation of Quality Assurance Documents"; QR 6.0, "Document Control"; and QI 6.1, "Quality Assurance Document Control" (WHC 1989b). Other procedures applicable to the preparation, review, and revision of OSM and other Hanford analytical laboratory procedures shall be defined in the various procedures and manuals identified in the Environmental Engineering, Technology and Permitting Function Quality Assurance Program Plan (WHC-EP-0383) under criteria 5.00 and 6.00. All procedures are available for regulatory review on request at the direction of the Technical Lead.

4.1.2 Participant Contractor/Subcontractor Procedures

As noted in Section 2.1, participant contractor and/or subcontractor services may be procured at the direction of the Technical Lead. All such procurements shall be subject to the applicable requirements of QR 4.0, "Procurement Document Control"; QI 4.1, "Procurement Document Control"; QI 4.2, "External Services Control"; QR 7.0, "Control of Purchased Items and Services"; QI 7.1, "Procurement Planning and Control"; and/or QI 7.2, "Supplier Evaluation" (WHC 1989b). Whenever such services require procedural controls, requirements for use of Westinghouse Hanford procedures or for submittal of contractor procedures for Westinghouse Hanford review and approval before use, shall be included in the procurement document or work order, as applicable. In addition to the submittal of analytical procedures, analytical laboratories shall be required to submit the current version of their internal QA program plans. Before use, all analytical laboratory plans and procedures shall be reviewed and approved by qualified personnel from the OSM, Westinghouse Hanford analytical laboratories organizations, or other qualified personnel, as directed by the Technical Lead. All reviewers shall be qualified under the requirements of EII 1.7, "Indoctrination, Training, and Qualification" (WHC 1989a). All participant contractor or subcontractor procedures, plans, and/or manuals shall be retained as project quality records in compliance with EII 1.6, "Records Management" (WHC 1989a); QR 17.0, "Quality Assurance Records"; and QI 17.1, "Quality Assurance Records Control" (WHC 1989b). All such documents shall be available for regulatory review on request, at the direction of the Technical Lead.

4.2 SAMPLING AND INVESTIGATIVE PROCEDURES

All soil sampling activities shall be performed in compliance with EII 5.2, "Soil and Sediment Sampling" (WHC 1989a). Additional EIIs that have been selected to support this activity are identified in Table E2-2. Sample identification requirements and container type, preparation, and preservation requirements shall be as specified in EII 5.11. Procedures to support data interpretation shall be developed as modifications to EII 11.2, as contractor procedures, or may be incorporated as addenda to this QAPP as necessary to support the detailed requirements of the 2101-M Pond Closure Plan.

4.3 PROCEDURE ADDITIONS AND CHANGES

Additional EIIs or EII updates that may be required as a consequence of closure plan requirements shall be developed in compliance with EII 1.2, "Preparation and Revision of Environmental Investigations Instructions" (WHC 1989a). Should deviations from established EIIs be required to accommodate unforseen field situations, the field team leader can authorize any such deviation in accordance with the requirements of EII 1.4, "Deviation from Environmental Investigations Instructions" (WHC 1989a). Documentation, review, and disposition of instruction change authorization forms are defined within EII 1.4. Other types of document

change requests shall be completed as required by the Westinghouse Hanford procedures governing their preparation and revision.

5.0 SAMPLE CUSTODY

All samples obtained during the course of this investigation shall be controlled as required by EII 5.1, "Chain of Custody" (WHC 1989) from the point of origin to the analytical laboratory. Laboratory chain-of-custody procedures shall be reviewed and approved as required by Westinghouse Hanford procurement control procedures as noted in Section 4.1, and shall ensure the maintenance of sample integrity and identification throughout the analytical process. At the direction of the Technical Lead, requirements for return of residual sample materials after completion of analysis shall be defined in accordance with those procedures defined in the procurement documentation to subcontractor or participant contractor laboratories. Chain-of-custody forms shall be initiated for returned residual samples as required by the approved procedures applicable within the participating laboratory. Results of analyses shall be traceable to original samples through the unique code or identifier specified in Section 4.0. All results of analyses shall be controlled as permanent project quality records as required by QR 17.0, "Quality Assurance Records" (WHC 1989b) and EII 1.6, "Records Management" (WHC 1989a).

6.0 CALIBRATION PROCEDURES

Calibration of all Westinghouse Hanford measuring and test equipment, whether in existing inventory or purchased for this investigation, shall be controlled as required by QR 12.0, "Control of Measuring and Test Equipment"; QI 12.1, "Acquisition and Calibration of Portable Measuring and Test Equipment"; QI 12.2, "Measuring and Test Equipment Calibration by User" (WHC 1989b); and/or EII 3.1, "User Calibration of Health and Safety Measuring and Test Equipment" (WHC 1989a). Routine operational checks for Westinghouse Hanford field equipment shall be as defined within applicable EIIs or procedures; similar information shall be provided in Westinghouse Hanford-approved participant contractor or subcontractor procedures.

Calibration of Westinghouse Hanford, participant contractor, or subcontractor laboratory analytical equipment shall be as defined by applicable standard analytical methods, subject to Westinghouse Hanford review and approval.

7.0 ANALYTICAL PROCEDURES

Analytical methods or procedures based on the reference methods identified in Table E2-1 and Section 3.0 shall be selected or developed and approved before use in compliance with appropriate Westinghouse Hanford procedure and/or procurement control requirements as noted in Section 4.1.

8.0 DATA REDUCTION, VALIDATION, AND REPORTING

The following sections contain information concerning data reporting, data validation, and data review and management.

8.1 DATA REDUCTION AND DATA PACKAGE PREPARATION

All analytical laboratories shall be responsible for preparing a report summarizing the results of analysis and for preparing a detailed data package that includes all information necessary to perform data validation to the extent indicated by the minimum requirements of Section 8.2. Data summary report format and data package content shall be defined in procurement documentation subject to Westinghouse Hanford review and approval as noted in Section 4.1. At a minimum, laboratory data packages shall include the following:

- Sample receipt and tracking documentation (including identification of the organization and individuals performing the analysis, the names and signatures of the responsible analysts, sample holding time requirements, references to applicable chain-of-custody procedures, and the dates of sample receipt, extraction, and analysis)

- Instrument calibration documentation, including equipment type and model, with continuing calibration data for the time period in which the analysis was performed

- Quality control data, as appropriate for the methods used, including matrix spike/matrix spike duplicate data, recovery percentages, precision data, laboratory blank data, and identification of any nonconformances that may have affected the laboratory's measurement system during the time period in which the analysis was performed

- The analytical results or data deliverables, including reduced data, reduction formulas or algorithms, and identification of data outliers or deficiencies.

Other supporting information, such as initial calibration data, reconstructed ion chromatographs, spectrograms, traffic reports, and raw data, need not be included in the submittal of individual data packages unless specifically requested by the Technical Lead or the OSM. However, all sample data shall be retained by the analytical laboratory and made available for systems or program audit purposes upon request by Westinghouse Hanford, U.S. Department of Energy-Richland Operations Office (DOE-RL), or regulatory agency representatives (Section 10.0). Such data shall be retained by the analytical laboratory through the duration of contractual statement of work, at which point the data shall be turned over to Westinghouse Hanford for archiving.

The completed data package shall be reviewed and approved by the analytical laboratory's QA Manager before submittal to the OSM for validation as discussed in Section 8.2. The requirements of this section shall be included in procurement documentation or work orders, as appropriate, in compliance with the standard Westinghouse Hanford procurement control procedures referenced in Section 4.1.

8.2 VALIDATION

Validation of the completed data package shall be performed by Westinghouse Hanford OSM personnel. Validation requirements shall be defined within approved OSM data validation procedures, but at a minimum shall require the following:

For organic analyses, validation reports shall be prepared documenting validation of the following areas as recommended in Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (EPA 1988b):

- Data summary narrative
- Sample holding times
- Gas chromatograph/mass spectrometer tuning and mass calibration requirements
- Continuing calibration requirements
- Method blank sample requirements
- Surrogate recovery requirements
- Matrix spike/matrix spike duplicate requirements
- Internal standards performance requirements
- Target compound identification requirements

- Target compound quantitation requirements and reported detection limits

- Any tentatively identified compounds, library search, assessment, and quantitation requirements

- Overall data assessment requirements.

For inorganic analyses, validation reports shall be prepared documenting validation of the following areas, as recommended in Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses (EPA 1988a):

- Data summary narrative

- Sample holding times

- Continuing calibration requirements

- Method blank sample requirements

- Interference check sample requirements

- Laboratory control sample requirements

- Duplicate sample analysis

- Matrix spike sample requirements

- Atomic absorption quality control requirements

- Inductively coupled plasma serial dilution requirements

- Overall data assessment requirements.

8.3 FINAL REVIEW AND RECORDS MANAGEMENT CONSIDERATIONS

All validation reports and supporting analytical data packages shall be subjected to a final technical review by a qualified reviewer at the direction of the Technical Lead before submittal to regulatory agencies or inclusion in reports or technical memoranda. All validation reports, data packages, and review comments shall be retained as permanent project quality records in compliance with EII 1.6, "Records Management" (WHC 1989a) and QA 17.0, "Quality Assurance Records" (WHC 1989b).

9.0 INTERNAL QUALITY CONTROL

All analytical samples shall be subject to in-process quality control measures in both the field and laboratory. Unless superseded by specific directions provided in Appendix J of the closure plan, the following minimum field quality control requirements apply. These requirements are adapted from Test Methods for Evaluating Solid Waste (SW-846) (EPA 1986), as modified by the proposed rule changes included in the Federal Register, Volume 54, No. 13 (EPA 1989).

- Duplicate samples--For each shift of sampling activity under an individual sampling subtask, a minimum of 5% of the total collected samples shall be duplicated. Field duplicate samples are samples retrieved from the same sampling location using the same equipment and sampling technique, but analyzed independently. Laboratory duplicate samples are samples taken successively from the same bulb. Duplicate samples are generally used to verify the repeatability or reproducibility of the analytical data.

- Split samples--At the Technical Lead's direction, field or field duplicate samples may be split in the field and sent to an alternative laboratory as a performance audit of the primary laboratory. Frequency shall meet the minimum schedule requirements of Section 10.0.

- Field/Equipment Blanks--A water blank consists of pure deionized, distilled water whose chemical composition is known, drawn through decontaminated sampling equipment and taken as a sample. Blanks are used to verify the adequacy of sampling equipment decontamination procedures and are used to check for possible contamination originating with the sampling environment. Blanks will be run before the initiation of sampling each day or if blank contamination is suspected or detected.

The internal quality control checks performed by analytical laboratories' laboratory analyses shall meet the following minimum requirements.

- Matrix spiked and matrix spiked duplicate samples--Matrix spiked and matrix spiked duplicate samples require the addition of a known quantity of a representative analyte of interest to the sample as a measure of recovery percentage. The spike shall be made in a replicate of a field sample. Spike compound selection, quantities, and concentrations shall be described in the laboratories analytical procedures. One sample shall be spiked for each analytical batch, or once every 20 samples, whichever is greater.

- Quality control reference samples--A quality control reference sample shall be prepared from an independent standard at a concentration other than that used for calibration, but within the calibration range. Reference samples are required as an independent

check on analytical technique and methodology, and shall be run with every analytical batch, or every 20 samples, whichever is greater.

Other requirements specific to laboratory analytical equipment calibration are included in Section 6.0. The minimum requirements of this section shall be invoked in procurement documents or work orders in compliance with standard Westinghouse Hanford procedures as noted in Section 4.1.

10.0 PERFORMANCE AND SYSTEM AUDITS

Performance, system, and program audits are scheduled to begin early in the execution of this closure plan and to continue through to completion. Collectively, the audits address quality affecting activities that include, but are not limited to measurement accuracy, intramural and extramural analytical laboratory services, field activities, and data collection, processing, validation, and management.

Performance audits of the accuracy of laboratory analyses are implemented in accordance with Standard Operating Procedure EII 1.12 "Laboratory Analysis Performance Audits." System audit requirements are implemented in accordance with Standard Operating Procedure QI 10.4, "Surveillance" (WHC 1989b). Surveillances will be performed regularly throughout the course of the closure plan activities. Additional performance and system "surveillances" may be scheduled as a consequence of corrective action requirements, or may be performed upon request. All quality affecting activities are subject to surveillance.

All aspects of closure plan activities will also be evaluated as part of environmental restoration program wide QA audits under the procedural requirements of WHC-CM-4-[illegible] (WHC 1989b). Program audits shall be conducted in accordance with QR 18.0 [illegible]dits"; QI 18.1, "Audit Programming and Scheduling"; and QI 18.[illegible] [illegible]anning, Performing, Reporting, and Follow-up of Quality Audits" by audi[illegible] [illegible]alified in compliance with QI 2.5, "Qualification of Quali[illegible] [illegible]rance Program Audit Personnel" (WHC 1989b).

[illegible] PREVENTIVE MAINTENANCE

All measurement and testing equipment used in the field and laboratory that directly affects the quality of the analytical data shall be subject to preventive maintenance measures that ensure minimization of measurement system downtime. Field equipment maintenance instructions shall be as defined by the approved procedures governing their use. Laboratories shall be responsible for performing or managing the maintenance of their analytical equipment; maintenance requirements, spare parts lists, and instructions shall be included in individual methods or in laboratory QA plans, subject to

Westinghouse Hanford review and approval. When samples are analyzed using EPA reference methods, the requirements for preventive maintenance of laboratory analytical equipment as defined by the reference method shall apply.

12.0 DATA ASSESSMENT PROCEDURES

Test data from this investigation will be assessed as required by Appendix E-1, of this closure plan. Analytical data shall first be compiled and summarized by the laboratory and validated in compliance with approved OSM procedures meeting all minimum requirements of Section 8.0.

13.0 CORRECTIVE ACTION

Corrective action requests required as a result of surveillance reports, nonconformance reports, or audit activity shall be documented and dispositioned as required by QR 16.0, "Corrective Action"; QI 16.1, "Trending/Trend Analysis"; and QI 16.2, Corrective Action Reporting," (WHC 1989b). Primary responsibilities for corrective action resolution are assigned to the Technical Lead and the QA Coordinator. Other measurement systems, procedures, or plan corrections that may be required as a result of routine review processes shall be resolved as required by governing procedures or shall be referred to the Technical Lead for resolution. Copies of all surveillance, nonconformance, audit, and corrective action documentation shall be routed to the project QA records upon completion or closure.

14.0 QUALITY ASSURANCE REPORTS

As previously stated in Sections 10.0 and 13.0, project activities shall be assessed regularly by auditing and surveillance processes. Surveillance, nonconformance, audit, and corrective action documentation shall be routed to the project quality records upon completion or closure of the activity. A report summarizing all audit, surveillance, and instruction change authorization activity (see Section 4.4), as well as any associated corrective actions, shall be prepared by the QA Coordinator at the completion of the activity or annually beginning one year after approval of the closure plan, whichever is sooner. The report(s) shall be submitted to the Technical Lead for incorporation into the final report prepared at the end of the investigation. The final report shall include an assessment of the overall adequacy of the total measurement system with regard to the data quality objectives of the investigation.

15.0 REFERENCES

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APPENDIX F

EVALUATION OF COVER DESIGN PERFORMANCE

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1.0 INTRODUCTION

The following sections evaluate the performance of the preliminary cover design as required by WAC-173-303. The areas in which the cover is evaluated are (1) surface water erosion, (2) wind erosion, (3) and landfill performance (HELP model evaluation). These evaluations support the effectiveness of the preliminary cover design.

2.0 SURFACE WATER EROSION

Water Erosion Potential--The erosion potential of the cover surface soil because of precipitation events is evaluated using the U.S. Department of Agriculture (USDA) Universal Soil Loss Equation (USLE). The Universal Soil Loss Equation consists of six quantifiable factors, as follows (EPA 1979):

$$A = RKLSCP$$

where:

A = average soil loss (tons/acre/yr)
R = rainfall and run-off erosivity index
K = soil erodibility factor
L = slope length factor
S = slope steepness factor
C = cover/management factor
P = practice factor.

For this preliminary design, McGee Ranch will be the assumed borrow site for the topsoil layer. The following topsoil properties and cover design details are used to evaluate A:

- Topsoil type: silt to silt loam
- Average percent organic matter: 0.23% (Routson 1973)
- Estimated percent clay: 6% (Routson 1973)
- Estimated percent silt: 85% (Last et al. 1987)
- Estimated percent sand: 9% (Last et al. 1987)
- Uniform percent cover slope: 3%
- Cover length (Maximum drainage length): 50 ft
- Cover vegetation: Thickspike and Siberian wheatgrasses.

Therefore:

R = 20, from Figure F-1 (EPA 1979)
K = 0.64, from Figure F-2 (EPA 1979)
LS = 0.24, from Table F-1 (EPA 1979)
C = 0.20 (Nyhan 1986)
P = 1.0 (Nyhan 1986)
A = (20)(0.64)(0.24)(0.20)(1.0) = 0.62 tons/acre per yr.

This is an acceptable erosion rate as the overall site erosion is recommended to be limited to 2 tons/acre, which is a rate that does not significantly increase cover maintenance (EPA 1982).

Sheet Erosion Potential of Cover--The cover design is evaluated also to determine if the 3% topsoil slope can withstand overland or sheet flow with a minimum of erosion. The 50-yr, 20-minute storm rainfall intensity of 1.6 in./hour (Table F-2) is assumed for the design storm (Stone et al. 1983). The 50-yr storm was selected because it exceeds the minimum design life of the cover. The 20-minute rainfall intensity of 1.6 in./hour was assumed because that intensity did occur once in a 20-minute thunderstorm over the 37 yr that data was recorded at the Hanford Meteorology Station (Stone et al. 1983). The Rational Method is used for determining design discharge for tributary areas of 1 m^2 or less (about 1.196 yd^2) (Nelson and Abt 1986). Unit width analysis is used where area is expressed as slope length by unit width and where unit width = 1 foot.

$$Q = CiA$$

where:

Q = Maximum design discharge (ft^3/s)
C = Run-off coefficient (assuming C = 1.00 indicates no infiltration or worst-case scenario)
i = Intensity of rainfall (in./h)
A = Area of tributary (acres).

A portion of the design is all that need to be evaluated. The portion will be assumed to be a homogeneous watershed area. It will have a 3% slope with a length and a width of roughly 55 ft. Because the entire cover section cannot contribute to a single tributary, it is assumed that any tributary area is square. This yields an area of 0.07 acres.

Therefore:

$$Q = (1\ ft)(1.6\ in/hr)(0.07\ acres) = 0.11\ ft^3/s$$

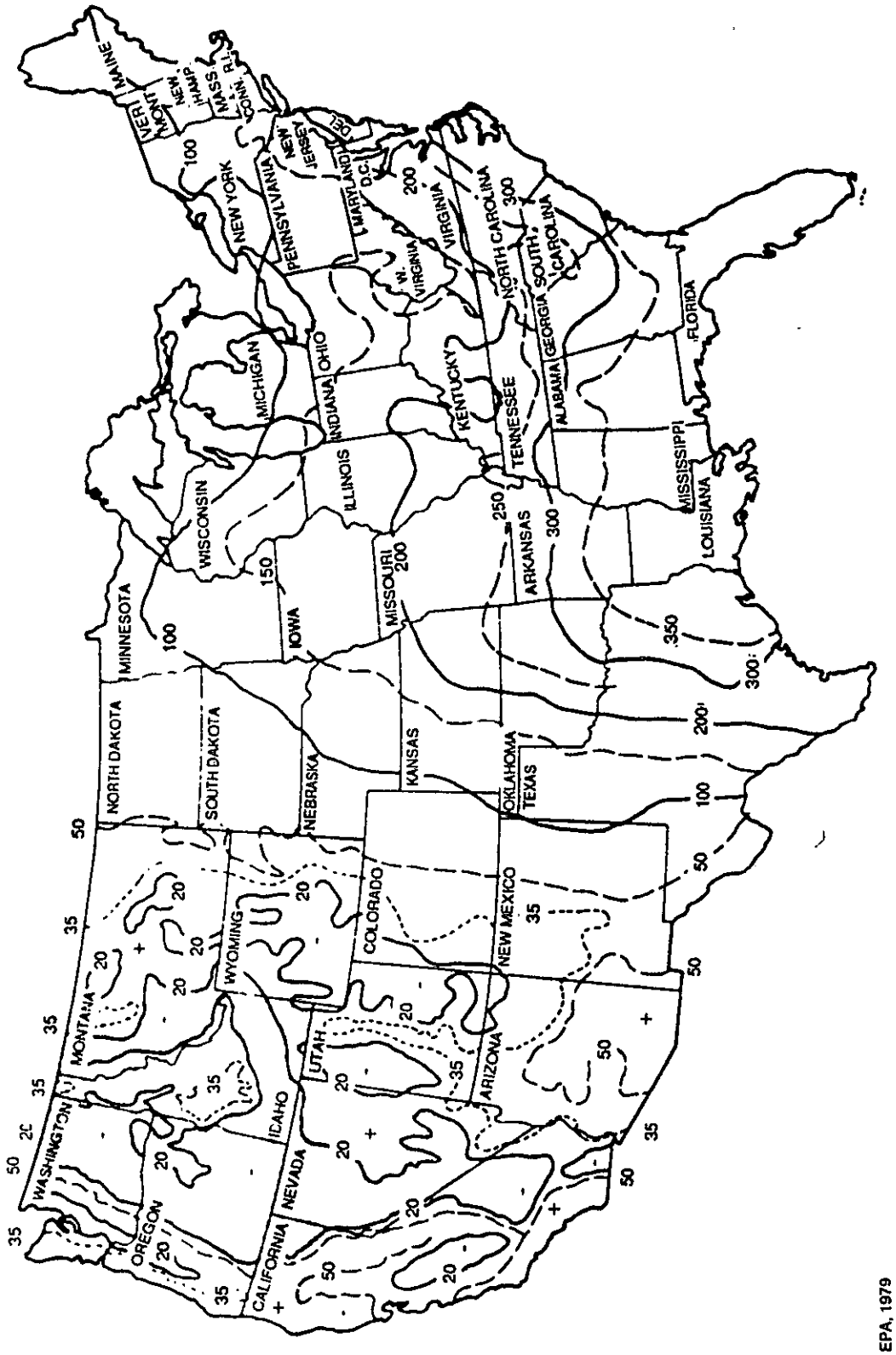

Figure F-1. Average Annual Values of Rainfall-Erosivity Factor R. (EPA 1979).

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EPA, 1979

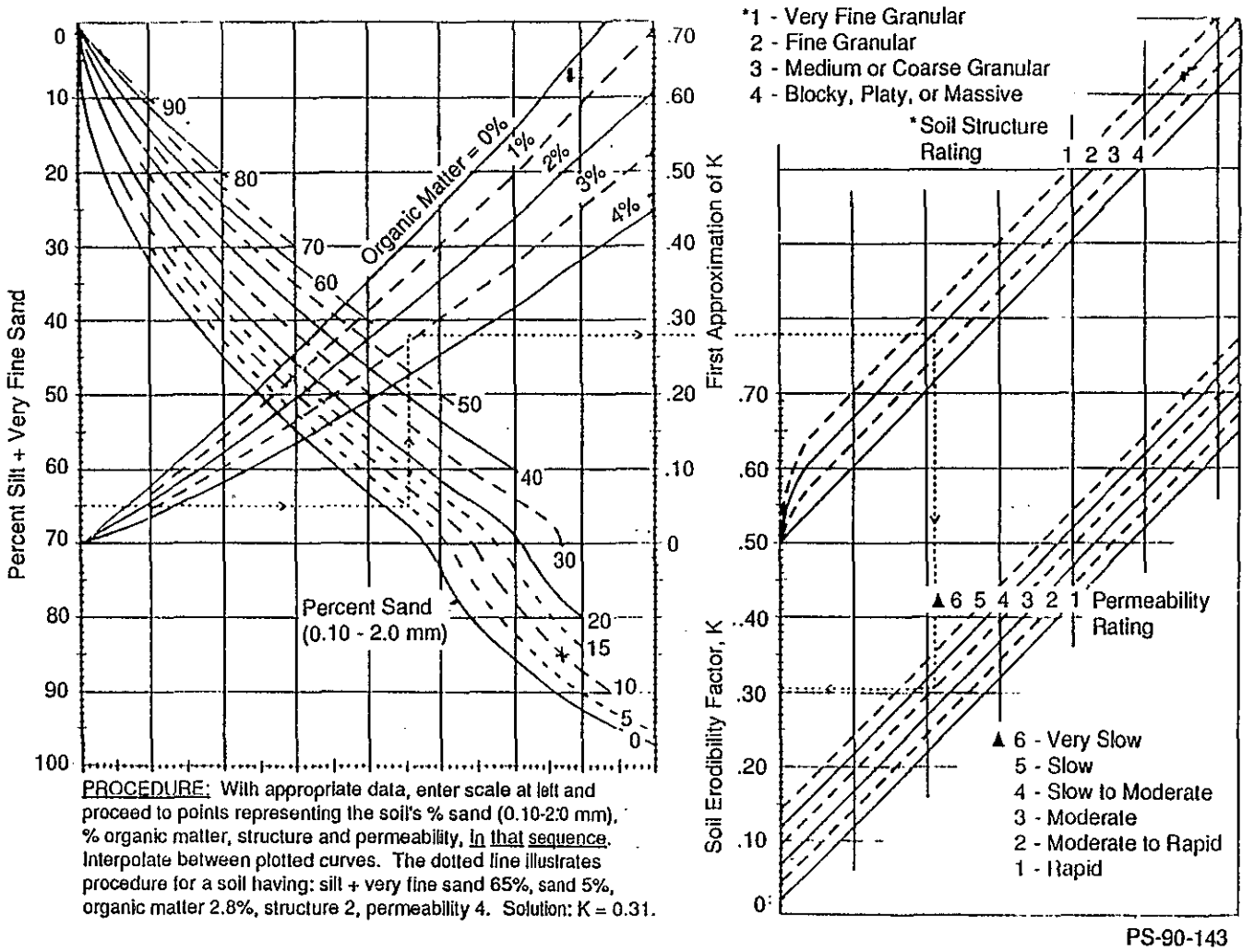

Figure F-2. Nomograph for Determining Soil-Erodibility Factor K for U.S. Mainland. (EPA 1979)

Table F-1. Values of the Factor LS for Specific Combinations of Slope Length and Steepness.

% Slope	Slope length (feet)											
	25	50	75	100	150	200	300	400	500	600	800	1,000
0.5	0.07	0.08	0.09	0.10	0.11	0.12	0.14	0.15	0.16	0.17	0.19	0.20
1	0.09	0.10	0.12	0.13	0.15	0.16	0.18	0.20	0.21	0.22	0.24	0.26
2	0.13	0.16	0.19	0.20	0.23	0.25	0.28	0.31	0.33	0.34	0.38	0.40
3	0.19	0.23	0.26	0.29	0.33	0.35	0.40	0.44	0.47	0.49	0.54	0.57
4	0.23	0.30	0.36	0.40	0.47	0.53	0.62	0.70	0.76	0.82	0.92	1.0
5	0.27	0.38	0.46	0.54	0.66	0.76	0.93	1.1	1.2	1.3	1.5	1.7
6	0.34	0.48	0.58	0.67	0.82	0.95	1.2	1.4	1.5	1.7	1.9	2.1
8	0.50	0.70	0.86	0.99	1.2	1.4	1.7	2.0	2.2	2.4	2.8	3.1
10	0.69	0.97	1.2	1.4	1.7	1.9	2.4	2.7	3.1	3.4	3.9	4.3
12	0.90	1.3	1.6	1.8	2.2	2.6	3.1	3.6	4.0	4.4	5.1	5.7
14	1.2	1.6	2.0	2.3	2.8	3.3	4.0	4.6	5.1	5.6	6.5	7.3
16	1.4	2.0	2.5	2.8	3.5	4.0	4.9	5.7	6.4	7.0	8.0	9.0
18	1.7	2.4	3.0	3.4	4.2	4.9	6.0	6.9	7.7	8.4	9.7	11.0
20	2.0	2.9	3.5	4.1	5.0	5.8	7.1	8.2	9.1	10.0	12.0	13.0
25	3.0	4.2	5.1	5.9	7.2	8.3	10.0	12.0	13.0	14.0	17.0	19.0
30	4.0	5.6	6.9	8.0	9.7	11.0	14.0	16.0	18.0	20.0	23.0	25.0
40	6.3	9.0	11.0	13.0	16.0	18.0	22.0	25.0	28.0	31.0	--	--
50	8.9	13.0	15.0	18.0	22.0	25.0	--	--	--	--	--	--
60	12.0	16.0	20.0	23.0	28.0	--	--	--	--	--	--	--

NOTE: Values given for slopes longer than 300 ft or steeper than 18% are extrapolations beyond the range of the research data and, therefore, are less certain than the others (EPA 1979).

Table F-2. Average Return Period and Existing Record for Various Precipitation Amounts and Intensity During Specified Time Periods at the Hanford Site (based on extreme value analysis of 1947 through 1969 records).

Average return period years	Time period (amount in inches)							Time period (intensity in inches per hour)						
	Minutes		Hours					Minutes		Hours				
	20	60	2	3	6	12	24	20	60	2	3	6	12	24
2	0.16	0.26	0.30	0.36	0.48	0.62	0.72	0.49	0.26	0.15	0.12	0.08	0.052	0.030
5	0.24	0.40	0.48	0.55	0.77	0.95	1.06	0.72	0.40	0.24	0.18	0.13	0.079	0.044
10	0.37	0.50	0.59	0.67	0.96	1.17	1.28	1.1	0.50	0.30	0.22	0.16	0.098	0.053
25	0.47	0.62	0.74	0.83	1.21	1.45	1.56	1.4	0.62	0.37	0.28	0.20	0.121	0.065
50	0.53	0.72	0.85	0.96	1.40	1.66	1.77	1.6	0.72	0.42	0.32	0.23	0.138	0.074
100	0.60	0.81	0.96	1.07	1.59	1.87	1.99	1.8	0.81	0.48	0.36	0.27	0.156	0.083
250	0.68	0.93	1.11	1.22	1.82	2.13	2.26	2.0	0.93	0.55	0.41	0.30	0.177	0.094
500	0.73	1.02	1.22	1.33	2.00	2.34	2.47	2.2	1.02	0.61	0.44	0.33	0.195	0.103
1,000	0.80	1.11	1.33	1.45	2.20	2.55	2.68	2.4	1.11	0.67	0.48	0.37	0.212	0.122
Existing record	[a]	0.59	0.88	1.08	1.68	1.88	1.91	[a]	0.59	0.44	0.36	0.28	0.157	0.080
Month/day		6/12	10/1	10.5	10.5	10.5	10.5		6/12	10/1	10/1	10.5	10.5	10.5
Year	--	1969	1957	1957	1957	1957	1957	--	1969	1959	1959	1959	1959	1959

NOTE: Records for 1947 through 1969 are from Stone et al. (1983).

[a]No records have been kept for time periods of less than 60 min. However, the rain gage chart for 6-12/69 shows the 0.55 in occurred during a 20-min period from 6:35 p.m., Pacific Standard Time. An additional 0.04 in occurred between 6:55 p.m. and 7:10 p.m., Pacific Standard Time, to account for the record 60-minute amount of 0.59 inch.

In order to do unit analysis, the depth of flow for this discharge must be determined. Flow depth is calculated as follows:

$$y = [Qn/(1.486)(S^{0.5})]^{0.6}$$

where:

y = depth of flow (ft)
Q = maximum design discharge (ft^3/second) (from previous equation)
n = manning roughness coefficient (where n = 0.02 for silt loam (Nelson and Abt 1986))
S = cover slope (percent).

Therefore:

$$y = [(0.11\ cfs)(0.020)/(1.486)(0.03)^{0.5}]^{0.6} = 0.06\ ft.$$

The velocity can now be determined for a unit area (one flow depth deep, and one foot in width).

$$V = Q/A$$

where:

V = design flow velocity (ft/s)
Q = maximum design discharge (ft^3/s)
A = y (area of flow).

$$V = (0.11\ cfs)/(1\ ft)(0.06\ ft) = 1.83\ ft/s.$$

Allowable V for silt loam is 3 ft/second (Nelson and Abt 1986). Therefore, sheet erosion potential of the cover materials is not a problem.

3.0 WIND EROSION EVALUATION

To evaluate the wind erosion potential of the cover surface soil, the Wind Erosion Equation (WEQ) was developed by the USDA Agricultural Research

Service (ARS). It has been modified for use in the state of Washington by the Soil Conservation Service (USDA 1987). The equation is used to evaluate the potential for wind erosion of soil surfaces and is used as follows:

$$E = f(IKCLV)$$

where:

- E = the estimated average annual soil loss in tons/acre/yr due to wind erosion
- f - an indication that the equation includes functional relationships that are not straight-line mathematical functions
- I = soil erodibility factor
- K = ridge roughness factor
- C = climatic factor
- L = unsheltered distance
- V = vegetative factor.

The equation can be considered to be successive modifications to I. The I factor is the potential annual wind erosion in tons/acre/yr for a given soil on an isolated, level, smooth, unsheltered, wide, and bare field with a noncrusted surface where the climatic factor is 100 percent.

The I factor is dependent on the soil texture and the percentage of dry aggregates over 0.84 mm in size. From DOE 1990, this value is roughly 3% for McGee Ranch Silt. To evaluate a soil in a realistic manner entails determining the normal, natural occurring state of the soil after exposure to the elements. McGee Ranch soils normally exhibits a crusted surface condition, for which the I value in Table F-3 is 36.7. It is expected that the topsoil layer will form a crusted surface relatively soon after construction, in response to rain and snowfall events during the winter of the first year. If necessary, the formation of a crusted surface may be accelerated by direct application of water.

This I value must be adjusted for the portion of the cover that will be sloped and facing the prevailing winds. This is applied where an unsheltered distance of 500 ft or less exists as is the case with the 2101-M Pond cover. With a cover slope of 3%, the adjustment factor from Table F-4 is 1.3, therefore;

$$I = (36.7)(1.3) = 48 \text{ tons/acre/yr}$$

The ridge roughness factor's (K) primary use is in application to agricultural related activities that take place on a recurring basis (e.g., plowing, planting, discing, harrowing, etc.). Ridges may be created at planting time, but these will exist for only a short period of time. This assumes that the seed is planted using a drill as opposed to planting by broadcast seeding methods. Assuming a ridge height of 1 in. after seeding, a

Table F-3. Soil Erodibility Index (I).

Percent of dry soil not passing a 20 mesh screen	0	1	2	3	4	5	6	7	8	9
(Units)	Noncrusted soil surface (tons/acre)									
0	0	310	250	220	195	180	170	160	150	140
10	134	131	128	125	121	117	113	109	106	102
20	98	95	92	90	88	86	83	81	79	76
30	64	72	71	69	67	65	63	62	60	58
40	56	54	52	51	50	48	47	45	43	41
50	38	36	33	31	29	27	25	24	23	22
60	21	20	19	18	17	16	16	15	14	13
70	12	11	10	8	76	6	4	3	3	2
80	2	0	0	0	0	0	0	0	0	0
	Fully crusted soil surface (tons/acre)									
0	0	51.7	41.7	36.7	32.5	30.0	28.7	26.7	25.0	23.3
10	22.3	21.8	21.3	20.8	20.2	19.5	18.8	18.2	17.7	17.0
20	16.3	15.8	15.3	15.0	14.7	14.3	13.8	13.5	13.2	12.7
30	12.3	12.0	11.8	11.5	11.2	10.8	10.5	10.3	10.0	9.7
40	9.3	9.0	8.7	8.5	8.3	8.0	7.8	7.5	7.2	6.8
50	6.3	6.0	5.5	5.2	4.8	4.5	4.2	4.0	3.8	3.7
60	3.5	3.3	3.2	3.0	2.8	2.7	2.7	2.5	2.3	2.2
70	2.0	1.8	1.7	1.3	1.2	1.0	0.7	0.5	0.5	0.3
80	0.3	0	0	0	0	0	0	0	0	0

Israelsen et al. 1980.

Table F-4. Knoll Erodibility I Correction Factor.

Knoll facing wind rise in percent slope (along prevailing wind erosion direction)	I slope correction
3	1.3
4	1.6
5	1.9
6	2.3
8	3.0
10	3.6

K factor of 0.6 is obtained from Figure F-3. This ridge height can only be assumed for the first year of the cover's life because the 2101-M Pond cover will not be subjected to annual tillage activities to develop and maintain soil ridges. The K factor will have little or no influence on the cover design after this first year. Therefore, the ridge height is assumed to be zero over long periods of time. From Figure F-3, the K value is then 1.

The distribution of climatic factor (C) across Washington State is indicated in Figure F-4. Appropriate ranges for the C factor is 60 to 70 for the 2101-M Pond area.

The vegetative factor (V) is difficult to characterize. During the first year after cover construction, before a mature stand of cover vegetation has been produced, the soil surface will be protected from wind erosion by spreading and crimping 4,000 lbs of straw per acre on or into the soil surface. For following years, the amount of plant production for the site must be estimated. The USDA Soil Conservation Service has performed a number of evaluations of range site conditions for varying soil and precipitation conditions. The average annual rainfall for this area is in the 6- to 9-in. range. Using the data from similar climate and land use areas, the total annual production of air-dry weight per acre for the 2101-M Pond vegetative cover runs from a low of 200 lbs for unfavorable years, to 500 lbs for favorable years (USDA 1981). The design assumes the median value for V. This yields 350 lbs of air-dry material. Using Crested Wheatgrass from Table F-5 to represent the cover vegetation, the flat small grain equivalent is roughly 1,100 lbs/acre. The unsheltered field length (L) for the worst case condition on the cover is 50 ft.

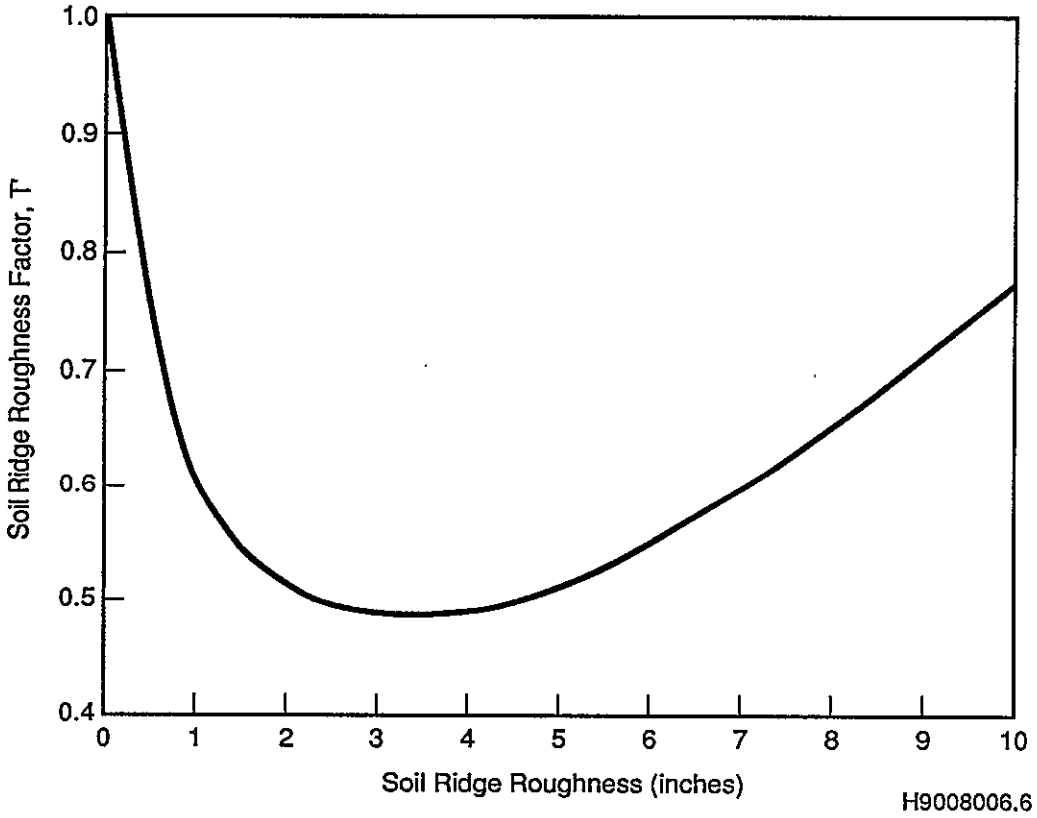

Figure F-3. Soil Ridge Roughness Factor K From Actual Soil Ridge Roughness (EPA 1979).

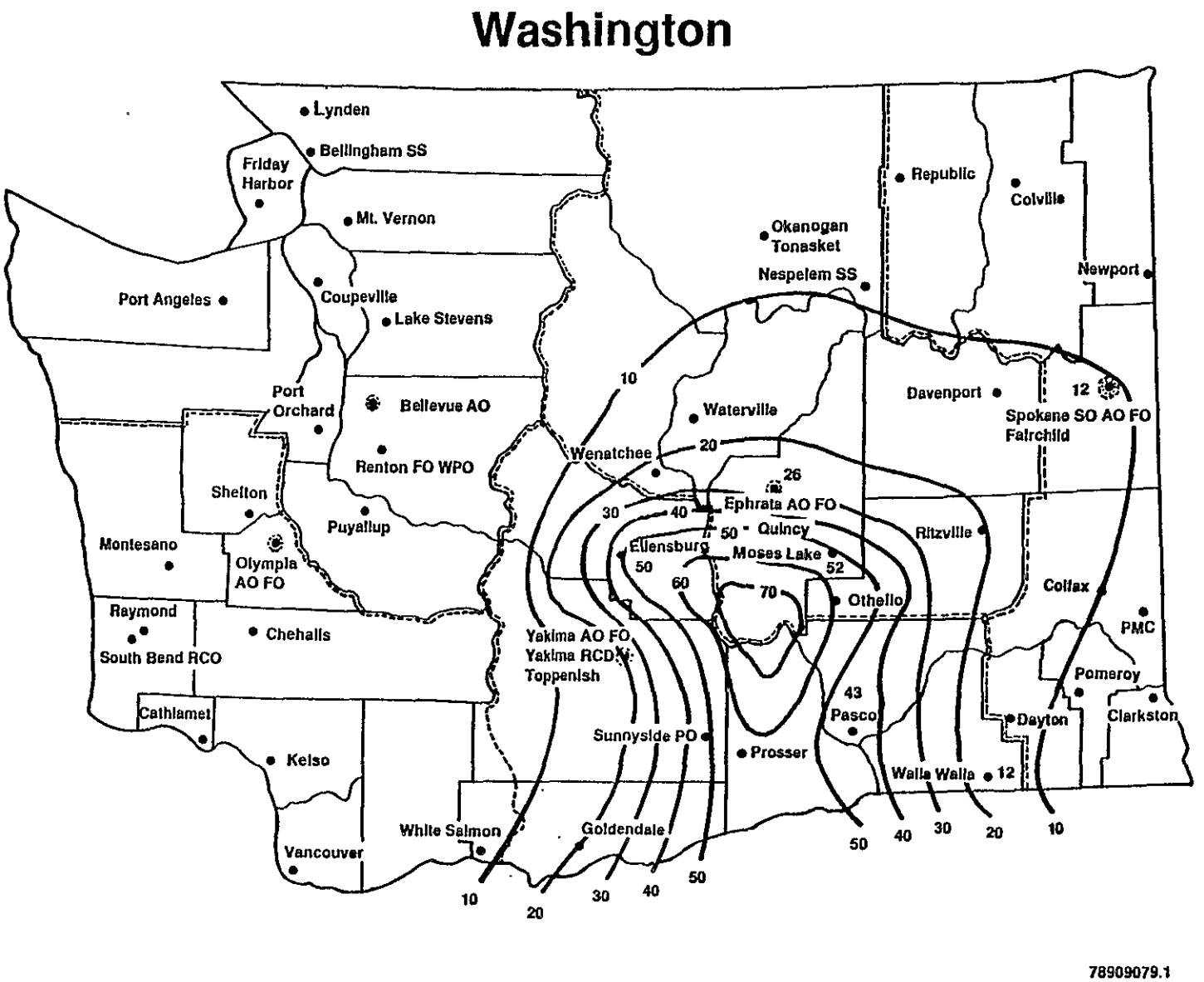

Figure F-4. Annual Wind Erosion Climatic 'C' Factor Map.

Table F-5. Guide for Converting Range Vegetation to Equivalent Quantity of Flat Small Grain Residue. (sheet 1 of 2)

Grass plants	Pounds per acre of range vegetation										
	50	100	200	300	400	500	600	700	800	900	1,000
Buffalograss[a], burrograss, and Inland saltgrass	320	720	1,630	2,630							
Big bluestem[a]	45	110	280	480	705	950	1,215	1,495	1,785	2,090	2,410
Western wheatgrass[a], creeping wildrye, and side oats grama	155	245	775	1,240	1,740	2,260	2,795	3,345			
Little Bluestem[a]	45	110	285	495	735	995	1,280	1,580	1,900	2,230	2,575
Blue grama[a], threadleaf sedge, and perennial three-awn	110	235	490	760	1,040	1,325	1,610	1,905			
Galleta and tobosa	150	300	800	1,200	1,700	2,600					
Bottlebrush squirreltail, needle and thread[a], and thruber needlegrass	70	150	300	600	800	1,200					
Alkali sacaton	60	150	400	800	1,400	2,200	2,800	3,600			
Bluebunch wheatgrass	50	120	300	550	850	1,150	1,500	1,900	2,300	2,600	3,000
Idaho fescue	100	200	400	900	1,500	2,300					

Table F-5. Guide for Converting Range Vegetation to Equivalent Quantity of Flat Small Grain Residue. (sheet 2 of 2)

Grass plants	Pounds per acre of range vegetation										
	50	100	200	300	400	500	600	700	800	900	1,000
Indian ricegrass	100	175	300	600	900	1,400					
Crested wheatgrass	130	300	600	900	1,300	1,800	2,400	3,100	4,000		
Cheatgrass	100	200	300	600	800	1,000	1,200	2,000	2,500	3,000	

NOTE: Other grass species equivalents were estimated by comparing the growth characteristics with the tested species.

[a]Lyles and Allison (1980).

With the given information: I= 48, K=0.6 for the first year and then 1.0 for the life of the cover; C= 60 to 70, L=50, and V=4,000 for the first year and then 1,100 for following years; the value of E can be determined from interpolation of SCS wind erosion charts for these values.

Wind erosion for the first year is estimated to be essentially zero. This is primarily attributed to the projected effectiveness of the straw mulch treatment. In following years, wind erosion will be determined by the condition of the grass stand. In the years following the initial seeding, when an average stand is present, wind erosion is predicted to be less than 0.5 tons/acre/yr. It is assumed also that the straw mulch will continue to assist in reducing wind erosion for two to three years after placement. This will be dependent upon the climatic conditions during that time span.

In those years when a less-than-average stand of grass develops (200 lbs air-dry weight/acre), the estimated V will drop to roughly 600 lbs/acre. This will yield a predicted erosion rate of 0.7 ton/acre/yr (C=60) to 1.0 ton/acre/yr (C=70). As is demonstrated by these results, the projected soil losses are highly dependent on the vegetative factor. In those years when the vegetation yield is above the predicted average, the erosion rate will be insignificant. Until the vegetative cover becomes fully established, the erosion rates may exceed the estimated average range. After establishment of the vegetative cover, the erosion rates should more closely coincide with the predicted rates. An increase in the vegetative growth to around optimal production (500 lbs air-dry weight per acre) would decrease soil losses to zero.

4.0 HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE

The Hydrologic Evaluation of Landfill Performance (HELP) computer modelling results are included in this appendix. The HELP model was developed by the U.S. Environmental Protection Agency (EPA) to aid hazardous waste landfill designers in estimating water budget and quantity of leachate from a landfill. Therefore, the model is used as a tool to estimate water drainage and percolation through covers and/or liner and leachate collection systems for landfills. The model uses a deterministic, sequential daily analysis to calculate run-off, evapotranspiration, percolation, and lateral drainage. The following discussion is based on the documentation of the HELP Model, Version 2.0 (EPA 1984). The newest existing released version of the HELP model will be used during definitive design.

The HELP model requires the use of specific cover-soil physical properties and local climatological data. The HELP model is provided with climatological data for many locations across the United States. Local climatological data available from the Hanford Meteorological Station were input to the HELP model where available (Skelly 1990).

The model is set up to run four different kinds of layers, only one of which is used for this design. The four types of layers are: (1) vertical percolation, (2) lateral drainage, (3) barrier or low-permeability components, and (4) waste layer. For the model, only the vertical drainage layer was used as a cover component as opposed to the low-permeability component to build some conservatism into the evaluation. The vertical layers work on the principle that there is no significant resistance to vertical flow. Water can move up or down to account for evapotranspiration as well as percolation. No lateral drainage is assumed for vertical drainage components.

The model calculates water movement off of the cover surface and through the cover on a daily basis. The model handles precipitation as subdivided into components including runoff, evapotranspiration, percolation, and subsurface lateral drainage.

Surface run-off is that component of precipitation that does not infiltrate the soil. Once the infiltration requirements are fulfilled, water begins to be stored in natural surface depressions and flows through small channels in the cover surface. A Soil Conservation Service curve number is assigned to the soil and is coupled with a Darcian flow equation modified for unsaturated flow conditions.

Infiltration has been calculated based on the differences between daily precipitation and the sum of the change in surface storage of precipitation, the daily run-off, and surface evaporation. If the mean daily temperature is below 32 °F, the precipitation would be stored as snow.

Evapotranspiration has been modelled as a function of available energy, vegetation, soil, water transmissivity, and water content. For the evapotranspiration function, available surface water is first addressed and then subsurface water is used to separately calculate plant transpiration and evaporation on a daily basis.

The model assumes that each layer is homogeneous with respect to hydraulic conductivity, porosity, and field capacity.

The products of the model runs are summaries of annual totals, average annual total for 5 yr, and peak daily totals for precipitation, run-off, evapotranspiration, and percolation from base of cover. The following summary data is provided.

2101-M Pond
Steady State Output
7/16/90

Layer 1

Vertical Percolation Layer

Thickness	=	30.00 In.
Porosity	=	0.5140 Vol/Vol
Field Capacity	=	0.2585 Vol/Vol
Wilting Point	=	0.0681 Vol/Vol
Initial Soil Water Content	=	0.0899 Vol/Vol
Saturated Hydraulic Conductivity	=	0.001000000047 Cm/Sec

Layer 2

Vertical Percolation Layer

Thickness	=	12.00 In.
Porosity	=	0.3470 Vol/Vol
Field Capacity	=	0.2585 Vol/Vol
Wilting Point	=	0.0681 Vol/Vol
Initial Soil Water Content	=	0.0925 Vol/Vol
Saturated Hydraulic Conductivity	=	0.000000300000 Cm/Sec

Layer 3

Vertical Percolation Layer

Thickness	=	12.00 In.
Porosity	=	0.4370 Vol/Vol
Field Capacity	=	0.1050 Vol/Vol
Wilting Point	=	0.0470 Vol/Vol
Initial Soil Water Content	=	0.1114 Vol/Vol
Saturated Hydraulic Conductivity	=	0.002700000070 Cm/Sec

General Simulation Data

SCS Runoff Curve Number	=	80.00
Total Area of Cover	=	27600. Sq. Ft
Evaporative Zone Depth	=	36.00 In.
Upper Limit Veg. Storage	=	17.5020 In.
Initial Veg. Storage	=	3.2520 In.
Initial Snow Water Content	=	0.0000 In.
Initial Total Water Storage in Soil and Waste Layers	=	5.1438 In.

Soil Water Content Initialized by User.

Climatological Data

User Specified Rainfall with Synthetic Daily Temperatures and Solar Radiation for Hanford Wash

Maximum Leaf Area Index	=	1.60
Start of Growing Season (Julian Date)	=	113
End of Growing Season (Julian Date)	=	288

Normal Mean Monthly Temperatures, Degrees Fahrenheit

Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
29.30	36.30	45.10	53.10	61.50	69.30
76.40	74.30	65.20	53.00	39.80	32.70

Monthly Totals for Year 1979

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.54 0.09	0.17 0.38	0.54 0.20	0.52 0.67	0.10 1.43	0.00 0.99
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.778 0.090	0.324 0.280	0.206 0.300	0.447 0.137	0.606 0.349	0.309 0.531
Percolation From Layer 3 (in.)	0.0030 0.0026	0.0026 0.0025	0.0028 0.0024	0.0027 0.0024	0.0027 0.0023	0.0026 0.0023

Annual Totals for Year 1979

	(Inches)	(Cubic Feet)	Percent
Precipitation	5.63	12949.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	4.357	10021.	77.39
Percolation from Layer 3	0.0309	71.	0.55
Change in Water Storage	1.242	2856.	22.06
Soil Water at Start of Year	5.14	11831.	
Soil Water at End of Year	6.39	14687.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1980

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	1.32 0.00	1.30 0.02	0.30 0.85	0.86 0.33	1.43 0.44	0.96 1.89
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.487 0.215	1.187 0.020	1.937 0.379	0.663 0.362	1.678 0.291	2.076 0.324
Percolation from Layer 3 (in.)	0.0023 0.0020	0.0021 0.0020	0.0022 0.0019	0.0021 0.0019	0.0021 0.0018	0.0020 0.0019

Annual Totals for Year 1980

	(Inches)	(Cubic Feet)	Percent
Precipitation	9.70	22310.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	9.619	22124.	99.17
Percolation from Layer 3	0.0244	56.	0.25
Change in Water Storage	0.057	130.	0.58
Soil Water at Start of Year	6.39	14687.	
Soil Water at End of Year	6.44	14817.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1981

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.56 0.19	0.60 0.03	0.70 0.60	0.02 0.39	0.99 1.08	0.43 1.45
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.696 0.181	1.502 0.030	1.071 0.098	0.431 0.334	0.367 0.537	1.395 0.558
Percolation from Layer 3 (in.)	0.0018 0.0017	0.0016 0.0017	0.0018 0.0016	0.0017 0.0016	0.0017 0.0015	0.0016 0.0016

Annual Totals for Year 1981

	(Inches)	(Cubic Feet)	Percent
Precipitation	7.04	16192.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	7.202	16565.	102.30
Percolation from Layer 3	0.0199	46.	0.28
Change in Water Storage	-0.182	-419.	-2.59
Soil Water at Start of Year	6.44	14817.	
Soil Water at End of Year	6.26	14399.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1982

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.38 0.22	0.57 0.20	0.30 0.55	0.75 1.37	0.28 0.91	0.75 1.79
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.692 0.717	1.161 0.195	1.038 0.291	0.583 0.399	0.709 1.038	0.342 0.569
Percolation from Layer 3 (in.)	0.0015 0.0014	0.0014 0.0014	0.0015 0.0013	0.0014 0.0014	0.0015 0.0013	0.0014 0.0013

Annual Totals for Year 1982

	(Inches)	(Cubic Feet)	Percent
Precipitation	8.07	18561.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	7.735	17791.	95.85
Percolation from Layer 3	0.0168	39.	0.21
Change in Water Storage	0.318	731.	3.94
Soil Water at Start of Year	6.26	14399.	
Soil Water at End of Year	6.58	15130.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1983

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	1.44 0.31	1.36 0.12	1.00 0.46	0.42 0.52	0.52 2.12	0.68 2.12
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.597 0.680	1.000 0.132	2.188 0.452	0.863 0.165	0.706 0.700	2.009 0.459
Percolation from Layer 3 (in.)	0.0013 0.0012	0.0012 0.0012	0.0013 0.0012	0.0012 0.0012	0.0013 0.0011	0.0012 0.0012

Annual Totals for Year 1983

	(Inches)	(Cubic Feet)	Percent
Precipitation	11.07	25461.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	9.951	22887.	89.89
Percolation from Layer 3	0.0145	33.	0.13
Change in Water Storage	1.105	2541.	9.98
Soil Water at Start of Year	6.58	15130.	
Soil Water at End of Year	7.68	17671.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Buget Balance	0.00	0.	0.00

Monthly Totals for Year 1984						
	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.23 0.06	0.94 0.00	1.01 0.42	0.60 0.07	0.55 1.83	0.99 0.57
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.463 0.235	1.325 0.000	2.024 0.217	0.624 0.268	0.748 0.468	2.403 0.595
Percolation from Layer 3 (in.)	0.0011 0.0011	0.0011 0.0011	0.0011 0.0010	0.0011 0.0010	0.0011 0.0010	0.0011 0.0010

Annual Totals for Year 1984			
	(Inches)	(Cubic Feet)	Percent
Precipitation	7.27	16721.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	9.369	21548.	128.87
Percolation from Layer 3	0.0128	29.	0.18
Change in Water Storage	-2.112	-4857.	-29.05
Soil Water at Start of Year	7.68	17671.	
Soil Water at End of Year	5.57	12814.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1985

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.34 0.12	0.82 0.01	0.36 0.63	0.01 0.46	0.12 1.24	0.15 0.86
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.673 0.027	1.205 0.103	0.933 0.339	0.050 0.263	0.130 0.279	0.150 0.632
Percolation from Layer 3 (in.)	0.0010 0.0010	0.0009 0.0010	0.0010 0.0009	0.0010 0.0009	0.0010 0.0009	0.0009 0.0009

Annual Totals for Year 1985

	(Inches)	(Cubic Feet)	Percent
Precipitation	5.12	11776.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	4.785	11006.	93.46
Percolation from Layer 3	0.0114	26.	0.22
Change in Water Storage	0.323	744.	6.32
Soil Water at Start of Year	5.57	12814.	
Soil Water at End of Year	5.89	13558.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1986

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	1.76 0.21	1.21 0.02	0.76 0.96	0.00 0.29	0.30 0.65	0.00 0.77
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.542 0.981	1.381 0.020	1.746 0.320	0.443 0.265	0.367 0.234	0.457 0.272
Percolation from Layer 3 (in.)	0.0009 0.0009	0.0008 0.0009	0.0009 0.0008	0.0009 0.0008	0.0009 0.0008	0.0008 0.0008

Annual Totals for Year 1986

	(Inches)	(Cubic Feet)	Percent
Precipitation	6.93	15939.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	7.028	16164.	101.41
Percolation from Layer 3	0.0102	24.	0.15
Change in Water Storage	-0.108	-249.	-1.56
Soil Water at Start of Year	5.89	13558.	
Soil Water at End of Year	5.79	13309.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals for Year 1987

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.80 0.50	0.55 0.07	1.05 0.01	0.14 0.00	0.39 0.40	0.08 1.63
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.274 0.500	1.025 0.070	1.593 0.010	0.643 0.000	0.671 0.234	0.383 0.231
Percolation from Layer 3 (in.)	0.0008 0.0008	0.0007 0.0008	0.0008 0.0007	0.0008 0.0008	0.0008 0.0007	0.0008 0.0008

Annual Totals for Year 1987

	(Inches)	(Cubic Feet)	Percent
Precipitation	5.62	12926.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	5.634	12958.	100.25
Percolation from Layer 3	0.0093	21.	0.17
Change in Water Storage	-0.023	-53.	-0.41
Soil Water at Start of Year	5.79	13309.	
Soil Water at End of Year	5.76	13256.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Monthly Totals For Year 1988

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation (in.)	0.48 0.13	0.00 0.00	0.60 0.39	1.12 0.01	0.33 0.82	0.11 0.40
Run-off (in.)	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration (in.)	0.254 0.130	0.165 0.000	0.279 0.190	1.040 0.210	1.410 0.303	1.057 0.297
Percolation from Layer 3 (in.)	0.0008 0.0007	0.0007 0.0007	0.0007 0.0007	0.0007 0.0007	0.0007 0.0007	0.0007 0.0007

Annual Totals for Year 1988

	(Inches)	(Cubic Feet)	Percent
Precipitation	4.39	10097.	100.00
Run-off	0.000	0.	0.00
Evapotranspiration	5.335	12270.	121.52
Percolation from Layer 3	0.0085	20.	0.19
Change in Water Storage	-0.953	-2193.	-21.72
Soil Water at Start of Year	5.76	13256.	
Soil Water at End of Year	4.81	11064.	
Snow Water at Start of Year	0.00	0.	
Snow Water at End of Year	0.00	0.	
Annual Water Budget Balance	0.00	0.	0.00

Average Monthly Values In Inches for Years 1979 Through 1988

	Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
Precipitation						
Totals	0.78 0.18	0.75 0.09	0.66 0.51	0.44 0.41	0.50 1.09	0.42 1.25
Std. Deviations	0.53 0.14	0.46 0.12	0.29 0.28	0.40 0.40	0.41 0.57	0.40 0.60
Run-off						
Totals	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Std. Deviations	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000	0.000 0.000
Evapotranspiration						
Totals	0.546 0.376	1.028 0.085	1.302 0.260	0.579 0.240	0.739 0.443	1.058 0.447
Std. Deviations	0.178 0.323	0.441 0.094	0.707 0.133	0.268 0.118	0.472 0.257	0.855 0.151
Percolation from Layer 3						
Totals	0.0015 0.0013	0.0013 0.0013	0.0014 0.0013	0.0013 0.0013	0.0014 0.0012	0.0013 0.0012
Std. Deviations	0.0007 0.0006	0.0006 0.0006	0.0007 0.0006	0.0006 0.0006	0.0006 0.0005	0.0006 0.0005

Average Annual Totals and (Standard Deviations) for Years 1979 Through 1988

	(Inches)		(Cubic Feet)	Percent
Precipitation	7.08	(2.085)	16293.	100.00
Run-off	0.000	(0.000)	0.	0.00
Evapotranspiration	7.101	(2.060)	16333.	100.25
Percolation from Layer	0.0159	(0.0073)	37.	0.22
Change in Water Storage	-0.033	(0.965)	-77.	-0.47

Peak Daily Values for Years 1979 Through 1988

	(Inches)	(Cubic Feet)
Precipitation	0.93	2139.0
Run-off	0.000	0.0
Percolation from Layer 3	0.0001	0.2
Snow Water	0.76	1738.3
Maximum Veg. soil water (vol/vol)	0.1694	
Minimum Veg. soil water (vol/vol)	0.0679	

Final Water Storage at End of Year 1988		
Layer	(Inches)	(Vol/Vol)
1	2.66	0.0888
2	0.97	0.0807
3	1.18	0.0982
Snow Water	0.00	

5.0 COVER MATERIAL VOLUME ESTIMATES

The required volume of each of the cover components is estimated in Table F-6. The exact surface area requirements for the cover have yet to be determined. However, a preliminary amount of materials required for each cover component is estimated based on the following assumptions:

- Cover area is 100 ft x 230 ft
- Cover is 3 ft high (above grade)
- The individual component thicknesses are as depicted in Figures II-5 and II-6.

Table F-6. Cover Material Volume/Area Estimates.

Cover Component	Cubic Yards
Foundation Soil	1,600
Low-Permeability Soil	850
Topsoil	1,700

NOTE: Ecology must approve the final cover design before construction.

6.0 REFERENCES

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APPENDIX G

2101-M BUILDING EFFLUENT DATA

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2101-M Laboratory Wastewater

Sample ID ML00: 5 UST Samples

Detected Analytes

Note: Units are PPB unless otherwise indicated.

Analyte	N	Average	Minimum	Maximum	90% CI
Alpha Activity (LDL,pCi/L)	4	6.5E-01	1.2E-01	1.3E+00	1.0E+00
Beta Activity (pCi/L)	5	5.1E+00	2.6E+00	1.1E+01	7.5E+00
Acetone (VOA)	1	4.0E+01			
Aluminum	3	2.5E+02	2.0E+02	3.3E+02	3.3E+02
Ammonium	2	1.5E+02	1.2E+02	1.8E+02	2.3E+02
Barium	5	2.2E+01	1.0E+01	3.0E+01	2.8E+01
Bis(ethylhexyl) phthalate	1	7.1E+02			
Calcium	5	1.3E+04	5.8E+03	1.8E+04	1.6E+04
Chloride	5	2.4E+03	7.0E+02	3.5E+03	3.2E+03
Chloroform	3	2.3E+01	1.1E+01	3.2E+01	3.4E+01
Chromium	1	1.0E+01			
Conductivity-Field (uS)	5	8.5E+01	1.4E+01	1.3E+02	1.2E+02
Copper	5	2.6E+02	4.2E+01	5.3E+02	4.1E+02
Iron	5	4.8E+02	9.4E+01	1.3E+03	7.9E+02
Lead (GFAA)	1	3.6E+01			
Magnesium	5	3.0E+03	1.3E+03	4.2E+03	3.8E+03
Manganese	5	9.2E+00	6.0E+00	1.9E+01	1.3E+01
Mercury	2	9.0E-01	3.0E-01	1.5E+00	2.7E+00
Nitrate	1	5.0E+02			
Phosphate	1	1.5E+03			
pH-Field	5	6.2E+00	5.1E+00	7.5E+00	6.9E+00
Potassium	5	6.8E+02	3.2E+02	8.8E+02	8.4E+02
Sodium	5	1.7E+03	2.7E+02	2.8E+03	2.5E+03
Sulfate	5	1.1E+04	5.0E+03	1.4E+04	1.3E+04
Temperature-Field (celsius)	4	2.5E+01	2.2E+01	3.2E+01	2.8E+01
TOC	7	3.4E+03	1.0E+03	1.3E+04	5.7E+03
TOX	2	1.7E+02	1.6E+02	1.9E+02	2.3E+02
TOX (LDL)	1	4.0E+01			
Uranium	5	4.6E-01	3.1E-01	6.8E-01	5.7E-01
Zinc	5	8.1E+01	4.6E+01	1.4E+02	1.1E+02

2101-M Laboratory Wastewater

ID: MLOO, S=50019, 09/17/85 10:50

Detected Analytes

Note: Units are PPB unless otherwise indicated.

Key #	Analyte	Result
S	Alpha Activity (LDL,pCi/L)	1.30E+00
S	Beta Activity (pCi/L)	4.33E+00
S	Barium	2.10E+01
S	Bis(ethylhexyl) phthalate	7.10E+02
S	Calcium	1.42E+04
S	Chloride	2.34E+03
S	Chloroform	1.10E+01
S	Chromium	1.00E+01
S	Conductivity-Field (uS)	1.27E+02
S	Copper	4.20E+01
S	Iron	9.40E+01
S	Magnesium	3.20E+03
S	Manganese	6.00E+00
S	Nitrate	5.00E+02
S	Phosphate	1.46E+03
S	pH-Field	7.51E+00
S	Potassium	8.82E+02
S	Sodium	2.69E+02
S	Sulfate	1.34E+04
S	Temperature-Field (celsius)	2.24E+01
S	TOC	1.02E+03
S	TOC	1.43E+03
S	Uranium	3.48E-01
S	Zinc	8.10E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLOO, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key #	Analyte	Result
S	Acetonitrile	<1.00E+01
S	Acetonyl bromide	<1.00E+01
S	Acetophenone	<1.00E+01
S	2-Acetylaminofluorene	<1.00E+01
S	Acrolein	<1.00E+01
S	Acrylamide	<3.00E+03
S	Acrylonitrile	<1.00E+01
S	Aldicarb	<1.00E+01
S	Allyl alcohol	<3.00E+03
S	Aluminum	<1.50E+02
S	4-Aminobiphenyl	<1.00E+01
S	Aminoethylene	<1.00E+01
S	5-Aminoethyl-3-isoxazolol	<1.00E+01
S	2-Aminonapthalene	<1.00E+01
S	Amitrole	<1.00E+01
S	Ammonium	<5.00E+01
S	Aniline	<1.00E+01
S	Antimony	<1.00E+02
S	Aramite	<1.00E+01
S	Auramine	<1.00E+01
S	Benz[c]acridine	<1.00E+01
S	Benz[a]anthracene	<1.00E+01
S	Benzene	<1.00E+01
S	Benzidine	<1.00E+01
S	Benzo[b]fluoranthene	<1.00E+01
S	Benzo[j]fluoranthene	<1.00E+01
S	Benzo[rst]pentaphene	<1.00E+01
S	Benzo[a]pyrene	<1.00E+01
S	p-Benzoquinone	<1.00E+01
S	Benzyl chloride	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Beryllium	<5.00E+00
S	Bis(2-chloroethoxy) ether	<1.00E+01
S	Bis(2-chloroethoxy)methane	<1.00E+01
S	Bis(chloroisopropyl) ether	<1.00E+01
S	Bis(chloromethyl) ether	<1.00E+01
S	Bromocyanide	<3.00E+03
S	Bromoform	<1.00E+01
S	4-Bromophenyl phenyl ether	<1.00E+01
S	Butylbenzyl phthalate	<1.00E+01
S	Cadmium	<2.00E+00
S	Carbon disulfide	<1.00E+01
S	Carbon tetrachloride	<1.00E+01
S	Chloral	<3.00E+03
S	Chloroacetaldehyde	<3.00E+03
S	Chloroalkyl ethers	<1.00E+01
S	p-Chloroaniline	<1.00E+01
S	Chlorobenzene (VOA)	<1.00E+01
S	p-Chloro-m-cresol	<1.00E+01
S	Chlorocyanide	<3.00E+03
S	1-Chloro-2,3-epoxypropane	<1.00E+01
S	2-Chloroethyl vinyl ether	<1.00E+01
S	Chloromethyl methyl ether	<1.00E+01
S	Chloronaphazine	<1.00E+01
S	2-Chloronapthalene	<1.00E+01
S	o-Chlorophenol	<1.00E+01
S	3-Chloropropionitrile	<3.00E+03
S	Chrysene	<1.00E+01
S	Cresol	<1.00E+01
S	Crotonaldehyde	<1.00E+01
S	Cyanide	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Cyanogen	<3.00E+03
S	2,4-DCP	<1.00E+01
S	Dibenz[a,h]acridine	<1.00E+01
S	Dibenz[a,j]acridine	<1.00E+01
S	Dibenz[a,h]anthracene	<1.00E+01
S	7H-Dibenzo[c,g]carbazole	<1.00E+01
S	Dibenzo[a,e]pyrene	<1.00E+01
S	Dibenzo[a,h]pyrene	<1.00E+01
S	Dibromo-3-chloropropane	<1.00E+01
S	1,2-Dibromoethane	<1.00E+01
S	Dibromomethane	<1.00E+01
S	Di-n-butylnitrosamine	<1.00E+01
S	Di-n-butyl phthalate	<1.00E+01
S	m-Dichlorobenzene	<1.00E+01
S	o-Dichlorobenzene	<1.00E+01
S	p-Dichlorobenzene (ABN)	<1.00E+01
S	3,3'-Dichlorobenzidine	<1.00E+01
S	1,4-Dichloro-2-butene	<1.00E+01
S	Dichlorodifluoromethane	<1.00E+01
S	1,1-Dichloroethane	<1.00E+01
S	1,2-Dichloroethane	<1.00E+01
S	1,2-Dichloroethylene	<1.00E+01
S	Dichloromethylbenzene	<1.00E+01
S	2,6-Dichlorophenol	<1.00E+01
S	Dichloropropanol	<3.00E+03
S	1,2-Dichloropropane	<1.00E+01
S	1,3-Dichloropropane	<1.00E+01
S	Diethylarsine	<1.00E+01
S	Sym-Diethylhydrazine	<1.00E+01
S	Diethylnitrosamine	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Diethylphthalate	<1.00E+01
S	Dihydrosafrole	<1.00E+01
S	3,3'-Dimethoxybenzidine	<1.00E+01
S	p-Dimethylaminoazobenzene	<1.00E+01
S	Dimethylbenz(a)anthracene	<1.00E+01
S	3,3'-Dimethylbenzidine	<1.00E+01
S	Sym-Dimethylhydrazine	<3.00E+03
S	Unsym-Dimethylhydrazine	<3.00E+03
S	Dimethylnitrosamine	<1.00E+01
S	2,4-Dimethylphenol	<1.00E+01
S	Dimethyl phthalate	<1.00E+01
S	Dinitrobenzene	<1.00E+01
S	Dinitrocresol and salts	<1.00E+01
S	Dinitro-o-cyclohexylphenol	<1.00E+01
S	2,4-Dinitrophenol	<1.00E+01
S	2,4-Dinitrotoluene	<1.00E+01
S	2,6-Dinitrotoluene	<1.00E+01
S	Dinoseb	<1.00E+01
S	Di-n-octyl phthalate	<1.00E+01
S	p-Dioxane	<5.00E+02
S	p-Dioxane	<3.00E+03
S	Diphenylamine	<1.00E+01
S	Sym-Diphenylhydrazine	<1.00E+01
S	Di-n-propylnitrosamine	<1.00E+01
S	Ethyl cyanide (DAI)	<3.00E+03
S	Ethylene oxide	<3.00E+03
S	Ethylmethacrylate	<3.00E+03
S	Ethylmethanesulfonate	<1.00E+01
S	Fluoranthene	<1.00E+01
S	Fluoride (IC)	<5.00E+02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Fluoroacetic acid	<3.00E+03
S	Formaldehyde	<5.00E+02
S	Glycidylaldehyde	<3.00E+03
S	Hexachlorocyclopentadiene	<1.00E+01
S	Hexachloroethane	<1.00E+01
S	Hexachlorophene	<1.00E+01
S	Hexachloropropene	<1.00E+01
S	Hydrazine	<3.00E+03
S	Hydrogen sulfide	<1.00E+01
S	Indeno(1,2,3-cd)pyrene	<1.00E+01
S	Iodomethane	<1.00E+01
S	Isosafrole	<1.00E+01
S	Isobutyl alcohol	<3.00E+03
S	Kerosene	<1.00E+04
S	Lead (ICAP)	<3.00E+01
S	Maleichydrazide	<5.00E+02
S	Malononitrile	<1.00E+01
S	Melphalan	<1.00E+01
S	Mercury	<1.00E-01
S	Methacrylonitrile	<1.00E+01
S	Methapyrilene	<1.00E+01
S	Methomyl	<1.00E+01
S	2-Methylaziridine	<1.00E+01
S	Methyl bromide	<1.00E+01
S	3-Methylcholanthrene	<1.00E+01
S	Methyl chloride	<1.00E+01
S	Methylenebischloroaniline	<1.00E+01
S	Methylene chloride	<1.00E+01
S	Methyl ethyl ketone	<1.00E+01
S	Methylhydrazine	<3.00E+03

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	2-Methyllactonitrile	<1.00E+01
S	Methyl mercaptan	<1.00E+01
S	Methyl methacrylate	<1.00E+01
S	Methyl methanesulfonate	<1.00E+01
S	Methylnitrosourethane	<1.00E+01
S	Methylnitrosovinylamine	<1.00E+01
S	2-Methylpyridine	<1.00E+01
S	Methylthiouracil	<1.00E+01
S	1-Naphthalamine	<1.00E+01
S	Naphthalene	<1.00E+01
S	1,4-Naphthalenedione	<1.00E+01
S	Nickel	<1.00E+01
S	Nicotinic acid	<1.00E+02
S	p-Nitroaniline	<1.00E+01
S	Nitrobenzene	<1.00E+01
S	p-Nitrophenol	<1.00E+01
S	N-Nitrosodiethanolamine	<1.00E+01
S	N-Nitrosomethylethylamine	<1.00E+01
S	N-Nitrosomorpholine	<1.00E+01
S	N-Nitrosonornicotine	<1.00E+01
S	Nitrosopiperidine	<1.00E+01
S	Nitrosopyrrolidine	<1.00E+01
S	5-Nitro-o-toluidine	<1.00E+01
S	Osmium	<3.00E+02
S	Paraldehyde	<3.00E+03
S	Pentachlorobenzene	<1.00E+01
S	Pentachloroethane	<1.00E+01
S	Pentachloronitrobenzene	<1.00E+01
S	Pentachlorophenol	<1.00E+01
S	Perchlorobenzene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Perchlorobutadiene	<1.00E+01
S	Phenacetin	<1.00E+01
S	Phenol	<1.00E+01
S	2-Phenyl-tert-butylamine	<1.00E+01
S	p-Phenylenediamine	<1.00E+01
S	Phthalic acid esters	<1.00E+01
S	Pronamide	<1.00E+01
S	1-Propanamine	<3.00E+03
S	Propargyl alcohol	<3.00E+03
S	Pyridine	<5.00E+02
S	Reserpine	<1.00E+01
S	Resorcinol	<1.00E+01
S	Safrol	<1.00E+01
S	Silver	<1.00E+01
S	Strontium	<3.00E+02
S	Strychnine	<5.00E+01
S	Sulfide	<1.00E+03
S	1,2,3,4-Tetrachlorobenzene	<1.00E+01
S	1,2,3,5-Tetrachlorobenzene	<1.00E+01
S	1,2,4,5-Tetrachlorobenzene	<1.00E+01
S	1,1,1,2-Tetrachloroethane	<1.00E+01
S	1,1,2,2-Tetrachloroethane	<1.00E+01
S	Tetrachloroethylene	<1.00E+01
S	Tetrachloroethylene	<1.00E+01
S	2,3,4,6-Tetrachlorophenol	<1.00E+01
S	Thiofanox	<1.00E+01
S	Thiophenol	<1.00E+01
S	Thiuram	<1.00E+01
S	Toluene	<1.00E+01
S	Toluenediamine	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50019, 09/17/85 10:50

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	o-Toluidine hydrochloride	<1.00E+01
S	TOX	<7.54E+01
S	1,2,3-Trichlorobenzene	<1.00E+01
S	1,2,4-Trichlorobenzene	<1.00E+01
S	1,3,5-Trichlorobenzene	<1.00E+01
S	1,1,1-Trichloroethane	<1.00E+01
S	1,1,2-Trichloroethane	<1.00E+01
S	Trichloroethene	<1.00E+01
S	Trichloromethanethiol	<1.00E+01
S	Trichloromonofluoromethane	<1.00E+01
S	2,4,5-Trichlorophenol	<1.00E+01
S	2,4,6-Trichlorophenol	<1.00E+01
S	Trichloropropane	<1.00E+01
S	1,2,3-Trichloropropane	<1.00E+01
S	Triethylphosphorothioate	<1.00E+01
S	Sym-Trinitrobenzene	<1.00E+01
S	TRIS	<1.00E+01
S	Urethane	<3.00E+03
S	Vanadium	<5.00E+00
S	Vinyl chloride	<1.00E+01
S	Vinylidene dichloride	<1.00E+01
S	Warfarin	<1.00E+01
S	m-Xylene	<1.00E+01
S	o-, p-Xylene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Detected Analytes

Note: Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Alpha Activity (LDL,pCi/L)	5.89E-01
S	Beta Activity (pCi/L)	1.12E+01
S	Aluminum	3.32E+02
S	Barium	3.00E+01
S	Calcium	1.71E+04
S	Chloride	2.68E+03
S	Chloroform	2.50E+01
S	Conductivity-Field (uS)	1.38E+01
S	Copper	1.76E+02
S	Iron	5.01E+02
S	Magnesium	4.11E+03
S	Manganese	8.00E+00
S	Mercury	1.50E+00
B	Methylene chloride	2.10E+02
S	pH-Field	7.10E+00
S	Potassium	7.66E+02
S	Sodium	2.29E+03
S	Sulfate	1.28E+04
S	Temperature-Field (celsius)	2.19E+01
S	TOC	2.21E+03
S	TOC	2.47E+03
S	TOX	1.56E+02
S	Uranium	6.81E-01
S	Zinc	6.90E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Acetonitrile	<3.00E+03
S	Acetonyl bromide	<1.00E+01
B	Acetonyl bromide	<1.00E+01
S	Acetophenone	<1.00E+01
S	2-Acetylaminofluorene	<1.00E+01
S	Acrolein	<1.00E+01
B	Acrolein	<1.00E+01
S	Acrylamide	<3.00E+03
S	Acrylonitrile	<1.00E+01
B	Acrylonitrile	<1.00E+01
S	Aldicarb	<1.00E+01
S	Allyl alcohol	<3.00E+03
S	4-Aminobiphenyl	<1.00E+01
S	Aminoethylene	<1.00E+01
S	5-Aminoethyl-3-isoxazolol	<1.00E+01
S	2-Aminonapthalene	<1.00E+01
S	Amitrole	<1.00E+01
S	Ammonium	<5.00E+01
S	Aniline	<1.00E+01
S	Antimony	<1.00E+02
S	Aramite	<1.00E+01
S	Auramine	<1.00E+01
S	Benz[c]acridine	<1.00E+01
S	Benz[a]anthracene	<1.00E+01
S	Benzene	<1.00E+01
B	Benzene	<1.00E+01
S	Benzidine	<1.00E+01
S	Benzo[b]fluoranthene	<1.00E+01
S	Benzo[j]fluoranthene	<1.00E+01
S	Benzo[rst]pentaphene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Benzo[a]pyrene	<1.00E+01
S	p-Benzoquinone	<1.00E+01
S	Benzyl chloride	<1.00E+01
S	Beryllium	<5.00E+00
S	Bis(2-chloroethoxy) ether	<1.00E+01
S	Bis(2-chloroethoxy)methane	<1.00E+01
S	Bis(chloroisopropyl) ether	<1.00E+01
S	Bis(chloromethyl) ether	<1.00E+01
B	Bis(chloromethyl) ether	<1.00E+01
S	Bis(ethylhexyl) phthalate	<1.00E+01
S	Bromocyanide	<3.00E+03
S	Bromoform	<1.00E+01
B	Bromoform	<1.00E+01
S	4-Bromophenyl phenyl ether	<1.00E+01
S	Butylbenzyl phthalate	<1.00E+01
S	Cadmium	<2.00E+00
S	Carbon disulfide	<1.00E+01
B	Carbon disulfide	<1.00E+01
S	Carbon tetrachloride	<1.00E+01
B	Carbon tetrachloride	<1.00E+01
S	Chloral	<3.00E+03
S	Chloroacetaldehyde	<3.00E+03
S	Chloroalkyl ethers	<1.00E+01
S	p-Chloroaniline	<1.00E+01
S	Chlorobenzene (VOA)	<1.00E+01
B	Chlorobenzene (VOA)	<1.00E+01
S	p-Chloro-m-cresol	<1.00E+01
S	Chlorocyanide	<3.00E+03
S	1-Chloro-2,3-epoxypropane	<1.00E+01
S	2-Chloroethyl vinyl ether	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	2-Chloroethyl vinyl ether	<1.00E+01
B	Chloroform	<1.00E+01
S	Chloromethyl methyl ether	<1.00E+01
B	Chloromethyl methyl ether	<1.00E+01
S	Chloronaphazine	<1.00E+01
S	2-Chloronaphthalene	<1.00E+01
S	o-Chlorophenol	<1.00E+01
S	3-Chloropropionitrile	<3.00E+03
S	Chromium	<1.00E+01
S	Chrysene	<1.00E+01
S	Cresol	<1.00E+01
S	Crotonaldehyde	<1.00E+01
B	Crotonaldehyde	<1.00E+01
S	Cyanide	<1.00E+01
S	Cyanogen	<3.00E+03
S	2,4-DCP	<1.00E+01
S	Dibenz[a,h]acridine	<1.00E+01
S	Dibenz[a,j]acridine	<1.00E+01
S	Dibenz[a,h]anthracene	<1.00E+01
S	7H-Dibenzo[c,g]carbazole	<1.00E+01
S	Dibenzo[a,e]pyrene	<1.00E+01
S	Dibenzo[a,h]pyrene	<1.00E+01
S	Dibromo-3-chloropropane	<1.00E+01
B	Dibromo-3-chloropropane	<1.00E+01
S	1,2-Dibromoethane	<1.00E+01
B	1,2-Dibromoethane	<1.00E+01
S	Dibromomethane	<1.00E+01
B	Dibromomethane	<1.00E+01
S	Di-n-butylnitrosamine	<1.00E+01
S	Di-n-butyl phthalate	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	m-Dichlorobenzene	<1.00E+01
S	o-Dichlorobenzene	<1.00E+01
S	p-Dichlorobenzene (ABN)	<1.00E+01
S	3,3'-Dichlorobenzidine	<1.00E+01
S	1,4-Dichloro-2-butene	<1.00E+01
B	1,4-Dichloro-2-butene	<1.00E+01
S	Dichlorodifluoromethane	<1.00E+01
B	Dichlorodifluoromethane	<1.00E+01
S	1,1-Dichloroethane	<1.00E+01
B	1,1-Dichloroethane	<1.00E+01
S	1,2-Dichloroethane	<1.00E+01
B	1,2-Dichloroethane	<1.00E+01
S	1,2-Dichloroethylene	<1.00E+01
B	1,2-Dichloroethylene	<1.00E+01
S	Dichloromethylbenzene	<1.00E+01
S	2,6-Dichlorophenol	<1.00E+01
S	Dichloropropanol	<3.00E+03
S	1,2-Dichloropropane	<1.00E+01
B	1,2-Dichloropropane	<1.00E+01
S	1,3-Dichloropropane	<1.00E+01
B	1,3-Dichloropropane	<1.00E+01
S	Diethylarsine	<1.00E+01
B	Diethylarsine	<1.00E+01
S	Sym-Diethylhydrazine	<1.00E+01
B	Sym-Diethylhydrazine	<1.00E+01
S	Diethylnitrosamine	<1.00E+01
S	Diethylphthalate	<1.00E+01
S	Dihydrosafrole	<1.00E+01
S	3,3'-Dimethoxybenzidine	<1.00E+01
S	p-Dimethylaminoazobenzene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Dimethylbenz[a]anthracene	<1.00E+01
S	3,3'-Dimethylbenzidine	<1.00E+01
S	Sym-Dimethylhydrazine	<3.00E+03
S	Unsym-Dimethylhydrazine	<3.00E+03
S	Dimethylnitrosamine	<1.00E+01
S	2,4-Dimethylphenol	<1.00E+01
S	Dimethyl phthalate	<1.00E+01
S	Dinitrobenzene	<1.00E+01
S	Dinitrocresol and salts	<1.00E+01
S	Dinitro-o-cyclohexylphenol	<1.00E+01
S	2,4-Dinitrophenol	<1.00E+01
S	2,4-Dinitrotoluene	<1.00E+01
S	2,6-Dinitrotoluene	<1.00E+01
S	Dinoseb	<1.00E+01
S	Di-n-octyl phthalate	<1.00E+01
S	p-Dioxane	<5.00E+02
B	p-Dioxane	<5.00E+02
S	Diphenylamine	<1.00E+01
S	Sym-Diphenylhydrazine	<1.00E+01
S	Di-n-propylnitorsamine	<1.00E+01
S	Ethyl cyanide (DAI)	<3.00E+03
S	Ethylene oxide	<3.00E+03
S	Ethylmethacrylate	<1.00E+01
B	Ethylmethacrylate	<1.00E+01
S	Ethylmethanesulfonate	<1.00E+01
S	Fluoranthene	<1.00E+01
S	Fluoride (IC)	<5.00E+02
S	Fluoroacetic acid	<3.00E+03
S	Formaldehyde	<5.00E+02
B	Formaldehyde	<5.00E+02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Glycidylaldehyde	<3.00E+03
S	Hexachlorocyclopentadiene	<1.00E+01
S	Hexachloroethane	<1.00E+01
S	Hexachlorophene	<1.00E+01
S	Hexachloropropene	<1.00E+01
S	Hydrazine	<3.00E+03
S	Hydrogen sulfide	<1.00E+01
B	Hydrogen sulfide	<1.00E+01
S	Indeno(1,2,3-cd)pyrene	<1.00E+01
S	Iodomethane	<1.00E+01
B	Iodomethane	<1.00E+01
S	Isosafrole	<1.00E+01
S	Isobutyl alcohol	<3.00E+03
S	Kerosene	<1.00E+04
S	Maleichydrazide	<5.00E+02
S	Malononitrile	<1.00E+01
S	Melphalan	<1.00E+01
S	Methacrylonitrile	<1.00E+01
B	Methacrylonitrile	<1.00E+01
S	Methapyrilene	<1.00E+01
S	Methomyl	<1.00E+01
S	2-Methylaziridine	<1.00E+01
S	Methyl bromide	<1.00E+01
B	Methyl bromide	<1.00E+01
S	3-Methylcholanthrene	<1.00E+01
S	Methyl chloride	<1.00E+01
B	Methyl chloride	<1.00E+01
S	Methylenebischloroaniline	<1.00E+01
S	Methylene chloride	<1.00E+01
S	Methyl ethyl ketone	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	Methyl ethyl ketone	<1.00E+01
S	Methylhydrazine	<3.00E+03
S	2-Methyllactonitrile	<1.00E+01
S	Methyl mercaptan	<1.00E+01
B	Methyl mercaptan	<1.00E+01
S	Methyl methacrylate	<1.00E+01
B	Methyl methacrylate	<1.00E+01
S	Methyl methanesulfonate	<1.00E+01
S	Methylnitrosourethane	<1.00E+01
S	Methylnitrosovinylamine	<1.00E+01
S	2-Methylpyridine	<1.00E+01
S	Methylthiouracil	<1.00E+01
S	1-Naphthalamine	<1.00E+01
S	Naphthalene	<1.00E+01
S	1,4-Naphthalenedione	<1.00E+01
S	Nickel	<1.00E+01
S	Nicotinic acid	<1.00E+02
S	Nitrate	<5.00E+02
S	p-Nitroaniline	<1.00E+01
S	Nitrobenzene	<1.00E+01
S	p-Nitrophenol	<1.00E+01
S	N-Nitrosodiethanolamine	<1.00E+01
S	N-Nitrosomethylethylamine	<1.00E+01
S	N-Nitrosomorpholine	<1.00E+01
S	N-Nitrosonornicotine	<1.00E+01
S	Nitrosopiperidine	<1.00E+01
S	Nitrosopyrrolidine	<1.00E+01
S	5-Nitro-o-toluidine	<1.00E+01
S	Osmium	<3.00E+02
S	Paraldehyde	<3.00E+03

: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Pentachlorobenzene	<1.00E+01
S	Pentachloroethane	<1.00E+01
B	Pentachloroethane	<1.00E+01
S	Pentachloronitrobenzene	<1.00E+01
S	Pentachlorophenol	<1.00E+01
S	Perchlorobenzene	<1.00E+01
S	Perchlorobutadiene	<1.00E+01
S	Phenacetin	<1.00E+01
S	Phenol	<1.00E+01
S	2-Phenyl-tert-butylamine	<1.00E+01
S	p-Phenylenediamine	<1.00E+01
S	Phosphate	<1.00E+03
S	Phthalic acid esters	<1.00E+01
S	Pronamide	<1.00E+01
S	1-Propanamine	<3.00E+03
S	Propargyl alcohol	<3.00E+03
S	Pyridine	<5.00E+02
B	Pyridine	<5.00E+02
S	Reserpine	<1.00E+01
S	Resorcinol	<1.00E+01
S	Safrol	<1.00E+01
S	Silver	<1.00E+01
S	Strontium	<3.00E+02
S	Strychnine	<5.00E+01
S	Sulfide	<1.00E+03
S	1,2,3,4-Tetrachlorobenzene	<1.00E+01
S	1,2,3,5-Tetrachlorobenzene	<1.00E+01
S	1,2,4,5-Tetrachlorobenzene	<1.00E+01
S	1,1,1,2-Tetrachloroethane	<1.00E+01
B	1,1,1,2-Tetrachloroethane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	1,1,2,2-Tetrachloroethane	<1.00E+01
B	1,1,2,2-Tetrachloroethane	<1.00E+01
S	Tetrachloroethylene	<1.00E+01
B	Tetrachloroethylene	<1.00E+01
S	2,3,4,6-Tetrachlorophenol	<1.00E+01
S	Thiofanox	<1.00E+01
S	Thiophenol	<1.00E+01
S	Thiuram	<1.00E+01
S	Toluene	<1.00E+01
B	Toluene	<1.00E+01
S	Toluenediamine	<1.00E+01
S	o-Toluidine hydrochloride	<1.00E+01
S	1,2,3-Trichlorobenzene	<1.00E+01
S	1,2,4-Trichlorobenzene	<1.00E+01
S	1,3,5-Trichlorobenzene	<1.00E+01
S	1,1,1-Trichloroethane	<1.00E+01
B	1,1,1-Trichloroethane	<1.00E+01
S	1,1,2-Trichloroethane	<1.00E+01
B	1,1,2-Trichloroethane	<1.00E+01
S	Trichloroethene	<1.00E+01
B	Trichloroethene	<1.00E+01
S	Trichloromethanethiol	<1.00E+01
B	Trichloromethanethiol	<1.00E+01
S	Trichloromonofluoromethane	<1.00E+01
B	Trichloromonofluoromethane	<1.00E+01
S	2,4,5-Trichlorophenol	<1.00E+01
S	2,4,6-Trichlorophenol	<1.00E+01
S	Trichloropropane	<1.00E+01
B	Trichloropropane	<1.00E+01
S	1,2,3-Trichloropropane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50051, 05/23/86 13:50
(B=50052)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	1,2,3-Trichloropropane	<1.00E+01
S	Triethylphosphorothioate	<1.00E+01
S	Sym-Trinitrobenzene	<1.00E+01
S	TRIS	<1.00E+01
S	Urethane	<3.00E+03
S	Vanadium	<5.00E+00
S	Vinyl chloride	<1.00E+01
B	Vinyl chloride	<1.00E+01
S	Vinylidene dichloride	<1.00E+01
B	Vinylidene dichloride	<1.00E+01
S	Warfarin	<1.00E+01
S	m-Xylene	<1.00E+01
B	m-Xylene	<1.00E+01
S	o-, p-Xylene	<1.00E+01
B	o-, p-Xylene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Detected Analytes

Note: Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Alpha Activity (LDL,pCi/L)	1.20E-01
S	Beta Activity (pCi/L)	3.02E+00
S	Aluminum	1.95E+02
S	Barium	3.00E+01
S	Calcium	1.77E+04
S	Chloride	3.54E+03
S	Chloroform	3.20E+01
S	Conductivity-Field (uS)	1.30E+02
S	Copper	8.90E+01
S	Iron	2.80E+02
S	Magnesium	4.16E+03
S	Manganese	6.00E+00
S	Mercury	3.00E-01
B	Methylene chloride	1.70E+02
S	pH-Field	6.07E+00
S	Potassium	7.97E+02
S	Sodium	2.38E+03
S	Sulfate	1.42E+04
S	Temperature-Field (celsius)	2.24E+01
S	TOC	1.96E+03
S	TOX	1.91E+02
S	Uranium	5.66E-01
S	Zinc	7.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Acetonitrile	<3.00E+03
S	Acetonyl bromide	<1.00E+01
B	Acetonyl bromide	<1.00E+01
S	Acetophenone	<1.00E+01
S	2-Acetylaminofluorene	<1.00E+01
S	Acrolein	<1.00E+01
B	Acrolein	<1.00E+01
S	Acrylamide	<3.00E+03
S	Acrylonitrile	<1.00E+01
B	Acrylonitrile	<1.00E+01
S	Aldicarb	<1.00E+01
S	Allyl alcohol	<3.00E+03
S	4-Aminobiphenyl	<1.00E+01
S	Aminoethylene	<1.00E+01
S	5-Aminoethyl-3-isoxazolol	<1.00E+01
S	2-Aminonapthalene	<1.00E+01
S	Amitrole	<1.00E+01
S	Ammonium	<5.00E+01
S	Aniline	<1.00E+01
S	Antimony	<1.00E+02
S	Aramite	<1.00E+01
S	Auramine	<1.00E+01
S	Benz[c]acridine	<1.00E+01
S	Benz[a]anthracene	<1.00E+01
S	Benzene	<1.00E+01
B	Benzene	<1.00E+01
S	Benzidine	<1.00E+01
S	Benzo[b]fluoranthene	<1.00E+01
S	Benzo[j]fluoranthene	<1.00E+01
S	Benzo[rst]pentaphene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Benzo[a]pyrene	<1.00E+01
S	p-Benzoquinone	<1.00E+01
S	Benzyl chloride	<1.00E+01
S	Beryllium	<5.00E+00
S	Bis(2-chloroethoxy) ether	<1.00E+01
S	Bis(2-chloroethoxy)methane	<1.00E+01
S	Bis(chloroisopropyl) ether	<1.00E+01
S	Bis(chloromethyl) ether	<1.00E+01
B	Bis(chloromethyl) ether	<1.00E+01
S	Bis(ethylhexyl) phthalate	<1.00E+01
S	Bromocyanide	<3.00E+03
S	Bromoform	<1.00E+01
B	Bromoform	<1.00E+01
S	4-Bromophenyl phenyl ether	<1.00E+01
S	Butylbenzyl phthalate	<1.00E+01
S	Cadmium	<2.00E+00
S	Carbon disulfide	<1.00E+01
B	Carbon disulfide	<1.00E+01
S	Carbon tetrachloride	<1.00E+01
B	Carbon tetrachloride	<1.00E+01
S	Chloral	<3.00E+03
S	Chloroacetaldehyde	<3.00E+03
S	Chloroalkyl ethers	<1.00E+01
S	p-Chloroaniline	<1.00E+01
S	Chlorobenzene (VOA)	<1.00E+01
B	Chlorobenzene (VOA)	<1.00E+01
S	p-Chloro-m-cresol	<1.00E+01
S	Chlorocyanide	<3.00E+03
S	1-Chloro-2,3-epoxypropane	<1.00E+01
S	2-Chloroethyl vinyl ether	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blan

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	2-Chloroethyl vinyl ether	<1.00E+01
B	Chloroform	<1.00E+01
S	Chloromethyl methyl ether	<1.00E+01
B	Chloromethyl methyl ether	<1.00E+01
S	Chloronaphazine	<1.00E+01
S	2-Chloronapthalene	<1.00E+01
S	o-Chlorophenol	<1.00E+01
S	3-Chloropropionitrile	<3.00E+03
S	Chromium	<1.00E+01
S	Chrysene	<1.00E+01
S	Cresol	<1.00E+01
S	Crotonaldehyde	<1.00E+01
B	Crotonaldehyde	<1.00E+01
S	Cyanide	<1.00E+01
S	Cyanogen	<3.00E+03
S	2,4-DCP	<1.00E+01
S	Dibenz[a,h]acridine	<1.00E+01
S	Dibenz[a,j]acridine	<1.00E+01
S	Dibenz[a,h]anthracene	<1.00E+01
S	7H-Dibenzo[c,g]carbazole	<1.00E+01
S	Dibenzo[a,e]pyrene	<1.00E+01
S	Dibenzo[a,h]pyrene	<1.00E+01
S	Dibromo-3-chloropropane	<1.00E+01
B	Dibromo-3-chloropropane	<1.00E+01
S	1,2-Dibromoethane	<1.00E+01
B	1,2-Dibromoethane	<1.00E+01
S	Dibromomethane	<1.00E+01
B	Dibromomethane	<1.00E+01
S	Di-n-butylnitrosamine	<1.00E+01
S	Di-n-butyl phthalate	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLQQ, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	m-Dichlorobenzene	<1.00E+01
S	o-Dichlorobenzene	<1.00E+01
S	p-Dichlorobenzene (ABW)	<1.00E+01
S	3,3'-Dichlorobenzidine	<1.00E+01
S	1,4-Dichloro-2-butene	<1.00E+01
B	1,4-Dichloro-2-butene	<1.00E+01
S	Dichlorodifluoromethane	<1.00E+01
B	Dichlorodifluoromethane	<1.00E+01
S	1,1-Dichloroethane	<1.00E+01
B	1,1-Dichloroethane	<1.00E+01
S	1,2-Dichloroethane	<1.00E+01
B	1,2-Dichloroethane	<1.00E+01
S	1,2-Dichloroethylene	<1.00E+01
B	1,2-Dichloroethylene	<1.00E+01
S	Dichloromethylbenzene	<1.00E+01
S	2,6-Dichlorophenol	<1.00E+01
S	Dichloropropanol	<3.00E+03
S	1,2-Dichloropropane	<1.00E+01
B	1,2-Dichloropropane	<1.00E+01
S	1,3-Dichloropropane	<1.00E+01
B	1,3-Dichloropropane	<1.00E+01
S	Diethylarsine	<1.00E+01
B	Diethylarsine	<1.00E+01
S	Sym-Diethylhydrazine	<1.00E+01
B	Sym-Diethylhydrazine	<1.00E+01
S	Diethylnitrosamine	<1.00E+01
S	Diethylphthalate	<1.00E+01
S	Dihydrosafrole	<1.00E+01
S	3,3'-Dimethoxybenzidine	<1.00E+01
S	p-Dimethylaminoazobenzene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLQQ, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Dimethylbenz[a]anthracene	<1.00E+01
S	3,3'-Dimethylbenzidine	<1.00E+01
S	Sym-Dimethylhydrazine	<3.00E+03
S	Unsym-Dimethylhydrazine	<3.00E+03
S	Dimethylnitrosamine	<1.00E+01
S	2,4-Dimethylphenol	<1.00E+01
S	Dimethyl phthalate	<1.00E+01
S	Dinitrobenzene	<1.00E+01
S	Dinitrocresol and salts	<1.00E+01
S	Dinitro-o-cyclohexylphenol	<1.00E+01
S	2,4-Dinitrophenol	<1.00E+01
S	2,4-Dinitrotoluene	<1.00E+01
S	2,6-Dinitrotoluene	<1.00E+01
S	Dinoseb	<1.00E+01
S	Di-n-octyl phthalate	<1.00E+01
S	p-Dioxane	<5.00E+02
B	p-Dioxane	<5.00E+02
S	Diphenylamine	<1.00E+01
S	Sym-Diphenylhydrazine	<1.00E+01
S	Di-n-propylnitorsamine	<1.00E+01
S	Ethyl cyanide (DAI)	<3.00E+03
S	Ethylene oxide	<3.00E+03
S	Ethylmethacrylate	<1.00E+01
B	Ethylmethacrylate	<1.00E+01
S	Ethylmethanesulfonate	<1.00E+01
S	Fluoranthene	<1.00E+01
S	Fluoride (IC)	<5.00E+02
S	Fluoroacetic acid	<3.00E+03
S	Formaldehyde	<5.00E+02
B	Formaldehyde	<5.00E+02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLOO, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Glycidylaldehyde	<3.00E+03
S	Hexachlorocyclopentadiene	<1.00E+01
S	Hexachloroethane	<1.00E+01
S	Hexachlorophene	<1.00E+01
S	Hexachloropropene	<1.00E+01
S	Hydrazine	<3.00E+03
S	Hydrogen sulfide	<1.00E+01
B	Hydrogen sulfide	<1.00E+01
S	Indeno(1,2,3-cd)pyrene	<1.00E+01
S	Iodomethane	<1.00E+01
B	Iodomethane	<1.00E+01
S	Isoafrole	<1.00E+01
S	Isobutyl alcohol	<3.00E+03
S	Kerosene	<1.00E+04
S	Maleichydrazide	<5.00E+02
S	Malononitrile	<1.00E+01
S	Melphalan	<1.00E+01
S	Methacrylonitrile	<1.00E+01
B	Methacrylonitrile	<1.00E+01
S	Methapyrilene	<1.00E+01
S	Methomyl	<1.00E+01
S	2-Methylaziridine	<1.00E+01
S	Methyl bromide	<1.00E+01
B	Methyl bromide	<1.00E+01
S	3-Methylcholanthrene	<1.00E+01
S	Methyl chloride	<1.00E+01
B	Methyl chloride	<1.00E+01
S	Methylenebischloroaniline	<1.00E+01
S	Methylene chloride	<1.00E+01
S	Methyl ethyl ketone	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLOO, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	Methyl ethyl ketone	<1.00E+01
S	Methylhydrazine	<3.00E+03
S	2-Methyllactonitrile	<1.00E+01
S	Methyl mercaptan	<1.00E+01
B	Methyl mercaptan	<1.00E+01
S	Methyl methacrylate	<1.00E+01
B	Methyl methacrylate	<1.00E+01
S	Methyl methanesulfonate	<1.00E+01
S	Methylnitrosourethane	<1.00E+01
S	Methylnitrosovinylamine	<1.00E+01
S	2-Methylpyridine	<1.00E+01
S	Methylthiouracil	<1.00E+01
S	1-Naphthalamine	<1.00E+01
S	Naphthalene	<1.00E+01
S	1,4-Naphthalenedione	<1.00E+01
S	Nickel	<1.00E+01
S	Nicotinic acid	<1.00E+02
S	Nitrate	<5.00E+02
S	p-Nitroaniline	<1.00E+01
S	Nitrobenzene	<1.00E+01
S	p-Nitrophenol	<1.00E+01
S	N-Nitrosodiethanolamine	<1.00E+01
S	N-Nitrosomethylethylamine	<1.00E+01
S	N-Nitrosomorpholine	<1.00E+01
S	N-Nitrosonornicotine	<1.00E+01
S	Nitrosopiperidine	<1.00E+01
S	Nitrosopyrrolidine	<1.00E+01
S	5-Nitro-o-toluidine	<1.00E+01
S	Osmium	<3.00E+02
S	Paraldehyde	<3.00E+03

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Pentachlorobenzene	<1.00E+01
S	Pentachloroethane	<1.00E+01
B	Pentachloroethane	<1.00E+01
S	Pentachloronitrobenzene	<1.00E+01
S	Pentachlorophenol	<1.00E+01
S	Perchlorobenzene	<1.00E+01
S	Perchlorobutadiene	<1.00E+01
S	Phenacetin	<1.00E+01
S	Phenol	<1.00E+01
S	2-Phenyl-tert-butylamine	<1.00E+01
S	o-Phenylenediamine	<1.00E+01
S	Phosphate	<1.00E+03
S	Phthalic acid esters	<1.00E+01
S	Pronamide	<1.00E+01
S	1-Propanamine	<3.00E+03
S	Propargyl alcohol	<3.00E+03
S	Pyridine	<5.00E+02
B	Pyridine	<5.00E+02
S	Reserpine	<1.00E+01
S	Resorcinol	<1.00E+01
S	Safrol	<1.00E+01
S	Silver	<1.00E+01
S	Strontium	<3.00E+02
S	Strychnine	<5.00E+01
S	Sulfide	<1.00E+03
S	1,2,3,4-Tetrachlorobenzene	<1.00E+01
S	1,2,3,5-Tetrachlorobenzene	<1.00E+01
S	1,2,4,5-Tetrachlorobenzene	<1.00E+01
S	1,1,1,2-Tetrachloroethane	<1.00E+01
B	1,1,1,2-Tetrachloroethane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	1,1,2,2-Tetrachloroethane	<1.00E+01
B	1,1,2,2-Tetrachloroethane	<1.00E+01
S	Tetrachloroethylene	<1.00E+01
B	Tetrachloroethylene	<1.00E+01
S	2,3,4,6-Tetrachlorophenol	<1.00E+01
S	Thiofanox	<1.00E+01
S	Thiophenol	<1.00E+01
S	Thiuram	<1.00E+01
S	Toluene	<1.00E+01
B	Toluene	<1.00E+01
S	Toluenediamine	<1.00E+01
S	o-Toluidine hydrochloride	<1.00E+01
S	1,2,3-Trichlorobenzene	<1.00E+01
S	1,2,4-Trichlorobenzene	<1.00E+01
S	1,3,5-Trichlorobenzene	<1.00E+01
S	1,1,1-Trichloroethane	<1.00E+01
B	1,1,1-Trichloroethane	<1.00E+01
S	1,1,2-Trichloroethane	<1.00E+01
B	1,1,2-Trichloroethane	<1.00E+01
S	Trichloroethene	<1.00E+01
B	Trichloroethene	<1.00E+01
S	Trichloromethanethiol	<1.00E+01
B	Trichloromethanethiol	<1.00E+01
S	Trichloromonofluoromethane	<1.00E+01
B	Trichloromonofluoromethane	<1.00E+01
S	2,4,5-Trichlorophenol	<1.00E+01
S	2,4,6-Trichlorophenol	<1.00E+01
S	Trichloropropane	<1.00E+01
B	Trichloropropane	<1.00E+01
S	1,2,3-Trichloropropane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50089, 07/17/86 13:20
(B=50090)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	1,2,3-Trichloropropane	<1.00E+01
S	Triethylphosphorothioate	<1.00E+01
S	Sym-Trinitrobenzene	<1.00E+01
S	TRIS	<1.00E+01
S	Urethane	<3.00E+03
S	Vanadium	<5.00E+00
S	Vinyl chloride	<1.00E+01
B	Vinyl chloride	<1.00E+01
S	Vinylidene dichloride	<1.00E+01
B	Vinylidene dichloride	<1.00E+01
S	Warfarin	<1.00E+01
S	m-Xylene	<1.00E+01
B	m-Xylene	<1.00E+01
S	o-, p-Xylene	<1.00E+01
B	o-, p-Xylene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Detected Analytes

Note: Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Alpha Activity (LDL,pCi/L)	5.88E-01
S	Beta Activity (pCi/L)	4.24E+00
S	Acetone (VOA)	4.00E+01
S	Aluminum	2.32E+02
S	Ammonium	1.22E+02
S	Barium	1.70E+01
S	Calcium	1.05E+04
S	Chloride	2.89E+03
S	Conductivity-Field (uS)	9.20E+01
S	Copper	5.33E+02
S	Iron	1.26E+03
S	Lead (GFAA)	3.60E+01 (1 Dilution)
S	Magnesium	2.13E+03
S	Manganese	1.90E+01
B	Methylene chloride	1.20E+02
S	pH-Field	5.10E+00
S	Potassium	6.63E+02
S	Sodium	2.82E+03
S	Sulfate	8.60E+03
S	TOC	2.18E+03
S	Uranium	3.90E-01
S	Zinc	1.41E+02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Acetonitrile	<3.00E+03
S	Acetonyl bromide	<1.00E+01
B	Acetonyl bromide	<1.00E+01
S	Acetophenone	<1.00E+01
S	2-Acetylaminofluorene	<1.00E+01
S	Acrolein	<1.00E+01
B	Acrolein	<1.00E+01
S	Acrylamide	<3.00E+03
S	Acrylonitrile	<1.00E+01
B	Acrylonitrile	<1.00E+01
S	Aldicarb	<1.00E+01
S	Allyl alcohol	<3.00E+03
S	4-Aminobiphenyl	<1.00E+01
S	Aminoethylene	<1.00E+01
S	5-Aminoethyl-3-isoxazolol	<1.00E+01
S	2-Aminonapthalene	<1.00E+01
S	Amitrole	<1.00E+01
S	Aniline	<1.00E+01
S	Antimony	<1.00E+02
S	Aramite	<1.00E+01
S	Auramine	<1.00E+01
S	Benz[c]acridine	<1.00E+01
S	Benz[a]anthracene	<1.00E+01
S	Benzene	<1.00E+01
B	Benzene	<1.00E+01
S	Benzidine	<1.00E+01
S	Benzo[b]fluoranthene	<1.00E+01
S	Benzo[j]fluoranthene	<1.00E+01
S	Benzo[rst]pentaphene	<1.00E+01
S	Benzo[a]pyrene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	p-Benzoquinone	<1.00E+01
S	Benzyl chloride	<1.00E+01
S	Beryllium	<5.00E+00
S	Bis(2-chloroethoxy) ether	<1.00E+01
S	Bis(2-chloroethoxy)methane	<1.00E+01
S	Bis(chloroisopropyl) ether	<1.00E+01
S	Bis(chloromethyl) ether	<1.00E+01
B	Bis(chloromethyl) ether	<1.00E+01
S	Bis(ethylhexyl) phthalate	<1.00E+01
S	Bromocyanide	<3.00E+03
S	Bromoform	<1.00E+01
B	Bromoform	<1.00E+01
S	4-Bromophenyl phenyl ether	<1.00E+01
S	Butylbenzyl phthalate	<1.00E+01
S	Cadmium	<2.00E+00
S	Carbon disulfide	<1.00E+01
B	Carbon disulfide	<1.00E+01
S	Carbon tetrachloride	<1.00E+01
B	Carbon tetrachloride	<1.00E+01
S	Chloral	<3.00E+03
S	Chloroacetaldehyde	<3.00E+03
S	Chloroalkyl ethers	<1.00E+01
S	p-Chloroaniline	<1.00E+01
S	Chlorobenzene (VOA)	<1.00E+01
B	Chlorobenzene (VOA)	<1.00E+01
S	p-Chloro-m-cresol	<1.00E+01
S	Chlorocyanide	<3.00E+03
S	1-Chloro-2,3-epoxypropane	<1.00E+01
S	2-Chloroethyl vinyl ether	<1.00E+01
B	2-Chloroethyl vinyl ether	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Chloroform	<1.00E+01
B	Chloroform	<1.00E+01
S	Chloromethyl methyl ether	<1.00E+01
B	Chloromethyl methyl ether	<1.00E+01
S	Chloronaphazine	<1.00E+01
S	2-Chloronapthalene	<1.00E+01
S	o-Chlorophenol	<1.00E+01
S	3-Chloropropionitrile	<3.00E+03
S	Chromium	<1.00E+01
S	Chrysene	<1.00E+01
S	Cresol	<1.00E+01
S	Crotonaldehyde	<1.00E+01
B	Crotonaldehyde	<1.00E+01
S	Cyanide	<1.00E+01
S	Cyanogen	<3.00E+03
S	2,4-DCP	<1.00E+01
S	Dibenz[a,h]acridine	<1.00E+01
S	Dibenz[a,j]acridine	<1.00E+01
S	Dibenz[a,h]anthracene	<1.00E+01
S	7H-Dibenzo[c,g]carbazole	<1.00E+01
S	Dibenzo[a,e]pyrene	<1.00E+01
S	Dibenzo[a,h]pyrene	<1.00E+01
S	Dibromo-3-chloropropane	<1.00E+01
B	Dibromo-3-chloropropane	<1.00E+01
S	1,2-Dibromoethane	<1.00E+01
B	1,2-Dibromoethane	<1.00E+01
S	Dibromomethane	<1.00E+01
B	Dibromomethane	<1.00E+01
S	Di-n-butylnitrosamine	<1.00E+01
S	Di-n-butyl phthalate	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	m-Dichlorobenzene	<1.00E+01
S	o-Dichlorobenzene	<1.00E+01
S	p-Dichlorobenzene (ABN)	<1.00E+01
S	3,3'-Dichlorobenzidine	<1.00E+01
S	1,4-Dichloro-2-butene	<1.00E+01
B	1,4-Dichloro-2-butene	<1.00E+01
S	Dichlorodifluoromethane	<1.00E+01
B	Dichlorodifluoromethane	<1.00E+01
S	1,1-Dichloroethane	<1.00E+01
B	1,1-Dichloroethane	<1.00E+01
S	1,2-Dichloroethane	<1.00E+01
B	1,2-Dichloroethane	<1.00E+01
S	1,2-Dichloroethylene	<1.00E+01
B	1,2-Dichloroethylene	<1.00E+01
S	Dichloromethylbenzene	<1.00E+01
S	2,6-Dichlorophenol	<1.00E+01
S	Dichloropropanol	<3.00E+03
S	1,2-Dichloropropane	<1.00E+01
B	1,2-Dichloropropane	<1.00E+01
S	1,3-Dichloropropane	<1.00E+01
B	1,3-Dichloropropane	<1.00E+01
S	Diethylarsine	<1.00E+01
B	Diethylarsine	<1.00E+01
S	Sym-Diethylhydrazine	<1.00E+01
B	Sym-Diethylhydrazine	<1.00E+01
S	Diethylnitrosamine	<1.00E+01
S	Diethylphthalate	<1.00E+01
S	Dihydrosafrole	<1.00E+01
S	3,3'-Dimethoxybenzidine	<1.00E+01
S	p-Dimethylaminoazobenzene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Dimethylbenz[a]anthracene	<1.00E+01
S	3,3'-Dimethylbenzidine	<1.00E+01
S	Sym-Dimethylhydrazine	<3.00E+03
S	Unsym-Dimethylhydrazine	<3.00E+03
S	Dimethylnitrosamine	<1.00E+01
S	2,4-Dimethylphenol	<1.00E+01
S	Dimethyl phthalate	<1.00E+01
S	Dinitrobenzene	<1.00E+01
S	Dinitrocresol and salts	<1.00E+01
S	Dinitro-o-cyclohexylphenol	<1.00E+01
S	2,4-Dinitrophenol	<1.00E+01
S	2,4-Dinitrotoluene	<1.00E+01
S	2,6-Dinitrotoluene	<1.00E+01
S	Dinoseb	<1.00E+01
S	Di-n-octyl phthalate	<1.00E+01
S	p-Dioxane	<5.00E+02
B	p-Dioxane	<5.00E+02
S	Diphenylamine	<1.00E+01
S	Sym-Diphenylhydrazine	<1.00E+01
S	Di-n-propylnitorsamine	<1.00E+01
S	Ethyl cyanide (DAI)	<3.00E+03
S	Ethylene oxide	<3.00E+03
S	Ethylmethacrylate	<1.00E+01
B	Ethylmethacrylate	<1.00E+01
S	Ethylmethanesulfonate	<1.00E+01
S	Fluoranthene	<1.00E+01
S	Fluoride (IC)	<5.00E+02
S	Fluoroacetic acid	<3.00E+03
S	Formaldehyde	<5.00E+02
B	Formaldehyde	<5.00E+02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Glycidylaldehyde	<3.00E+03
S	Hexachlorocyclopentadiene	<1.00E+01
S	Hexachloroethane	<1.00E+01
S	Hexachlorophene	<1.00E+01
S	Hexachloropropene	<1.00E+01
S	Hydrazine	<3.00E+03
S	Hydrogen sulfide	<1.00E+01
B	Hydrogen sulfide	<1.00E+01
S	Indeno(1,2,3-cd)pyrene	<1.00E+01
S	Iodomethane	<1.00E+01
B	Iodomethane	<1.00E+01
S	Isosafrole	<1.00E+01
S	Isobutyl alcohol	<3.00E+03
S	Kerosene	<1.00E+04
S	Maleichydrazide	<5.00E+02
S	Malononitrile	<1.00E+01
S	Melphalan	<1.00E+01
S	Mercury	<1.00E-01
S	Methacrylonitrile	<1.00E+01
B	Methacrylonitrile	<1.00E+01
S	Methapyrilene	<1.00E+01
S	Methomyl	<1.00E+01
S	2-Methylaziridine	<1.00E+01
S	Methyl bromide	<1.00E+01
B	Methyl bromide	<1.00E+01
S	3-Methylcholanthrene	<1.00E+01
S	Methyl chloride	<1.00E+01
B	Methyl chloride	<1.00E+01
S	Methylenebischloroaniline	<1.00E+01
S	Methylene chloride	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Methyl ethyl ketone	<1.00E+01
B	Methyl ethyl ketone	<1.00E+01
S	Methylhydrazine	<3.00E+03
S	2-Methyllactonitrile	<1.00E+01
S	Methyl mercaptan	<1.00E+01
B	Methyl mercaptan	<1.00E+01
S	Methyl methacrylate	<1.00E+01
B	Methyl methacrylate	<1.00E+01
S	Methyl methanesulfonate	<1.00E+01
S	Methylnitrosourethane	<1.00E+01
S	Methylnitrosovinylamine	<1.00E+01
S	2-Methylpyridine	<1.00E+01
S	Methylthiouracil	<1.00E+01
S	1-Naphthalamine	<1.00E+01
S	Naphthalene	<1.00E+01
S	1,4-Naphthalenedione	<1.00E+01
S	Nickel	<1.00E+01
S	Nicotinic acid	<1.00E+02
S	Nitrate	<5.00E+02
S	p-Nitroaniline	<1.00E+01
S	Nitrobenzene	<1.00E+01
S	p-Nitrophenol	<1.00E+01
S	N-Nitrosodiethanolamine	<1.00E+01
S	N-Nitrosomethylethylamine	<1.00E+01
S	N-Nitrosomorpholine	<1.00E+01
S	N-Nitrosonornicotine	<1.00E+01
S	Nitrosopiperidine	<1.00E+01
S	Nitrosopyrrolidine	<1.00E+01
S	5-Nitro-o-toluidine	<1.00E+01
S	Osmium	<3.00E+02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Paraldehyde	<3.00E+03
S	Pentachlorobenzene	<1.00E+01
S	Pentachloroethane	<1.00E+01
B	Pentachloroethane	<1.00E+01
S	Pentachloronitrobenzene	<1.00E+01
S	Pentachlorophenol	<1.00E+01
S	Perchlorobenzene	<1.00E+01
S	Perchlorobutadiene	<1.00E+01
S	Phenacetin	<1.00E+01
S	Phenol	<1.00E+01
S	2-Phenyl-tert-butylamine	<1.00E+01
S	p-Phenylenediamine	<1.00E+01
S	Phosphate	<1.00E+03
S	Phthalic acid esters	<1.00E+01
S	Pronamide	<1.00E+01
S	1-Propanamine	<3.00E+03
S	Propargyl alcohol	<3.00E+03
S	Pyridine	<5.00E+02
B	Pyridine	<5.00E+02
S	Reserpine	<1.00E+01
S	Resorcinol	<1.00E+01
S	Safrol	<1.00E+01
S	Silver	<1.00E+01
S	Strontium	<3.00E+02
S	Strychnine	<5.00E+01
S	Sulfide	<1.00E+03
S	1,2,3,4-Tetrachlorobenzene	<1.00E+01
S	1,2,3,5-Tetrachlorobenzene	<1.00E+01
S	1,2,4,5-Tetrachlorobenzene	<1.00E+01
S	1,1,1,2-Tetrachloroethane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	1,1,1,2-Tetrachloroethane	<1.00E+01
S	1,1,2,2-Tetrachloroethane	<1.00E+01
B	1,1,2,2-Tetrachloroethane	<1.00E+01
S	Tetrachloroethylene	<1.00E+01
B	Tetrachloroethylene	<1.00E+01
S	2,3,4,6-Tetrachlorophenol	<1.00E+01
S	Thiofanox	<1.00E+01
S	Thiophenol	<1.00E+01
S	Thiuram	<1.00E+01
S	Toluene	<1.00E+01
B	Toluene	<1.00E+01
S	Toluenediamine	<1.00E+01
S	o-Toluidine hydrochloride	<1.00E+01
S	TOX	<1.00E+02
S	1,2,3-Trichlorobenzene	<1.00E+01
S	1,2,4-Trichlorobenzene	<1.00E+01
S	1,3,5-Trichlorobenzene	<1.00E+01
S	1,1,1-Trichloroethane	<1.00E+01
B	1,1,1-Trichloroethane	<1.00E+01
S	1,1,2-Trichloroethane	<1.00E+01
B	1,1,2-Trichloroethane	<1.00E+01
S	Trichloroethene	<1.00E+01
B	Trichloroethene	<1.00E+01
S	Trichloromethanethiol	<1.00E+01
B	Trichloromethanethiol	<1.00E+01
S	Trichloromonofluoromethane	<1.00E+01
B	Trichloromonofluoromethane	<1.00E+01
S	2,4,5-Trichlorophenol	<1.00E+01
S	2,4,6-Trichlorophenol	<1.00E+01
S	Trichloropropane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50167, 10/30/86 13:22
(B=50168)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
B	Trichloropropane	<1.00E+01
S	1,2,3-Trichloropropane	<1.00E+01
B	1,2,3-Trichloropropane	<1.00E+01
S	Triethylphosphorothioate	<1.00E+01
S	Sym-Trinitrobenzene	<1.00E+01
S	TRIS	<1.00E+01
S	Urethane	<3.00E+03
S	Vanadium	<5.00E+00
S	Vinyl chloride	<1.00E+01
B	Vinyl chloride	<1.00E+01
S	Vinylidene dichloride	<1.00E+01
B	Vinylidene dichloride	<1.00E+01
S	Warfarin	<1.00E+01
S	m-Xylene	<1.00E+01
B	m-Xylene	<1.00E+01
S	o-, p-Xylene	<1.00E+01
B	o-, p-Xylene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
(B=50233)

Detected Analytes

Note: Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Beta Activity (pCi/L)	2.57E+00
S	Ammonium	1.76E+02
S	Barium	1.00E+01
S	Calcium	5.80E+03
S	Chloride	7.00E+02
S	Conductivity-Field (uS)	6.30E+01
S	Copper	4.56E+02
S	Iron	2.41E+02
S	Magnesium	1.30E+03
S	Manganese	7.00E+00
B	Methylene chloride	5.50E+01
S	pH-Field	5.24E+00
S	Potassium	3.16E+02
S	Sodium	7.39E+02
S	Sulfate	4.97E+03
S	Temperature-Field (celsius)	3.17E+01
S	TOC	1.28E+04
S	TOX (LOL)	4.02E+01
S	Uranium	3.12E-01
S	Zinc	4.60E+01

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Acetonitrile	<3.00E+03
S	Acetonyl bromide	<1.00E+01
B	Acetonyl bromide	<1.00E+01
S	Acetophenone	<1.00E+01
S	2-Acetylaminofluorene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Acrolein	<1.00E+01
B	Acrolein	<1.00E+01
S	Acrylamide	<3.00E+03
S	Acrylonitrile	<1.00E+01
B	Acrylonitrile	<1.00E+01
S	Aldicarb	<1.00E+01
S	Allyl alcohol	<3.00E+03
S	Aluminum	<1.50E+02
S	4-Aminobiphenyl	<1.00E+01
S	Aminoethylene	<1.00E+01
S	5-Aminoethyl-3-isoxazolol	<1.00E+01
S	2-Aminonapthalene	<1.00E+01
S	Amitrole	<1.00E+01
S	Aniline	<1.00E+01
S	Antimony	<1.00E+02
S	Aramite	<1.00E+01
S	Auramine	<1.00E+01
S	Benz[c]acridine	<1.00E+01
S	Benz[a]anthracene	<1.00E+01
S	Benzene	<1.00E+01
B	Benzene	<1.00E+01
S	Benzidine	<1.00E+01
S	Benzo[b]fluoranthene	<1.00E+01
S	Benzo[j]fluoranthene	<1.00E+01
S	Benzo[rst]pentaphene	<1.00E+01
S	Benzo[a]pyrene	<1.00E+01
S	p-Benzoquinone	<1.00E+01
S	Benzyl chloride	<1.00E+01
S	Beryllium	<5.00E+00
S	Bis(2-chloroethoxy) ether	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Bis(2-chloroethoxy)methane	<1.00E+01
S	Bis(chloroisopropyl) ether	<1.00E+01
S	Bis(chloromethyl) ether	<1.00E+01
B	Bis(chloromethyl) ether	<1.00E+01
S	Bis(ethylhexyl) phthalate	<1.00E+01
S	Bromocyanide	<3.00E+03
S	Bromoform	<1.00E+01
B	Bromoform	<1.00E+01
S	4-Bromophenyl phenyl ether	<1.00E+01
S	Butylbenzyl phthalate	<1.00E+01
S	Cadmium	<2.00E+00
S	Carbon disulfide	<1.00E+01
B	Carbon disulfide	<1.00E+01
S	Carbon tetrachloride	<1.00E+01
B	Carbon tetrachloride	<1.00E+01
S	Chloral	<3.00E+03
S	Chloroacetaldehyde	<3.00E+03
S	Chloroalkyl ethers	<1.00E+01
S	p-Chloroaniline	<1.00E+01
S	Chlorobenzene (VOA)	<1.00E+01
B	Chlorobenzene (VOA)	<1.00E+01
S	p-Chloro-m-cresol	<1.00E+01
S	Chlorocyanide	<3.00E+03
S	1-Chloro-2,3-epoxypropane	<1.00E+01
S	2-Chloroethyl vinyl ether	<1.00E+01
B	2-Chloroethyl vinyl ether	<1.00E+01
S	Chloroform	<1.00E+01
B	Chloroform	<1.00E+01
S	Chloromethyl methyl ether	<1.00E+01
B	Chloromethyl methyl ether	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

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Undetected Analytes

Note: MDAs are defined by contract with US Testing.
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Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Chloronaphazine	<1.00E+01
S	2-Chloronepthalene	<1.00E+01
S	o-Chlorophenol	<1.00E+01
S	3-Chloropropionitrile	<3.00E+03
S	Chromium	<1.00E+01
S	Chrysene	<1.00E+01
S	Cresol	<1.00E+01
S	Crotonaldehyde	<1.00E+01
B	Crotonaldehyde	<1.00E+01
S	Cyanide	<1.00E+01
S	Cyanogen	<3.00E+03
S	2,4-DCP	<1.00E+01
S	Dibenz[a,h]acridine	<1.00E+01
S	Dibenz[a,j]acridine	<1.00E+01
S	Dibenz[a,h]anthracene	<1.00E+01
S	7H-Dibenzo[c,g]carbazole	<1.00E+01
S	Dibenzo[a,e]pyrene	<1.00E+01
S	Dibenzo[a,h]pyrene	<1.00E+01
S	Dibromo-3-chloropropane	<1.00E+01
B	Dibromo-3-chloropropane	<1.00E+01
S	1,2-Dibromoethane	<1.00E+01
B	1,2-Dibromoethane	<1.00E+01
S	Dibromomethane	<1.00E+01
B	Dibromomethane	<1.00E+01
S	Di-n-butylnitrosamine	<1.00E+01
S	Di-n-butyl phthalate	<1.00E+01
S	m-Dichlorobenzene	<1.00E+01
S	o-Dichlorobenzene	<1.00E+01
S	p-Dichlorobenzene (ABN)	<1.00E+01
S	3,3'-Dichlorobenzidine	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

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(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
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Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	1,4-Dichloro-2-butene	<1.00E+01
B	1,4-Dichloro-2-butene	<1.00E+01
S	Dichlorodifluoromethane	<1.00E+01
B	Dichlorodifluoromethane	<1.00E+01
S	1,1-Dichloroethane	<1.00E+01
B	1,1-Dichloroethane	<1.00E+01
S	1,2-Dichloroethane	<1.00E+01
B	1,2-Dichloroethane	<1.00E+01
S	1,2-Dichloroethylene	<1.00E+01
B	1,2-Dichloroethylene	<1.00E+01
S	Dichloromethylbenzene	<1.00E+01
S	2,6-Dichlorophenol	<1.00E+01
S	Dichloropropanol	<3.00E+03
S	1,2-Dichloropropane	<1.00E+01
B	1,2-Dichloropropane	<1.00E+01
S	1,3-Dichloropropane	<1.00E+01
B	1,3-Dichloropropane	<1.00E+01
S	Diethylarsine	<1.00E+01
B	Diethylarsine	<1.00E+01
S	Sym-Diethylhydrazine	<1.00E+01
B	Sym-Diethylhydrazine	<1.00E+01
S	Diethylnitrosamine	<1.00E+01
S	Diethylphthalate	<1.00E+01
S	Dihydrosafrole	<1.00E+01
S	3,3'-Dimethoxybenzidine	<1.00E+01
S	p-Dimethylaminoazobenzene	<1.00E+01
S	Dimethylbenzfalanthracene	<1.00E+01
S	3,3'-Dimethylbenzidine	<1.00E+01
S	Sym-Dimethylhydrazine	<3.00E+03
S	Unsym-Dimethylhydrazine	<3.00E+03

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLOO, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Dimethylnitrosamine	<1.00E+01
S	2,4-Dimethylphenol	<1.00E+01
S	Dimethyl phthalate	<1.00E+01
S	Dinitrobenzene	<1.00E+01
S	Dinitrocresol and salts	<1.00E+01
S	Dinitro-o-cyclohexylphenol	<1.00E+01
S	2,4-Dinitrophenol	<1.00E+01
S	2,4-Dinitrotoluene	<1.00E+01
S	2,6-Dinitrotoluene	<1.00E+01
S	Dinoseb	<1.00E+01
S	Di-n-octyl phthalate	<1.00E+01
S	p-Dioxane	<5.00E+02
B	p-Dioxane	<5.00E+02
S	Diphenylamine	<1.00E+01
S	Sym-Diphenylhydrazine	<1.00E+01
S	Di-n-propylnitorsamine	<1.00E+01
S	Ethyl cyanide (DAI)	<3.00E+03
S	Ethylene oxide	<3.00E+03
S	Ethylmethacrylate	<1.00E+01
B	Ethylmethacrylate	<1.00E+01
S	Ethylmethanesulfonate	<1.00E+01
S	Fluoranthene	<1.00E+01
S	Fluoride (IC)	<5.00E+02
S	Fluoroacetic acid	<3.00E+03
S	Formaldehyde	<5.00E+02
B	Formaldehyde	<5.00E+02
S	Glycidylaldehyde	<3.00E+03
S	Hexachlorocyclopentadiene	<1.00E+01
S	Hexachloroethane	<1.00E+01
S	Hexachlorophene	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Hexachloropropene	<1.00E+01
S	Hydrazine	<3.00E+03
S	Hydrogen sulfide	<1.00E+01
B	Hydrogen sulfide	<1.00E+01
S	Indeno(1,2,3-cd)pyrene	<1.00E+01
S	Iodomethane	<1.00E+01
B	Iodomethane	<1.00E+01
S	Isosafrole	<1.00E+01
S	Isobutyl alcohol	<3.00E+03
S	Kerosene	<1.00E+04
S	Lead (GFAA)	<5.00E+00
S	Maleichydrazide	<5.00E+02
S	Malononitrile	<1.00E+01
S	Melphalan	<1.00E+01
S	Mercury	<1.00E-01
S	Methacrylonitrile	<1.00E+01
B	Methacrylonitrile	<1.00E+01
S	Methapyrilene	<1.00E+01
S	Methomyl	<1.00E+01
S	2-Methylaziridine	<1.00E+01
S	Methyl bromide	<1.00E+01
B	Methyl bromide	<1.00E+01
S	3-Methylcholanthrene	<1.00E+01
S	Methyl chloride	<1.00E+01
B	Methyl chloride	<1.00E+01
S	Methylenebischloroaniline	<1.00E+01
S	Methylene chloride	<1.00E+01
S	Methyl ethyl ketone	<1.00E+01
B	Methyl ethyl ketone	<1.00E+01
S	Methylhydrazine	<3.00E+03

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	2-Methyllactonitrile	<1.00E+01
S	Methyl mercaptan	<1.00E+01
B	Methyl mercaptan	<1.00E+01
S	Methyl methacrylate	<1.00E+01
B	Methyl methacrylate	<1.00E+01
S	Methyl methanesulfonate	<1.00E+01
S	Methylnitrosourethane	<1.00E+01
S	Methylnitrosovinylamine	<1.00E+01
S	2-Methylpyridine	<1.00E+01
S	Methylthiouracil	<1.00E+01
S	1-Naphthalamine	<1.00E+01
S	Naphthalene	<1.00E+01
S	1,4-Naphthalenedione	<1.00E+01
S	Nickel	<1.00E+01
S	Nicotinic acid	<1.00E+02
S	Nitrate	<5.00E+02
S	p-Nitroaniline	<1.00E+01
S	Nitrobenzene	<1.00E+01
S	p-Nitrophenol	<1.00E+01
S	N-Nitrosodiethanolamine	<1.00E+01
S	N-Nitrosomethylethylamine	<1.00E+01
S	N-Nitrosomorpholine	<1.00E+01
S	N-Nitrosonornicotine	<1.00E+01
S	Nitrosopiperidine	<1.00E+01
S	Nitrosopyrrolidine	<1.00E+01
S	5-Nitro-o-toluidine	<1.00E+01
S	Osmium	<3.00E+02
S	Paraldehyde	<3.00E+03
S	Pentachlorobenzene	<1.00E+01
S	Pentachloroethane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
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Undetected Analytes

Note: MDAs are defined by contract with US Testing.
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Key	Analyte	Result
B	Pentachloroethane	<1.00E+01
S	Pentachloronitrobenzene	<1.00E+01
S	Pentachlorophenol	<1.00E+01
S	Perchlorobenzene	<1.00E+01
S	Perchlorobutadiene	<1.00E+01
S	Phenacetin	<1.00E+01
S	Phenol	<1.00E+01
S	2-Phenyl-tert-butylamine	<1.00E+01
S	p-Phenylenediamine	<1.00E+01
S	Phosphate	<1.00E+03
S	Phthalic acid esters	<1.00E+01
S	Pronamide	<1.00E+01
S	1-Propanamine	<3.00E+03
S	Propargyl alcohol	<3.00E+03
S	Pyridine	<5.00E+02
B	Pyridine	<5.00E+02
S	Reserpine	<1.00E+01
S	Resorcinol	<1.00E+01
S	Safrol	<1.00E+01
S	Silver	<1.00E+01
S	Strontium	<3.00E+02
S	Strychnine	<5.00E+01
S	Sulfide	<1.00E+03
S	1,2,3,4-Tetrachlorobenzene	<1.00E+01
S	1,2,3,5-Tetrachlorobenzene	<1.00E+01
S	1,2,4,5-Tetrachlorobenzene	<1.00E+01
S	1,1,1,2-Tetrachloroethane	<1.00E+01
B	1,1,1,2-Tetrachloroethane	<1.00E+01
S	1,1,2,2-Tetrachloroethane	<1.00E+01
B	1,1,2,2-Tetrachloroethane	<1.00E+01

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: ML00, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
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Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Tetrachloroethylene	<1.00E+01
B	Tetrachloroethylene	<1.00E+01
S	2,3,4,6-Tetrachlorophenol	<1.00E+01
S	Thiofanox	<1.00E+01
S	Thiophenol	<1.00E+01
S	Thiuram	<1.00E+01
S	Toluene	<1.00E+01
B	Toluene	<1.00E+01
S	Toluenediamine	<1.00E+01
S	o-Toluidine hydrochloride	<1.00E+01
S	1,2,3-Trichlorobenzene	<1.00E+01
S	1,2,4-Trichlorobenzene	<1.00E+01
S	1,3,5-Trichlorobenzene	<1.00E+01
S	1,1,1-Trichloroethane	<1.00E+01
B	1,1,1-Trichloroethane	<1.00E+01
S	1,1,2-Trichloroethane	<1.00E+01
B	1,1,2-Trichloroethane	<1.00E+01
S	Trichloroethene	<1.00E+01
B	Trichloroethene	<1.00E+01
S	Trichloromethanethiol	<1.00E+01
B	Trichloromethanethiol	<1.00E+01
S	Trichloromonofluoromethane	<1.00E+01
B	Trichloromonofluoromethane	<1.00E+01
S	2,4,5-Trichlorophenol	<1.00E+01
S	2,4,6-Trichlorophenol	<1.00E+01
S	Trichloropropane	<1.00E+01
B	Trichloropropane	<1.00E+01
S	1,2,3-Trichloropropane	<1.00E+01
B	1,2,3-Trichloropropane	<1.00E+01
S	Triethylphosphorothioate	<1.00E+01

ey: S = Sample, E = Extract, B = Blank, T = Trip Blank

2101-M Laboratory Wastewater

ID: MLOO, S=50232, 01/26/87 10:25
(B=50233)

Undetected Analytes

Note: MDAs are defined by contract with US Testing.
They do not reflect procedural limitations.
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Sym-Trinitrobenzene	<1.00E+01
S	TRIS	<1.00E+01
S	Urethane	<3.00E+03
S	Vanadium	<5.00E+00
S	Vinyl chloride	<1.00E+01
B	Vinyl chloride	<1.00E+01
S	Vinylidene dichloride	<1.00E+01
B	Vinylidene dichloride	<1.00E+01
S	Warfarin	<1.00E+01
S	m-Xylene	<1.00E+01
B	m-Xylene	<1.00E+01
S	o-, p-Xylene	<1.00E+01
B	o-, p-Xylene	<1.00E+01

Questionable Results

Note: a = Less than Negative of Result
Units are PPB unless otherwise indicated.

Key	Analyte	Result
S	Alpha Activity (LDL,pCi/L)	a5.67E-02

Key: S = Sample, E = Extract, B = Blank, T = Trip Blank

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