MERRICK

Radioactive and Industrial Waste Water Collection System Study

Phase 1

Deliverables

October 12, 1993

MASTER

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MERRICK

October 11, 1993

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SUBCONTRACT C-XP2-2092M-1, TASK C-XP2-2092M-091, P.I. NO. 14562

TITLE: Feasibility Study: Collection of Radioactive and Industrial Waste
Water Phase I Deliverables

Phase I of the Radioactive Liquid Waste (RLW) Collection System Study has been completed, and the deliverables for this portion of the study are enclosed. The deliverables include:

- the Work Break-down Structure (WBS) for Phase II which includes the effort by RTG, Wastren, Parsons, and Merrick
- the Annotated Outline for the Collection Study Report
- the Process Flow Diagrams (PFD) of the RLW collection system based on current literature and knowledge (including electronic copy)
- the configuration database (lines database and equipment database on the PFD) (including electronic copy)
- the Reference Index, listing all currently held documents of the RLW collection system (including electronic copy)
- the Reference Drawing Index listing all currently held, potentially applicable, drawings reviewed during the PFD development (including electronic copy)
- the Regulation Identification Document for RCRA and CWA (with detail/prescriptive requirements)

- the Regulation Database for RCRA and CWA (without the detail/prescriptive requirements)(including electronic copy)
- the Regulation Review Log, including statements justifying the non-applicability of certain regulations
- Regulation Library, including the photocopied regulations with/highlighted text for RCRA and CWA
- the summary of RTG's waste water treatment plant design experience and associated regulations on which RTG based the design of these treatment facilities
- TA-50 Influent Database
- Radioactive Liquid Waste Stream Characterization Database

If there are any questions or concerns regarding these deliverables please contact myself or Lincoln Busselle at 662-0606.

Sincerely,

Martin E. Muller, PE
Senior Project Manager

MM:LB:pp

Enclosures

cc:

M. Zarraby, MS M703 (w/o enc).

cc/enc.:

MPO/RC, MS G745 (2)
P.I. No. 14562, MS M703 (w/o enc.)
Central Record File
9891ltr.2

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	Week Ending																								
	Oct		November				December					January				February				March				Totals	
	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25	4	11	18	25		
Muller	12	12	8	8	8	8	8	8	8	8	8	8	8	8	8	16	16	16	8	8	8	24	24	248	
Rebernigg	32	32	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	232	
Martz	12	12																						24	
Powers	40	40	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	500	
Zarraby	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	92	
Project Control	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	46	
Clerical	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	276	
Admin Asst	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	69	
QA	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	46	
Busselle	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	28	908	
Gustafson		12	16	16	16	16	8	8																92	
Coons	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	12	892	
Rondeau					12	12	12				20	20	20	20	20	16	16	16	20	20	20	20	16	280	
WASTREN	120	120	120	120	120	120	120	120																960	
RTG	48	48	48	48	96	96	96	72			48	48	48	48	48	48	48	48	48	48	48	48		1,128	
Parsons					24	24	24				24	24	24	24	24	24	24	24	24	24	24	24		360	
Totals	367	379	323	323	407	407	399	339	139	139	231	231	231	231	231	235	235	235	231	231	231	247	131	6,153	

ID	Name	Duration	ber	November	December
1	1 Develop Project Management Plan	10d			
2	2 Document Control System	115d			
3	2.1 Setup System	10d			
4	2.2 Maintain System	115d			
5	3 Project Management/Administration	115d			
6	3.1 Project Management	115d			
7	3.2 Administration	115d			
8	3.3 Document Meetings/Telephone Conversations	115d			
9	4 RLW Collection System Study Document Preparation	115d			
10	4.1 Regulations Review	40d			
11	4.1.1 Complete Requirements Identification Document	40d			
12	4.1.2 Complete Requirements Database	40d			
13	4.1.3 Complete Regulation Review Log	40d			
14	4.1.4 Complete Reference Library	40d			
15	4.2 Present Collection System	115d			
16	4.2.1 Update Reference Index	115d			
17	4.2.2 Update PFDs	115d			
18	4.2.3 Update Collection System Database	115d			
19	4.2.4 Liaison with JCI INFOCAD & MEE-3 G2 Systems	115d			
20	4.3 Waste Generator Data Collection	10.14d			
21	4.3.1 Identify & Document Influent Points	5d			
22	4.3.2 Identify Area Waste Coordinators & Match to Influent Points	10.13d			
23	4.4 Resolve Santa Fe Engineering Discrepancies	15d			
24	4.5 Identify Rooms/Labs Tied To The RLW Influent Points	10d			
25	4.6 Develop Draft Requirements Section of Study	10d			
26	4.7 Evaluate Removal Difficulty of Waste Constituents	15d			

Project: RLW Collection System Stu

Date: 10/13/93

Critical

Noncritical

Milestone

Summary

Rolled Up

Page 1

Critical

Noncritical

Milestone

Progress

Summary

Rolled Up

Project: RLW Collection System Stu
Date: 10/13/93

ID	Name	Duration	ber		November					December		
			10/17	10/24	10/31	11/7	11/14	11/21	11/28	12/5	12/12	12/19
27	4.8 Develop Site Questionnaire	20d										
28	4.9 Deliver Questionnaire To Waste Coordinators and Maintain Contact	10d										
29	4.10 Evaluate Completed Questionnaires	15.09d										
30	4.11 Conduct Field Interviews	15.09d										
31	4.12 Compile & Review Information From Questionnaires and Field Inte	15d										
32	5 Write Study	25d										
33	5.1 Write Generator Accountability Section of Collection Study	20d										
34	5.2 Write Waste Minimization Section of Collection Study	20d										
35	5.3 Write Segregation/Commingling Section of Collection Study	20d										
36	5.4 Finalize Segregation & Pretreatment Design Report	20d										
37	5.5 Write General Section of Collection Study	10d										

Project: RLW Collection System Stu
Date: 10/13/93

Critical

Noncritical

Progress

Milestone

Summary

Rolled Up

Project: RLW Collection System Stu
Date: 10/13/93

Critical
Noncritical

Progress
Milestone

Summary
Rolled Up

RLW Collection System Study Phase II

ID	Name	Duration
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1	Develop Project Management Plan	10d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
24	Martin E. Muller (M)	0.05	4h	0h	10/18/93 8:00am	10/29/93 5:00pm
25	Robert Rebernigg (M)	0.3	24h	0h	10/18/93 8:00am	10/29/93 5:00pm
26	Scott Martz (M)	0.3	24h	0h	10/18/93 8:00am	10/29/93 5:00pm

2	Document Control System	115d
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3	Setup System	10d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
24	Martin E. Muller (M)	0.05	4h	0h	10/18/93 8:00am	10/29/93 5:00pm
25	Robert Rebernigg (M)	0.3	24h	0h	10/18/93 8:00am	10/29/93 5:00pm
27	Patricia Powers (M)	0.5	40h	0h	10/18/93 8:00am	10/29/93 5:00pm

4	Maintain System	115d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
27	Patricia Powers (M)	0.5	460h	0h	10/18/93 8:00am	3/25/94 5:00pm

5	Project Management/Administration	115d
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6	Project Management	115d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
24	Martin E. Muller (M)	0.2	184h	0h	10/18/93 8:00am	3/25/94 5:00pm
25	Robert Rebernigg (M)	0.2	184h	0h	10/18/93 8:00am	3/25/94 5:00pm

7	Administration	115d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
28	Masoud Zarraby (M)	0.1	92h	0h	10/18/93 8:00am	3/25/94 5:00pm
32	Project Control (M)	0.05	46h	0h	10/18/93 8:00am	3/25/94 5:00pm
33	Clerical (M)	0.3	276h	0h	10/18/93 8:00am	3/25/94 5:00pm
34	Administrative Asst. (M)	0.08	69h	0h	10/18/93 8:00am	3/16/94 3:30pm
35	Quality Assurance (M)	0.05	46h	0h	10/18/93 8:00am	3/25/94 5:00pm

RLW Collection System Study Phase II

ID	Name	Duration
8	Document Meetings/Telephone Conversations	115d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.1	92h	0h	10/18/93 8:00am	3/25/94 5:00pm
30	Andrew B. Coons (M)	0.3	276h	0h	10/18/93 8:00am	3/25/94 5:00pm

9	RLW Collection System Study Document Preparation	115d
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10	Regulations Review	40d
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11	Complete Requirements Identification Document	40d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
36	WASTREN	1.2	384h	0h	10/18/93 8:00am	12/10/93 5:00pm
37	RTG	0.45	144h	0h	10/18/93 8:00am	12/10/93 5:00pm

12	Complete Requirements Database	40d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
36	WASTREN	1.2	384h	0h	10/18/93 8:00am	12/10/93 5:00pm
37	RTG	0.45	144h	0h	10/18/93 8:00am	12/10/93 5:00pm

13	Complete Regulation Review Log	40d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
36	WASTREN	0.4	128h	0h	10/18/93 8:00am	12/10/93 5:00pm
37	RTG	0.2	64h	0h	10/18/93 8:00am	12/10/93 5:00pm

14	Complete Reference Library	40d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
36	WASTREN	0.2	64h	0h	10/18/93 8:00am	12/10/93 5:00pm
37	RTG	0.1	32h	0h	10/18/93 8:00am	12/10/93 5:00pm

15	Present Collection System	115d
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RLW Collection System Study Phase II

ID	Name	Duration
16	Update Reference Index	115d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.05	46h	0h	10/18/93 8:00am	3/25/94 5:00pm

17	Update PFDs	115d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.05	46h	0h	10/18/93 8:00am	3/25/94 5:00pm

18	Update Collection System Database	115d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.05	46h	0h	10/18/93 8:00am	3/25/94 5:00pm

19	Liasion with JCI INFOCAD & MEE-3 G2 Systems	115d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.05	46h	0h	10/18/93 8:00am	3/25/94 5:00pm

20	Waste Generator Data Collection	10.14d
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21	Identify & Document Influent Points	5d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.35	14h	0h	10/18/93 8:00am	10/22/93 5:00pm

22	Identify Area Waste Coordinators & Match to Influent Points	10.13d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.37	30h	0h	10/18/93 8:00am	11/1/93 9:05am

23	Resolve Santa Fe Engineering Discrepancies	15d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.2	24h	0h	10/18/93 8:00am	11/5/93 5:00pm
30	Andrew B. Coons (M)	0.47	56h	0h	10/18/93 8:00am	11/5/93 4:09pm
39	Scott A. Gustafson (M)	0.1	12h	0h	10/18/93 8:00am	11/5/93 5:00pm

Notes
Review Santa Fe Engineering studies

RLW Collection System Study Phase II

ID	Name	Duration
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"Resolve Santa Fe Engineering Discrepancies" continued

Notes

Review Process Flow Diagrams
 Draft Discrepancies and Set Up Meeting
 Meet With Mike Saladen (EM-8)
 Finalize Influent Points

24	Identify Rooms/Labs Tied To The RLW Influent Points	10d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.55	44h	0h	11/1/93 8:00am	11/12/93 5:00pm
30	Andrew B. Coons (M)	0.7	56h	0h	11/1/93 8:00am	11/12/93 5:00pm
39	Scott A. Gustafson (M)	0.4	32h	0h	11/1/93 8:00am	11/12/93 5:00pm

Notes

Review of Santa Fe Engineering Reports (With Resolved Issues)
 Finalize List of Rooms/Labs Tied To The RLW Influent Points
 Identify Owners of Rooms/Labs And Develop Room Database
 Obtain Information Pertinent To The RLW Collection System

25	Develop Draft Requirements Section of Study	10d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.2	16h	0h	11/15/93 8:00am	11/26/93 5:00pm
30	Andrew B. Coons (M)	0.7	56h	0h	11/15/93 8:00am	11/26/93 5:00pm
37	RTG	0.6	48h	0h	11/15/93 8:00am	11/26/93 5:00pm

Notes

Review RCRA/CWA Regulations For Applicable & Potentially Applicable Regulations
 Integrate Applicable Regulations into Questionnaire
 Write Draft Requirements

26	Evaluate Removal Difficulty of Waste Constituents	15d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.3	36h	0h	11/15/93 8:00am	12/3/93 5:00pm
31	Michael P. Rondeau (M)	0.3	36h	0h	11/15/93 8:00am	12/3/93 5:00pm
37	RTG	0.6	72h	0h	11/15/93 8:00am	12/3/93 5:00pm
38	PARSONS	0.6	72h	0h	11/15/93 8:00am	12/3/93 5:00pm

Notes

Identify "Bad Actor" Constituents
 Identify Wastewater Unit Operations

RLW Collection System Study Phase II											
ID	Name	Duration									
"Evaluate Removal Difficulty of Waste Constituents" continued											
<u>Notes</u> Develop a Matrix comparing Unit Operations and there "Bad Actor" Removal Effectiveness Develop Draft Segregation & Treatment Predesign Report (Appendix VII)											
27	Develop Site Questionnaire	20d									
ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish					
29	Lincoln D. Busselle (M)	0.38	60h	0h	11/15/93 8:00am	12/10/93 2:54pm					
30	Andrew B. Coons (M)	0.35	56h	0h	11/15/93 8:00am	12/10/93 5:00pm					
37	RTG	0.3	48h	0h	11/15/93 8:00am	12/10/93 5:00pm					
39	Scott A. Gustafson (M)	0.3	48h	0h	11/15/93 8:00am	12/10/93 5:00pm					
<u>Notes</u> Develop Questionnaire Strategy/Methodology with LANL Develop Draft General Questionnaire Provide Questionnaire to Rick for a Test Run Finalize Questionnaire Develop Site-Specific Questionnaire											
28	Deliver Questionnaire To Waste Coordinators and Maintain Contact	10d									
ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish					
29	Lincoln D. Busselle (M)	0.7	56h	0h	12/13/93 8:00am	12/24/93 5:00pm					
30	Andrew B. Coons (M)	0.7	56h	0h	12/13/93 8:00am	12/24/93 5:00pm					
29	Evaluate Completed Questionnaires	15.09d									
ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish					
29	Lincoln D. Busselle (M)	0.58	70h	0h	12/27/93 8:00am	1/17/94 8:41am					
30	Andrew B. Coons (M)	0.58	70h	0h	12/27/93 8:00am	1/17/94 8:41am					
31	Michael P. Rondeau (M)	0.42	50h	0h	12/27/93 8:00am	1/14/94 4:03pm					
37	RTG	1	120h	0h	12/27/93 8:00am	1/14/94 5:00pm					
38	PARSONS	0.5	60h	0h	12/27/93 8:00am	1/14/94 5:00pm					
<u>Notes</u> Develop Database to Incorporate Results of Questionnaire Identify Missing/Insufficient/Conflicting Information											

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RLW Collection System Study Phase II

ID	Name	Duration
30	Conduct Field Interviews	15.09d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.58	70h	0h	1/10/94 8:41am	1/31/94 9:22am
30	Andrew B. Coons (M)	0.58	70h	0h	1/10/94 8:41am	1/31/94 9:22am
31	Michael P. Rondeau (M)	0.42	50h	0h	1/10/94 8:41am	1/28/94 4:44pm
37	RTG	1	120h	0h	1/10/94 8:41am	1/31/94 8:41am
38	PARSONS	0.5	60h	0h	1/10/94 8:41am	1/31/94 8:41am

Notes

Develop Meeting Agendas

Setup Meetings

- Assist in completing questionnaire is requested.
- Monitor questionnaire completion progress to assure that all questionnaires are completed in the time allotted.

31	Compile & Review Information From Questionnaires and Field Interviews	15d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
24	Martin E. Muller (M)	0.2	24h	0h	1/31/94 9:22am	2/21/94 9:22am
29	Lincoln D. Busselle (M)	0.75	84h	0h	1/31/94 9:22am	2/18/94 9:22am
30	Andrew B. Coons (M)	0.7	84h	0h	1/31/94 9:22am	2/21/94 9:22am
31	Michael P. Rondeau (M)	0.5	48h	0h	1/31/94 9:22am	2/16/94 9:22am
37	RTG	1.2	144h	0h	1/31/94 9:22am	2/21/94 9:22am
38	PARSONS	0.6	72h	0h	1/31/94 9:22am	2/21/94 9:22am

Notes

Evaluate Data from Field Interviews

Finalize Questionnaire Database

Identify Studies to be done during CDR

Develop Alternatives and Options Strategies

- Enter collected data into database.
- Identify gaps in information.
- Identify discrepancies in information.
- Develop agenda for interviewing are waste coordinators.
- Prioritize waste generators, i.e. significant & secondary sources, etc.
- Identify Candidate generators for segregation.
- Identify generators that are the sole contributors or major contributors of problem contaminants.

32	Write Study	25d
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33	Write Generator Accountability Section of Collection Study	20d
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ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.5	80h	0h	2/21/94 9:22am	3/21/94 9:22am

RLW Collection System Study Phase II

ID	Name	Duration
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"Write Generator Accountability Section of Collection Study" continued

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
30	Andrew B. Coons (M)	0.7	112h	0h	2/21/94 9:22am	3/21/94 9:22am
31	Michael P. Rondeau (M)	0.5	80h	0h	2/21/94 9:22am	3/21/94 9:22am

34 Write Waste Minimization Section of Collection Study 20d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
29	Lincoln D. Busselle (M)	0.2	32h	0h	2/21/94 9:22am	3/21/94 9:22am
38	PARSONS	0.6	96h	0h	2/21/94 9:22am	3/21/94 9:22am

35 Write Segregation/Commingling Section of Collection Study 20d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
37	RTG	0.6	96h	0h	2/21/94 9:22am	3/21/94 9:22am

Notes

- Fill in data gaps and resolve discrepancies via interviews with selected waste area coordinators.
- Discuss unusual treatment requirements.

36 Finalize Segregation & Pretreatment Design Report 20d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
37	RTG	0.6	96h	0h	2/21/94 9:22am	3/21/94 9:22am

37 Write General Section of Collection Study 10d

ID	Resource Name	Units	Work	Delay	Scheduled Start	Scheduled Finish
24	Martin E. Muller (M)	0.4	32h	0h	3/14/94 9:22am	3/28/94 9:22am
29	Lincoln D. Busselle (M)	0.2	16h	0h	3/14/94 9:22am	3/28/94 9:22am
31	Michael P. Rondeau (M)	0.2	16h	0h	3/14/94 9:22am	3/28/94 9:22am

RLW Collection System Study Phase II

ID	Name	Work	Group	Max. Units	Std. Rate	Accrue At	Code
1	Engineer Specialist 1 (P)	0h	Parsons	1	\$94.34/h	Prorated	Engineer Specialist 1 (P)
2	Process Engineer (P)	0h	Parsons	1	\$73.14/h	Prorated	Process Engineer (P)
3	Contracts (P)	0h	Parsons	1	\$69.34/h	Prorated	Contracts (P)
4	Project Controls (P)	0h	Parsons	1	\$67.95/h	Prorated	Project Controls (P)
5	Accounting (P)	0h	Parsons	1	\$44.92/h	Prorated	Accounting (P)
6	Clerical (P)	0h	Parsons	1	\$29.81/h	Prorated	Clerical (P)
7	John R. Cox (W)	0h	WASTREN	1	\$119.60/h	Prorated	Scien & Engin Mgr II
8	Donald A. Armour (W)	0h	WASTREN	1	\$84.91/h	Prorated	Scien & Engin Mgr III
9	Keith D. Davis (W)	0h	WASTREN	1	\$101.31/h	Prorated	Principle Engineer
10	Donald R. Alexander (W)	0h	WASTREN	1	\$67.47/h	Prorated	Engineer III
11	Barbara L. Butler (W)	0h	WASTREN	1	\$45.99/h	Prorated	Engineer II
12	Debra A. Eaquinto (W)	0h	WASTREN	1	\$45.99/h	Prorated	Engineer I
13	Wendy L. Stoneberg (W)	0h	WASTREN	1	\$28.43/h	Prorated	Admin. Assistant
14	Jodi L. Hansen (W)	0h	WASTREN	1	\$28.43/h	Prorated	Secretary II
15	Jacque E. Lewis (W)	0h	WASTREN	1	\$28.43/h	Prorated	Secretary II
16	Wendy L. Stoneberg (W)	0h	WASTREN	1	\$28.43/h	Prorated	Secretary I
17	Bryan N. Uhl (W)	0h	WASTREN	1	\$72.88/h	Prorated	Proj. Control Clerk
18	Leslie Hill (W)	0h	WASTREN	1	\$28.43/h	Prorated	Clerk
19	Chris A. Beck (R)	0h	RTG	1	\$65.76/h	Prorated	Senior Enigneer
20	Kevin W. Conroy (R)	0h	RTG	1	\$82.20/h	Prorated	Enigneering Manager
21	Bridgette C. Hendricks (R)	0h	RTG	1	\$66.63/h	Prorated	Senior Enigneer
22	Anthony P. Gamgemi (R)	0h	RTG	1	\$45.29/h	Prorated	Staff Enigneer
23	Virginia C. Lonsey (R)	0h	RTG	1	\$26.72/h	Prorated	Clerical
24	Martin E. Muller (M)	264h	Merrick	1	\$84.48/h	Prorated	Senior Project Manager
25	Robert Rebernigg (M)	232h	Merrick	1	\$64.10/h	Prorated	Coordinator
26	Scott Martz (M)	24h	Merrick	1	\$37.39/h	Prorated	
27	Patricia Powers (M)	500h	Merrick	1	\$24.34/h	Prorated	Administrative Support
28	Masoud Zarraby (M)	92h	Merrick	1	\$84.48/h	Prorated	Vice President
29	Lincoln D. Busselle (M)	578h	Merrick	1	\$38.63/h	Prorated	Assoc. Process Engr.
30	Andrew B. Coons (M)	548h	Merrick	1	\$38.63/h	Prorated	Assoc. Engineer
31	Michael P. Rondeau (M)	146.4h	Merrick	1	\$81.25/h	Prorated	Senior Process Engr.
32	Project Control (M)	48h	Merrick	1	\$37.39/h	Prorated	
33	Clerical (M)	276h	Merrick	1	\$24.34/h	Prorated	
34	Administrative Asst. (M)	69h	Merrick	1	\$36.37/h	Prorated	
35	Quality Assurance (M)	46h	Merrick	1	\$80.45/h	Prorated	
36	WASTREN	960h	WASTREN	1	\$88.51/h	Prorated	
37	RTG	688h	RTG	1	\$80.11/h	Prorated	
38	PARSONS	224h	Parsons	1	\$84.44/h	Prorated	
39	Scott A. Gustafson (M)	8h	Merrick	1	\$0.00/h	Prorated	Assoc. Mechanical Engr.

ANNOTATED OUTLINE RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM STUDY

I. GENERAL

A. Executive Summary

This section will give an overview of the report. It will describe the purpose of the study and give a brief explanation of the methodology that was used in identifying the requirements and applying them to the collection system. It will list the regulations (RCRA, CWA, etc.) that were reviewed, address their applicability to the collection system, give a brief description of the collection system and list the technical areas (TA-2, TA-55, etc.) that are served. It will discuss the areas of concern (generator accountability, waste minimization, segregation, etc.) and give a general summarization of the recommendations and options for the future system.

B. Objective/Justification

This section will address the objective of the study. It is intended to compile all of the relevant information as to federal, state and local requirements, configuration of the present system, waste characterization data (studies, projections, etc.) for the waste collection system, and present it in a form that will be useful to the A/E responsible for developing the conceptual design report for the Radioactive Liquid Waste Treatment Facility project.

II. APPLICABLE COLLECTION SYSTEM REGULATIONS/REQUIREMENTS

The bulk of the information on applicable federal, state and local regulations will be presented in Appendix I. This section will be an introduction to Appendix I. It will discuss the Requirements Identification Document (Appendix I-A), the Requirements Database (Appendix I-B), and the Regulation Review Log (Appendix I-C). The discussion will focus on how the appendices are structured, the information contained in each, and the relationship to the other portions of the study. Since there are some regulations that may not apply to the current waste collection system but may apply to a future system, the current and anticipated future applicability of each applicable regulation will be discussed.

III. PRESENT COLLECTION SYSTEM

The bulk of the detailed information on the present collection system will be presented in Appendix II (Reference Index), Appendix III (Drawings) and Appendix IV (Present Radioactive Liquid Waste Collection System Database). This section will contain a description of the configuration of the present collection system and a discussion of the information that is contained in each of the three appendices.

IV. PRESENT & FUTURE COLLECTION SYSTEM COMPARISON

This will be a short introductory paragraph that defines what is meant by the terms present and future collection systems. It will discuss the general areas of Generator Accountability, Waste Minimization, Segregation/Commingling, Monitoring, and Construction Criteria with emphasis on why each must be considered in the development of the concept for the future collection system. The structure of Section IV will be discussed by describing how the requirements for each general area of concern are identified and addressed for each generator source. The discussion will show that for each general area and for each generator source, current practices, deficiencies, recommendations and options are addressed.

A. Generator Accountability

1. Discussion

This section will discuss what is included under "generator accountability" and what the term means in the context of this study. Basically it encompasses verification of compliance with Waste Acceptance Criteria (WAC), waste characterization, generator administrative practices, generator procedures, equipment, and training.

2. Verification of Compliance With Waste Acceptance Criteria

This will be a paragraph that defines what is included in verification of compliance with waste acceptance criteria. It will also discuss the current status of the WAC for the RLW.

a. Requirements

This section will be a summary of the prescriptive requirements from all of the regulations that address verification of compliance with the WAC. These are the requirements that apply to all of the generator sites that use the collection system.

b. System General

1) Current Practices

This section will address the current practices with regards to verification of compliance with the WAC that are followed by all of the generator sites that use the collection system.

2) Deficiencies

This section will address any deficiencies that apply generically to the collection system with regard to verification of

compliance with the WAC. Deficiencies will be identified with specific reference to the appropriate regulations.

3) Recommendations

This section will address any recommendations with regard to verification of compliance with the WAC that apply generically to the collection system.

4) Options

This section will present any options that involve verification of compliance with the WAC that apply generically to the collection system.

c-m. Specific Technical Areas

These sections will discuss current practices, deficiencies, recommendations and options with regard to verification of compliance with the WAC as they apply to each specific generator site that uses the collection system.

3-7. Other Generator Accountability Areas

These sections will address the other areas of generator accountability (waste characterization, administrative practices, procedures, equipment and training) in the same level of detail as has been described for verification of compliance with the WAC. The same systematic approach of: 1) discussing the area; 2) presenting the requirements; 3) addressing the generic collection system; and 4) addressing each specific generator site will be followed. For the generic collection system and each specific generator site the current practices, deficiencies, recommendations and options will be discussed.

B-D. Other Main Areas

These sections will address the other main areas (waste minimization, segregation/commingling, and monitoring) in the same level of detail as has been described for verification of compliance with the WAC. The same systematic approach of: 1) discussing the area; 2) presenting the requirements; 3) addressing the generic collection system; and 4) addressing each specific generator site will be followed. For the generic collection system and each specific generator site the current practices, deficiencies, recommendations and options will be discussed.

E. Construction Criteria**1. Discussion**

This section will address what is included in the term "construction criteria" and will describe the material that is presented under this heading.

2. Regulatory Requirements

This section will present the prescriptive requirements that must be met in the construction of the collection system. These will essentially be the functional and operational requirements (F&ORs).

3. Construction Criteria

This section will present the design criteria for the collection system. Essentially, these criteria will be the specifications for the system that show how the F&ORs will be met.

Appendix I-A - Requirements Identification Document

The Requirements Identification Document (RID) will be a listing of prescriptive requirements from all the federal, state and local regulations that apply to the collection system. It will be structured to identify each regulation that applies to: 1) characterization, 2) central storage facilities, 3) satellite storage facilities, 4) transportation (both truck and pipeline), 5) construction, 6) training and 7) waste minimization. The RID is to contain prescriptive requirements from the regulations while maintaining the context of the requirements. The applicable regulations portion of the study will apply to the entire scope of the study. The RID will be structured such that the prescriptive requirements from the regulations are presented as listed in the outline. The RID will reference the verbatim text of the regulations that will be located in the Regulation Library.

Appendix I-B - Regulations Database

The Regulations Database will be specific to this project and will include of all applicable regulations. It will have the following fields; class, title, number, date, specific applicable section and status. The Class column will be used as a sorting/referencing mechanism to aid in determining requirements and regulations applicable to the specific regions of the RLW collection system. The Title is the specific name by which the body of regulation is known. The Number is the reference number associated with the document. The Date is the date the document was officially issued, or the date of the latest revision. The Specific Applicable Sections details all sections of the regulatory document that apply to the region of the collection system in question. The Status column will be used as needed for future references to the collection system in terms of regulations. The electronic copy of the database will also include a field for prescriptive requirements from the regulations. The Regulations Database will be structured such that the sort is by area of concern (i.e. minimization, monitoring, etc.) rather than by the outline of the RID.

Appendix I-C - Regulation Review Log

The Regulation Review Log will be a listing of all the regulations that were reviewed by the study team. In the event that a regulation was reviewed and determined not to apply to the collection system, it will still be included in the log with an explanation as to why it does not apply.

Appendix II - Reference Index

The Reference Index will be a listing of the previous studies related to the collection system. Its purpose is to document the considerable information that will be collected by the study team. It will also contain a listing of the drawings that are applicable to the collection system.

Appendix III - Drawings

This section will contain any drawings that result from the study. The only drawings that have been identified to date are the process flow diagrams that are a compilation of information on the current physical configuration of the RLW collection system.

Appendix IV - Present Radioactive Liquid Waste Collection System Database

This section will be a database comprised of information pertinent to the RLW collection system (e.g. source location, associated manholes, location of tanks and pumps, controls and monitoring equipment, material of construction, length and diameter of pipe, volumetric flow, and generic constituents such as organics, heavy metals, radionuclides, and pH).

Appendix V - Completed Questionnaire Database

This appendix will contain the results of the Waste Coordinator questionnaire and interviews.

Appendix VI - Constituent Removal Evaluation

This appendix will contain information describing the unit operation performances and constituent removal evaluation. This information will aid the segregation and treatment evaluation.

Appendix VII - Segregation and Treatment Predesign Report

The report generated by RTG during the evaluation for segregation and treatment options within the collection system.

PROCESS FLOW DIAGRAM

» *Please see D size drawings.* «

Pipeline Database for the Radioactive Liquid Waste Collection System

No.	Identification Number	From	To	Description	Engineering Construction Drawing #	SFE From Designator (If available)	Date Installed	Flow (L/min)	Radio-nuclide (uCi/L)	Metals	Organics	Acid	Caustic	Status
1	8/10-RLW-A1-SS	WM-72	WM-1		Eng-C 44249									
2	8/12-RLW-AM1-PE	WM-71	WM-72		Eng-C 44249		<div>Legend</div> <div>SS (int./ext.) Sch 40s/Sch 10s Stainless Steel</div> <div>PE Polyethylene</div> <div>PVC Polyvinylchloride</div> <div>VCP Vitrified Clay Pipe</div> <div>FRP Fiberglass Reinforced Plastic</div> <div>Italics = Lengths measured from drawings</div>							
3	1/4-RLW-A1-SS	WM-1	WM-72		G2									
4	6/10-RLW-A3C-PE	WM-74	WM-72		Eng-C 44249									
5	4/8-RLW-A3B-PE	WM-76	WM-74		Eng-C 44249									
6	6/10-RLW-A2B-PE	WM-78	WM-72		Eng-C 44249									
7	4/8-RLW-A3A-PE	WM-69	WM-76		Eng-C 44249									
8	4/6-RLW-???-PVC	WM-37	WM-73		Eng-C 44249									
9	7/7-RLW-???-???	WM-2	WM-1		G2									
10	7/7-RLW-???-???	WM-1	WM-2	Thin Film Evap	SAUZO/SFE	50-1-OPN-?								
11	7/7-RLW-???-???	WM-1	WM-2	Decant	SAUZO/SFE	50-1-OPN-?								
12	7/7-RLW-???-???	WM-1	WM-2	Carbon Filter Trtmnt	SAUZO/SFE	50-1-OPN-?								
13	7/7-RLW-???-???	WM-1	WM-2	By-pass	SAUZO/SFE	50-1-OPN-?								
14	7/7-RLW-???-???	WM-1	WM-2	Gravity Filter	SAUZO/SFE	50-1-OPN-?								
15	7/7-RLW-???-???	WM-1	WM-2	D & D	SAUZO/SFE	50-1-OPN-?								
16	7/3-RLW-F1-???	VBD-1	WM-2		JCI									
17	7/3-RLW-F2-???	VBD-2	VBD-1		JCI									
18	7/3-RLW-F3-???	VBD-3	VBD-2		JCI									
19	7/3-RLW-F5-???	DP-257	VBD-3		JCI									
20	7/7-RLW-???-???	WM-90	WM-2		SFE	50-90-OPN-3								
21	7/7-RLW-???-???	WM-90	WM-2		SFE	50-90-OPN-4								
22	7/7-RLW-???-???	WM-7	WM-78		G2									
23	3/6-RLW-A2A-FRP	WM-77	WM-7		G2									
24	3/6-RLW-A2-FRP	WM-3	WM-7		G2									
25	7/7-RLW-D5-???	WM-66	WM-78	Holding Tanks for Trucking Route	G2									
26	7/7-RLW-???-???	WM-66	WM-78		G2									
27	4/6-RLW-A4-PVC	WM-37	WM-74		G2	50-37-OPN-3								
28	4/6-RLW-A5-PVC	WM-37	WM-74		G2	50-37-OPN-4								
29	7/7-RLW-???-???	WM-57	WM-66	ACID	G2									
30	7/7-RLW-???-???	WM-57	WM-66	CAUSTIC	G2									
31	7/7-RLW-???-???	WM-57	WM-66	INDUSTRIAL	G2									
32	7/7-RLW-D1-???	PF-4	Bend 1	SPARE	G2									
33	7/7-RLW-D2-???	Bend 1	Bend 2	SPARE	G2									
34	7/7-RLW-D3-???	Bend 2	Bend 3	SPARE	G2									
35	7/7-RLW-D4-???	Bend 3	WM-57	SPARE	G2									
36	7/7-RLW-D1-???	PF-4	Bend 1	INDUSTRIAL	G2									
37	7/7-RLW-D2-???	Bend 1	Bend 2	INDUSTRIAL	G2									
38	7/7-RLW-D3-???	Bend 2	Bend 3	INDUSTRIAL	G2									
39	7/7-RLW-D4-???	Bend 3	WM-57	INDUSTRIAL	G2									

Pipeline Database for the Radioactive Liquid Waste Collection System															
No.	Identification Number	From	To	Description	Engineering Construction Drawing #	SFE From Designator (if available)	Date Installed	Flow (L/min)	Radio-nuclide (uCi/L)	Metals	Organics	Acid	Caustic	Status	
40	7/7-RLW-D1-???	PF-4	Bend 1	CAUSTIC	G2										
41	7/7-RLW-D2-???	Bend 1	Bend 2	CAUSTIC	G2										
42	7/7-RLW-D3-???	Bend 2	Bend 3	CAUSTIC	G2										
43	7/7-RLW-D4-???	Bend 3	WM-57	CAUSTIC	G2										
44	7/7-RLW-D1-???	PF-4	Bend 1	ACID	G2										
45	7/7-RLW-D2-???	Bend 1	Bend 2	ACID	G2										
46	7/7-RLW-D3-???	Bend 2	Bend 3	ACID	G2										
47	7/7-RLW-D4-???	Bend 3	WM-57	ACID	G2										
48	7/7-RLW-???	Omega 44	Omega 65		SFE	2-44-OPN-3									
49	7/7-RLW-???	Omega 1	MH-??	175 gal UST outside of Omega 44 Pumping Station	SFE	2-1-OPN-1									
50	7/7-RLW-???	Omega 65	VBD-3		JCI										
51	8/12-RLW-AM2-PE	WM-70	WM-71		Eng-C 44249										
52	8/12-RLW-AM3-PE	PF-103	WM-70		Eng-C 44249										
53	8/12-RLW-AM4-PE	PF-102	PF-103		Eng-C 44249										Sheet 6
54	8/12-RLW-AM5-PE	ULR-1171	PF-102		Eng-C 44249										
55	8/12-RLW-AM6-PE	ULR-1170	ULR-1171		Eng-C 44249										
56	8/12-RLW-AM7-PE	RC-20	ULR-1170		Eng-C 44249										
57	8/12-RLW-AM8-PE	RC-19	RC-20		Eng-C 44249										
58	8/12-RLW-AM9-PE	RC-18	RC-19		Eng-C 44249										
59	4/8-RLW-A8-PE	RC-1	RC-18		Eng-C 44249										
60	4/8-RLW-???	RC-1	RC-49												
61	7/7-RLW-???	RC-49	RC-19												
62	4/8-RLW-A7B-PE	RC-23	RC-20		Eng-C 44249										
63	4/8-RLW-A7A-PE	RC-1	RC-23		Eng-C 44249										
64	4/8-RLW-A6A-FRP	RC-1	RC-22		Eng-C 44249										
65	4/8-RLW-A6B-PE	RC-22	RC-21		Eng-C 44249										
66	4/8-RLW-A6C-PE	RC-21	RC-20		Eng-C 44249										Sheet 7
67	7/7-RLW-???	RC-45	ULR-1170												
68	8/12-RLW-AM21-PE	SM-771	SM-772		Eng-C 44249										
69	4/8-RLW-A9-SS	SM-1264	SM-771		Eng-C 44249										Sheet 8
70	8/12-RLW-AM10-PE	ULR-1169	RC-18		Eng-C 44249										
71	8/12-RLW-AM11-PE	ULR-1168	ULR-1169		Eng-C 44249										
72	8/12-RLW-AM12-PE	ULR-1167	ULR-1168		Eng-C 44249										
73	8/12-RLW-AM13-PE	ULR-1166	ULR-1167		Eng-C 44249										
74	8/12-RLW-AM14-PE	ULR-1165	ULR-1166		Eng-C 44249										
75	8/12-RLW-AM15-PE	ULR-1164	ULR-1165		Eng-C 44249										
76	8/12-RLW-AM16-PE	ULR-1163	ULR-1164		Eng-C 44249										
77	8/12-RLW-AM17-PE	ULR-1162	ULR-1163		Eng-C 44249										Sheet 9
78	8/12-RLW-AM18-PE	ULR-1161	ULR-1162		Eng-C 44249										
79	8/12-RLW-AM19-PE	ULR-1160	ULR-1161		Eng-C 44249										
80	6/10-RLW-BM1-PE	OH-12	ULR-1163		Eng-C 44249										

Pipeline Database for the Radioactive Liquid Waste Collection System														
No.	Identification Number	From	To	Description	Engineering Construction Drawing #	SFE From Designator (If available)	Date Installed	Flow (L/min)	Radio-nuclide (uCi/L)	Metals	Organics	Acid	Caustic	Status
81	4/8-RLW-B1-SS	OH-1	OH-12		Eng-C 44249	59-1-OPN-6								Sheet 10
82	7/7-RLW-777-777	OH-19	77-77			59-19-OPN-1								
83	8/12-RLW-AM20-PE	SM-772	ULR-1160		Eng-C 44249									
84	8/12-RLW-AM21-PE	SM-771	SM-772		Eng-C 44249									
85	4/8-RLW-A9-SS	SM-1264	SM-771		Eng-C 44249									
86	8/12-RLW-AM22-PE	SM-769	SM-771		Eng-C 44249									
87	4/8-RLW-A10B-FRP	SM-66	SM-779		Eng-C 44249	3-66-OPN-1								
88	4/8-RLW-A10A-PE	SM-779	SM-769		Eng-C 44249									
89	4/8-RLW-A11B-FRP	SM-35	SM-773		Eng-C 44249									
90	4/8-RLW-A11A-PE	SM-773	SM-769		Eng-C 44249									
91	8/12-RLW-AM23-PE	SM-768	SM-769		Eng-C 44249									Sheet 11
92	8/12-RLW-AM24-PE	SM-767	SM-768		Eng-C 44249									
93	8/12-RLW-AM25-PE	SM-755	SM-767		Eng-C 44249									
94	8/12-RLW-CM1-PE	SM-764	SM-755		Eng-C 44249									
95	4/8-RLW-C1-SS	SM-34	SM-764	Cryog. Bldg. "B"	Eng-C 44249	3-34-OPN-1								Sheet 12
96	6/10-RLW-C3-PE	SM-778	SM-770		Eng-C 44249									
97	8/12-RLW-CM2-PE	SM-766	SM-764		Eng-C 44249									
98	6/10-RLW-C-PE	SM-770	SM-766		Eng-C 44249									
99	6/10-RLW-CM4-PE	SM-765	SM-770		Eng-C 44249									
100	3/6-RLW-CM5-FRP	Wing 4, SM-29	SM-765		Eng-C 44249	3-29-OPN-6								Sheet 13
101	4/8-RLW-AM26-PE	SM-753	SM-755		Eng-C 44249									
102	4/8-RLW-A12A-PE	SM-754	SM-753		Eng-C 44249									
103	4/8-RLW-A12B-FRP	Wing 3, SM-29	SM-754		Eng-C 44249	3-29-OPN-2								
104	4/6-RLW-C2-FRP	Wing 2, SM-29	SM-766		Eng-C 44249	3-29-OPN-7								
105	8/12-RLW-AM27-PE	SM-750	SM-753		Eng-C 44249									
106	4/8-RLW-A13-FRP	Wing 7, SM-29	SM-750		Eng-C 44249									
107	8/12-RLW-AM28-PE	SM-749	SM-750		Eng-C 44249									
108	4/8-RLW-A14-FRP	Wing 9, SM-29	SM-749		Eng-C 44249	3-29-OPN-3A								
109	7/7-RLW-777-777	Wing 9, SM-29	SM-154	Low Level	Eng-C 44249	3-29-OPN-3B								
110	7/7-RLW-777-777	Wing 9, SM-29	SM-154	High Level										
111	8/12-RLW-AM29-PE	SM-748	SM-749		Eng-C 44249									
112	3/6-RLW-A15-FRP	SM-154	SM-748		Eng-C 44249									
113	6/10-RLW-A16A-PE	SM-776	SM-748		Eng-C 44249									
114	3/6-RLW-A17-CS	Wing 5, SM-29	SM-776		Eng-C 44249	3-29-OPN-4								
115	4/8-RLW-A16B-PE	SM-775	SM-776		Eng-C 44249									
116	4/8-RLW-A16C-FRP	Wing 1, SM-29	SM-775		Eng-C 44249	3-29-OPN-5								Sheet 14
117	8/12-RLW-AM30-PE	SM-774	SM-748		Eng-C 44249									Sheet 15
118	6/10-RLW-BM2-PE	OH-11	OH-12		Eng-C 44249									
119	6/10-RLW-BM3-PE	OH-13	OH-11		Eng-C 44249									
120	6/10-RLW-BM4-PE	SM-758	OH-13		Eng-C 44249									
121	6/10-RLW-BM5-PE	SM-757	SM-758		Eng-C 44249									
122	6/10-RLW-BM7-PE	SM-760	SM-757		Eng-C 44249									
123	6/10-RLW-BM8-PE	SM-761	SM-760		Eng-C 44249									

Pipeline Database for the Radioactive Liquid Waste Collection System

No.	Identification Number	From	To	Description	Engineering Construction Drawing #	SFE From Designator (If available)	Date Installed	Flow (L/min)	Radio-nuclide (uCi/L)	Metals	Organics	Acid	Caustic	Status
124	6/10-RLW-BM9-PE	SM-762	SM-761		Eng-C 44249									
125	4/8-RLW-BM10-PE	SM-763	SM-762		Eng-C 44249									Sheet 17
126	7/7-RLW-BM11-??	SM-16	SM-763			3-16-OPN-3								
127	2/4-RLW-A10E-SS	SM-141	SM-781		Eng-C 44249									
128	2/4-RLW-A10D-SS	SM-781	SM-780		Eng-C 44249									
129	4/8-RLW-B2-FRP	SM-65	SM-759	Source Storage		3-65-OPN-1								
130	4/8-RLW-???-FRP	SM-2009	SM-759	Trailer?		3-2009-OPN-1								
131	7/7-RLW-???-??	SM-32	SM-767	Mat. Sci. Lab.										
132	2/4-RLW-A10C-SS	SM-780	SM-779		Eng-C 44249									
133	6/10-RLW-BM6-PE	SM-756	SM-757		Eng-C 44249									
134	4/8-RLW-B2A-PE	SM-759	SM-756		Eng-C 44249									
135	4/8-RLW-???-FRP	ULR-267	SM-759		Eng-C 44249									Sheet 18
136	6/10-RLW-E1-PE	SM-216	SM-778		Eng-C 44249	3-216-OPN-6								
137	7/7-RLW-???-??	SM-39	SM-102		Eng-C 44249	3-39-OPN-4 3-39-OPN-5								
138	6-RLW-AM31-VCP	SM-102	SM-774			3-102-OPN-2								

COLLECTION OF RAD AND INDUSTRIAL WASTE WATER. EQUIPMENT AND INSTRUMENTATION DESIGNATIONS

LOCATION		INFLUENT DESIGNATION	EQUIPMENT / INSTRUMENT	MERRICK NUMBER	DOCUMENTATION NUMBER
TA	BLDG./M.H.				
2	OMEGA 1	78	Tank	T-2,1-1	175 gal UST
2	OMEGA 1	78	Pump	P-2,1-1	
2	OMEGA 1	78	Control Valve	FCV-2,1-1	
2	OMEGA 1	78	Control Valve	FCV-2,1-2	
2	OMEGA 44	77	Tank	T-2,44-1	1200 gal UST
2	OMEGA 44	77	Tank	T-2,44-2	1200 gal UST
2	OMEGA 44	77	Tank	T-2,44-3	1200 gal UST
2	OMEGA 44	77	Pump	P-2,44-1	
2	OMEGA 44	77	Pump	P-2,44-2	
2	OMEGA 44	77	Pump	P-2,44-3	
2	OMEGA 44	77	Control Valve	FCV-2,44-1	
2	OMEGA 44	77	Control Valve	FCV-2,44-2	
2	OMEGA 44	77	Control Valve	FCV-2,44-3	
2	OMEGA 44	77	Control Valve	FCV-2,44-4	
2	OMEGA 44	77	Control Valve	FCV-2,44-5	
2	OMEGA 44	77	Control Valve	FCV-2,44-6	
3	SM-29, WING 1	5	pH Indicator	CI-3,29,1-1	AEpH-TA3,SM29,W1-1
3	SM-29, WING 1	5	Flow Meter	FMTR-3,29,1-1	FE-TA3,SM29,W1-1
3	SM-29, WING 2	16	Tank	T-3,29,2-1	wing7-south
3	SM-29, WING 2	16	Tank	T-3,29,2-2	WING7-NORTH
3	SM-29, WING 2	16	Control Valve	FCV-3,29,2-1	v7l
3	SM-29, WING 2	16	Control Valve	FCV-3,29,2-2	v7t
3	SM-29, WING 2	16	Valve	V-3,29,2-1	
3	SM-29, WING 2	16	Valve	V-3,29,2-2	
3	SM-29, WING 2	16	Valve	V-3,29,2-3	
3	SM-29, WING 2	16	Valve	V-3,29,2-4	
3	SM-29, WING 2	16	Valve	V-3,29,2-5	
3	SM-29, WING 2	16	Flow Meter	FMTR-3,29,2-1	phw7
3	SM-29, WING 2	16	Flow Meter	FMTR-3,29,2-2	floww7
3	SM-29, WING 3	12	Tank	T-3,29,3-1	wing7-south
3	SM-29, WING 3	12	Tank	T-3,29,3-2	WING7-NORTH
3	SM-29, WING 3	12	Control Valve	FCV-3,29,3-1	v7l
3	SM-29, WING 3	12	Control Valve	FCV-3,29,3-2	v7t
3	SM-29, WING 3	12	Valve	V-3,29,3-1	
3	SM-29, WING 3	12	Valve	V-3,29,3-2	
3	SM-29, WING 3	12	Valve	V-3,29,3-3	
3	SM-29, WING 3	12	Valve	V-3,29,3-4	
3	SM-29, WING 3	12	Valve	V-3,29,3-5	
3	SM-29, WING 3	12	Flow Meter	FMTR-3,29,3-1	phw7
3	SM-29, WING 3	12	Flow Meter	FMTR-3,29,3-2	floww7
3	SM-29, WING 4	14	Tank	T-3,29,4-1	WING 5-NORTH
3	SM-29, WING 4	14	Tank	T-3,29,4-2	WING5-WOUTH
3	SM-29, WING 4	14	Control Valve	FCV-3,29,4-1	
3	SM-29, WING 4	14	Valve	V-3,29,4-1	
3	SM-29, WING 4	14	Valve	V-3,29,4-2	
3	SM-29, WING 4	14	Valve	V-3,29,4-3	

COLLECTION OF RAD AND INDUSTRIAL WASTE WATER. EQUIPMENT AND INSTRUMENTATION DESIGNATIONS

LOCATION		INFLUENT DESIGNATION	EQUIPMENT / INSTRUMENT	MERRICK NUMBER	DOCUMENTATION NUMBER
TA	BLDG./M.H.				
3	SM-29, WING 4	14	Valve	V-3,29,4-4	
3	SM-29, WING 4	15	Tank	T-3,29,4-3	SUMP
3	SM-29, WING 4	15	Tank	T-3,29,4-4	tank 2b
3	SM-29, WING 4	15	Tank	T-3,29,4-5	tank 2a
3	SM-29, WING 4	15	Pump	P-3,29,4-1	p5s
3	SM-29, WING 4	15	Pump	P-3,29,4-2	p5a
3	SM-29, WING 4	15	Pump	P-3,29,4-3	p5b
3	SM-29, WING 4	15	pH Indicator	CI-3,29,4-1	
3	SM-29, WING 4	15	Valve	V-3,29,4-5	
3	SM-29, WING 4	15	Valve	V-3,29,4-6	
3	SM-29, WING 4	15	Valve	V-3,29,4-7	
3	SM-29, WING 4	15	Valve	V-3,29,4-8	
3	SM-29, WING 4	15	Flow Meter	FMTR-3,29,4-1	flow5
3	SM-29, WING 5	3	Tank	T-3,29,5-1	WING 5-NORTH
3	SM-29, WING 5	3	Tank	T-3,29,5-2	WING5-WOUTH
3	SM-29, WING 5	3	Control Valve	FCV-3,29,5-1	
3	SM-29, WING 5	3	Valve	V-3,29,5-1	
3	SM-29, WING 5	3	Valve	V-3,29,5-2	
3	SM-29, WING 5	3	Valve	V-3,29,5-3	
3	SM-29, WING 5	3	Valve	V-3,29,5-4	
3	SM-29, WING 5	4	Tank	T-3,29,5-3	SUMP
3	SM-29, WING 5	4	Tank	T-3,29,5-4	tank 2b
3	SM-29, WING 5	4	Tank	T-3,29,5-5	tank 2a
3	SM-29, WING 5	4	Pump	P-3,29,5-1	p5s
3	SM-29, WING 5	4	Pump	P-3,29,5-2	p5a
3	SM-29, WING 5	4	Pump	P-3,29,5-3	p5b
3	SM-29, WING 5	4	pH Indicator	CI-3,29,5-1	
3	SM-29, WING 5	4	Valve	V-3,29,5-5	
3	SM-29, WING 5	4	Valve	V-3,29,5-6	
3	SM-29, WING 5	4	Valve	V-3,29,5-7	
3	SM-29, WING 5	4	Valve	V-3,29,5-8	
3	SM-29, WING 5	4	Flow Meter	FMTR-3,29,5-1	flow5
3	SM-29, WING 7	11	Tank	T-3,29,7-1	wing7-south
3	SM-29, WING 7	11	Tank	T-3,29,7-2	WING7-NORTH
3	SM-29, WING 7	11	Control Valve	FCV-3,29,7-1	v7l
3	SM-29, WING 7	11	Control Valve	FCV-3,29,7-2	v7t
3	SM-29, WING 7	11	Valve	V-3,29,7-1	
3	SM-29, WING 7	11	Valve	V-3,29,7-2	
3	SM-29, WING 7	11	Valve	V-3,29,7-3	
3	SM-29, WING 7	11	Valve	V-3,29,7-4	
3	SM-29, WING 7	11	Valve	V-3,29,7-5	
3	SM-29, WING 7	11	Flow Meter	FMTR-3,29,7-1	phw7
3	SM-29, WING 7	11	Flow Meter	FMTR-3,29,7-2	floww7
3	SM-29, WING 9	6	Plug Valve	V-3,29,9-1B	ZV/CS-TV3,SM29,W9-1B
3	SM-29, WING 9	10	Plug Valve	V-3,29,9-1A	ZV/CS-TV3,SM29,W9-1A
3	SM-29, WING 9	10	Sonic Flume	FMTR-3,29,9-1	FE-TA3,SM29,W9-1

COLLECTION OF RAD AND INDUSTRIAL WASTE WATER. EQUIPMENT AND INSTRUMENTATION DESIGNATIONS

LOCATION		INFLUENT	EQUIPMENT /	MERRICK	DOCUMENTATION
TA	BLDG./M.H.	DESIGNATION	INSTRUMENT	NUMBER	NUMBER
3	SM-34	17	Flow Meter	FMTR-3,34-1	FE-TA3,SM34-1
3	SM-35	19	Flow Meter	FMTR-3,35-1	FE-TA3,SM35-1
3	SM-39, Rm.42	1	Grease Trap	GT-3,39-1	
3	SM-66	21	Tank	T-3,66-1	Acid Tank
3	SM-66	21	pH Indicator	CI-3,66-1	
3	SM-66	21	Pump	P-3,66-1	pump-1
3	SM-66	21	Valve	V-3,66-1	
3	SM-66	21	Flow Meter	FMTR-3,66-1	
3	SM-66	22	Tank	T-3,66-2	Acid Tank
3	SM-66	22	pH Indicator	CI-3,66-2	
3	SM-66	22	Pump	P-3,66-2	pump-2
3	SM-66	22	Valve	V-3,66-2	
3	SM-66	22	Flow Meter	FMTR-3,66-2	
3	SM-102	2		GT-3,102-1	
3	SM-102	2	Sonic Flume	FMTR-3,102-1	FE-TA3,SM102-1
3	SM-141	20	Tank	T-3,141-1	WST 141-1
3	SM-141	20	Pump	P-3,141-1	
3	SM-141	20	Pump	P-3,141-2	
3	SM-141	20	Valve	V-3,141-1	
3	SM-141	20	Valve	V-3,141-2	
3	SM-141	20	Flow Meter	FMTR-3,141-1	FE-TA3,SM141-1
3	SM-154	7	Tank	T-3,154-1	LOW LEVEL EAST
3	SM-154	7	Tank	T-3,154-2	LOW LEVEL WEST
3	SM-154	7	Valve	V-3,154-1	
3	SM-154	7	Valve	V-3,154-2	
3	SM-154	7	Valve	V-3,154-3	
3	SM-154	7	Valve	V-3,154-4	
3	SM-154	7	Pump	P-3,154-1	
3	SM-154	7	Control Valve	FCV-3,154-1	vht
3	SM-154	7	Control Valve	FCV-3,154-2	vhl
3	SM-154	9	Tank	T-3,154-3	HIGH LEVEL EAST
3	SM-154	9	Tank	T-3,154-4	HIGH LEVEL WEST
3	SM-154	9	Valve	V-3,154-5	
3	SM-154	9	Valve	V-3,154-6	
3	SM-154	9	Valve	V-3,154-7	
3	SM-154	9	Valve	V-3,154-8	
3	SM-154	9	Pump	P-3,154-2	
3	SM-154	9	Pump	P-3,154-3	
3	SM-216	13	Flow Meter	FMTR-3,216-1	
3	SM-759	28	Sonic Flume	FMTR-3,759-1	FE-TA3,SM65-1
3	SM-763	27	Sonic Flume	FMTR-3,763-1	FE-TA3,SM16-1
3	SM-774	2	Valve	V-3,774-1	CV-TA3,SM774-1
3	SM-1264	23	Tank	T-3,1264-1	UNLOADING STATION
3	SM-1264	23	pH Indicator	CI-1264-1	
3	SM-1264	23	Pump	P-1264-1	
3	SM-1264	23	Control Valve	FCV-3,1264-1	v116

COLLECTION OF RAD AND INDUSTRIAL WASTE WATER. EQUIPMENT AND INSTRUMENTATION DESIGNATIONS

LOCATION		INFLUENT DESIGNATION	EQUIPMENT / INSTRUMENT	MERRICK NUMBER	DOCUMENTATION NUMBER
TA	BLDG./M.H.				
3	SM-1264	24	Tank	T-3,2-1	Fill Tank
3	SM-1264	24	Control Valve	FCV-3,2-1	
16	SM-205	44	Tank	T-16,205-1	
16	SM-205	44	Pump	P-16,205-1	
21	DP-257	79	Tank	T-21,257-1	EAST TANK
21	DP-257	79	Tank	T-21,257-2	WEST TANK
21	DP-257	79	Pump	P-21,257-1	p-28
21	DP-257	79	Pump	P-21,257-2	p-34
21	DP-257	79	Control Valve	FCV-21,257-1	vte
21	DP-257	79	Control Valve	FCV-21,257-2	vwt
21	DP-257	79	Valve	V-21,257-1	
21	DP-257	79	Valve	V-21,257-2	
21	DP-257	79	Valve	V-21,257-3	
21	DP-257	79	Valve	V-21,257-4	
21	DP-257	79	Valve	V-21,257-5	
21	DP-257	79	Valve	V-21,257-6	
35	SM-2	45	Tank	T-35,2-1	
35	SM-2	45	Pump	P-35,2-1	
43	HRL-1	43	Tank	T-43,1-1	
43	HRL-1	43	Pump	P-43,1-1	
50	WM-2	82	Tank	T-50,2-1	wm2-inf-t2
50	WM-2	82	Tank	T-50,2-2	wm2-eff-t1
50	WM-2	82	Control Valve	FCV-50,2-1	wm2-ccl-v1
50	WM-2	82	Control Valve	FCV-50,2-2	wm2-ccl-v2
50	WM-2	82	Valve	V-50,2-1	
50	WM-2	82	Flow Meter	FMTR-50,2-1	wm2-dis-m2
50	WM-2	82	Flow Meter	FMTR-50,2-2	wm2-dis-m1
50	WM-2	82	pH Indicator	CI-50,2-1	
50	WM-37	37	Tank	T-50,37-1	North Tank
50	WM-37	37	Pump	P-50,37-1	
50	WM-57	62	Flow Meter	FMTR-50,57i-1	wm57-iti-m1
50	WM-57	62	Valve	V-50,57i-1	
50	WM-57	65	Flow Meter	FMTR-50,57a-1	wm57-ati-m1
50	WM-57	65	Flow Meter	FMTR-50,57a-2	wm57-ati-m2
50	WM-57	65	Valve	V-50,57i-1	
50	WM-57	68	Flow Meter	FMTR-50,57c-1	wm57-cti-m1
50	WM-57	68	Flow Meter	FMTR-50,57c-2	wm57-cti-m2
50	WM-57	68	Valve	V-50,57c-1	
50	WM-66	63	Flow Meter	FMTR-50,66i-1	wm66-iti-m1
50	WM-66	63	Flow Meter	FMTR-50,66i-2	wm66-iti-m2
50	WM-66	66	Tank	T-50,66a-1	wm66-ati-t2
50	WM-66	66	Tank	T-50,66-2	Tank 1
50	WM-66	66	Pump	P-50,66a-1	wm66-ati-p2
50	WM-66	66	Control Valve	FCV-50,66a-1	wm66-ati-v1
50	WM-66	66	Control Valve	FCV-50,66a-2	wm66-ati-v2
50	WM-66	69	Tank	T-50,66c-1	wm66-cti-t1

COLLECTION OF RAD AND INDUSTRIAL WASTE WATER. EQUIPMENT AND INSTRUMENTATION DESIGNATIONS

LOCATION		INFLUENT	EQUIPMENT /	MERRICK	DOCUMENTATION
TA	BLDG./M.H.	DESIGNATION	INSTRUMENT	NUMBER	NUMBER
50	WM-66	69	Pump	P-50,66c-1	wm66-ctl-p1
50	WM-66	69	Flow Meter	FMTR-50,66c-1	wm66-ctl-m1
50	WM-66	69	Control Valve	FCV-50,66c-1	wm66-ctl-v3
50	WM-66	69	Control Valve	FCV-50,66c-2	wm66-ctl-v4
50	WM-66	69	Control Valve	FCV-50,66c-3	wm66-ctl-v5
50	WM-66	69	Valve	V-50,66c-1	
50	WM-66	69	Valve	V-50,66c-2	
50	WM-69	42	Tank	T-50,69-1	
50	WM-69	42	Pump	P-50,69-1	
50	WM-90	81	Tank	T-50,90-1	
50	WM-90	81	Pump	P-50,90-1	
50	WM-90	81	Control Valve	FCV-50,90-1	
53	MPF-298	47	Tank	T-53,298-1	Tank 68
53	MPF-298	47	Tank	T-53,298-2	Tank 69
53	MPF-298	47	Pump	P-53,298-1	
53	MPF-298	47	Pump	P-53,298-2	
53	MPF-298	47	Control Valve	FCV-53,298-1	
53	MPF-298	47	Control Valve	FCV-53,298-2	
53	MPF-298	47	Control Valve	FCV-53,298-3	
53	MPF-298	47	Control Valve	FCV-53,298-4	
53	MPF-299	57	Tank	T-53,299-1	Tank 144
53	MPF-299	57	Tank	T-53,299-2	Tank 145
53	MPF-299	57	Pump	P-53,299-1	
53	MPF-299	57	Pump	P-53,299-2	
53	MPF-299	57	Control Valve	FCV-53,299-1	
53	MPF-299	57	Control Valve	FCV-53,299-2	
53	MPF-299	57	Control Valve	FCV-53,299-3	
53	MPF-299	57	Control Valve	FCV-53,299-4	
53	BLDGS. 3 & 7	46	Tank	T-53,3/7-1	
53	BLDGS. 3 & 7	46	Pump	P-53,3/7-1	
59	OH-1	25	pH Indicator	CI-59,1-1	AE/pH-TA59,OH-1
59	OH-1	25	Sonic Flume	FMTR-59,1-1	FE-TA59,OH-1

DOC TITLE	DOC	DATE	AUTHOR S	
RADIOACTIVE LIQUID WASTE TREATMENT FACILITY, PL 10411	ENG-3/PDV-93-088 MS M984	3/2/93	LARRY A. JONES, ENG-3	
COLLECTION OF RADIOACTIVE AND INDUSTRIAL WASTE WATER STUDY - STATEMENT OF WORK	DRAFT	5/4/93	EM-7	
BEST AVAILABLE TECHNOLOGY STUDY FOR THE LOS ALAMOS NATIONAL LABORATORY RADIOACTIVE LIQUID WASTE TREATMENT FACILITY	DRAFT	2/1/93	RALPH M. PARSONS	
BEST DEMONSTRATED AVAILABLE TECHNOLOGY STUDY FOR THE LOS ALAMOS NATIONAL LABORATORY RADIOACTIVE LIQUID WASTE TREATMENT FACILITY	DRAFT	4/16/93	RALPH M. PARSONS	
WASTE ACCEPTANCE CRITERIA FOR LIQUID RADIOACTIVE WASTE RECEIPT FOR PROCESSING	DRAFT LW-EM7-AD-17 R00	10/1/91	LIQUID WASTE SECTION EM-7, WASTE MANGEMENT GROUP, LANL	
CONCEPTUAL DESIGN AUTHORIZATION REQUEST RADIOACTIVE LIQUID WASTE TREATMENT FACILITIES "RLWTF PROJECT" P.I. 10411		6/1/92	UNIVERSITY OF CALIFORNIA, LOS ALAMOS NATIONAL LABORATORY, FACILITIES ENGINEERING DIVISION	
PRECONCEPTUAL FUNCTIONAL DESIGN CRITERIA DOCUMENT FOR RADIOACTIVE LIQUID WASTE TREATMENT FACILITY	DRAFT PARSONS JOB NO. 7810	1/22/93	RALPH M. PARSONS, CO.	
PRELIMINARY REQUIREMENTS IDENTIFICATION DOCUMENT FOR LOS ALAMOS NATIONAL LABORATORY RADIOACTIVE LIQUID WASTE TREATMENT FACILITY	DRAFT	12/1/92	WASTREN, INC.	
WASTEWATER STREAM CHARACTERIZATION FOR TA 3-29, 154, 503, 1196, 1610, 1614, & 1615	DRAFT	10/1/92	SANTA FE ENGINEERING, LTD.	

Wednesday, October 06, 1993

REFDBS

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DOC TITLE	DOC	DATE	AUTHOR S	
WASTEWATER STREAM CHAR. FOR TA 3-16, 65, 130, 208, 316, 477, 550, 1228-29, 1522, 1538, 1612, 1730-31, 1734, 1762, 1898, 1944-46, 1949, 2003-10, 2062, 2130, 2143, & 2164	DRAFT	7/1/92	SANTA FE ENGINEERING, LTD.	38.00
WASTEWATER STREAM CHAR. FOR TA 3-39, 42, 102, 128, 149, 164, 356-57, 409, 422, 497, 531, 542, 551, 1635-36, 1814, 1847, 1994-95, 2012, 2029, 2134-35, 2140 & 2141	DRAFT	4/1/93	SANTA FE ENGINEERING, LTD.	52.00
WASTEWATER STREAM CHARACTERIZATION FOR TA 3-66, 127, AND 451	DRAFT	1/1/93	SANTA FE ENGINEERING, LTD.	53.00
WASTEWATER STREAM CHARACTERIZATION FOR TA 16-205, 248, 450, 459, 1380, & 1381	DRAFT	6/1/91	SANTA FE ENGINEERING, LTD.	6.00
WASTEWATER STR. CHAR. FOR TA 3-216, 1531, 1546, 1579, 1648, 1774-76, 1778, 1782, 1784, 1855, 1937-41, 1943, 1948, 2031, 2036-37, 2056, 2058, 2063-65	DRAFT	11/1/92	SANTA FE ENGINEERING, LTD.	50.00
WASTEWATER STR. CHAR. FOR TA 53-7, 8, 15-16, 28-30, 34-37, 368-72, 374, 382, 384, 534-35, 540-41, 573-74, 622, 625, 634, 679, 686, 726, 734-36, 776-77, 780-82, 823, 826, 880, 1031, 1039, 1043, 1120-21	DRAFT		SANTA FE ENGINEERING, LTD.	33.00
WASTEWATER STREAM CHARACTERIZATION FOR TA-43	DRAFT	11/1/92	SANTA FE ENGINEERING, LTD.	21.00
WASTEWATER STR. CHAR. FOR TA 3-32, 33-4, 480-83, 500, 1543-45, 1552-54, 1565, 1567, 1570-71, 1575, 1586, 1599, 1688, 1706, 1712, 1732, 1739, 1741, 1745-50, 1760-61, 1767, 1771, 1786-87, 1819, 1930-32, 2002, & 2047	DRAFT	10/1/92	SANTA FE ENGINEERING, LTD.	46.00

DOC TITLE	DOC	DATE	AUTHOR S	
WASTEWATER STREAM CHARACTERIZATION FOR TA-59	DRAFT	9/1/92	SANTA FE ENGINEERING, LTD.	42.00
WASTEWATER STREAM CHARACTERIZATION FOR TA-35 EXISTING PERMITTED OUTFALLS AT BUILDINGS 87, 124-28, 213, 294, 301 & 424	DRAFT	3/1/93	SANTA FE ENGINEERING, LTD.	18.00
WASTEWATER STREAM CHARACTERIZATION FOR TA-2	DRAFT	2/1/93	SANTA FE ENGINEERING, LTD.	63.00
WASTEWATER STREAM CHARACTERIZATION FOR TA-35 EXCEPT BUILDINGS 87, 124-28, 213, 294, 301 & 424	DRAFT	4/1/93	SANTA FE ENGINEERING, LTD.	57.00
WASTEWATER STREAM CHARACTERIZATION FOR TA 3-29, 154, 503, 1196, 1610, 1614 & 1615	DRAFT	10/1/92	SANTA FE ENGINEERING, LTD.	47.00

TITLE	ENG_C	LOCATION	DATE	APPLICABLE
EMERGENCY DRAIN FROM PUMP ROOM MECHANICAL	21914	TA-50, LD-2	7/1/63	
CONTAMINATED WASTE LINE, PROFILE	35011	TA-43	8/2/68	
CIVIL PROFILES, UHTREX FACILITIES	31837	UHTREX	1/30/62	
UHTREX FACILITIES, CIVIL - PAVING & GRADING PLAN	31836	UHTREX	1/30/62	
UHTREX FACILITIES, CIVIL - LAYOUT & UTILITY PLAN	31835	UHTREX	1/30/62	
UHTREX FACILITIES, CIVIL - SITE & UTILITY PLAN	31834	UHTREX	1/30/62	
CONTAMINATED WASTE PLANT, PLANT PIPING	30786	TA-50, TA-35	6/1/61	
CONTAMINATED WASTE PLANT, PLANT PIPING	30795	TA-50, TA-35	6/1/61	
CONTAMINATED WASTE PLANT, PLANT PIPING	30779	TA-50	6/1/61	
CONTAMINATED WASTE LINE PLOT PLAN	35008	TA-48 TO TA-50, TA-0	8/2/68	
CONTAMINATED WASTE PLANT, PLANT PIPING	30782	TA-50, TA-3	6/1/61	
AIR FILTER BUILDING, PROJECT A DRAWING INDEX	14002	TA-35		
PIPING, PIPING & INSTRUMENT SCHEDULES WASTE DISPOSAL SYSTEM	14266	TA-35, CMR-10		
PIPING, TANK FARM PIPING-SECTIONS & DETAILS WASTE DISPOSAL SYSTEM	14265	TA-35, CMR-10	5/13/49	
PIPING, TANK FARM PIPING PLAN SHEET #2 WASTE DISPOSAL SYSTEM	14264	TA-35, CMR-10		
POWER REACTOR TEST BUILDING CIVIL UTILITY DETAILS	23309	TA-35	10/31/00	

TITLE	ENG_C	LOCATION	DATE	APPLICABLE
POWER REACTOR TEST BUILDING CIVIL SECTIONS & DETAILS	23308	TA-35	12/1/00	
POWER REACTOR TEST BUILDING CIVIL SECTIONS	29307	TA-35	12/1/00	
POWER REACTOR TEST BUILDING CIVIL UTILITY PLAN	29305	TA-35	10/31/00	
POWER REACTOR TEST BUILDING CIVIL UTILITY PLAN	29306	TA-35	10/31/00	
WASTE TREATMENT EQUIPMENT INSTALLATION PIPELINE LOCATION & DETAILS	10858	TA-35, TSL-7	1/13/55	
ION EXCHANGE COLUMN INSTALLATION LIQUID WASTE DISPOSAL FACILITY MECHANICAL PLAN & DETAILS	10476	TA-35, TSL-7	11/29/56	
WASTE TREATMENT FACILITIES MECHANICAL	22853	TA-35, TSL-7	9/9/59	
PIPING, TANK FARM PIPING PLAN & SECTIONS SHEET #1	14263	TA-35, CMR-10	5/16/49	
FAST REACTOR CORE TEST FACILITY PLANT & UTILITY PLAN	35314	TA-35	4/15/63	
LABORATORY MODIFICATIONS WINGS 3 & 7 MECH. EXIST. EQUIPMENT PLANS	31964	TA-3, SM-29	2/8/66	
ETHER WASTE DISPOSAL DP SITE CONSTRUCTION	2219	DPN-2	7/25/45	
WASTE DISPOSAL FACILITIES DP SITE CONSTRUCTION	2218	DPN-20	6/29/45	
WASTE DISPOSAL FACILITIES DP SITE CONSTRUCTION	2216	DPN-152, DPN-153	6/6/45	
ACID WASTE LINE MODIFICATIONS, CIVIL: LOCATION & PLOT PLANS AND MANHOLE DETAILS	42718	TA-3	12/20/74	

TITLE	ENG_C	LOCATION	DATE	APPLICABLE
CLEANING ROOM INSTALLATION	26738	TA-3 BLDG. SM-39	2/5/62	
CIVIL - LAYOUT AND UTILITIES, OCCUPATIONAL HEALTH LABORATORY	35244	TA-3 BLDG. SM-184	5/19/84	
ACID WASTE SEWER PLAN & PROFILE	30283	TA-3	6/1/61	
ACID WASTE SEWER PLAN & PROFILE	30284	TA-3	6/1/61	
FORCE MAIN PLAN & PROFILE	30781	TA-3	6/1/61	
FORCE MAIN PLAN & PROFILE	30780	TA-3	6/1/61	
POLLING MILL BUILDING, CIVIL, PLOT PLAN - GENERAL LAYOUT	23535	TA-3	1/21/59	
SIGMA BUILDING, CIVIL, DETAILS - WATER, GAS, & STEAM	24169	TA-3	1/15/57	
SIGMA BUILDING, CIVIL, PLAN & PROFILE - SEWERS	24168	TA-3	1/15/57	
SIGMA BUILDING, CIVIL, GRADING AND SURFACING DETAILS (I)	24167	TA-3	1/15/57	
SIGMA BUILDING, CIVIL, GRADING CROSS SECTIONS	24166	TA-3	1/15/57	
SIGMA BUILDING, CIVIL, GRADING LAYOUT - EAST	24165	TA-3	1/15/57	
SIGMA BUILDING, CIVIL, GRADING LAYOUT - WEST	24164	TA-3	1/15/57	
SIGMA BUILDING, CIVIL, GENERAL LAYOUT	24163	TA-3	1/15/57	
CRYOGENICS LABORATORY, CIVIL, DETAILS - SANITARY & ACID SEWERS	17614	TA-3, SM-34	12/20/74	
CRYOGENICS LABORATORY, CIVIL, GRADING & SURFACING DETAILS	17613	TA-3, SM-34	10/9/53	
CRYOGENICS LABORATORY, CIVIL, GRADING CROSS SECTIONS	17612	TA-3, SM-34	10/9/53	

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TITLE	ENG_C	LOCATION	DATE	APPLICABLE
CRYOGENICS LABORATORY, CIVIL, GRADING & DRAINAGE LAYOUT	17611	TA-3, SM-34	10/9/53	
CRYOGENICS LABORATORY, CIVIL, PLOT PLAN	17610	TA-3, SM-34	10/9/53	
PLAN - SANITARY AND ACID SEWERS	11922	TA-3, SM-32	4/9/51	
CMR BUILDING ADDITION, ACID WASTE PIPING	31110	TA-3, WING 9	8/31/59	
CMR BUILDING ADDITION, SITE DETAILS	31106	TA-3, WING 9	8/31/59	
CMR BUILDING ADDITION, SITE UTILITIES	31105	TA-3, WING 9	8/31/59	
ACCELERATOR BUILDING AND LABORATORY PLOT PLAN	0	?	1/4/40	
PLOT PLAN, UTILITIES AND SITE IMPROVEMENTS	15194	TA-3, SM-65	10/28/52	
TANDEM VAN DE GRAAFF FACILITIES UTILITIES PLAN	31373	TA-3, SM-16	10/1/62	
ADDITION TO TECHNIAL SHOPS	20673	TA-3, SM-102	3/6/56	
GENERAL SITE FACILITIES - PROJECT "E"	7400	TA-3, M-2	6/1/50	
GENERAL SITE FACILITIES - PROJECT "E"	7401	TA-3, M-2	6/1/50	
LABORATORY, PROJECT D, CIVIL, ACID SEWER SYSTEM LATERALS - PLAN AND PROFILE	7638	TA-3	3/29/00	
LABORATORY, PROJECT D, CIVIL, ACID AND SEWER SYSTEM EAST BRANCH - PLAN AND PROFILE	7639	TA-3	3/19/00	
WEAPONS TEST SUPPORT FACILITY MECHANICAL UTILITIES PLAN	0	TA-3, SM-216	5/31/00	
ELECTRONIC SHOPS ADD'N, PLOT PLAN, BORING LOG GRAPHS & DETAILS	37046	TA-3, SM-28	6/21/87	

TITLE	ENG C	LOCATION	DATE	APPLICABLE
TECHNICAL SHOPS, PROJECT "L" CIVIL ACID & SANITARY SEWER SYSTEMS PLAN & PROFILE	14702	TA-3	9/28/51	
PHYSICS BUILDING, PROJECT "N" PHASE "B" CIVIL PLOT PLAN	11340	TA-3, SM-40	11/8/51	
GENERAL SITE FACILITIES - PROJECT "E"	7399	TA-3	6/1/60	
INDUSTRIAL WASTE SYSTEM AREA MAPS & INDEX OF DRAWINGS	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM SUBMITTAL SHEET	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM TRAFFIC CONTROL PLAN PHASE I CONSTRUCTION	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM TRAFFIC CONTROL PLAN PHASES II & III CONSTRUCTION	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM CIVIL: SPECIFICATIONS	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM CIVIL: DETAILS	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM PLAN & PROFILE	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM PLAN & PROFILE	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM PLAN & PROFILE	46095	TA-55 TO TA-50	5/31/91	
INDUSTRIAL WASTE SYSTEM PIPE SPECIFICATIONS SECTIONS & DETAILS	46095	TA-55 TO TA-50	5/31/91	

TITLE	ENG_C	LOCATION	DATE	APPLICABLE
INDUSTRIAL WASTE SYSTEM CIVIL: MONITORING PIT PLAN SECTIONS & DETAILS	46095	TA-55 TO TA-50	5/31/91	
WATER BOILER EFFLUENT LINE MODIFICATIONS PLAN-SECTION - DETAILS & NOTES	27397	TA-2	10/17/63	
WATER BOILER EFFLUENT LINE MODIFICATIONS PLOT PLAN & ELECTRICAL	27398	TA-2	10/17/63	
OMEGA WEST REACTOR COOLING WATER MODIFICATIONS, MECH. PIPING PLOT PLAN, ELEVATIONS & SECT.	29881	TA-2	9/25/62	
MAST DETAILS	1717	TA-2	6/6/47	
OWR EXHAUST LINE PLAN PROFILE DETAILS	0	TA-2	7/7/47	
	0	TA-2	1/1/00	
	0	TA-2	1/1/00	
ABOVEGROUND PLUMBING & PIPING SOUTH	45841	TA-48, RC-45	4/18/86	
ABOVEGROUND PLUMBING & PIPING NORTH	45841	TA-48, RC-45	4/18/86	
R.D. LAB UNDERGROUND PIPING PLAN NORTH	45841	TA-48, RC-45	4/18/86	
R.D. LAB HVAC DETAILS	45841	TA-48, RC-45	4/18/86	
R.D. LAB AIR FLOW DIAGRAM	45841	TA-48, RC-45	4/18/86	
ACID WASTE BACKFLOW PROTECTION & OVERFLOW ALARMS WIRING DIAGRAM	42771	TA-48, RC-1	3/17/75	

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TITLE	ENG_C	LOCATION	DATE	APPLICABLE
ACID WASTE BACKFLOW PROTECTION & OVERFLOW ALARMS ELECTRICAL FLOOR PLANS	42771	TA-48, RC-1	3/17/75	
ACID WASTE BACKFLOW PROTECTION & OVERFLOW ALARMS MECH. PLAN & SECTIONS	42771	TA-48, RC-1	3/17/75	
MACHINE SHOP ADDITION PIPING PLAN & SCOPE OF WORK	44037	TA-48, RC-1	3/25/82	
RELOCATION OF ASSEMBLY AND CHECKOUT BUILDING FROM KAFB MECH. PART PLAN, ELEV. & NOTES	43034	TA-48, RC-17	4/15/77	
ALPHA FACILITY ADDITION MECHANICAL WASTE PLAN	37072	TA-48, RC-1	11/8/68	
DIAGRAM OF ACID WASTE & VENTS RADIOCHEMISTRY LABORATORY	20849	TA-48, RC-1	6/8/55	
CAUSTIC PUMP FOR ABSORPTION ASSEMBLY & ACID WASTE DIAGRAM RADIOCHEMISTRY LABORATORY	20848	TA-48, RC-1	6/8/55	
HIGH LEVEL CHEMISTRY ADD. PLAN-FIRST FLOOR	0	TA-48, RC-1	4/7/61	
HIGH LEVEL CHEMISTRY ADD. MECHANICAL SERVICES	0	TA-48, RC-1	4/7/61	
AS-BUILT RECORD FLOOR PLAN & LABORATORY BUILDING, BASEMENT FLOOR		TA-48, BLDG. 1	10/25/91	
AS-BUILT RECORD FLOOR PLAN & LABORATORY BUILDING, FIRST FLOOR		TA-48, BLDG. 1	10/25/91	
AS-BUILT RECORD FLOOR PLAN & LABORATORY BUILDING, PENTHOUSE FLOOR		TA-48, BLDG. 1	10/25/91	
TEMPERARY ACID WASTE LINE INSTALLATION	42660	TA-0	8/9/74	

TITLE	ENG_C	LOCATION	DATE	APPLICABLE
TEMPORARY ACID WASTE LINE INSTALLATION	42660	TA-0	8/9/74	
TEMPORARY ACID WASTE LINE INSTALLATION	42660	TA-0	8/9/74	
TEMPORARY ACID WASTE LINE INSTALLATION	42660	TA-0	8/9/74

356 Energy Drive
Idaho Falls, Idaho 83402
Office (208) 523-9102
FAX (208) 524-5097

September 30, 1993
In Reply Refer to: DAA/018/0993

Mr. Lincoln Busselle
Merrick
600 6th Street, Suite 103
Los Alamos, NM 87544

**SUBJECT: LANL Radioactive Liquid Waste (RLW) Collection System Requirements
Identification Activities - Merrick Project 490-9891**

Dear Mr. Busselle:

Enclosed are the following deliverables which satisfy *WASTREN, Inc.*, commitments for Phase I of this project:

1. Regulation Database and the Requirements Identification Document (RID) Database - (11 copies each, plus electronic file for each database file).
2. Non-applicability review log for the Clean Water Act (CWA) and the Resource Conservation and Recovery Act (RCRA), (11 copies each). These logs include a justification of non-applicability for regulations/documents which were not subjected to a detailed review.
3. Reference library copy (as highlighted by Merrick) for the CFRs listed below. This completes the RCRA/CWA library previously submitted on September 2, 1993.

• 40 CFR 401	• 40 CFR 413	• 40 CFR 414
• 40 CFR 421	• 40 CFR 433	• 40 CFR 439
• 40 CFR 467	• 40 CFR 471	

If you have any questions regarding our final deliverables for Phase 1 of this project, please contact myself, Keith Davis, or Debbie Eaquinto at 208-523-9102.

Sincerely,

Don A. Armour
Regulatory Compliance Manager

de:DAA

cc: D. L. Uhl (w/o attachments)

LOS ALAMOS NATIONAL LABORATORY (LANL)
 RADIOACTIVE LIQUID WASTE (RLW) COLLECTION SYSTEM
 REQUIREMENTS IDENTIFICATION DOCUMENT (RID) DATABASE

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.2.a)(1)(b) - TSD Operator</u>						
A.2.a)(1)(b)	40 CFR 116	Designation of Hazardous Substances under the Federal Water Pollution Control Act This regulation designates hazardous substances under Section 311(b)(2)(A) of the Federal Water Pollution Control Act. The regulation applies to discharges of substances designated in Table 116.4. Note: The title of Table 116.4A is "List of Hazardous Substances" and the title of 116.4B is "List of Hazardous Substances by CAS Number."	07/01/91	116.1		01.001
<u>A.2.a) - Characterization</u>						
A.2.a)	40 CFR 116	Designation of Hazardous Substances under the Federal Water Pollution Control Act The elements and compounds appearing in Tables 116.4A and B are designated hazardous substances in accordance with section 311(b)(2)(A) of the Act. This designation includes any isomers and hydrates, as well as any solutions and mixtures containing these substances. Synonyms and Chemical Abstract System (CAS) numbers have been added for convenience of the user only. In case of any disparity, the common names shall be considered the designated substance.	07/01/91	116.4		01.002
A.2.a)	40 CFR 117	Determination of Reportable Quantities for Hazardous Substances Notice of Discharge of a Reportable Quantity	11/04/92	117.21		02.001

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		Any discharge (unless specifically excluded in this part) of a hazardous substance to waters of the U.S. in quantities equal to or exceeding in any 24-hour period the reportable quantity as designated in this part must be reported immediately to the appropriate agency of the U. S.				
A.2.a)	40 CFR 117	Determination of Reportable Quantities for Hazardous Substances Notice of a Reportable Quantity	11/04/92	117.22		02.002
		This section sets maximum penalties for violations related to discharges of hazardous substances that occurred prior to August 18, 1990. This date is the enactment date of the Oil Pollution Act (OPA) which repealed the applicable penalty portions of the Clean Water Act and replaced it with a new penalty assessment framework. The penalties described in this section include up to \$10,000 and/or one year imprisonment for failure to notify, and up to \$250,000 civil penalty for the discharge itself if it is judged to be due to willful negligence or willful misconduct.				
A.2.a)	40 CFR 117	Determination of Reportable Quantities for Hazardous Substances Notice of a Reportable Quantity	11/04/92	117.23		02.003
		An owner or operator of a facility responsible for a discharge to waters of the U. S. of a reportable quantity of a hazardous substance under this part, is liable to the U. S. Government for the actual costs				

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		incurred in the cleanup or removal. This liability is subject to certain defenses and monetary limitations in the Act, but can include costs of actions taken by the government to mitigate damage to the public health or welfare.				
<u>A.2.c) - Permitting</u>						
A.2.c)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.21(a)		03.001
		Duty to apply. Any person who discharges or proposes to discharge pollutants or who owns or operates a "sludge-only facility" and who does not have an effective permit, except persons covered by general permits under 122.28, excluded under 122.3, or a user of a privately owned treatment works unless the director requires otherwise under 122.44(m), shall submit a complete application (which shall include a BMP program if necessary under 40 CFR 125.102) to the Director in accordance with this section and part 124.				
A.2.c)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.21(g)		03.002
		Existing dischargers of manufacturing process waters (as opposed to requirements for other				

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		<p>categories of discharges such as for non-process waters, from animal feeding operations, from POTWs, etc.) must provide specific, detailed information in their NPDES permit applications. Application forms provided by EPA must be completed to include the following information: (1) outfall location; (2) a line drawing of the water flow through the facility with a water balance; (3) identification of each process, including average flows, contributing to the discharge and of any treatment; (4) description of intermittent flows; (5) production capabilities, if applicable effluent guidelines are expressed in terms of production; (6) description of any required facility upgrades and a listing of the required and projected final compliance dates; (7) detailed information (as specified in this section) on the pollutants discharged; (8) certain small businesses are exempt from providing some of the detailed pollutant information; (9) a listing of any toxic pollutant used or manufactured; (10) identification of any biological toxicity tests within the last 3 years on the discharge or receiving water; (11) identification of each contract laboratory or firm involved in gathering analytical data under item 7 and the analyses performed; and (12) other information requested by EPA.</p>				

LOS ALAMOS NATIONAL LABORATORY (LANL)
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 REQUIREMENTS IDENTIFICATION DOCUMENT (RID) DATABASE

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.2.c)(1) - New construction</u>						
A.2.c)(1)	40 CFR 122	<p>EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations</p> <p>New dischargers of manufacturing process waters (as opposed to requirements for other categories of discharges such as for non-process waters, from animal feeding operations, from POTWs, etc.) must provide specific, detailed information in their NPDES permit applications. Application forms provided by EPA must be completed to include the following information: (1) expected outfall location; (2) the expected date of commencement; (3) description of operations contributing to the wastewater, average flows contributed by each, any treatment, and the ultimate disposal of any solid or liquid wastes not discharged; (4) a line drawing of the water flow through the facility with a water balance; (5) description of intermittent flows; (6) production capabilities, if applicable effluent guidelines are expressed in terms of production; (7) detailed information (as specified in this section) on the effluent characteristics; (8) a report on the existence of any technical evaluation concerning his wastewater treatment or similar treatment of which he is familiar; (9) and (10) other information requested by EPA.</p>	02/19/93	122.21(k)		03.003

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REQUIREMENTS IDENTIFICATION DOCUMENT (RID) DATABASE

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.2.b) - Characterization</u>						
A.2.b)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations As a condition applicable to all NPDES permits, "The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (1) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage use or disposal under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards or sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement."	02/19/93	122.41(a)		03.004
A.2.b)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations As a condition applicable to all NPDES permits, "Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and	02/19/93	122.41(e)		03.005

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit."				
A.2.b)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.41(i)		03.006
		As a condition applicable to all NPDES permits, the permittee will allow EPA representatives to: (1) enter where a regulated facility or activity is located or takes place or where applicable records are kept; (2) have access to and copy applicable records; (3) inspect applicable facilities; equipment, practices, or operations; (4) sample or monitor as a means of assuring permit compliance.				
<u>A.2.j) - Monitoring</u>						
A.2.j)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.41(j)		03.007

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		<p>As a condition applicable to monitoring and records under all NPDES permits; (1) monitoring samples and measurements must be representative of the monitored activity; (2) records of required monitoring, including calibration and maintenance records, will be kept at least 3 years except for those related to sewage sludge use and disposal which will be kept for at least 5 years; (3) monitoring records will include the date, place and time of sampling/measurement, individual performing sampling/measurement, date analyses was performed, individual performing analyses, analytical techniques/methods used, and analytical results; (4) monitoring must be conducted according to test procedures approved under 40 CFR 136 unless otherwise specified in the permit; and (5) convictions for falsifying or tampering with monitoring devices or data is subject to a maximum \$10,000 and/or 2 year imprisonment penalty; and if after the first conviction, the maximum penalty can double.</p>				
<u>A.2.c)(4) - Notification</u>						
A.2.c)(4)	40 CFR 122	<p>EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations</p> <p>As a condition applicable to reporting under all NPDES permits: (1) EPA will be notified of any planned facility alterations or additions if it may cause the facility to meet any one of the new source criteria under</p>	02/19/93	122.41(l)		03.008

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REQUIREMENTS IDENTIFICATION DOCUMENT (RID) DATABASE

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		122.29(b), to change the nature or increase the quantity of pollutants discharged, or to change sludge use or disposal practices; (2) EPA will be notified of any anticipated changes in the facility or activity that might result in a permit noncompliance; (3) the permit is not transferrable without EPA notice and approval; (4) monitoring results will be reported at intervals and on forms specified in the permit, will include the results of any monitoring performed more frequently than specified in the permit, and will use arithmetic means when calculating averages unless otherwise specified in the permit; (5) compliance, noncompliance, or progress reports will be submitted within 14 days following each schedule date; (6) any noncompliance which may endanger health or the environment will be reported orally within 24 hours and in writing within 5 days; (7) all other noncompliances, not included under other reporting requirements, will be reported at the time monitoring reports are submitted; and (8) any newly discovered relevant facts not in the permit application or discovery of incorrect information in the application will be reported promptly.				
<u>A.2.a)(2)(b) - TSD Operator</u>						
A.2.a)(2)(b)	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.3(a)		04.001
		For discharges other than POTWs [except as provided in 122.29(d)], permits shall contain technology-based treatment requirements (BPT,				

LOS ALAMOS NATIONAL LABORATORY (LANL)
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		BCT, and BAT) in accordance with specific categories of pollutants (conventional, toxic, etc.). This requirement is primarily applicable to EPA's development of NPDES permits, but also provides guidance to permittees as to what to expect.				
<u>A.2.a)(1)(a)ii - Concentration Limits</u>						
A.2.a)(1)(a)ii	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.103(a)&(b)		04.002
		Best management practices (BMPs) will be incorporated into permits when required by the specific effluent limitation standard. BMPs may also be incorporated into case-by-case permits if deemed appropriate by the regulatory agency. This requirement is primarily applicable to EPA's development of NPDES permits, but also provides guidance to permittees as to what to expect.				
<u>A.2.e)(1) - System integrity</u>						
A.2.e)(1)	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.103(d)		04.003
		Dischargers who use, manufacture, store, handle, or discharge toxic [per 307(a)(1) of the Act] or hazardous (per 311 of the Act) pollutants must develop and implement a best management practice (BMP) program to minimize the potential of releases from ancillary activities (materials storage or handling areas, plant site runoff, sludge and waste disposal areas, etc.).				

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<u>A.2.c) - Permitting</u>						
A.2.c)	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System Best managment practice (BMP) programs shall be developed in accordance with good engineering practices and with the specific provisions of this subpart which include that it be documented in a narrative form, establish specific objectives for the control of toxic and hazardous pollutants, and be submitted as part of the permit application. Other specific requirements may be found in the actual text.	07/01/91	125.104		04.004
<u>A.2.a)(2) - WAC verification</u>						
A.2.a)(2)	40 CFR 136	Guidelines Establishing Test Procedures for the Analysis for Pollutants This part prescribes specific analytical test methods or procedures that will be used to gather discharge characterization information for NPDES permit applications and for reports submitted under NPDES permits. Tables 1A, 1B, 1C, 1D, 1E under section 136.3, provide lists of approved test procedures (by method number) for biological, inorganic, non-pesticide organic, pesticide, and radiological parameters, respectively. Full test methods for organic parameters are included as an appendix to this part. The identified methods are to be used unless specific alternative test procedures are	09/11/92	136.1		05.001

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		approved by EPA. (Section 136.3e also provides sample preservation procedures, container materials, and maximum allowable holding times for parameters cited in Tables 1A through 1E.)				
A.2.a)(2)	40 CFR 136	Guidelines Establishing Test Procedures for the Analysis for Pollutants	09/11/92	136.4(a)-(c)		05.002
		Any person wishing to use an alternative test procedure to those identified in this part (Table 1A-1E) must apply for approval of EPA in writing. Such an application must include (1) a description of the permit for which the alternate procedure will be used, (2) the pollutant or parameter to be tested, (3) a justification, and (4) a detailed description of the method together with published studies of its applicability. An application for nationwide use of an alternate method may also be submitted using the procedures described in section 136.4(e).				
<u>A.1. - Resource Conservation and Recovery Act (RCRA)</u>						
A.1.	40 CFR 260	Hazardous Waste Management System: General	07/20/93	260.20(a)&(b)		06.001
		Any person may petition the Administrator to modify or revoke any provision in parts 260 through 266 and 286 of this chapter. This section sets forth general requirements which apply to all such petitions. "...Each petition must be submitted to the Administrator by certified mail and must include: (1) the petitioner's name and				

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		address; (2) a statement of the petitioner's interest in the proposed action; (3) a description of the proposed action, including (where appropriate) suggested regulatory language; and (4) a statement of the need and justification for the proposed action, including any supporting tests, studies, or other information."				
<u>A.1.a) - Characterization</u>						
A.1.a)	40 CFR 260	Hazardous Waste Management System: General	07/20/93	260.21(a)&(b)		06.002
		This section provides specific guidelines for persons seeking to petition for the addition of a testing or analytical method to part 261, 264, or 265. At a minimum, such a person must demonstrate to the Administrator that the proposed method is equal to or superior to the corresponding method prescribed in part 261, 264, or 265, in terms of its sensitivity, accuracy, and precision. In addition to the general information required under 260.20, such a petition must include: (1) a full description of the method, including procedures and equipment; (2) a description of the wastes and waste matrices for which the proposed method may be used; (3) comparative results of the proposed method and the corresponding method in part 261, 264, or 265; (4) an assessment of any interferences that might affect the proposed method; and (5) a description of necessary quality control procedures associated with the proposed method.				

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<u>A.1.a)(1) - WAC</u>						
A.1.a)(1)	40 CFR 260	Hazardous Waste Management System: General Any person may petition for a regulatory amendment to exclude a waste at a particular generating facility from the lists in subpart D of part 261. To be successful, the petitioner must demonstrate that the waste does not meet any of the criteria under which it was listed as a hazardous or acutely hazardous waste. If a waste is excluded in this manner, it may still be a hazardous waste under subpart C (characteristics) of part 261.	07/20/93	260.22(a)(1)		06.003
<u>A.1.a) - Characterization</u>						
A.1.a)	40 CFR 260	Hazardous Waste Management System: General Variances may be requested from classification as a solid waste for materials that are accumulated speculatively without sufficient amounts being recycled. Such variances may also be requested for materials that are reclaimed and reused in the original process or that are reclaimed and must be further reclaimed before recovery is complete. Variances may also be obtained to classify certain enclosed devices using controlled flame combustion as boilers, even though they do not otherwise meet the definition of boiler contained in 260.10. In the first two instances, materials determined to not be solid wastes are excluded from	07/20/93	260.33(a)		06.004

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		regulation as hazardous waste under the described situations, and in the last instance if designated a boiler, the device can burn certain hazardous wastes while only being required to meet the less stringent requirements of 40 CFR 266 as opposed to the facility requirements under 264 or 265. To obtain the variances described above, an applicant must apply to the Regional Administrator in the region where the recycler is located. The application must address the relevant criteria contained in 260.31 for variances from classification as solid waste and in 260.32 for a variance to be classified as a boiler.				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 261	Identification & Listing of Hazardous Waste	05/03/93	261.4(c)		07.001
		A hazardous waste generated in a product or raw material storage tank, transport vehicle, or pipeline, or in a manufacturing process or unit, need not be considered a regulated hazardous waste until it leaves the unit in which it was generated. This exemption does not hold if the unit is a surface impoundment or if the hazardous waste remains in the unit longer than 90 days after the unit ceases to be operated for manufacturing, or for storage or transportation of product or raw materials.				

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<u>A.1.a)(1)(a)iii - Transportation mode (i.e., truck versus pipeline</u>						
A.1.a)(1)(a)iii	40 CFR 261	Identification & Listing of Hazardous Waste A sample of solid waste, soil, water, or air being analyzed to determine if it is hazardous waste need not be managed as hazardous waste during transportation to and from the laboratory and while it is at the laboratory (under specific conditions). In order to qualify for this exemption, the sample must be shipped in accordance with DOT, U.S. Postal Service (USPS), or other applicable requirements. If the sample collector determines that these requirements are not applicable, then the sample shipment must be accompanied by specific information and must be packaged to prevent leaks, spills, or vaporization. The information to accompany the shipment includes identification of the shipper/sampler and the receiving laboratory, the quantity of the sample, the date of shipment, and a description of the sample.	05/03/93	261.4(d)(2)		07.002
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 261	Identification & Listing of Hazardous Waste A conditionally exempt small quantity generator (less than 100 kilograms of hazardous waste generated per month) is excluded from full regulation if compliance with specific requirements is maintained. These requirements include characterization	05/03/93	261.5(g)		07.003

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		of the waste to determine if it is hazardous, accumulating no more than 1000 kilograms on site at any one time, and treating or disposing of the waste on site or at an off-site facility. To use an off-site facility, it must be (1) permitted or have interim status as a hazardous waste facility, (2) permitted, licensed, or registered by a State to manage municipal or industrial waste, or (3) a facility which (with or without prior treatment) uses or reuses, or legitimately recycles or reclaims the waste.				
<u>A.1.a)(1) - WAC</u>						
A.1.a)(1)	40 CFR 261	Identification & Listing of Hazardous Waste	05/03/93	261.20(b)		07.004
		A hazardous waste identified by a characteristic, as defined in this subpart (Subpart C), should carry every applicable EPA Hazardous Number in all applicable recordkeeping and reporting.				
A.1.a)(1)	40 CFR 261	Identification and Listing of Hazardous Waste	05/03/93	261.30(c)		07.005
		A hazardous waste listed in this subpart (Subpart D), should carry the applicable EPA Hazardous Number in all applicable recordkeeping and reporting.				
<u>A.1.a)(1)(a) - Generator</u>						
A.1.a)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.10(b)		08.001
		A generator who is also an operator of a				

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		treatment, storage, or disposal (TSD) facility need only comply with specific sections of Part 262. (Such generators must, however, comply with the applicable TSD facility standards under 264 or 265.) The portions that must be met at 262.11 for determining whether or not hazardous waste is produced, 262.12 for obtaining an EPA identification number, 162.34 for accumulation of hazardous waste, 262.40(c)&(d) for recordkeeping, 262.43 for additional reporting, and, if applicable, 262.70 for farmers.				
A.1.a)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.10(c)		08.002
		Any person who imports hazardous waste into the United States must comply with the standards applicable to generators established in this part.				
A.1.a)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.10(e)		08.003
		A person who generates a hazardous waste as defined by 40 CFR part 261 is subject to the compliance requirements and penalties prescribed in section 3008 of the Act (RCRA) if he does not comply with the requirements of this part.				

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<u>A.1.a)(2)(a) - Generator</u>						
A.1.a)(2)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste A person that generates a solid waste must determine if it is hazardous by determining if the waste is (a) excluded under 40 CFR 261.4, (b) listed in subpart D of 40 CFR 261, (c) characteristically hazardous as defined in subpart C of 40 CFR 261. This last determination may be made by analytical testing or by process knowledge. If the waste is determined to be hazardous, the generator must also consider possible exclusions or exemptions in parts 264, 265, and 268 that might impact/dictate management of the specific waste.	08/18/92	262.11(a)-(d)		08.004
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste A generator must not treat, store, dispose of, transport, or offer for transportation, hazardous waste without having received an EPA identification number from the Administrator.	08/18/92	262.12(a)		08.005
A.1.c)(4)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste A generator must not offer his hazardous waste to transporters or to treatment, storage, or disposal facilities that have not	08/18/92	262.12(c)		08.006

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		received an EPA identification number.				
<u>A.1.d)(1)(a) - Manifesting</u>						
A.1.d)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.20(a)&(b)		08.007
		A generator who transports hazardous waste to an off-site treatment, storage, or disposal facility must prepare a hazardous waste manifest for the shipment. (A copy of the Uniform Hazardous Waste Manifest and instructions on its completion are included as an appendix to this part.) A generator must also designate on the manifest a TSD facility permitted to handle the waste described on the manifest.				
A.1.d)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.22		08.008
		The manifest consists of at least the number of copies which will provide the generator, each transporter, and the owner or operator of the designated facility with one copy each for their records and another copy to be returned to the generator.				
A.1.d)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.23(a)		08.009
		The generator must: (1) sign the manifest certification by hand; (2) obtain the handwritten signature of the initial transporter and date of acceptance on the manifest; and (3) retain one copy, in				

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		accordance with 262.40(a).				
<u>A.1.b)(2) - Temporary accumulation</u>						
A.1.b)(2)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.34(a)		08.010
		With certain exceptions identified in this section, generators may accumulate hazardous waste onsite for 90 days or less without a permit or interim status provided specified conditions are met. Such waste must be placed either in containers, in tanks, on drip pads, or in containment buildings, and the generators must comply with specific elements of the corresponding sections of part 265. For example, generators accumulating waste in containers must comply with specific elements of subpart I of 265, "Use and Management of Containers."				
<u>A.1.a)(1)(a)iv - Accountability</u>						
A.1.a)(1)(a)iv	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.40(a)-(c)		08.011
		Generators must keep copies of signed manifests, Biennial Reports, Exception Reports, and records of any test results, waste analyses, or other determinations for at least three years.				

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<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste Persons or agencies importing hazardous waste into the U.S. must identify themselves as well as the generator on the hazardous waste manifest. The importer must also use his/her EPA identification number on the manifest and must sign the manifest in place of the generator.	08/18/92	262.60(a)-(c)		08.012
<u>A.1.d) - Transportation</u>						
A.1.d)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste These regulations (40 CFR 263) do not apply to on-site transportation of hazardous waste by generators or by owners or operators of permitted hazardous waste management facilities.	07/01/91	263.10(b)		09.001
A.1.d)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste A transporter must not transport hazardous waste without having received an Environmental Protection Agency (EPA) identification number from the Administrator.	07/01/91	263.11(a)		09.002

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<u>A.1.d)(1)(a) - Manifesting</u>						
A.1.d)(1)(a)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste	07/01/91	263.20(a)-(d)		09.003
		A transporter may not accept for transport any hazardous waste without a manifest completed and signed by the generator. The transporter must then sign and date the manifest, leave a copy with the generator, and ensure the manifest accompanies the hazardous waste during transport. When the waste is transferred to a treatment, storage, or disposal (TSD) facility or to another transporter, the delivering transporter must see that the receiver signs and dates the manifest and that he retains a copy.				
<u>A.1.d)(1)(c) - Custody transfer (generator accountability)</u>						
A.1.d)(1)(c)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste	07/01/91	263.21(a)&(b)		09.004
		The transporter must deliver the entire quantity of hazardous waste to the designated facility, the alternate designated facility, the next designated transporter, or the place designated outside the U.S. If the waste cannot be delivered to any of these locations designated on the manifest, the transporter must contact the generator for further directions and revise the manifest accordingly.				

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<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Every facility owner or operator must apply to EPA for an EPA identification number in accordance with the EPA notification procedures (45 FR 12746). Note: "45 FR 12746" is the Federal Register in which the notification procedures were published.	05/24/93	264.11		10.001
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal The owner or operator of a facility that has arranged to receive hazardous waste from a foreign source must notify the Regional Administrator in writing at least four weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.	05/24/93	264.12(a)		10.002
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal The owner or operator of a facility that receives hazardous waste from an offsite source (except where the owner or operator is also the generator) must inform the generator in writing that he has the appropriate permit(s) for, and will accept, the waste the	05/24/93	264.12(b)		10.003

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		generator is shipping. The owner or operator must keep a copy of this written notice as part of the operating record.				
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.13(a)		10.004
		Before an owner or operator treats, stores, or disposes of any hazardous wastes, he must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information needed to properly treat, store, or dispose of the waste.				
A.1.a)(2)(b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.13(b)&(c)		10.005
		The owner or operator must develop, follow, and keep at the facility a written waste analysis plan which describes the procedures he will use to obtain the physical and chemical information necessary to treat, store, or dispose of the hazardous wastes. At a minimum, the plan must specify: (1) the parameters for which each waste will be analyzed and the rationale for their selection; (2) the test method to be used for each parameter; (3) the sampling method to be used to obtain a representative sample; (4) the frequency with which the initial analysis				

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		will be reviewed or repeated; (5) if applicable, the waste analyses that will be supplied by offsite generators; and (6) if applicable, the methods used to meet any additional waste analysis requirements identified in the specific waste management methods sections of this part (e.g., management of containers, tank systems, incinerators etc.). For facilities receiving waste from offsite, the plan must also specify the procedures/methods used to inspect, and, if necessary, analyze each movement of hazardous waste received at the facility to ensure it matches the documentation provided by the generator.				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.14(a)-(c)		10.006
		Unless the owner or operator can demonstrate that physical contact with the waste presents no hazard and disturbance of the waste or equipment will not cause a regulatory violation, he must prevent unknowing or unauthorized entry or persons or livestock onto the active portion of the facility. This must be accomplished with a 24-hour surveillance system or with an artificial or natural barrier with controlled entry points. Each entrance, and other locations, must also be posted with a warning sign legible from 25 feet written in English and any other language predominant in the area.				

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A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal The owner or operator must inspect his facility for malfunctions and deterioration, operator errors, and discharges which may be causing - or may lead to - (1) release of hazardous waste constituents to the environment or (2) a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.	05/24/93	264.15(a)		10.007
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal The owner or operator must develop, follow, and keep at the facility a written schedule for inspecting all equipment that is important to preventing, detecting, or responding to environmental or human health hazards. The schedule must identify the types of problems which are looked for during the inspection. The frequency of inspection may vary for the items on the schedule but should be based on the equipment's rate of deterioration and the severity of impact should it fail, malfunction, or be misused. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection	05/24/93	264.15(b)		10.008

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		schedule must include the items and frequencies called for in the applicable specific waste management methods sections of this part (e.g., management of containers, tank systems, incinerators, etc.).				
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.15(c)		10.009
		The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.				
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.15(d)		10.010
		The owner or operator of a hazardous waste treatment, storage, or disposal facility must record inspections in an inspection log or summary and must remedy any deterioration or malfunction of equipment or structures which the inspection reveals to prevent any harm to human health or the environment.				
<u>A.1.h) - Training</u>						
A.1.h)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.16(a)-(e)		10.011

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		<p>Facility personnel must successfully complete a program of classroom instruction or on-the-job training which teaches them hazardous waste management procedures relevant to the positions in which they are employed. This program must be directed by a person trained in such procedures. At a minimum, the training program must insure that personnel are able to respond to emergencies. Facility personnel must complete the training program within six months of their assignment to the facility or to a new position and must not work in unsupervised positions until they have completed the training. Personnel must also take part in an annual review of their initial training. The owner or operator must document and maintain records on each worker, their position title, the required qualifications for that position, a description of the required training for that position, and records that document the training has been provided. Training records must be kept on current personnel until the facility closes and on former employees for three years after their departure.</p>				
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	<p>Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal</p> <p>The owner or operator of a facility managing ignitable, reactive, or incompatible wastes</p>	05/24/93	264.17(a)-(c)		10.012

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		must take precautions to prevent accidental ignition or reaction of such wastes, including separation from sources of ignition or reaction. Where applicable, actions must be taken to prevent reactions which threaten human health or the environment or which may damage the structural integrity of the device or facility. The owner or operator must document compliance through means such as references to published scientific or engineering literature, data from trial tests, waste analyses, or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.18(a)		10.013
		Portions of new facilities where treatment, storage, or disposal of hazardous waste will be conducted must not be located within 61 meters (200 feet) of a fault which has had displacement in Holocene time."				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.18(b)(1)		10.014
		A TSD facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood. This requirement applies unless it can be demonstrated that the wastes can be removed				

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		to a safe location before they could be reached by flood waters or that such a washout would have no adverse effects on human health or the environment.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.18(c)		10.015
		The placement of any noncontainerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine or cave is prohibited, except for the Department of Energy Waste Isolation Pilot Project in New Mexico.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.31		10.016
		Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.32		10.017

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		Unless it can be demonstrated unnecessary based on the specific waste managed, all facilities must be equipped with the following: (a) internal communications or alarm system capable of providing immediate emergency instructions to facility personnel; (b) a telephone or hand-held two-way radio at the operation site capable of summoning offsite emergency response assistance; (c) portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment, and (d) water at adequate volume and pressure to support the specific fire control equipment.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.33		10.018
		All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.34		10.019
		Whenever hazardous waste operations are being performed, personnel involved must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact				

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		with another employee. If the involved person is on the premises alone, he must have immediate access to a device capable of summoning offsite emergency assistance. These requirements may be avoided only if the Regional Administrator specifically rules they are not required under the site circumstances.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.35		10.020
		The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless it can be demonstrated to the Regional Administrator that aisle space is not needed for any of these purposes.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.52(a)-(f)		10.021
		Each facility must have a contingency plan which describes the actions personnel must take to respond to fire, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility. The plan must (1) describe arrangement with local emergency response organizations, (2) list names, addresses, and				

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		phone numbers of persons qualified to act as an emergency coordinator, (3) list all emergency equipment, its location, its physical description, and its capabilities, and (4) if applicable, include an evacuation plan for facility personnel.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.73(a)&(b)		10.022
		The owner or operator must keep a written operating record which contains the following information as it becomes available: (1) a description and the quantity of each hazardous waste (HW) received, and the method(s) and date(s) of its treatment, storage, or disposal per Appendix I of this part; (2) the location of each HW within the facility, cross-referenced, as appropriate, to the applicable manifest number; (3) records and results of waste analyses; (4) summary reports and details of incidents requiring implementation of the contingency plan; (5) records and results of facility inspections; (6) monitoring, testing, or analytical data, and corrective action where required; (7) for offsite generators, notices that the facility can accept their waste; (8) closure and post-closure cost estimates; (9) an annual certification that the permittee has a program in place to reduce the volume and toxicity of HW he generates; (10) records of the quantities for each shipment of HW placed in land disposal units under extensions or exemptions granted by petition				

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		to the land disposal restrictions (LDRs - 40 CFR 268) or under the generator's certification that it does not exceed restricted levels; (11) whether the waste is to be treated, stored or disposed, the appropriate offsite generators notice (per 268.7) as to the waste content and the applicable waste treatment standards under the LDRs, or if generated onsite, the same information required to be in the generator's notice. This information must be maintained in the operating record until closure of the facility.				
<u>A.1.g) - SWMUs</u>						
A.1.g)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.117(c)		10.023
		Post-closure use of property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the facility's monitoring systems, unless the Regional Administrator finds that the disturbance: (1) is necessary to the proposed use of the property, and will not increase potential hazard to human health or the environment; or (2) is necessary to reduce a threat to human health or the environment.				

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A.1.g)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal The owner or operator of a hazardous waste disposal unit must have a written post-closure plan. This plan must identify the activities that will be carried on after the closure of each disposal unit and the frequency of these activities. At a minimum, the activities covered will include those described under (b) of this section and cover such items as monitoring and maintenance. Any amendment of the plan must be submitted to the Regional Administrator for approval.	05/24/93	264.118(a)-(d)		10.024
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Tank systems that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the requirements in 264.193. Section 193 of this part describes requirements for secondary containment and leak detection. EPA's Paint Filter Liquids Test (EPA Method 9095) is referenced as the means to determine the absence or presence of free liquids in the stored/treated waste.	05/24/93	264.190(a)		10.025

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A.1.a)(2)(b)	SW-846	Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods	09/01/86	Method 9095		10.025a
		Method 9095, Paint Filter Liquids Test, is used to determine the absence or presence of liquids in a representative sample of waste. A predetermined amount of material is placed in a paint filter cone. If any portion of the material passes through and drops from the filter within a 5 minute test period, the material is deemed to contain free liquids.				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.190(b)		10.026
		Tank systems, including sumps, as defined in 260.10, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in 264.193(a). Section 193 of this part describes requirements for secondary containment and leak detection.				
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.191(a)		10.027
		For each existing tank system that does not have secondary containment meeting the requirements of 264.193, the owner or operator must determine that the tank system				

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		is not leaking or is unfit for use. Except as provided in paragraph (c) of this section, the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified register professional engineer, in accordance with 270.11(d), that attests to the tank system's integrity by January 12, 1988. The referenced paragraph (c) in this section allows that for newly regulated wastes in existing tanks, the assessment must be conducted within 12 months of the date the waste becomes hazardous. The referenced section 270.11(d) specifies the format of the certification statement.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.191(b)		10.028
		The assessment of existing tanks "must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail." At a minimum this assessment must consider (1) design standards to which the tank and ancillary equipment were constructed, (2) characteristics of the waste to be handled, (3) existing corrosion protection, (4) age of the tank system, and (5) results of a leak test, internal inspection, or other tank integrity examination. With regard to the last consideration, the section provides examination guidelines based on whether or				

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		not the tank is a non-enterable underground tank.				
A.1.e)(1)	API PUB.	Guide for Inspection of Refinery Equipment	/ /	Chpt XIII		10.028a
		Chapter XIII, "Atmospheric and Low-Pressure Storage Tanks" is referenced in 40 CFR 264.191(b) as a recommended guideline, where applicable, for the performance of tank integrity examinations other than leak testing. The referenced publication is the 4th edition, 1981.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(a)		10.029
		The owners or operators of new tank systems or components must obtain a written assessment, reviewed and certified by an independent, qualified registered professional engineer attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. At a minimum, the assessment must include: (1) design standards to which the tank and/or ancillary equipment are constructed; (2) characteristics of the waste to be handled, (3) for systems or components with external elements in contact with soil or water, a determination by a corrosion expert of the site conditions and the type and degree of external corrosion protection needed, (4) for underground tanks, a determination of the design or operational measures needed to				

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		protect the tank from overhead vehicular traffic, and (5) design considerations to ensure that tank foundations will hold a full tank and that tanks will be anchored to prevent dislodgement from flotation (if underground), seismic activity, or frost heaves.				
<u>A.1.e) - Design/Construction</u>						
A.1.e)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(b)		10.030
		The owners or operators of new tank systems or components must ensure that proper handling procedures are adhered to during installation in order to prevent damage. Prior to covering, enclosing, or placing the system in use, an independent, qualified inspector or registered professional engineer must inspect the system for the presence of (1) weld breaks, (2) punctures, (3) scrapes of protective coatings, (4) cracks, (5) corrosion, and (6) other structural damage or inadequate construction/installation. All discrepancies must be fixed before the tank system is covered, enclosed, or placed in use.				
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(c)		10.031

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		New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.				
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(d)		10.032
		All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed into use.				
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(e)		10.033
		Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.				
A.1.e)(1)	API PUB.	Installation of Underground Petroleum Storage Systems	11/01/79	Publication 1615 - (All)		10.033a

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		Provides a standard, recommended in 40 CFR 264.192(e), for proper installation where applicable, of piping systems.				
A.1.e)(1)	ANSI B31.3	Petroleum Refinery Piping	/ /	All		10.033b
		Provides a standard, recommended in 40 CFR 264.192(e), for proper installation where applicable, of piping systems.				
A.1.e)(1)	ANSI B31.4	Liquid Petroleum Transportation Piping System	/ /	All		10.033c
		Provides a standard, recommended in 40 CFR 264.192(e), for proper installation where applicable, of piping systems.				
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(f)		10.034
		The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under paragraph (a)(3) of this section, or other corrosion protection if the Regional Administrator believes other corrosion protection is necessary to ensure the integrity of the system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.				

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<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal The owner or operator must obtain and keep on file at the facility written statement by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of paragraphs (b) through (f) of this section, that attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (b) and (d) of this section, were performed. These written statements must also include the certification statement as required in 270.11(d) of this chapter.	05/24/93	264.192(g)		10.035
<u>A.1.e)(3) - Secondary containment</u>						
A.1.e)(3)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Tank systems must have secondary containment to prevent releases to the environment that meet the requirements of this section. The secondary containment must be provided for all new tank systems or components and for existing tanks in accordance with a schedule that is dependent upon the age of the tank and when it was first regulated (for newly regulated wastes). The secondary containment	05/24/93	264.193(a)-(i)		10.036

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		<p>must prevent any migration of contaminants to the environment and be capable of detecting and collect releases and accumulating liquids until the collected material is removed. Minimum standards to achieve these requirements are presented in section (c) and include the ability to detect and remove the release in a timely manner, usually within 24 hours. Detailed design requirements for secondary containment for tanks in the form of liners, vaults, and double-walled tanks are provided in sections (g) and (e). Section (f) addresses secondary containment for ancillary equipment and allows the requirements to be avoided provided certain design elements are met and the equipment is visually inspected for leaks on a daily basis. Sections (g) and (h) provide means and procedures for requesting variances from these requirements and section (i) restates the need for an integrity assessment of existing tanks pending their upgrade to meet the secondary containment requirements.</p>				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	<p>Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal</p> <p>Hazardous wastes or treatment agents must not be added to tank systems that would cause them to rupture, leak, corrode or otherwise fail. Appropriate controls and practices must be used to prevent spills and overflows from the tank or containment systems. This</p>	05/24/93	264.194(a)-(c)		10.037

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A.1.b)	40 CFR 264	<p>includes spill prevention controls, overfill controls, maintenance of freeboard, etc. Should a leak or spill occur, the requirements of 264.196, "Response to leaks or spills and disposition of leaking or unfit-for-use tank systems", must be met.</p> <p>Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal</p> <p>The owner or operator of a tank system must develop and follow a schedule and procedure for inspecting overfill controls which includes inspecting at least once each operating day: (1) above ground portions of the tank system for corrosion or releases; (2) data gathered from monitoring and leak detection equipment; and (3) the area immediately surrounding the external portions of the tank system, including the secondary containment. Cathodic protection systems, if present, must be inspected within six months of their installation and annually thereafter to ensure their proper functioning, and all sources of impressed current must be inspected and/or tested at least bimonthly. All these inspections must be documented in the operating record of the facility.</p>	05/24/93	264.195(a)-(d)		10.038
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	NACE STD	Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems	/ /	NACE RP-02-85 - All		10.038a

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		Provides a standard, recommended in 40 CFR 264.195(c) as a guideline, for maintaining and inspecting cathodic protection systems.				
A.1.e)(2)	API 1632	Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems	/ /	All		10.038b
		Provides a standard, recommended in 40 CFR 264.195(c) as a guideline, for maintaining and inspecting cathodic protection systems.				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.196(a)-(c)		10.039
		A tank or secondary containment system unfit for use or experiencing a leak or spill must be immediately removed from service and the owner or operator must do the following: (a) stop flow into the system and determine the cause of the release; (b) if from a tank, remove as much waste as necessary to stop the release, and if into a secondary containment, remove all the release; and (c) based on a visual inspection, prevent further migration of the leak or spill to soils or surface water and remove any visible contamination of the soil or surface water.				

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<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Unless it is less than one pound or unless it is immediately contained and cleaned up, any release to the environment from a tank system must be reported to EPA within 24 hours of its detection. Within 30 days of such detection, a report must be submitted to EPA describing (1) the likely route of contaminant migration, (2) characteristics of the surrounding soil, (3) results of any monitoring or sampling conducted, (4) proximity to downgradient drinking water, surface water, and populated areas, and (5) response actions taken or planned.	05/24/93	264.196(d)		10.040
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal A tank system experiencing a leak or spill must be closed in accordance with 40 CFR 264.197, unless the following can be satisfied: (1) if the problem is a spill with no damage to the integrity of the system, the released waste is removed and repairs, if necessary, are made; (2) if a leak from the primary tank system into the secondary containment, the system is repaired prior to returning it to service; and (3) if	05/24/93	264.196(e)-(f)		10.041

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		a leak to the environment from a component without secondary containment, the component is repaired and secondary containment is provided unless it can be visually inspected each operating day. If the tank system requires extensive repair, the owner or operator is required to obtain a certification by an independent, qualified, registered professional engineer that the system is again capable of handling hazardous waste. This certification must be obtained before returning the system to service and must be submitted to EPA within 7 days after returning it to use.				
<u>A.1.f) - Closure</u>						
A.1.f)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.197(a)-(c)		10.042
		At closure of a tank system, all contaminated soils, structures, and equipment must be removed or decontaminated. If all contaminated soils cannot be removed, post-closure care requirements applicable to landfills must be implemented. If the tank system does not have secondary containment (and has not been granted a variance from secondary containment requirements) the closure plan must include a contingent post-closure plan as if contamination will remain in place after closure.				

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<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirement of this part.	05/24/93	264.171		10.043
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities The owner or operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.	05/24/93	264.172		10.044
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (a) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. (b) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it	05/24/93	264.173		10.045

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A.1.b)	40 CFR 264	to leak. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors.	05/24/93	264.174		10.046
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Storage area for containers with free liquids must have a containment system that is designed and operated as follows: (1) is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material can be removed; (2) has a sloped base or other containment system to remove liquids unless the containers are elevated or otherwise protected from the liquids; (3) has a capacity to contain the greater of 10% of the volume of all containers or the volume of the largest container; (4) prevents run-on unless it has enough excess capacity to handle it; and (5) spilled or leaked waste and accumulated precipitation is removed in as timely a manner as is necessary to prevent overflow.	05/24/93	264.175(a)-(b)		10.047

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<u>A.1.f) - Closure</u>						
A.1.f)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.	05/24/93	264.178		10.051
<u>A.1.a) - Characterization</u>						
A.1.a)	40 CFR 268	Land Disposal Restrictions The following hazardous wastes are not subject to any provision of part 268: (1) waste generated by conditionally exempt small quantity generators (less than 100 kilograms per month); (2) waste pesticides disposed by a farmer pursuant to 262.70; (3) wastes identified or listed as hazardous after Nov. 8, 1984 for which EPA has not promulgated land disposal prohibitions or treatment standards; (4) de minimus losses to wastewater treatment systems within certain restrictions; and (5) laboratory wastes displaying the characteristic of ignitability (D001) or corrosivity (D002), that are commingled with other plant wastewaters under designated circumstances.	06/25/93	268.1(e)		11.001

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<u>A.1.a)(1)(a)ii - Concentration limits</u>						
A.1.a)(1)(a)ii	40 CFR 268	Land Disposal Restrictions	06/25/93	268.3(a)		11.002
		It is not allowed to, in any way, dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with this part or to circumvent requirements of this part. However, dilution of wastes that are hazardous only because they exhibit a characteristic in a treatment system which treats wastes subsequently discharged through a NPDES permit or to a POTW under pretreatment effluent standards is not impermissible dilution for purposes of this section unless specific conditions exist [268.3(b)].				
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.5(a)(f)&(g)		11.003
		An application may be submitted to EPA for an extension to the effective date of any applicable restriction established under this part. The application must demonstrate that nationwide capacity is not available to take the applicant's waste and that he is taking, or otherwise addressing, a series of specific actions identified in this section to establish capacity to manage his waste. Any person granted such an extension must immediately notify EPA should the conditions in his application change and must submit				

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		written progress reports at intervals designated by EPA.				
A.1.c)(4)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.6		11.004
		<p>A person may submit a petition to EPA requesting an exemption from a prohibition under this part for a particular unit or units. Such a petition must demonstrate, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the disposal unit or injection zone for as long as the wastes remain hazardous. The petition must provide detailed characteristics of the waste and disposal site under consideration and a monitoring plan that detects migration at the earliest practicable time. This section provides detailed requirements for each of these elements of the petition. Any person granted a variance must immediately notify EPA should the conditions in his petition change that might affect the potential for migration of hazardous constituents. If the owner or operator ever determines there is migration of hazardous constituents from the unit, he must immediately suspend receipt of prohibited waste at the unit and notify EPA, in writing, within 10 days.</p>				
<u>A.1.a)(2)(a) - Generator</u>						
A.1.a)(2)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)		11.005
		Whether the hazardous waste is listed or				

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		characteristic, the generator must test his waste (or test an extract, as applicable) or use knowledge of the waste to determine if the waste is restricted from land disposal under this part. For certain ignitable (D001) or corrosive (D002) wastes, the generator must also determine what underlying hazardous constituents (as defined in 268.2) are reasonably expected to be present.				
<u>A.1.a)(1)(a)iv - Accountability</u>						
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(1)		11.006
		If the generator determines his waste is restricted under this part and it does not meet the applicable treatment or concentration standard, with each shipment of waste he must provide a written notification to the treatment or storage facility. The notification must include the appropriate treatment or concentration standard, the corresponding EPA hazardous waste number, the associated manifest number, an identification as to whether the waste qualifies as hazardous debris, and waste analysis data where available.				
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(2)		11.007
		If the generator determines his waste is restricted under this part, but that it meets the applicable treatment or concentration standard, with each shipment of waste he must provide a written notification to the				

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		treatment or storage facility. The notification must include the appropriate treatment or concentration standard that have been met, the corresponding EPA hazardous waste number(s), the associated manifest number, waste analysis data where available, and a certification signed by an authorized representative.				
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(3)		11.008
		If the generator's waste is subject to an exemption from a prohibition on the type of land disposal method to be utilized, with each shipment of waste he must provide a written notification to the treatment or storage facility. The notification must include a statement that the waste is not prohibited, the applicable EPA hazardous waste number(s), the corresponding treatment or concentration standard (if not for the exemption), the associated manifest number, waste analysis data where available, an identification as to whether the waste qualifies as hazardous debris, and the date the waste is subject to the prohibitions.				
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(4)		11.009
		If the generator is managing and treating prohibited waste in tanks, containers, or containment buildings and the applicable				

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		<p>treatment standards are being met, he must develop and follow a written waste analysis plan which describes the procedures he will carry out to comply with the treatment standard. This plan must be kept onsite in the generator's records, be filed with EPA, and address the detailed information presented in this section. Offsite shipments of this waste must comply with the notification requirements of 268.7(a)(2). This is the notification associated with prohibited waste that meets the treatment standards and is acceptable for disposal.</p> <p><u>A.1.a)(1)(a)iv - Accountability</u></p>				
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(5)		11.010
		<p>If a generator determines whether the waste is restricted based solely on his knowledge of the waste, all supporting data used to make this determination must be retained on-site in the generator's files. If a generator determines whether the waste is restricted based on testing this waste or an extract developed using the test method described in appendix I of this part, all waste analysis data must be retained on-site in the generator's file.</p>				
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(6)		11.011
		<p>If a generator determines that he is managing a restricted waste that is excluded from the definition of hazardous or solid waste or</p>				

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		exempt from subtitle C regulation, under 40 CFR 261.2-261.6 subsequent to the point of generation, he must place a one-time notice stating such generation, subsequent exclusion from the definition of hazardous or solid waste or exemption from subtitle C regulation, and the disposition of the waste, in the facility's file.				
<u>A.1.a)(2)(a) - Generator</u>						
A.1.a)(2)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(7)		11.012
		Generators must retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to this section for at least five years from the date that the waste that is the subject of such documentation was last sent to on-site or off-site treatment, storage, or disposal. This retention period is automatically extended during the course of unresolved enforcement activity or as requested by EPA. These requirements are applicable even when the hazardous characteristic is removed prior to disposal, or if the waste is excluded by definition, or exempted subsequent to the point of generation.				
<u>A.1.d)(1)(a) - Manifesting</u>						
A.1.d)(1)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(8)		11.013
		If a generator is managing a lab pack that				

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		contains wastes identified in appendix IV of this part and wishes to use the alternative treatment standard under 268.42, with each shipment of waste the generator must submit a notice to the treatment facility in accordance with paragraph (a)(1) of this section. The generator must also comply with the requirements in paragraphs (a)(5) and (a)(6) of this section. The generator must also submit a specific certification identified in this paragraph stating that the lab pack contains only wastes specified in appendix IV.				
A.1.d)(1)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(9)		11.014
		"If a generator is managing a lab pack that contains wastes identified in appendix V of this part and wishes to use the alternative treatment standard under 268.42, with each shipment of waste the generator must submit a notice to the treatment facility in accordance with paragraph (a)(1) of this section. The generator must also comply with the requirements in paragraphs (a)(5) and (a)(6) of this section.." The generator must also submit a specific certification identified in this paragraph stating that the lab pack contains only wastes specified in appendix V.				
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(b)(1-3)		11.015
		Treatment facilities must test their wastes according to the frequency specified in their				

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		waste analysis plans and must include: (1) testing of an extract of treatment residues for wastes with treatment standards expressed as concentrations in the waste extract; (2) testing of the treatment residues according to the generator testing requirements specified in 268.32 for wastes that are prohibited but not subjected to any treatment standards; and (3) testing the treatment residues (not an extract) for wastes with treatment standards expressed as concentrations in the waste.				
<u>A.1.a)(1)(a)i - Segregation</u>						
A.1.a)(1)(a)i	40 CFR 268	Land Disposal Restrictions	06/25/93	268.9(a)(c)		11.016
		The initial generator of a solid waste must determine each EPA hazardous waste code (listed and characteristic) applicable to the waste. For purposes of compliance with this part, the waste will carry each applicable code and, for certain ignitable (D001) and corrosive (D002) wastes, will include any underlying hazardous constituents (as defined in 268.2) reasonably expected to be present. Where a prohibited waste carries both listed and characteristic codes, the treatment standard for the listed code will operate in lieu of that for the characteristic code, provided that the treatment standard for the listed waste includes a treatment standard for the constituent that causes the waste to be characteristic. Otherwise, the waste must meet the treatment standards for all applicable listed and characteristic waste				

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		codes. In addition to the applicable standards, no prohibited characteristic waste may be land disposed unless it complies with the treatment standards set by this part.				
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.9(d)		11.017
		Once a characteristic waste is no longer hazardous, it may be disposed in a Subtitle D facility (e.g., municipal solid waste landfill) provided a one-time notification and certification is placed in the generators or treater files and is sent to EPA. The notification/certification must be updated if the process generating the waste or the Subtitle D facility receiving the waste changes. However, submission to EPA need only occur on an annual basis should such changes occur. The notification must include (1) identification of the Subtitle D facility, (2) description of the waste, and (3) the applicable treatment standard(s) being met.				
<u>A.1.b)(1) - Permitted storage</u>						
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(a)(1)-(3)		11.018
		Storage of hazardous waste restricted from disposal under this part is prohibited unless the following conditions are met: (1) a generator is storing the wastes on-site solely for the purpose of the accumulation of				

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		such quantities as necessary to facilitate proper recovery, treatment, or disposal and the generator complies with the applicable generator requirements in part 262 and those applicable facility requirements in parts 264 and 265; (2) a TSD facility owner or operator stores the waste solely for the purpose of the accumulation of such quantities as necessary to facilitate proper recovery, treatment, or disposal and each container or tank is clearly marked as to its contents and date when accumulation began; and (3) a transporter stores manifested shipment of such wastes at a transfer facility for 10 days or less.				
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(b)		11.019
		An owner/operator of a treatment, storage or disposal facility may store such wastes for up to one year unless the Agency can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal.				
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(c)		11.020
		An owner/operator of a treatment, storage, or disposal facility may store such wastes beyond one year; however, the owner/operator bears the burden of proving that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper				

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		recovery, treatment, or disposal.				
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(d)(e)		11.021
		The prohibition against storage of restricted waste under this part does not apply to waste that is exempt from a prohibition on the type of land disposal utilized for the waste or to waste that meets the applicable treatment or concentration standard established by this part.				
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(f)		11.022
		Liquid hazardous waste containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm must be stored at a facility that meets the requirements of 40 CFR 761.65(b) and must be removed from storage and treated or disposed as required by this part within one year of the date when such wastes are first placed into storage. The provisions of paragraph (c) of this section do not apply to such PCB wastes prohibited under 268.32 of this part.				
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.1(b)		12.001
		Facility owners and operators with interim status must comply with interim status standards set forth at 40 CFR parts 265 and 266 or with the analogous provisions of a				

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		State program.				
<u>A.1.c)(1) - New construction</u>						
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs For existing hazardous waste management facilities, the Director shall set a date, giving at least six months notice, for submission of a Part B permit application.	05/24/93	270.1(b)		12.002
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs Owners or operator of new hazardous waste management facilities must submit Parts A and B of the permit application of least 180 days before physical construction is expected to commence.	05/24/93	270.1(b)		12.003
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs Owners or operators of new hazardous waste management units must have permits during the active life (including the closure period) of the unit.	05/24/93	270.1(c)		12.004

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<u>A.1.c)(1) - New construction</u>						
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.3(b)		12.005
		Certain Federal laws, other than RCRA, must be considered in the issuance of hazardous waste permits. When any of these specific laws is applicable, its procedures must be followed. Of the laws identified under section 270.3, the National Historic Preservation Act of 1966 may be of concern to LANL. Before issuing a permit, EPA may require measures be adopted to mitigate potential adverse effects of the permitted activity on properties listed or eligible for listing in the National Register of Historic Places.				
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.10(e)		12.006
		A facility in existence on the effective date of rule changes that require the facility to have a RCRA permit must submit Part A of their permit application (1) within six months of the publication of the applicable rule change or (2) within 30 days after they first become subject to the standards, whichever comes first. The Part B will then be required when called by EPA or in accordance with the schedules provided in 270.73.				
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.10(f)		12.007

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		No person shall begin physical construction of a new hazardous waste management facility without having submitted Parts A and B of the permit application and having received a finally effective RCRA permit.				
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.10(g)		12.008
		An owner or operator of a hazardous waste management facility under interim status, where the Part B has not yet been filed, must file an amended Part A if rule changes list or identify additional hazardous wastes and those wastes are treated, stored, or disposed at that facility. If the facility is regulated by EPA (as opposed to the State), the amended Part A must be submitted within six months after the promulgation of the revised regulations. Amended part A's must also be submitted for interim status changes identified under Section 270.72.				
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.13(a)-(n)		12.009
		Part A of the RCRA application will include				

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		the specific information listed in this section. The requirements include such information as a description of the processes to be used for treating, storing, and disposing of hazardous waste and a specification of the hazardous waste listed or designated under 40 CFR 261 to be treated, stored or disposed. Other specific items are listed in the applicable section.				
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.14(a)-(c)		12.010
		Part B of the RCRA application will include the general information listed in this section. The requirements include such information as: <ul style="list-style-type: none"> -chemical and physical analyses of the hazardous waste to be handled; -a copy of the waste analysis plan; -a copy of the general inspection schedule; -a copy of the contingency plan; -an outline of introductory and continuing training programs; -a copy of the closure; -etc. Other specific items are listed in the applicable section.				

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A.1.c)	40 CFR 270	<p>EPA Administered Permit Program: Hazardous Waste Programs</p> <p>Owners or operators of facilities that store containers of hazardous waste must include specific information in their Part B. This is in addition to the general information described in section 270.14. Information requirements specific to the use of containers include such items as a description of the secondary containment system and other specific information to demonstrate compliance with Subpart I, Use and Management of Containers, of 40 CFR 264.</p>	05/24/93	270.15(a)-(d)		12.011
A.1.c)	40 CFR 270	<p>EPA Administered Permit Program: Hazardous Waste Programs</p> <p>Owners or operators of facilities that use tanks to store or treat hazardous waste must include specific information in their Part B. This is in addition to the general information described in section 270.14. Information requirements specific to the use of tanks include such items as:</p> <ul style="list-style-type: none"> - a written assessment, certified by a professional engineer, as to the structural integrity and suitability for handling hazardous waste; - a description of feed systems, safety cutoff, bypass systems, and press controls; - a diagram of piping, instrumentation, and 	05/24/93	270.16(a)-(j)		12.012

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		<p>process flow for each tank system;</p> <ul style="list-style-type: none"> - a detailed description of the secondary containment system; and - other specific information to demonstrate compliance with Subpart J, Tank Systems, of 40 CFR 264. 				
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	<p>EPA Administered Permit Program: Hazardous Waste Programs</p> <p>Changes in the ownership or operational control of a facility may be made as a Class 1 modification to a RCRA permit (per 270.42) with prior written approval of EPA. The new owner or operator must submit a revised permit application no later than 90 days prior to the scheduled change. A written agreement between the current and new permittees, containing a specific date for the transfer of responsibility, must also be submitted.</p>	05/24/93	270.40(b)		12.013
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	<p>EPA Administered Permit Program: Hazardous Waste Programs</p> <p>This section identifies the procedures for making a Class 1 modification to a RCRA permit. In most instances a Class 1 modification may be put into effect by the permittee provided notification concerning the modification is sent to EPA within 7 days after the change is put into effect.</p>	05/24/93	270.42(a)		12.014

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		(Certain Class 1 modifications identified in Appendix I to 270.42 require prior approval of EPA.) The notification must specify the changes being made and why they are necessary. It must also include all the applicable information required to be addressed in the Part A and Part B (sections 270.13 through 270.21). Other requirements for these modifications include providing notice of the modifications but must do so by certified mail. The types of modifications and their classifications (Class 1, 2, or 3) are provided in Appendix I to this section.				
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(a)		12.014
		<p>This section identifies the procedures for making a Class 1 modification to an RCRA permit. In most instances a Class 1 modification may be put into effect by the permittee provided notification concerning the modification is sent to EPA within 7 days after the change is put into effect.</p> <p>(Certain Class 1 modifications identified in Appendix I to 270.42 require prior approval of EPA.) The notification must specify the changes being made and why they are necessary. It must also include all the applicable information required to be addressed in the Part A and Part B (sections 217.13 through 270.21). Other requirements for these modifications include providing notice of the modification to other</p>				

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		interested parties. EPA may reject requests for Class 1 modifications but must do so by certified mail. The types of modifications and their classifications (Class 1, 2, or 3) are provided in Appendix I to this section.				
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(b)		12.015
		This section identifies the procedures for making a Class 2 modification to a RCRA permit. Class 2 modifications require prior EPA approval which is initiated through a modification request. This request must specify the changes being made and why they are necessary. It must also include all the applicable information required to be addressed in the Part A and Part B (sections 270.13 through 270.21). Other requirements for these modifications include providing notice to other interested parties, providing public notices, and a public comment period, including a public meeting. Once the permittee has completed his responsibilities, EPA must take the final action or the request has tacit approval. The types of modifications and their classifications (Class 1, 2, or 3) are provided in Appendix I to this section.				

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<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(b)		12.015
<p>This section identifies the procedures for making a Class 2 modification to a RCRA permit. Class 2 modifications require prior EPA approval which is initiated through a modification request. This request must specify the changes being made and why they are necessary. It must also include all the applicable information required to be addressed in the Part A and Part B (sections 270.13 through 270.21). Other requirements for these modifications include providing notice to other interested parties, providing public notices, and a public comment period, including a public meeting. Once the permittee has completed his responsibilities, EPA must take the final action on the request has tacit approval. The types of modifications and their classifications (Class 1, 2, or 3) are provided in Appendix I to this section.</p>						
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(c)		12.016
<p>This section identifies the procedures for making a Class 3 modification to a RCRA permit. Class 3 modifications substantially alter the facility or its operation and require prior EPA approval which is initiated</p>						

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		<p>through a modification request. This request must specify the changes being made and why they are necessary. It must also include all the applicable information required to be addressed in the Part A and Part B (sections 270.13 through 270.21). Other requirements for these modifications include providing notice to other interested parties, providing public notices, and a public comment period, including a public meeting. EPA must grant or deny the permit modification request according to the procedures of 40 CFR 124. EPA must also consider and respond to all significant written comments received during the comment period. The types of modifications and their classifications (Class 1, 2, or 3) are provided in Appendix I to this section.</p>				
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	<p>EPA Administered Permit Program: Hazardous Waste Programs</p> <p>This section identifies the procedures for continuing operation of a hazardous waste management facility when newly regulated categories of wastes or waste management units are involved. If such a facility is in existence on the effective date of such rules, operations may continue as long as (a) a Class 1 modification request is submitted on or before the effective date; (b) the permittee is in compliance with 40 CFR 265 and 266; and (c) the permittee also submits a Class 2 or 3 modification request within 180</p>	05/24/93	270.42(g)		12.017

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		days of the effective date. There are additional requirements for land disposal units which are not directly applicable to the LANL radioactive liquid waste collection system.				
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.70(a)		12.018
		A hazardous waste management facility in existence on the effective date of statutory or regulatory amendments that render the facility subject to the requirement to have a RCRA permit, is considered to have an interim status permit provided the owner or operator has (a) provided a notification of hazardous waste activity per section 3010(a) of RCRA, and (b) complied with the requirements of 40 CFR 270.10 governing submission of Part A applications.				
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.71(a)-(b)		12.019
		During interim status, a hazardous waste management facility shall not (1) treat, store, or dispose of hazardous waste not specified in the Part A, (2) employ process not specified in the Part A, or (3) exceed design capacities specified in the Part A. During interim status, owners or operators shall comply with the interim status				

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		standards in 40 CFR 265.				
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.72(a)-(b)		12.020
		With specified exceptions, owners or operators of interim status hazardous waste management facilities may make the following changes provided a revised Part A permit application is submitted: (1) treatment, storage, or disposal of new hazardous wastes, (2) increases in the design capacity of processes used, (3) changes in the processes used, (4) changes in the ownership or operational control, (5) changes in accordance with a corrective action order issued by EPA under section 3008(h) or other federal authority, and (6) addition of newly regulated units. Again with specified exceptions, the changes above cannot be made if they amount to reconstruction of the hazardous waste management facility (capital investment to make change exceeds 50 percent of the capital cost of a comparable new facility).				
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.72(a)-(b)		12.020
		With specified exceptions, owners or operators of interim status hazardous waste management facilities may make the following				

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		<p>changes provided a revised Part A permit application is submitted: (1) treatment, storage, or disposal of new hazardous wastes, (2) increases in the design capacity of processes used, (3) changes in the processes used, (4) changes in the ownership or operational control, (5) changes in accordance with a corrective action order issued by EPA under section 3008(h) or other federal authority, and (6) addition of newly regulated units. Again with specified exceptions, the changes above cannot be made if they amount to reconstruction of the hazardous waste management facility (capital investment to make change exceeds 50 percent of the capital cost of a comparable new facility).</p>				
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 280	<p>Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks</p> <p>Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but may not be installed unless they meet certain design considerations specified in this section. These design considerations include (1) prevention of releases due to corrosion or structural failure, (2) cathodic protection unless constructed or clad with noncorrodible</p>	12/23/91	280.11(a)&(b)		13.001

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		material or otherwise designed to prevent releases, and (3) constructed or lined with material compatible with the stored substance. This section specifies that USTs may be installed without corrosion protection provided a corrosion expert determines the site is not corrosive enough to cause a problem. This section also requires owners and operators to maintain records of their compliance with these requirements.				
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.11(a)&(b)		13.001
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but may not be installed unless they meet certain design considerations specified in this section. These design considerations include (1) prevention of releases due to corrosion or structural failure, (2) cathodic protection unless constructed or clad with noncorrodible material or otherwise designed to prevent releases, and (3) constructed or lined with material compatible with the stored substance. This section specifies that USTs may be installed without corrosion protection provided a corrosion expert determines the site is not corrosive enough to cause a				

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		problem. This section also requires owners and operators to maintain records of their compliance with these requirements.				
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(a)		13.002
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST systems. This section [(a)] specifies that tanks must be protected from corrosion in accordance with a nationally recognized code or practice. It identifies providing corrosion in accordance with a nationally recognized code or practice. It identifies providing corrosion protection through (1) using fiberglass-reinforced plastic construction, (2) using cathodically protected steel, (3) using steel-fiberglass-reinforced-plastic composite, (4) using steel without additional corrosion protection at a noncorrosive site, and (5) designed in another manner to prevent releases which is approved by EPA. Recognized codes and practices are referenced for meeting each of the first three approaches.				

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<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(a)		13.002
		<p>Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST systems. This section [(a)] specifies that tanks must be protected from corrosion in accordance with a nationally recognized code or practice. It identifies providing corrosion protection through (1) using fiberglass-reinforced plastic construction, (2) using cathodically protected steel, (3) using steel-fiberglass-reinforced-plastic composite, (4) using steel without additional corrosion protection at a noncorrosive site, and (5) designed in another manner to prevent releases which is approved by EPA. Recognized codes and practices are referenced for meeting each of the first three approaches.</p>				
A.1.e)(2)	UL STD1316	Standard for Glass-Fiber-Reinforced Plastic UST for Petroleum Products	/ /	ALL		13.002a
		Provides a standard, recommended in 40 CFR				

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A.1.e)(2)	UL CANADA	280.20(a), for the design and construction of fiberglass-reinforced plastic UST. Standard for Reinforced Plastic Underground Tanks for Petroleum Products	/ /	CAN4-S615-M83 -(All)		13.002b
		Provides a standard, recommended in 40 CFR 280.20(a), for the design and construction of fiberglass-reinforced plastic UST.				
A.1.e)(2)	ASTM STD	Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks	/ /	ASTM Standard D4021-86 - (All)		13.002c
		Provides a standard, recommended in 40 CFR 280.20(a), for the design and construction of fiberglass-reinforced plastic UST.				
A.1.e)(2)	STI-P3	Specification for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks	/ /	All		13.002d
		Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.				
A.1.e)(2)	UL STD1746	Corrosion Protection Systems for Underground Storage Tanks	/ /	All		13.002e
		Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.				

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A.1.e)(2)	UL OF CAN	Standard for Steel Underground Tanks for Flammable and Combustible Liquids Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.	/ /	CAN4-S603-M85 - (All)		13.002f1
A.1.e)(2)	UL OF CAN	Standard for Galvanic Corrosion Protection Systems for Underground Tanks for Flammable and Combustible Liquids Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.	/ /	CAN4-G031-M85 - (All)		13.002f2
A.1.e)(2)	UL OF CAN	Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.	/ /	CAN4-S631-M84 - (All)		13.002f3
A.1.e)(2)	NACE STD	Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.	/ /	NACE Standard RP-02-85 - (All)		13.002g1

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A.1.e)(2)	UL STD 58	Standard for Steel Underground Tanks for Flammable and Combustible Liquids Provides a standard, recommended in 40 CFR 280.20(a), for providing, operating, and maintaining cathodic protection for steel USTs.	/ /	UL Standard 58 - (All)		13.002g2
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST system. This section [(b)] specifies that piping associated with USTs must be protected from corrosion in accordance with a nationally recognized code or practice. It identifies providing corrosion protection through (1) using fiberglass-reinforced plastic construction, (2) using cathodically protected steel, (3) using steel without additional corrosion protection at a noncorrosive site, and (4) designed in another manner to prevent releases which is approved by EPA. Recognized codes and practices are referenced for meeting each of the first three approaches.	12/23/91	280.20(b)		13.003

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A.1.e)(2)	UL SUB 971	UL Listed Non-Metal Pipe Provides a standard, recommended in 40 CFR 280.20(b), for the design and construction of fiberglass-reinforced plastic piping.	/ /	UL Subject 971 - (All)		13.003a
A.1.e)(2)	UL STD 567	Pipe Connectors for Flammable and Combustible and LP Gas Provides a standard, recommended in 40 CFR 280.20(b), for the design and construction of fiberglass-reinforced plastic piping.	/ /	UL Standard 567 - (All)		13.003b
A.1.e)(2)	UL CAN	Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids Provides a standard, recommended in 40 CFR 280.20(b), for the design and construction of fiberglass-reinforced plastic piping.	/ /	UL of Canada Guide UCC-107 - (All)		13.003c
A.1.e)(2)	UL CAN	Flexible Underground Hose Connectors Provides a standard, recommended in 40 CFR 280.20(b), for the design and construction of fiberglass-reinforced plastic piping.	/ /	Standard CAN4-S633-M81 - (All)		13.003d
A.1.e)(2)	NFPA STD	Flammable and Combustible Liquids Code Provides a standard, recommended in 40 CFR 280.20(b), for providing, operating, and maintaining cathodic protection for steel piping.	/ /	Standard 30 - (All)		13.003e
A.1.e)(2)	API 1615	Installation of Underground Petroleum Storage Systems Provides a standard, recommended in 40 CFR	/ /	Publication 1615 - (All)		13.003f

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		280.20(b), for providing, operating, and maintaining cathodic protection for steel piping.				
A.1.e)(2)	API 1632	Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems	/ /	Publication 1632 - (All)		13.003g
		Provides a standard, recommended in 40 CFR 280.20(b), for providing, operating, and maintaining cathodic protection for steel piping.				
A.1.e)(2)	NACE STD	Control of External Corrosion on Submerged Metallic Piping Systems	/ /	Standard RP-01-69 - (All)		13.003h
		Provides a standard, recommended in 40 CFR 280.20(b), for providing, operating, and maintaining cathodic protection for steel piping.				
<u>A.1.e)(3) - Secondary containment</u>						
A.1.e)(3)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(c)		13.004
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST system. This section [(c)] specifies that USTs have spill and				

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		<p>overflow prevention equipment. Spill prevention equipment should prevent product loss when the transfer hose is detached from the fill pipe; overflow prevention should consist of an automatic shut off at 95% capacity, an alert at 90% capacity, or such measures at 30 minutes prior to overfilling. These measures can be avoided if alternative protection is approved by EPA or if filling is accomplished by transfers no greater than 25 gallons at a time.</p>				
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 280	<p>Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks</p> <p>Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST system. This section [(d)] specifies that USTs and piping be properly installed in accordance with a nationally recognized code or practice. Recognized codes and practices are referenced for meeting this requirement.</p>	12/23/91	280.20(d)		13.005
A.1.e)(1)	API 1615	<p>Installation of Underground Petroleum Storage System</p> <p>Provides a standard, recommended in 40 CFR</p>	/ /	Publication 1615 - (All)		13.005a

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		280.20(d), for the installation of underground tanks and piping.				
A.1.e)(1)	PEI RP100	Recommended Practices for Installation of Underground Liquid Storage Systems	/ /	Publication RP100 - (All)		13.005b
		Provides a standard, recommended in 40 CFR 280.20(d), for the installation of underground tanks and piping.				
A.1.e)(1)	ANSI STD	Petroleum Refinery Piping	/ /	Standard B31.3 - (All)		13.005c1
		Provides a standard, recommended in 40 CFR 280.20(d), for the installation of underground tanks and piping.				
A.1.e)(1)	ANSI STD	Liquid Petroleum Transportation Piping System	/ /	Standard B31.4 - (All)		13.005c2
		Provides a standard, recommended in 40 CFR 280.20(d), for the installation of underground tanks and piping.				
A.1.e)(1)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(e)		13.006
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST system. This section [(e)] specifies that owners and operators of				

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		USTs must ensure that one or more of the prescribed methods of certification, testing, or inspection is used to verify proper installation of the tank system. The methods include certification by the tank and piping manufacturer, inspection by a qualified professional engineer, inspection and approval by the regulatory agency, as well as others.				
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.21(a)-(d)		13.007
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from this part and tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from requirements under this subpart. However, this subpart does provide performance standards that may be of value to the design, construction, installation of any UST system. This section specifies that by December 22, 1998, all existing USTs must meet new tank standards, be upgraded by specific measures identified, or be closed. The tank upgrading measures specified include such items as internal liners for tanks, cathodic protection, or a combination of tank liner and cathodic protection. Metal piping in contact with the ground must be cathodically protected and tanks must be equipped with spill and				

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		overfill prevention equipment.				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.61(a)-(c)		13.008
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but are subject to the requirements under Subpart F which covers release response and corrective action. Under this section, owners and operators must take specific initial response actions within 24 hours after a release from a UST is identified. These actions include (a) reporting the release to the implementing agency, (b) taking immediate action to prevent further release, and (c) identifying and mitigating fire, explosion, and vapor hazards.				
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.62(all)		13.009
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but are subject				

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		to the requirements under Subpart F which covers release response and corrective action. Under this section, owners and operators must perform specific abatement measures in response to a release unless directed to do otherwise by the regulatory agency. These actions include (1) removing product from the UST as necessary to stop further release, (2) based on visual inspections prevent further migration of the release into soils and ground water, (3) continue to monitor and mitigate fire and safety hazards, (4) remedy hazards posed by excavated or exposed contaminated soil, (5) measure for the presence of a release where contamination is most likely, and (6) investigate for the presence of free product and begin removal as appropriate. This section also requires the preparation of a report within 20 days summarizing the abatement steps taken and resulting information gathered.				
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.63(all)		13.010
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but are subject to the requirements under Subpart F which covers release response and corrective				

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		<p>action. Under this section, owners and operators must assemble initial site characterization information and submit it to the regulatory agency within 45 days of the release confirmation. This information must include (1) data on the nature and estimated quantity of release, (2) data on the surrounding environment that may be impacted by or have an impact on the release, (3) results of sampling performed under section 280.62, and (4) results of the free product investigation performed under section 280.62.</p>				
A.1.b)	40 CFR 280	<p>Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks</p> <p>Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but are subject to the requirements under Subpart F which covers release response and corrective action. Under this section, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency while continuing with other response requirements. This section identifies specific free product removal/migration minimization requirements that must be met. It also requires that a free product removal report be prepared and submitted to the implementing agency within 45 days of the release confirmation and</p>	12/23/91	280.64(all)		13.011

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 REQUIREMENTS IDENTIFICATION DOCUMENT (RID) DATABASE

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		provides a list of information that must be addressed by the report.				
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.65(all)		13.012
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but are subject to the requirements under Subpart F which covers release response and corrective action. Under this section, owners and operators must conduct an investigation of the release site and surrounding area if there is evidence of, or potential for, ground water contamination. The goal of this investigation is to determine the full extent and location of soil and ground water contamination. Results of the investigation must be reported to the implementing agency as soon as practicable or in accordance with a schedule established by the agency.				
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.66(all)		13.013
		Tanks regulated and managed as a hazardous waste tank under RCRA are exempt from these requirements. Tanks containing radioactive material that are regulated under the Atomic Energy Act are deferred from most requirements under this part, but are subject				

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 REQUIREMENTS IDENTIFICATION DOCUMENT (RID) DATABASE

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		to the requirements under Subpart F which covers release response and corrective action. Under this section, owners and operators must develop and implement a corrective action plan for responding to soil and ground water contamination if determined to be necessary by the implementing agency after review of information gathered through site investigations. The implementing agency must approve the plan, and the owner/operator must monitor, evaluate, and report on the results of the implementation in accordance with a schedule and format established by the implementing agency. This section lists factors that should be considered in the preparation of the corrective action plan. This section also identifies specific circumstances under which the owner/operator can initiate response actions prior to the approval of the corrective action plan.				
<u>A.2.e) - Design/Construction</u>						
A.2.e)	40 CFR 401	EPA General Provisions for Effluent Guidelines and Standards	07/01/91	See Library		14.001
A.2.e)	40 CFR 413	EPA Effluent Guidelines and Standards for Electroplating	07/01/91	See Library		15.001
A.2.e)	40 CFR 414	EPA Effluent Guidelines and Standards for Organic Chemicals, Plastics, and Synthetic Fibers	09/11/92	See Library		16.001

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.2.e)	40 CFR 421	EPA Effluent Guidelines and Standards for Nonferrous Metals	07/01/91	See Library		17.001
A.2.e)	40 CFR 433	EPA Effluent Guidelines and Standards for Metal Finishing	07/01/91	See Library		18.001
A.2.e)	40 CFR 439	EPA Effluent Guidelines and Standards for Pharmaceutical Manufacturing	07/01/91	See Library		19.001
A.2.e)	40 CFR 467	Effluent Guidelines and Standards for Aluminum Forming	07/01/91	See Library		20.001
A.2.e)	40 CFR 471	EPA Effluent Guidelines and Standards for Nonferrous Metals Forming and Metal Powders	07/01/91	See Library		21.001

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.2.a)(1)(b) - TSD Operator</u>						
A.2.a)(1)(b)	40 CFR 116	Designation of Hazardous Substances under the Federal Water Pollution Control Act	07/01/91	116.1		01.001
<u>A.2.a) - Characterization</u>						
A.2.a)	40 CFR 116	Designation of Hazardous Substances under the Federal Water Pollution Control Act	07/01/91	116.4		01.002
A.2.a)	40 CFR 117	Determination of Reportable Quantities for Hazardous Substances Notice of Discharge of a Reportable Quantity	11/04/92	117.21		02.001
A.2.a)	40 CFR 117	Determination of Reportable Quantities for Hazardous Substances Notice of a Reportable Quantity	11/04/92	117.22		02.002
A.2.a)	40 CFR 117	Determination of Reportable Quantities for Hazardous Substances Notice of a Reportable Quantity	11/04/92	117.23		02.003
<u>A.2.c) - Permitting</u>						
A.2.c)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant EPA National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.21(a)		03.001
A.2.c)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant EPA National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.21(g)		03.002
<u>A.2.c)(1) - New construction</u>						
A.2.c)(1)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant EPA National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.21(k)		03.003
<u>A.2.b) - Characterization</u>						
A.2.b)	40 CFR 122	EPA Administered Permit Programs: The	02/19/93	122.41(a)		03.004

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.2.b)	40 CFR 122	National Pollutant Discharge Elimination System Permit Regulations EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.41(e)		03.005
A.2.b)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.41(i)		03.006
<u>A.2.j) - Monitoring</u>						
A.2.j)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.41(j)		03.007
<u>A.2.c)(4) - Notification</u>						
A.2.c)(4)	40 CFR 122	EPA Administered Permit Programs: The National Pollutant Discharge Elimination System Permit Regulations	02/19/93	122.41(l)		03.008
<u>A.2.a)(2)(b) - TSD Operator</u>						
A.2.a)(2)(b)	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.3(a)		04.001
<u>A.2.a)(1)(a)ii - Concentration limits</u>						
A.2.a)(1)(a)ii	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.103(a)&(b)		04.002
<u>A.2.e)(1) - System integrity</u>						
A.2.e)(1)	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.103(d)		04.003

REGULATIONS DATAB. E - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.2.c) - Permitting</u>						
A.2.c)	40 CFR 125	Criteria and Standards for the National Pollutant Discharge Elimination System	07/01/91	125.104		04.004
<u>A.2.a)(2) - WAC verification</u>						
A.2.a)(2)	40 CFR 136	Guidelines Establishing Test Procedures for the Analysis for Pollutants	09/11/92	136.1		05.001
A.2.a)(2)	40 CFR 136	Guidelines Establishing Test Procedures for the Analysis for Pollutants	09/11/92	136.4(a)-(c)		05.002
<u>A.1. - Resource Conservation and Recovery Act (RCRA)</u>						
A.1.	40 CFR 260	Hazardous Waste Management System: General	07/20/93	260.20(a)&(b)		06.001
<u>A.1.a) - Characterization</u>						
A.1.a)	40 CFR 260	Hazardous Waste Management System: General	07/20/93	260.21(a)&(b)		06.002
<u>A.1.a)(1) - WAC</u>						
A.1.a)(1)	40 CFR 260	Hazardous Waste Management System: General	07/20/93	260.22(a)(1)		06.003
<u>A.1.a) - Characterization</u>						
A.1.a)	40 CFR 260	Hazardous Waste Management System: General	07/20/93	260.33(a)		06.004
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 261	Identification & Listing of Hazardous Waste	05/03/93	261.4(c)		07.001
<u>A.1.a)(1)(a)iii - Transportation mode (i.e., truck versus pipeline</u>						
A.1.a)(1)(a)iii	40 CFR 261	Identification & Listing of Hazardous Waste	05/03/93	261.4(d)(2)		07.002
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 261	Identification & Listing of Hazardous Waste	05/03/93	261.5(g)		07.003
<u>A.1.a)(1) - WAC</u>						
A.1.a)(1)	40 CFR 261	Identification & Listing of Hazardous Waste	05/03/93	261.20(b)		07.004
A.1.a)(1)	40 CFR 261	Identification and Listing of Hazardous Waste	05/03/93	261.30(c)		07.005

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.1.a)(1)(a) - Generator</u>						
A.1.a)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.10(b)		08.001
A.1.a)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.10(c)		08.002
A.1.a)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.10(e)		08.003
<u>A.1.a)(2)(a) - Generator</u>						
A.1.a)(2)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.11(a)-(d)		08.004
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.12(a)		08.005
A.1.c)(4)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.12(c)		08.006
<u>A.1.d)(1)(a) - Manifesting</u>						
A.1.d)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.20(a)&(b)		08.007
A.1.d)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.22		08.008
A.1.d)(1)(a)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.23(a)		08.009
<u>A.1.b)(2) - Temporary accumulation</u>						
A.1.b)(2)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.34(a)		08.010
<u>A.1.a)(1)(a)iv - Accountability</u>						
A.1.a)(1)(a)iv	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.40(a)-(c)		08.011

REGULATIONS DATA B E - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 262	Standards Applicable to Generators of Hazardous Waste	08/18/92	262.60(a)-(c)		08.012
<u>A.1.d) - Transportation</u>						
A.1.d)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste	07/01/91	263.10(b)		09.001
A.1.d)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste	07/01/91	263.11(a)		09.002
<u>A.1.d)(1)(a) - Manifesting</u>						
A.1.d)(1)(a)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste	07/01/91	263.20(a)-(d)		09.003
<u>A.1.d)(1)(c) - Custody transfer (generator accountability)</u>						
A.1.d)(1)(c)	40 CFR 263	Standards Applicable to Transporters of Hazardous Waste	07/01/91	263.21(a)&(b)		09.004
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.11		10.001
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.12(a)		10.002
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.12(b)		10.003
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.13(a)		10.004
A.1.a)(2)(b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.13(b)&(c)		10.005

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
		Disposal				
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.14(a)-(c)		10.006
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.15(a)		10.007
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.15(b)		10.008
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.15(c)		10.009
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.15(d)		10.010
<u>A.1.h) - Training</u>						
A.1.h)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.16(a)-(e)		10.011
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.17(a)-(c)		10.012
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.18(a)		10.013
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.18(b)(1)		10.014
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.18(c)		10.015

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.1.e)(1)	40 CFR 264	Disposal Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.31		10.016
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.32		10.017
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.33		10.018
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.34		10.019
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.35		10.020
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.52(a)-(f)		10.021
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.73(a)&(b)		10.022
<u>A.1.g) - SWMUs</u>						
A.1.g)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.117(c)		10.023
A.1.g)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.118(a)-(d)		10.024
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.190(a)		10.025
A.1.a)(2)(b)	SW-846	Test Methods for Evaluating Solid Wastes,	09/01/86	Method 9095		10.025a

REGULATIONS DATA B . E - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
Physical/Chemical Methods						
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.190(b)		10.026
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.191(a)		10.027
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.191(b)		10.028
A.1.e)(1)	API PUB.	Guide for Inspection of Refinery Equipment	/ /	Chpt XIII		10.028a
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(a)		10.029
<u>A.1.e) - Design/Construction</u>						
A.1.e)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(b)		10.030
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(c)		10.031
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(d)		10.032
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(e)		10.033

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CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.1.e)(1)	API PUB.	Installation of Underground Petroleum Storage Systems	11/01/79	Publication 1615 - (All)		10.033a
A.1.e)(1)	ANSI B31.3	Petroleum Refinery Piping	/ /	All		10.033b
A.1.e)(1)	ANSI B31.4	Liquid Petroleum Transportation Piping System	/ /	All		10.033c
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(f)		10.034
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.192(g)		10.035
<u>A.1.e)(3) - Secondary containment</u>						
A.1.e)(3)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.193(a)-(i)		10.036
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.194(a)-(c)		10.037
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.195(a)-(d)		10.038
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	NACE STD	Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems	/ /	NACE RP-02-85 - All		10.038a
A.1.e)(2)	API 1632	Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems	/ /	All		10.038b

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.196(a)-(c)		10.039
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.196(d)		10.040
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.196(e)-(f)		10.041
<u>A.1.f) - Closure</u>						
A.1.f)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal	05/24/93	264.197(a)-(c)		10.042
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.171		10.043
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.172		10.044
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.173		10.045
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.174		10.046
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.175(a)-(b)		10.047

REGULATIONS DATA SET - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.1.b)	40 CFR 264	Disposal Facilities Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.176		10.048
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.177(a)-(b)		10.049
A.1.b)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.177(c)		10.050
<u>A.1.f) - Closure</u>						
A.1.f)	40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	05/24/93	264.178		10.051
<u>A.1.a) - Characterization</u>						
A.1.a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.1(e)		11.001
<u>A.1.a)(1)(a)ii - Concentration Limits</u>						
A.1.a)(1)(a)ii	40 CFR 268	Land Disposal Restrictions	06/25/93	268.3(a)		11.002
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.5(a)(f)&(g)		11.003
A.1.c)(4)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.6		11.004
<u>A.1.a)(2)(a) - Generator</u>						
A.1.a)(2)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)		11.005
<u>A.1.a)(1)(a)iv - Accountability</u>						
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(1)		11.006
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(2)		11.007
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(3)		11.008
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(4)		11.009

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.1.a)(1)(a)iv - Accountability</u>						
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(5)		11.010
A.1.a)(1)(a)iv	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(6)		11.011
<u>A.1.a)(2)(a) - Generator</u>						
A.1.a)(2)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(7)		11.012
<u>A.1.d)(1)(a) - Manifesting</u>						
A.1.d)(1)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(8)		11.013
A.1.d)(1)(a)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(a)(9)		11.014
<u>A.1.a)(2)(b) - TSD Operator</u>						
A.1.a)(2)(b)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.7(b)(1-3)		11.015
<u>A.1.a)(1)(a)i - Segregation</u>						
A.1.a)(1)(a)i	40 CFR 268	Land Disposal Restrictions	06/25/93	268.9(a)(c)		11.016
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.9(d)		11.017
<u>A.1.b)(1) - Permitted storage</u>						
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(a)(1)-(3)		11.018
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(b)		11.019
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(c)		11.020
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(d)(e)		11.021
A.1.b)(1)	40 CFR 268	Land Disposal Restrictions	06/25/93	268.50(f)		11.022
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.1(b)		12.001
<u>A.1.c)(1) - New construction</u>						
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.1(b)		12.002
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous	05/24/93	270.1(b)		12.003

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
Waste Programs						
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.1(c)		12.004
<u>A.1.c)(1) - New construction</u>						
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.3(b)		12.005
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.10(e)		12.006
A.1.c)(1)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.10(f)		12.007
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.10(g)		12.008
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.13(a)-(n)		12.009
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.14(a)-(c)		12.010
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.15(a)-(d)		12.011
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.16(a)-(j)		12.012
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.40(b)		12.013
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(a)		12.014

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(a)		12.014
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(b)		12.015
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(b)		12.015
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(c)		12.016
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.42(g)		12.017
<u>A.1.c)(4) - Notification</u>						
A.1.c)(4)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.70(a)		12.018
<u>A.1.c) - Permitting</u>						
A.1.c)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.71(a)-(b)		12.019
<u>A.1.c)(2) - Modification of existing facilities</u>						
A.1.c)(2)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.72(a)-(b)		12.020
<u>A.1.c)(3) - Change in operations/waste</u>						
A.1.c)(3)	40 CFR 270	EPA Administered Permit Program: Hazardous Waste Programs	05/24/93	270.72(a)-(b)		12.020

REGULATIONS DATA BASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.11(a)&(b)		13.001
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.11(a)&(b)		13.001
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(a)		13.002
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(a)		13.002
A.1.e)(2)	UL STD1316	Standard for Glass-Fiber-Reinforced Plastic UST for Petroleum Products	/ /	All		13.002a
A.1.e)(2)	UL CANADA	Standard for Reinforced Plastic Underground Tanks for Petroleum Products	/ /	CAN4-S615-M83 - (All)		13.002b
A.1.e)(2)	ASTM STD	Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks	/ /	ASTM Standard D4021-86 - (All)		13.002c
A.1.e)(2)	STI-P3	Specification for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks	/ /	All		13.002d
A.1.e)(2)	UL STD1746	Corrosion Protection Systems for Underground Storage Tanks	/ /	All		13.002e
A.1.e)(2)	UL OF CAN	Standard for Steel Underground Tanks for Flammable and Combustible Liquids	/ /	CAN4-S603-M85 - (All)		13.002f1
A.1.e)(2)	UL OF CAN	Standard for Galvanic Corrosion Protection Systems for Underground Tanks for Flammable	/ /	CAN4-G031-M85 - (All)		13.002f2

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.1.e)(2)	UL OF CAN	and Combustible Liquids Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems	/ /	CAN4-S631-M84 - (All)		13.002f3
A.1.e)(2)	NACE STD	Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems	/ /	NACE Standard RP-02-85 - (All)		13.002g1
A.1.e)(2)	UL STD 58	Standard for Steel Underground Tanks for Flammable and Combustible Liquids	/ /	UL Standard 58 - (All)		13.002g2
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(b)		13.003
A.1.e)(2)	UL SUB 971	UL Listed Non-Metal Pipe	/ /	UL Subject 971 - (All)		13.003a
A.1.e)(2)	UL STD 567	Pipe Connectors for Flammable and Combustible and LP Gas	/ /	UL Standard 567 - (All)		13.003b
A.1.e)(2)	UL CAN	Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids	/ /	UL of Canada Guide UCC-107 - (All)		13.003c
A.1.e)(2)	UL CAN	Flexible Underground Hose Connectors	/ /	Standard CAN4-S633-M81 - (All)		13.003d
A.1.e)(2)	NFPA STD	Flammable and Combustible Liquids Code	/ /	Standard 30 - (All)		13.003e
A.1.e)(2)	API 1615	Installation of Underground Petroleum Storage Systems	/ /	Publication 1615 - (All)		13.003f
A.1.e)(2)	API 1632	Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems	/ /	Publication 1632 - (All)		13.003g
A.1.e)(2)	NACE STD	Control of External Corrosion on Submerged Metallic Piping Systems	/ /	Standard RP-01-69 - (All)		13.003h
<u>A.1.e)(3) - Secondary containment</u>						
A.1.e)(3)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(c)		13.004
<u>A.1.e)(1) - System integrity</u>						
A.1.e)(1)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(d)		13.005
A.1.e)(1)	API 1615	Installation of Underground Petroleum Storage	/ /	Publication 1615 - (All)		13.005a

REGULATIONS DATA B E - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.1.e)(1)	PEI RP100	System Recommended Practices for Installation of Underground Liquid Storage Systems	/ /	Publication RP100 - (All)		13.005b
A.1.e)(1)	ANSI STD	Petroleum Refinery Piping	/ /	Standard B31.3 - (All)		13.005c1
A.1.e)(1)	ANSI STD	Liquid Petroleum Transportation Piping System	/ /	Standard B31.4 - (All)		13.005c2
A.1.e)(1)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.20(e)		13.006
<u>A.1.e)(2) - Corrosion protection</u>						
A.1.e)(2)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.21(a)-(d)		13.007
<u>A.1.b) - Waste Storage</u>						
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.61(a)-(c)		13.008
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.62(all)		13.009
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.63(all)		13.010
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.64(all)		13.011
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.65(all)		13.012
A.1.b)	40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks	12/23/91	280.66(all)		13.013
<u>A.2.e) - Design/Construction</u>						
A.2.e)	40 CFR 401	EPA General Provisions for Effluent	07/01/91	See Library		14.001

REGULATIONS DATABASE - APPENDIX I-B

CLASSIFICATION	DOCUMENT IDENTIFICATION	DOCUMENT TITLE	ISSUE DATE	APPLICABLE SECTION	STATUS	RID NUMBER
A.2.e)	40 CFR 413	Guidelines and Standards for EPA Effluent Guidelines and Standards for Electroplating	07/01/91	See Library		15.001
A.2.e)	40 CFR 414	EPA Effluent Guidelines and Standards for Organic Chemicals, Plastics, and Synthetic Fibers	09/11/92	See Library		16.001
A.2.e)	40 CFR 421	EPA Effluent Guidelines and Standards for Nonferrous Metals	07/01/91	See Library		17.001
A.2.e)	40 CFR 433	EPA Effluent Guidelines and Standards for Metal Finishing	07/01/91	See Library		18.001
A.2.e)	40 CFR 439	EPA Effluent Guidelines and Standards for Pharmaceutical Manufacturing	07/01/91	See Library		19.001
A.2.e)	40 CFR 467	Effluent Guidelines and Standards for Aluminum Forming	07/01/91	See Library		20.001
A.2.e)	40 CFR 471	EPA Effluent Guidelines and Standards for Nonferrous Metals Forming and Metal Powders	07/01/91	See Library		21.001

NON-APPLICABLE REVIEW LOG

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

9-30-93

Resource Conservation and Recovery Act (RCRA) Non-Applicable Regulations

The following regulations were reviewed for applicability to the radioactive liquid waste collection system at LANL and were found to be non-applicable. A brief statement describing the rationale for this determination is provided for each regulation.

40 CFR 124: Procedures (EPA) for Decision Making

This part contains EPA procedures for issuing, modifying, revoking and reissuing, or terminating RCRA, UIC, PSD and NPDES permits. LANL's permits may become involved in these administrative procedures, but none of the identified requirements should have direct applicability to the radioactive liquid waste collection system.

40 CFR 240: EPA Guidelines for The Thermal Processing of Solid Waste

This part prescribes the guidelines applicable to thermal processing facilities (incinerators) designed to process or which are processing 50 tons or more a day of municipal-type solid wastes. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 241: EPA Guidelines for Land Disposal of Solid Wastes

This part prescribes the guidelines applicable to land disposal of all solid waste materials and delineates the minimum levels of performance required of any solid waste land disposal site operation. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 243: EPA Guidelines for Solid Waste Storage And Collection

This part prescribes the guidelines applicable to collection of residential, commercial, and institutional solid wastes and street wastes. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 244: EPA Guidelines for Source Separation for Materials Recovery

This part prescribes the guidelines applicable to the source separation of residential, commercial, and institutional solid wastes. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 245: EPA Guidelines for Resource Recovery Facilities

This part prescribes the guidelines applicable to the recovery of resources from residential, commercial, and institutional solid wastes. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 246: EPA Guidelines for Source Separation for Material Recovery

This part prescribes the guidelines applicable to the source separation of residential, commercial, and institutional solid wastes. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 247: EPA Guidelines for Products That Contain Recycled Material

This part recommends the guideline procedures to increase the use of recycled material in personal and real property procured by the Federal agencies. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 248: EPA Guidelines for Federal Procurement of Building Insulation Products Containing Recovered Materials

This part provides the guidelines to assist procuring agencies in complying with the requirements of Section 6002 of the Solid Waste Disposal Act, as that section applies to procurement of building insulation products. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 249: EPA Guidelines for Procurement of Cement and Concrete Containing Fly Ash

This part provides the guidelines to assist procuring agencies in the procurement of cement and concrete which contain fly ash in accordance with Section 6002(e) of the Solid Waste Disposal Act. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 250: EPA Guidelines for Federal Procurement of Paper and Paper Products Containing Recovered Materials

This part provides the guidelines to assist procuring agencies in the procurement of paper and paper products containing recovered materials in accordance with Section 6002 of the Solid Waste Disposal Act. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 252: EPA Guidelines for Federal Procurement of Lubricating Oils Containing Re-refined Oil

This part provides the guidelines to assist procuring agencies in the procurement of lubricating oils containing re-refined oil in accordance with Section 6002 of the Solid Waste Disposal Act. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 253: EPA Guidelines for Federal Procurement of Retread Tires

This part provides the guidelines to assist procuring agencies in the procurement of retread tires in accordance with Section 6002 of the Solid Waste Disposal Act. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 254: EPA Regulations on Prior Notice of Citizen Suits

This part prescribes the procedures governing the notice requirements of subsections (b) and (c) of Section 7002 of the Solid Waste Disposal Act as a pre-requisite to the commencement of civil suit actions. These activities do not directly affect the radioactive liquid waste collection system.

40 CFR 255: EPA Guidelines for Identification of Regions and Agencies for Solid Waste Management

This part provides the guidelines which are applicable to the policies, procedures, and criteria for the identification of those areas which have common solid waste management problems and which are appropriate units for planning regional solid waste management services pursuant to section 4002(a) of the Solid Waste Disposal Act. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 256: EPA Guidelines for Development and Implementation of State Solid Waste Management Plans

This part provides the guidelines to assist in the development and implementation of state solid waste management plans in accordance with Section 4002(b) of the Solid Waste Disposal Act. These activities do not directly affect the radioactive liquid waste collection system.

40 CFR 257: EPA Regulations on Criteria for Classification of Solid Wastes Disposal Facilities and Practices

This part provides the criteria for determining which solid waste disposal facilities and practices pose a reasonable probability of adverse affects on health or environment. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 258: EPA Criteria for Municipal Solid Waste Landfills

This part provides the minimum national criteria under the RCRA and CWA for all municipal solid waste landfill units that are used to dispose of sewage sludge. If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 259: EPA Standards for Tracking and Managing Medical Waste

This part applies to regulated medical waste as defined in Subpart D of this part that is generated in a Covered State as defined in Subpart C of this part. These activities are directly related to medical waste; therefore, they should not be associated with the radioactive liquid waste collection system.

40 CFR 265: EPA Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

This part establishes minimum national standards that define the acceptable management of hazardous waste during the period of interim status. Although potentially applicable, the more stringent requirements identified in Part 264 (final standards for permitted facilities) were used in the development of these requirements.

40 CFR 266: Standards for the Management of Specific Hazardous Waste and Specific Types of Hazardous Waste Management Facilities

This part currently establishes procedures and regulations applicable to management of the following:

- recyclable materials by application to or placement on the land or in a manner that constitutes disposal;
- recyclable materials that are reclaimed to recover economically significant amounts of precious metals;
- recyclable spent lead-acid batteries; and
- hazardous waste burned or processed in a boiler or industrial furnace.

If any of these activities are occurring at LANL, they should not be associated with the radioactive liquid waste collection system.

40 CFR 267 Interim Standards for Owners and Operators of New Hazardous Waste Land Disposal Facilities

This part establishes minimum national standards that define the acceptable management of hazardous waste for new land disposal facilities pending the finalization of Part 264 regulations. In addition to the fact that the Part 264 regulations have been finalized, the radioactive liquid waste collection system does not involve land disposal of hazardous waste.

40 CFR 271 EPA Requirements for Authorization of State Hazardous Waste Programs

This part specifies the procedures EPA will follow in approving, revising, and withdrawing approval of State programs and the requirements State programs must meet to obtain final or interim authorization. LANL is not involved in these activities.

40 CFR 272 EPA Regulations on Approved State Hazardous Waste Management Programs

This part sets forth the applicable State hazardous waste management programs, identifying portions of the federal program they are authorized to implement and portions they are not. No direct requirements are levied on waste generators or facilities.

40 CFR 279 EPA Standards for the Management of Used Oil

This part establishes requirements for the management of used oil. Wastewaters regulated under a NPDES permit are exempt as long as they are only contaminated with *de minimis* quantities of used oil. If there are any problems at LANL with generators discharging more than *de minimis* quantities, then these requirements should be applied.

40 CFR 281 EPA Regulations for Approval of State Underground Storage Tank Programs

This part specifies the requirements that state programs must meet for approval by EPA and the procedures EPA will follow in approving, revising and withdrawing approval of state programs. LANL is not involved in these activities.

NON-APPLICABLE REVIEW LOG

CLEAN WATER ACT
(CWA)

9-30-93

Clean Water Act (CWA) Non-Applicable Regulations

The following regulations were reviewed for applicability to the radioactive liquid waste collection system at LANL and were found to be non-applicable. A brief statement describing the rationale for this determination is provided for each regulation.

40 CFR 104 EPA Regulations on Public Hearings on Effluent Standards for Toxic Pollutants

Part 104 is applicable to hearings required by statute to be held in connection with the establishment of toxic pollutant effluent standards under section 307(a) of the CWA. The regulation would levy no requirements on the radioactive liquid waste collection system.

40 CFR 108 EPA Regulation on Employee Protection Hearings

Part 108 establishes the procedures by which the EPA must provide a hearing for any employee who is discharged or laid-off, or threatened with discharge as a result of any effluent limitation or order issued under the CWA. Although potentially applicable to LANL, this regulation should not have any direct bearing on the design or operation of the radioactive liquid waste collection system.

40 CFR 109 EPA Criteria for State, Local and Regional Oil Removal Contingency Plans

The criteria in this part are provided to assist State, local and regional agencies in the development of oil removal contingency plans for the inland navigable waters of the U.S. LANL could be asked to participate in such planning, but these requirements are primarily the responsibility of state and local governments.

40 CFR 110 EPA Regulations on Discharge of Oil

The regulations of this part apply to the discharge of oil to waters of the U.S. which are prohibited by the CWA. The part defines the illegal discharges and requires that any on- or offshore facility experiencing such a discharge must immediately notify the National Response Center. The provisions of this part are applicable to LANL, but should have no direct impact on the collection system other than those imposed by the NPDES permit against the discharge of oils.

40 CFR 112 EPA Regulations on Oil Pollution Prevention

This part establishes procedures, methods and equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon waters of the U.S. The provisions of this part are applicable to LANL (possibly including the requirements for a Spill Prevention, Control and Countermeasures Plan), but would have no direct impact on the collection system other than requiring designs or operational measures that would prevent the discharge of oils to the collection system beyond what the treatment facility can remove to meet the NPDES permit.

40 CFR 113 EPA Regulations on Liability Limits For Small Onshore Storage Facilities

This part establishes liability limits on accidental oil spills from small facilities (no more than 1,000 barrels) for which the government performs clean up. There are no federal facility exclusions, but this part should have no direct applicability to the collection system.

40 CFR 114 EPA Interim Rules on Civil Penalties For Violation of Oil Pollution Prevention Regulations

This section applies to violations of specific sections of Part 112 occurring prior to August 18, 1990 and sets a maximum penalty of \$5,000 per day. These stipulations should have no direct applicability to future operation of the radioactive liquid waste collection system at LANL.

40 CFR 121 State Certification of Activities Requiring a Federal License or Permit

This part applies to the person or agency designated by the State to certify compliance with applicable water quality standards with regard to licenses or permits issued by the federal government to conduct any activity that might involve any discharge into U.S. waters. Since LANL is not a certifying agency per this part, the requirements are not directly applicable.

40 CFR 123 EPA Regulations on State NPDES Permit Program Requirements

This part specifies the procedures EPA will follow in approving, revising, and withdrawing State programs and the requirements State programs must meet to be approved by EPA under the NPDES program. Since LANL fills neither capacity

(State or EPA), the requirements are not applicable.

40 CFR 129 EPA Toxic Pollutant Effluent Standards

Part 129 establishes effluent limits for manufacturers or formulators of each of the following toxic pollutants:

- Aldrin/dieldrin;
- DDT, DDD, and DDE;
- Endrin; and
- Toxaphene.

It also establishes effluent limits for benzidine manufacturers and benzidine-based dye applicators, and for PCB manufacturers, electrical capacitor manufacturers, and electrical transformer manufacturers. These activities do not take place at LANL.

40 CFR 130 EPA Requirements for Water Quality Planning and Management

This part establishes policies and requirements for planning, management, and implementation of water quality programs under specific sections of the CWA. The process is implemented jointly by EPA, the States, interstate agencies, and areawide, local and regional planning organizations. LANL may be asked to participate in such planning, but would not have any directly applicable requirements.

40 CFR 131 EPA Procedures for Approving State Water Quality Standards

This part describes the requirements and procedures for developing, reviewing, revising and approving water quality standards by the States. Since LANL would have no direct involvement in this process, the requirements are not applicable.

40 CFR 133 EPA Regulations on Secondary Treatment Regulation

This part provides information on the level of effluent quality attainable through the application of secondary or equivalent treatment. Since secondary treatment refers to POTWs and the treatment of municipal sewage, these requirements are not applicable to the radioactive liquid waste collection system.

40 CFR 135 EPA Regulations on Prior Notice of Citizen Suits

The purpose of this part is to establish a requirement for citizens commencing civil

action to enforce portions of the CWA (and its regulations) to provide notice to EPA prior to taking such action. This part also establishes similar requirements for actions taken under the Safe Drinking Water Act. These requirements have no direct applicability on the LANL radioactive liquid waste collection system.

40 CFR 140 EPA Performance Standards for Marine Sanitation Devices

These standards apply only to vessels (watercraft or other such means of water transportation) on which a marine sanitation device has been installed. Even if LANL were to operate such a vessel, these standards would have no applicability to the collection system.

40 CFR 220 Applications for Ocean Dumping Permits under Section 102 of the Act

This part establishes procedures and criteria for the issuance of ocean dumping permits by EPA and to the Corps of Engineers in its review of activities involving the transportation of dredged material for the purpose of dumping it in ocean waters. LANL is not involved in these activities.

40 CFR 221 Applications for Ocean Dumping Permits under Section 102 of the Act

This part establishes procedures for specific ocean dumping permit applications and their review. LANL is not involved in these activities.

40 CFR 222 Action on Ocean Dumping Permit Applications Under Section 102 of the Act

This part establishes specific procedural requirements in the consideration of ocean dumping permit applications. LANL is not involved in these activities.

40 CFR 223 Contents of Permits; Revision, Revocation or Limitation of Ocean Dumping Permits Under Section 104(d) of the Act

This part establishes the contents of ocean dumping permits pursuant to Section 104 of the CWA and provides procedures for their revision, revocation, or limitation. LANL is not involved in these activities.

40 CFR 224 Records and Reports Required of Ocean Dumping Permittee Under Section 102 of the Act

This part establishes records and reporting requirements applicable to holders of ocean dumping permits. LANL is not involved in these activities.

40 CFR 225 Corps of Engineers Dredged Material Permits

This part establishes the information the Corps will send EPA on permits for the transportation of dredged material for the purpose of ocean disposal and the administrative procedures that may take place should EPA reject the Corps determination. LANL is not involved in these activities.

40 CFR 227 Criteria for the Evaluation of Permit Application for Ocean Dumping of Materials

This part establishes the criteria upon which the issuance of ocean disposal permits must be based. LANL is not involved in these activities.

40 CFR 228 Criteria for the Management of Disposal Sites for Ocean Dumping

This part also covers criteria for ocean dumping permits, particularly in relation to continuing requirements for effective management of sites to prevent unreasonable degradation of the marine environment from all wastes being dumped in the ocean. LANL is not involved in these activities.

40 CFR 229 General Permits (Ocean Dumping)

This part establishes general permits for sea burial of human remains, transport and sinking (ordnance testing) of target vessels, and sinking of vessels, all under specific conditions. LANL is not involved in these activities.

40 CFR 230 Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material

This part establishes guidelines applicable to the specification of disposal sites for discharges of dredged or fill materials into waters of the U.S. LANL is not involved in these activities.

40 CFR 231 Section 404(c) Procedures (EPA Regulations on Disposal Site Determinations)

This part establishes procedures to be followed by EPA in prohibiting or withdrawing the specification, or denying, restricting, or withdrawing the use for specification, of any defined areas as a disposal site for dredged or fill material. LANL is not involved in these activities.

40 CFR 232 404 Program Definitions; Exempt Activities not Requiring 404 Permits

This part contains definitions applicable to the section 404 program for discharges of dredged or fill material and describes those activities which are exempted from the regulation. LANL is not involved in these activities.

40 CFR 233 404 State Program Regulations

This part specifies the procedures EPA will follow, and the criteria EPA will apply, in approving, reviewing, and withdrawing approval of State programs under section 404 of the CWA. LANL is not involved in these activities.

40 CFR 403 EPA Pretreatment Standards

The provisions of 403 establish responsibilities to implement National Pretreatment Standards to control pollutants which pass through or interfere with treatment processes in POTWs or which contaminate sewage sludge. Since the radioactive liquid waste at LANL does not go to a POTW, these provisions are not applicable.

40 CFR 405 EPA Effluent Guidelines and Standards for Dairy Products

The provisions of 405 are applicable to discharges resulting from:

- the operation of receiving stations engaged in the assembly and reshipment of bulk milk for the use of manufacturing or processing plants; and
- the manufacture of dairy products (market milk, butter, cottage cheese, whey, etc).

These activities do not take place at LANL.

40 CFR 406 EPA Effluent Guidelines and Standards for Grain Mills

The provisions of 406 are applicable to discharges resulting from

- the milling of corn, wheat, or rice;
- the cleaning, cooking and drying of rice prior to milling;

- the manufacture of animal feeds using primarily grain products;
- the manufacture of breakfast cereals from grains; and
- the production of wheat starch and gluten.

These activities do not take place at LANL.

40 CFR 407 EPA Effluent Guidelines and Standards for Canned and Preserved Fruits and Vegetables

The provisions of 407 are applicable to discharges resulting from

- the processing of apples into apple juice or apple products;
- the processing of citrus into citrus products;
- the processing of potatoes into frozen, dehydrated or other potato products; and
- the processing of other specific fruit, vegetable and specialty products.

These activities do not take place at LANL

40 CFR 408 EPA Effluent Guidelines and Standards for Canned and Preserved Seafood Processing

The provisions of 408 are applicable to discharges resulting from the processing of various seafoods. These activities do not take place at LANL.

40 CFR 409 EPA Effluent Guidelines and Standards for Sugar Processing

The provisions of 409 are applicable to discharges resulting from the processing of sugar beets or cane sugar into sugar products. These activities do not take place at LANL.

40 CFR 410 EPA Effluent Guidelines and Standards for Textile Mills

The provisions of 410 apply to any textile mill or textile processing facility which discharges process wastewater pollutants to waters of the U.S. or to a POTW. These activities do not take place at LANL.

40 CFR 411 EPA Effluent Guidelines and Standards for Cement Manufacturing

The provisions of 411 apply to discharges resulting from processes used in the manufacturing of cement or from the runoff of rainfall derived from storage of materials used in, or resulting from, the manufacture of cement. These activities

do not take place at LANL.

40 CFR 412 EPA Effluent Guidelines and Standards for Feedlots

The provisions of 412 apply to discharges of pollutants resulting from animal feedlot operations with capacities greater than specified. These activities do not take place at LANL.

40 CFR 415 EPA Effluent Guidelines and Standards for Inorganic Chemicals Manufacturing

The provisions of 415 apply to discharges and to the introduction of pollutants into POTWs resulting from production of the following:

- Aluminum chloride;
- Aluminum sulfate;
- Calcium carbide;
- Calcium chloride (by brine extraction process);
- Calcium oxide;
- Chlorine, and sodium or potassium hydroxide;
- Hydrofluoric acid;
- Hydrogen peroxide;
- Potassium metal;
- Potassium dichromate;
- Potassium sulfate;
- Sodium bicarbonate;
- Sodium chloride;
- Sodium dichromate and byproduct sodium sulfate;
- Sodium sulfite;
- Titanium dioxide;
- Aluminum fluoride;
- Ammonium chloride;
- Borax;
- Boric acid;
- Bromine;
- Calcium carbonate;
- Calcium hydroxide;
- Carbon monoxide and by-product hydrogen;
- Chrome pigments;
- Chromic acid;
- Copper salts;
- Ferric chloride;
- Fluorine
- Hydrogen as a refinery by-product;
- Hydrogen cyanide;
- Iodine;
- Lead monoxide;
- Lithium carbonate;
- Nickel salts;
- Oxygen and nitrogen by air liquification;
- Potassium chloride;

- Potassium iodide;
- Silver nitrate;
- Sodium bisulfite;
- Sodium fluoride;
- Stannic oxide;
- Zinc sulfate;
- Cadmium pigments and salts;
- Cobalt salts;
- Sodium chlorate; and
- Zinc chloride.

These activities do not take place at LANL.

40 CFR 417 EPA Effluent Guidelines and Standards for Soaps and Detergents

The provisions of 417 apply to discharges from:

- production of various soap and soap feed materials;
- production of glycerine;
- production of sulfonic acid and sulfuric acid esters;
- various sulfonation and sulfating processes;
- neutralization of sulfated and sulfonated alkylbenzenes; and
- production of various detergents.

These activities do not take place at LANL.

40 CFR 418 EPA Effluent Guidelines and Standards for Fertilizer Manufacturing

The provisions of 418 apply to discharges from:

- production of sulfuric acid from specific phosphate-based materials;
- manufacture of ammonia;
- manufacture of urea;
- manufacture of ammonia nitrate;
- production of nitric acid;
- production of ammonium sulfate; and
- production of mixed and blend fertilizer.

These activities do not take place at LANL.

40 CFR 419 EPA Effluent Guidelines and Standards for Petroleum and Petroleum Refining

The provisions of 419 apply to discharges from the production of petroleum products through various processes including topping and catalytic reforming, cracking, petrochemical, and lube oil manufacturing. These activities do not take place at LANL.

40 CFR 420 EPA Effluent Guidelines and Standards for Iron and Steel Manufacturing

The provisions of 420 apply to discharges from:

- by-product and beehive cokemaking operations;
- sintering operations;
- ironmaking operations (blast furnace);
- steelmaking operations;
- vacuum degassing (from molten steel) operations;
- continuous casting of molten steel;
- hot forming operations;
- oxidizing and reducing salt bath descaling operations;
- acid pickling operations;
- cold forming of steel;
- alkaline cleaning (baths) of steel; and
- hot coating of steel with zinc, terne, or other metals.

These activities do not take place at LANL.

40 CFR 422 EPA Effluent Guidelines and Standards for Phosphate Manufacturing

The provisions of 422 apply to discharges from:

- production of phosphorus and ferrophosphorus by smelting ore;
- manufacture of elemental phosphorus and specific phosphorus compounds;
- manufacture of specific phosphate compounds;
- defluorination of phosphate rock or phosphoric acid; and
- manufacture of purified sodium phosphates.

These activities do not take place at LANL.

40 CFR 423 EPA Effluent Guidelines and Standards for Steam Electric Power Generating

The provisions of 423 apply to discharges resulting from operation of a generating unit by an establishment primarily engaged in the generation of electricity for distribution and sale, primarily from a process utilizing fossil-type fuel or nuclear fuel in conjunction with a thermal cycle employing the steam. These activities do not take place at LANL.

40 CFR 424 EPA Effluent Guidelines and Standards for Ferroalloy Manufacturing

The provisions of 424 apply to discharges resulting from:

- smelting of ferroalloys in open or covered furnaces;
- slag processes;
- production of calcium carbide in covered electric furnaces;

- manufacture of electrolytic manganese products; and
 - manufacture of chromium metal by the electrolytic process.
- These activities do not take place at LANL.

40 CFR 425 EPA Effluent Guidelines and Standards for Leather Tanning and Finishing

The provisions of 425 apply to any leather tanning and finishing facility which discharges or may discharge process wastewater pollutants to waters of the U.S. or to a POTW. These activities do not take place at LANL.

40 CFR 426 EPA Effluent Guidelines and Standards for Glass Manufacturing

The provisions of 426 apply to discharges from the production of:

- insulation fiberglass;
- sheet, rolled, plate, float, or automotive glass;
- glass containers;
- television picture tube envelopes;
- incandescent lamp envelopes; and
- hand pressed and blown glass.

These activities do not take place at LANL.

40 CFR 427 EPA Effluent Guidelines and Standards for Asbestos Manufacturing

The provisions of 427 apply to discharges of wastewater from:

- manufacture of asbestos cement pipes or sheets;
- manufacture of asbestos paper, millboard, roofing, or floor tile;
- process of coating or impregnating asbestos textiles;
- process of solvent recovery in the manufacture of asbestos products; and
- removal of volatilized organic materials or particulates from atmospheric emissions;

These activities do not take place at LANL.

40 CFR 428 EPA Effluent Guidelines and Standards for Rubber Manufacturing

The provisions of 428 apply to discharges of wastewater from:

- production of pneumatic tires and inner tubes;
- manufacture of emulsion or solution crumb rubber;
- manufacture of latex rubber;
- production of molded, extruded, and fabricated rubber products;

- production of reclaimed rubber;
 - manufacture of latex-dipped, latex-extruded, and latex-molded products; and
 - manufacture of latex foam;
- These activities do not take place at LANL.

40 CFR 429 EPA Effluent Guidelines and Standards for Timber Products

The provisions of 429 apply to any timber products processing operation, and any plant producing insulation board with wood as the major raw material, which discharges wastewater pollutants to waters of the U.S. or a POTW. These activities do not take place at LANL.

40 CFR 430 EPA Effluent Guidelines and Standards for Pulp, Paper, and Paperboard

The provisions of 430 apply to any pulp, paper, or paperboard mill discharging wastewater pollutants to waters of the U.S. or to a POTW. These activities do not take place at LANL.

40 CFR 431 EPA Effluent Guidelines and Standards for Builders Paper and Board Mills

The provisions of 431 apply to discharges resulting from the production of builder's paper and roofing felt from wastepaper. These activities do not take place at LANL.

40 CFR 432 EPA Effluent Guidelines and Standards for Meat Products

The provisions of 432 apply to discharges resulting from:

- production of red meat carcasses, in whole or part, by slaughterhouses or by packinghouses;
- production of finished meat products;
- fabrication or manufacture of fresh meat cuts by a meat cutter;
- manufacture of fresh meat cuts, sausage, bologna or other luncheon meats by a sausage and luncheon meat processor;
- manufacture of hams;
- manufacture of canned meats; and
- manufacture of meat meal, dried animal by-product residues, animal oils, grease and tallow, by a renderer.

These activities do not take place at LANL.

40 CFR 434 EPA Effluent Guidelines and Standards for Coal Mining

The provisions of 434 apply to discharges from any active or planned coal mine and to coal preparation plants and associated areas. These activities do not take place at LANL.

40 CFR 435 EPA Effluent Guidelines and Standards for Offshore Oil and Gas Extraction

The provisions of 435 apply to discharges from facilities engaged in field exploration, drilling, well production, and well treatment in the oil and gas extraction industry. These activities do not take place at LANL.

40 CFR 436 EPA Effluent Guidelines and Standards for Mineral Mining and Processing

The provisions of 436 apply to discharges resulting from the mining and/or processing of:

- crushed and broken stone and riprap;
- sand and gravel;
- gypsum;
- bituminous limestone, oil-impregnated diatomite and oilsonite;
- asbestos and wollastonite;
- barite;
- fluorspar;
- salines from brine lakes;
- borate minerals;
- potash;
- sodium sulfate;
- phosphate bearing rock, ore or earth for the phosphate content;
- sulfur by the Frasch process;
- bentonite;
- naturally occurring magnesite ore;
- diatomite;
- jade;
- novaculite;
- tripoli; and
- naturally occurring graphite;

These activities do not take place at LANL.

40 CFR 440 EPA Effluent Guidelines and Standards for Ore Mining and Dressing

The provisions of 440 apply to discharges from the mines producing and mills beneficiating/processing/extracting:

- iron ores;
- bauxite as an aluminum ore;
- uranium, radium, and vanadium ores;
- mercury ores;
- titanium ores;
- tungsten ores;
- nickel ores;
- vanadium ores;
- antimony ores;
- copper, lead, zinc, gold, silver, and molybdenum ores;
- platinum ores; and
- gold bearing ores from placer deposits.

These activities do not take place at LANL.

40 CFR 443 EPA Effluent Guidelines and Standards for Paving and Roofing Materials

The provisions of 443 apply to discharges resulting from the production of:

- asphalt paving and roofing emulsions;
- asphalt concrete;
- asphalt roofing materials; and
- linoleum and printed asphalt felt floor coverings.

These activities do not take place at LANL.

40 CFR 446 EPA Effluent Guidelines and Standards for Paint Formulating

The provisions of 446 apply to discharges resulting from the production of oil-based paint where the tank cleaning is performed using solvents. These activities do not take place at LANL.

40 CFR 447 EPA Effluent Guidelines and Standards for Ink Formulating

The provisions of 447 apply to discharges resulting from the production of oil-based ink where the tank washing system uses solvents. These activities do not take place at LANL.

40 CFR 454 EPA Effluent Guidelines and Standards for Gum and Wood Chemicals Manufacturing

The provisions of 454 apply to discharges resulting from the production or manufacture of:

- char and charcoal briquets;
- gum rosin and turpentine;
- wood rosin, turpentine and pine oil;
- tall rosin, pitch and fatty acids;
- essential oils; and
- rosin-based derivatives.

These activities do not take place at LANL.

40 CFR 455 EPA Effluent Guidelines and Standards for Pesticide Chemicals

The provisions of 455 apply to discharges resulting from:

- manufacture of specified organic pesticide chemicals;
- manufacture of metallo-organic pesticide chemicals with active ingredients containing mercury, cadmium, arsenic, or copper; and
- all pesticide formulating and packaging operations.

These activities do not take place at LANL.

40 CFR 457 EPA Effluent Guidelines and Standards for Explosives Manufacturing

The provisions of 457 apply to discharges resulting from:

- production of explosives;
- explosives load, assemble and pack plants; and
- production of carbon black by the lamp process.

These activities do not take place at LANL.

40 CFR 458 EPA Effluent Guidelines and Standards for Carbon Black Manufacturing

The provisions of 458 apply to discharges resulting from the production of carbon black by the furnace, thermal, or channel processes. These activities do not take place at LANL.

40 CFR 459 EPA Effluent Guidelines and Standards for Photographic Processing

The provisions of 459 apply to point source discharges resulting from the development or printing of paper prints, slides, negatives, enlargements, movie film, and other sensitized materials in excess of 150 sq. meters (1600 sq. feet). per day. These activities do not take place in these quantities at LANL.

40 CFR 460 EPA Effluent Guidelines and Standards for Hospitals

The provisions of 460 apply to discharges resulting from the functional operations of the hospital point source category. These activities do not take place at LANL.

40 CFR 461 EPA Effluent Guidelines and Standards for Battery Manufacturing

The provisions of 461 apply to any battery manufacturing plant that discharges (or potentially discharges) pollutants to waters of the U.S. or a POTW. These activities do not take place at LANL.

40 CFR 463 EPA Effluent Guidelines and Standards for Plastics Molding and Forming

The provisions of 463 apply to any plastics molding and forming process that discharges (or potentially discharges) pollutants to waters of the U.S. or a POTW. These activities do not take place at LANL.

40 CFR 464 EPA Effluent Guidelines and Standards for Metal Molding and Casting

The provisions of 464 apply to metal molding and casting facilities that discharge (or potentially discharge) pollutants to waters of the U.S. or a POTW. These activities do not take place at LANL.

40 CFR 465 EPA Effluent Guidelines and Standards for Coil Coating

The provisions of 465 apply to any coil coating facility or to any canmaking facility that discharges (or potentially discharges) pollutants to waters of the U.S. or a POTW. These activities do not take place at LANL.

40 CFR 466 EPA Effluent Guidelines and Standards for Porcelain Enameling

The provisions of 466 apply to any porcelain enameling facility discharging pollutants to waters of the U.S. or into a POTW. Excluded are facilities below certain size limits and those enameling precious metals. None of these activities take place at LANL.

40 CFR 468 EPA Effluent Guidelines and Standards for Copper Forming

The provisions of 468 apply to discharges resulting from the manufacture of formed (hot rolling, cold rolling, drawing, extrusion, and forging) copper and copper alloy products. These activities do not take place at LANL.

40 CFR 469 EPA Effluent Guidelines and Standards for Electrical and Electronic

The provisions of 469 apply to discharges resulting from all process operations associated with the manufacture of semiconductors, except sputtering, vapor deposition, and electroplating. These activities do not take place at LANL.

40 CFR 501 EPA Regulations on State Sludge Management Programs

This part specifies the procedures EPA will follow in approving, revising, and withdrawing State sewage sludge management programs and the requirements the State programs must meet to be approved. These procedures do not apply directly to LANL activities.

40 CFR 503 EPA Standards for the Use or Disposal of Sewage Sludge

This part establishes standards, which consist of general requirements, pollutant limits, management practices, and operational standards, for the final use or disposal of sewage sludge generated during the treatment of domestic sewage in a treatment works. Since the waste collection system under consideration does not involve domestic sewage, these requirements are not applicable.

**RESOURCE
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October 1, 1993

Mr. Lincoln Busselle
Merrick Engineers
600 Sixth Street, Suite 106
Los Alamos, New Mexico 87544

RE: LANL Radioactive Liquid Waste Treatment Facility Predesign Studies
Review of Potential Design Standards

Dear Lincoln:

Resource Technologies Group, Inc. (RTG) was asked to review projects from our experience, as well as other similar projects, to determine the design requirements typical of DOE and industrial wastewater design projects. This review is intended to identify the likely design standards which should be considered during preparation of the Conceptual Design Report for the LANL Radioactive Liquid Waste Treatment Facility.

Attachment 1 presents projects that RTG has work on, or are aware of, and brief descriptions of the project scope. In addition, contact information (if available) is provided. Attachment 2 presents a matrix of the standards applied to some of the projects described Attachment 1.

Please feel free to give me a call if you have any questions concerning this information.

Sincerely,

Kevin W. Conroy, P.E.
Engineering Manager

KWC:vcc

[930162.002] 10/1/93

Attachment 1

Review of Requirements for DOE and Industrial Design Projects

Resource Technologies Group, Inc. (RTG) was asked to review projects from our experience, as well as other similar projects, to determine the design requirements typical of DOE and industrial wastewater design projects. This review is intended to identify the likely design standards which must be considered during preparation of the Conceptual Design Report for the LANL Radioactive Liquid Waste Treatment Facility.

The following sections review the results of these investigations. For each project, a project name, client name and contact (for RTG projects), and an owner name and contact (for other projects, if available) is provided. In addition, a brief description of the project is provided.

Project Name: **Weldon Spring Site Remedial Action Project**

Client Name: **MK-Ferguson Company**
 7295 Highway 95 South
 St. Charles, Missouri 63304

Contact: **Mr. Mel Roberts**
 (314) 441-8086 ext. 2919

RTG was contracted by MK-Ferguson Company to design, construct, and start-up a wastewater treatment facility at the Weldon Spring Site Remedial Action Project (WSSRAP). The Weldon Spring Site is located near St. Charles, Missouri, and was placed on the National Priorities List (NPL) in 1987 by the U.S. Environmental Protection Agency. The site has also been designated as a major decontamination project under the DOE Surplus Facilities Management Program. The treatment facility will treat all water which comes in contact with potentially contaminated materials generated throughout the decontamination and decommissioning of the buildings on the Weldon Spring Site.

Initial project activities on the project included the development and implementation of a detailed laboratory investigation to determine the expected performance of a number of proposed technologies. These studies were completed in accordance with a detailed Work Plan and a detailed Quality Assurance Project Plan. RTG was responsible for preparing both documents prior to beginning the treatability study.

The results of the study were then used to prepare a detailed engineering evaluation on the applicability and feasibility of each technology. In addition, the detailed process design basis for the selected technologies was developed.

The wastewater to be treated is expected to be contaminated with a number of heavy metals including arsenic, cadmium, chromium, and manganese. Additional contaminants include radionuclides (uranium and thorium) and organics (2,4-dinitrotoluene). Because of the complex nature of the wastewater, the final process flowsheet included multiple dissolved and suspended solids technologies including the following:

- Lime/iron coprecipitation;
- Clarification;
- Multi-media filtration;
- Activated alumina adsorption;
- Activated carbon adsorption;
- Ion exchange
- Neutralization; and
- Sludge handling.

Following completion of process design, RTG proceeded with the detailed design for the entire facility. This included the civil, architectural, structural, mechanical, and electrical design of a 5,600 square foot facility. In addition, procurement specifications for all process equipment were prepared. Finally, RTG directly designed the control system for the facility. This included control panel design, Programmable Logic Controller (PLC) selection, and control program development.

Project Name: Hanford Decontamination Laundry Facility

Client Name: Westinghouse Hanford Company
 P.O. Box 1970
 Richland, Washington 99352

Contact: Mr. Ron Yanochko
 (509) 376-2523

RTG was a subcontractor on the A/E team responsible for the Definitive Design (Title I/II) of the Hanford Decontamination Laundry Facility (DLF). The facility was designed to wash approximately 4,200,000 pounds of radiologically and non-radiologically contaminated protective clothing per year. Construction of the facility is currently on hold.

RTG's role on the project was to complete all activities associated with the design of the radioactive liquid waste treatment facility to be incorporated into the DLF. This included predesign investigations and evaluations, process design, detailed design, and regulatory compliance support. In addition, RTG prepared all specifications for facility radiological monitoring systems including stack monitors, continuous air monitors, portal monitors, and waste assay equipment.

Prior to beginning design of the treatment facility, RTG performed a detailed Best Available Technology (BAT) analysis to select the preferred treatment process for the facility. The BAT analysis was required by DOE Orders, WHC policy, and State of Washington regulations. The study was performed in accordance with an established DOE-Richland BAT guidance document. RTG also participated in multiple meetings with WHC, DOE and the Washington State Department of Ecology in reviewing the results of the BAT study in relation to discharge permitting issues.

In order to complete the BAT analysis, RTG performed a detailed treatability study on wastewater generated at the existing Hanford laundry facility. All on-site work was completed in accordance with an RTG prepared work plan and quality assurance procedures meeting the requirements of EPA/QAMS-005. The treatability study and resulting BAT analysis considered approximately twenty unit operations for the removal of suspended solids, dissolved solids, and organic contaminants. Specific contaminants of concern included oil and grease, heavy metals, organics, and radionuclides including cesium, strontium, and alpha-emitting isotopes.

The BAT evaluation assembled the most promising technologies based on the treatability study results into four final alternatives. These alternatives were then evaluated and ranked according to ten technical and non-technical criteria, and a final determination on BAT was made. The final selected process included the following unit operations:

- Flow equalization and wastewater heat recovery;
- Combination lime\sodium hydroxide\iron coprecipitation;
- Crossflow membrane microfiltration;
- Zeolite ion exchange;
- Activated carbon adsorption;
- Neutralization;
- Resin dewatering and packaging; and
- Sludge dewatering and drying.

Following the BAT analysis detailed design documents including construction plans and specifications were prepared.

Project Name: **UMTRA Program Wastewater Treatment**

Client Name: **MK-Ferguson Company**
 180 Howard Street
 San Francisco, California 94105

Contact: **Mr. Hugh Hemphill**
 (415) 442-7511

RTG has been extensively involved in providing wastewater treatment support to the DOE Uranium Mill Tailings Remedial Action (UMTRA) Program. This program is funded by DOE and managed by MK-Ferguson Company. The purpose of the program is to complete the remediation of more than twenty abandoned uranium mill tailings sites throughout the United States. Since the inception of the program in the early 1980's, RTG has been responsible for the development, design, construction/installation, or operations of every wastewater treatment facility required to date at UMTRA sites. Specific sites at which RTG has worked include the following:

- Canonsburg, Pennsylvania;
- Salt Lake City, Utah;
- Rifle, Colorado;
- Grand Junction, Colorado; and
- Lakeview, Oregon.

In general, all projects for the UMTRA Program have involved the treatment of ground or surface water produced during tailings removal and disposal activities. These waters are typically contaminated with both toxic metals as well as uranium and radium. In some instances, organic compounds were also present. All of the projects have utilized the following unit operations:

- Initial chemical precipitation/coprecipitation with pH adjustment and barium;
- Intermediate clarification for arsenic and selenium removal;
- Second stage chemical precipitation\coprecipitation with lime and iron;
- Crossflow membrane microfiltration;
- Neutralization; and
- Sludge handling.

This process was originally developed by RTG for the first RTG UMTRA project at Canonsburg, Pennsylvania. The process was identified as being the Best Available Technology in a RTG prepared Design Engineers Report submitted in support of a NPDES permit. Due to the performance of the facility at Canonsburg, all subsequent UMTRA wastewater treatment projects have utilized the same technologies as the

original Canonsburg plant. The scope of services for all UMTRA wastewater treatment projects have included one or more of the following:

- Treatability studies and process design;
- Equipment specifications and procurement;
- Equipment installation;
- Facility design;
- Facility construction;
- Facility testing and operations; and
- Facility decontamination and decommissioning.

Project Name: Cotter Corporation Pilot Plant

Client Name: Cotter Corporation
12596 W. Bayaud Avenue, Suite 350
Lakewood, Colorado 80228

Contact: Mr. Phil Krauth
(719) 272-7413

Cotter Corporation operates a large uranium mill in Canon City, Colorado. Throughout the years, facility operations have resulted in extensive contamination of the local ground water system with uranium and molybdenum. Cotter is currently investigating alternatives for the remediation of this contamination.

RTG was initially selected to perform treatability studies to identify the best available technology for the treatment of the contaminated ground water. This study investigated multiple technologies, and recommended the use of ion exchange for uranium removal and activated carbon adsorption for molybdenum removal. After completion of the studies, RTG prepared a detailed report and conceptual design of a pilot plant for review by regulatory agencies.

After process approval was obtained, RTG was selected to provide detailed design services for construction of the pilot plant to demonstrate the ability of the system to meet expectations. RTG scaled up the treatability study results, and prepared detailed design drawings for a facility incorporating the selected technologies. In addition, specifications for all major equipment were prepared for procurement by Cotter. RTG then provided field support for the construction of the facility, and monitored the performance of the system for more than a year. Based on the results of the pilot testing, a final report including the conceptual design of a full scale remediation system was prepared.

Project Name: Bell Aerospace Textron

Client Name: Bell Aerospace Textron
Niagara Falls Boulevard
Niagara Falls, New York 14304

Contact: Mr. Brian Smith
(508) 657-3421

RTG has provide a variety of services to Bell Aerospace Textron (BAT). BAT operates a large facility near Buffalo New York which has been found to have ground water contamination problems. These problems primarily include solvent contamination, both in a neat phase as well as dissolved in the ground water. The facility is being remediated in accordance with the requirements of RCRA.

RTG was originally contracted to assist in the preparation of a RCRA Corrective Measures Study (CMS). The specific scope of supply included the development and implementation of a laboratory and pilot scale investigation to obtain data that would allow completion of the CMS. RTG tested multiple technologies including the following.

- Air stripping;
- Liquid phase activated carbon; and
- UV peroxide oxidation.

The results of the studies were used to complete the evaluation of a number of potential remedial alternatives. The evaluation also incorporated air pollution control systems to control the release of organic compounds from the air stripping process. Technologies which were evaluated included vapor phase activated carbon and catalytic oxidation.

After completion of the engineering evaluations, a detailed report was prepared for submission to BAT as well as to State of New York regulatory agencies. RTG also developed conceptual design details for the selected alternative, and prepared preliminary capital and operating cost estimates for internal use by BAT.

After approval of the remedial measures by regulatory agencies, RTG was asked to complete the detailed design package for the selected alternative. This alternative included the following processes.

- Phase separation for free phase materials;
- Air stripping;
- Liquid phase activated carbon;

- Vapor phase catalytic oxidation; and
- Effluent pH adjustment.

RTG prepared all required construction documentation for the facility. This included the following items.

- Process flow sheets;
- Piping and instrumentation diagrams;
- General equipment arrangements;
- Equipment specifications;
- Site preparation and utility drawings;
- Building architectural and structural design drawings and specifications;
- Building mechanical and electrical drawings and specifications; and
- Control system design.

Project Name: Rocky Flats Plant Mobile Treatment Trailers

Client Name: EG&G Rocky Flats
PO Box 464
Golden, Colorado 80402-0464

Contact: Mr. Al. Salazar
(303) 966-7525

RTG has been awarded two contracts to provide mobile treatment systems for use at the Rocky Flats Plant. General scope on both projects included the preparation of all facility design and construction documentation. This included process flow diagrams, general equipment arrangements, piping and electrical drawings, instrumentation and control system details, and structural details. In addition, specifications were prepared for all major equipment items, and equipment was procured. RTG then constructed the facilities, and completed functional and performance testing of all trailer equipment and systems.

The first system includes two trailers for the treatment of potentially contaminated surface water. Contaminants of concern included plutonium, americium, and heavy metals. The treatment equipment was designed to fit in two standard 48 foot long freight vans, and was legally transported on public highways in accordance with DOT regulations. Unit operations in the two trailers included the following.

- Two stage chemical treatment
- Membrane microfiltration
- Sludge storage and dewatering
- Effluent neutralization

The entire trailer system is controlled by two Programmable Logic Controllers. The design of the control system and all PLC programming was performed directly by RTG. After trailer construction was complete, RTG completed a series of functional and performance tests, and delivered and installed the unit at the Rocky Flats Plant.

The design and construction of the trailer system was completed in approximately four months. The schedule was critical due to negotiated milestone dates between EG&G and regulatory agencies. Delays in completion of the project could have resulted in considerable fines. RTG was able to schedule project activities such that the project was completed on time without sacrificing quality and performance.

The second trailer system is a mobile soil vapor extraction unit. Vacuum blowers operated in series are used to extract vapor from soils contaminated with volatile organic compounds. The recovered vapors are processed through a knockout drum to remove free moisture prior to HEPA filtration. Following HEPA filtration, granular activated carbon is used to remove volatile organic compounds prior to atmospheric discharge.

The entire system is located in a single 48 foot trailer. The trailer includes a main process area and a separate laboratory/control room area. The facility is designed to be operated by a PLC purchased and programmed by RTG. Instrumentation is provided to measure air parameters including flow, relative humidity, temperature, and pressure. In addition, instrumentation is provided to monitor oxygen content and carbon monoxide. Finally, a selective alpha air monitor (SAAM) was installed to monitor final atmospheric discharge for radionuclides, and a gas sampling system installed to allow grab samples to be taken.

Project Name: Hanford Treated Effluent Disposal Facility, Project W-049

Owner Name: Westinghouse Hanford Company

Contact: Mr. Don Flyckt
 (509) 373-3985

There are multiple sources of wastewater generated throughout the 200 Areas at the Hanford site. Currently, most of these discharges are directed to the soil column or evaporation ponds. As part of a report to Congress, Hanford committed to eliminating discharges of untreated effluents to the soil column.

For more than five years, Hanford has been performing Best Available Technology (BAT) studies on the various discharges. In addition, Project W-049 was started for a centralized Treated Effluent Disposal Facility (TEDF). The TEDF will receive the treated effluent from each of the individual sources. The TEDF will be permitted as

applicable, and each individual generator will have what amounts to a pretreatment permit.

Each individual discharger to the TEDF will be required to meet the effluent limits for the TEDF without an allowance for mixing with other discharges of higher quality.

At this point in time final planning studies and permitting for the TEDF are in progress.

Project Name: Hanford Project C-018H

Owner Name: Westinghouse Hanford Company

Contact: Mr. Jack Noble
 (509) 376-8092

As discussed above, Project W-049 at Hanford will receive treated effluent from a number of sources throughout the 200 Area. An exception to this approach is Project C-018H. This project includes treatment facilities for several wastestreams generated in the Hanford PUREX plant. Treatment processes include chemical treatment, filtration, reverse osmosis, UV peroxide, and an evaporator.

Project C-018H was awarded as a design-build contract to JGC/Adtechs. Specifications for the project were performance-based, and had few standards identified. It was left primarily up to the Contractor to use appropriate design standards. However, DOE Order 6430.1A was referenced. This automatically involves multiple standards. The basic standards section of 6430.1A is attached for reference.

Project Name: Hanford 300 Area Effluent Treatment Facility

Owner Name: Westinghouse Hanford Company

Contact: Kaiser Engineers
 Richland, Washington

Similar to the 200 Area, the 300 Area at Hanford has a number of individual generators of wastewater. Most of these generators have historically discharged effluents, some untreated, to the soil column.

The 300 Area Effluent Treatment Facility was designed to receive discharges from throughout the 300 Area and treat them in a single facility. Treated effluent from the facility is discharged to the Columbia River under the conditions of an NPDES permit.

The 300 Area facility was designed by CH2MHill and is currently under construction. The construction contract is actually with Kaiser Engineers.

Project Name: Fernald Advanced Wastewater Treatment Facility

Owner Name: Fernald Environmental Management Company

Contact: Mr. Dave Brettscheider
(513) 738-6200

The Advanced Wastewater Treatment Facility is being constructed at Fernald to treat a number of streams at the site. The contract was awarded in two pieces. The first contract was for design and construction of an ion exchange facility. Project scope included the turnkey design, equipment procurement, construction, and startup of the facility. This contract was awarded to Hydro Pure Systems from New Jersey, and is currently in the design phase.

The second portion of the Award was designed by A.M. Kinney of Cincinnati, Ohio. This portion of the facility included multiple chemical treatment and adsorption processes. Detailed specifications were developed by Kinney. The facility is currently in the early stages of construction.

Project Name: Hazardous Waste Landfill Leachate Treatment Facility

Client Name: Confidential Client

Contact: Available upon request

RTG was contracted by a confidential client to design, construct, and start-up a facility for treatment of wastewater generated at a hazardous waste landfill. Two separate treatment trains were designed for leachate from landfill operations and runoff water potentially contaminated from contact with waste materials. The landfill is permitted under RCRA for land disposal of a variety of organic and inorganic constituents.

Initial project activities on the project included the development and implementation of a laboratory investigation to determine the expected performance of a number of proposed technologies. The results of the study were then used to prepare the detailed process design basis for the selected technologies.

The wastewater to be treated is expected to be contaminated with a number of species including the following.

- Heavy metals;
- Volatile organic compounds; and
- Semivolatile organic compounds.

Because of the complex nature of the wastewater, the final process flowsheet included multiple dissolved and suspended solids technologies including the following:

- Lime/iron coprecipitation;
- Clarification;
- Multi-media filtration;
- Activated carbon adsorption;
- Neutralization; and
- Sludge handling.

Following completion of process design, RTG proceeded with the detailed design for the facility (approximately 5,000 square feet). This included the following design disciplines.

- Civil site work and utilities;
- Architectural;
- Structural
- Mechanical;
- Electrical; and
- Instrumentation and controls.

In addition to engineering and construction drawings, RTG prepared procurement specifications for all major process equipment, electrical equipment, and instrumentation and control systems. Finally, RTG directly designed the control system for the facility. This included control panel design, Programmable Logic Controller (PLC) selection, and control program development.

After preparation of design documents, RTG managed all aspects of the construction of the facility by local contractors. After construction of the facility was complete, RTG conducted extensive testing on both clean water as well as actual contaminated water. RTG operators and engineers were present throughout this commissioning phase. In addition, RTG prepared all facility Operations and Maintenance documentation, and conducted classroom and on-the-job training of facility operators.

Project Name: Fernald SPIT Project

Owner Name: Fernald Environmental Management Corporation

Contact: Mr. Dave Brettschneider
(513) 738-6200

The Fernald South Plume Interim Treatment (SPIT) project is intended to treat ground water containing trace concentrations of uranium through ion exchange and filtration processes. The project was bid as a turnkey design-build with performance specifications. The project is currently in the bid stage.

Attachment 2 Summary of Design Standards

The following pages contain design standards for ten projects. The types of projects and the source of design standard information is as follows.

Weldon Spring: RTG was responsible for the design and construction of the facility described. The standards were contained in general specifications supplied by MK-Ferguson. RTG incorporated these standards in our final design documents.

Hanford DLF: RTG was part of an Architect Engineering team for this project. The standards are all referenced in the final construction drawings and specifications prepared for the project.

UMTRA Program: RTG has designed and constructed a number of facilities for this program. None of the projects had predefined standards. The general references shown are those that were considered during the design and construction of facilities.

Cotter Pilot Plant: This project had no predefined standards for design or construction. The general references shown are those that were considered during the design and construction of facilities.

Bell Aerospace: RTG prepared all construction drawings and specifications for this project. The standards are all referenced in the final construction drawings and specifications prepared for the project.

Rocky Flats Mobile Trailer: The standards shown were provided in the EG&G Statement of Work for the project.

Hazardous Waste Landfill Leachate Treatment: RTG prepared all construction drawings and specifications for this project. The standards are all referenced in the final construction drawings and specifications prepared for the project.

INEL TAN GWTF: RTG bid on this project, but was unsuccessful. The project was for design and construction of a ground water treatment facility. The standards shown were provided in the EG&G Statement of Work for the project.

Fernald SPIT: RTG bid on this project, but was unsuccessful. The project was for design and construction of a ground and surface water treatment facility. The standards shown were provided in the FERMCO Statement of Work for the project.

Fernald AWWT Facility: RTG bid on this project, but was unsuccessful. The project was for design and construction of a ground and surface water treatment facility. The standards shown were provided in the FERMCO Statement of Work for the project.

**Attachment 2
Summary of Project Design Standards**

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
AAMA AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION											
101	Voluntary Specifications for Aluminum Prime Windows and Sliding Glass Doors		X								
701.2	Specification for Pile Weather Strip		X								
603.8	Voluntary Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum		X								
607.1	Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum		X								
1503.1	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections		X								
AASHTO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS											
M20-70	Standard Specification for Penetration Graded Asphalt Cement	X									
M81-75	Standard Specification for Cut-Back Asphalt (Rapid Curing Type)	X									
M82-75	Standard Specification for Cut-Back Asphalt (Medium Curing Type)	X									
M140-86	Standard Specification for Emulsified Asphalt	X									

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
M156-88 Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures	X									
M182 Burlap Cloth Made From Jute or Kenaf		X					X			
M208-86 Standard Specification for Cationic Emulsified Asphalt	X									
M226-80 Standard Specification for Viscosity Graded Asphalt Cement	X									
T96-83 Standard Method of Test for Abrasion Resistance of Small Size Coarse Aggregate by Use of the Los Angeles Machine	X									
T99-86 Moisture Density Relations of Soils Using a 5.5 lb. Rammer and a 12-inch Drop	X				X					
T165-86 Effect of Water on Cohesion of Compacted Bituminous Mixtures	X									
T191-86 Density of Soil In-Place by the Sand Cone Method	X									
T205-86 Density of Soil In-Place by the Rubber-Balloon Method	X									
T238-86 Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth)	X									
T245-82 Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus	X									
T277-83 Standard Method of Test for Rapid Determination of the Chloride Permeability of Concrete.							X			
ACI AMERICAN CONCRETE INSTITUTE										
General Reference Practices for design and construction of concrete structures	X	X	X		X		X		X	X

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
223-83	Standard Practice for the Use of Shrinkage-Compensating Concrete		X								
301-89	Specification for Structural Concrete for Buildings	X	X			X		X		X	
302.1R-89	Guide for Concrete Floor and Slab Construction		X					X			
304	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete		X			X		X			
305.R-89	Hot Weather Concreting		X			X		X		X	
306.1-87	Standard Specification for Cold Weather Concreting		X			X		X		X	
308-81	Standard Practice for Curing Concrete					X					
315	Manual of Standard Practice for Detailing Reinforced Concrete Structures					X					
318-89	Building Code Requirements for Reinforced Concrete		X			X		X		X	
336.1-75	Specifications for Construction of End Bearing Drilled Piers							X			
347-89	Formwork for Concrete	X				X		X			
530.1-88	Specifications for Masonry Structures		X								
SP-15	ACI Field Reference Manual							X			
SP-66-88	Manual of Standard Practice for Detailing Reinforced Concrete Structures		X					X		X	
AFBMA ANTI-FRICTION BEARING MANUFACTURER'S ASSOCIATION											
9-90	Load Ratings and Fatigue Life for Roller Bearings		X					X			

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
11-90 Load Ratings and Fatigue Life for Roller Bearings		X					X			
AIMA ACOUSTICAL AND INSULATING MATERIALS ASSOCIATION										
General Reference Various standards and practices for acoustical and insulating material	X									
AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.										
General Reference Multiple standards related to structural steel	X	X	X		X		X			X
Manual of Steel Construction Allowable Design Stress		X					X			
S326 Specification for the Design, Fabrication and Erection of Structural Steel for Buildings		X			X		X		X	X
Code of Standard Practice for Steel Buildings and Bridges		X					X			X
Specification for Structural Joints Using ASTM A325 or A490 Bolts		X								X
Specifications for Architecturally Exposed Structural Steel									X	
AISI AMERICAN IRON AND STEEL INSTITUTE										
1010 Carbon Steel Plates, Plates, Structural Shapes, Rolled Floor Plates and Steel Sheet Piling		X								
Standard Steels		X								
SG-673-86 Specification for the Design of Cold-Formed Steel Structural Steel Members		X					X		X	

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
AMCA AIR MOVEMENT AND CONTROL ASSOCIATION, INC.											
General Reference	Various standards and practices for air moving and air conditioning equipment	X	X							X	
99-86	Standards Handbook		X							X	
210-85	Laboratory Methods of Testing Fans for Rating Purposes		X							X	
300-85	Test Code for Sound Rating Air Moving Devices		X							X	
301	Method of Calculating Fan Sound Ratings from Laboratory Test Data		X								
500-85	Test Method for Louvers, Dampers, and Shutters									X	
ANSI AMERICAN NATIONAL STANDARDS INSTITUTE											
General	Various standards for materials, equipment, design and construction practices	X	X	X	X	X	X	X	X	X	X
ANSI/AFBMA 9	Load Ratings and Fatigue Life for Ball Bearings		X								
ANSI/AFBMA 11	Load Ratings and Fatigue Life for Roller Bearings		X								
A13.1-85	Scheme for Identification of Piping Systems	X	X			X		X		X	
A14.3	Safety Requirements for Fixed Ladders		X								X
A21.15-88	Standard for Flanged Ductile-Iron and Gray-Iron Pipe With Threaded Flanges	X									
A37.101	Asphalt Expansion Joint		X								
A58.1	Building Code Requirements for Minimum Design Loads on Buildings and Other Structures										X

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
A92.3 Aerial Work Platforms		X								
A108.1-85 Installation of Ceramic Tile With Portland Cement Mortar		X								
A108.5-85 Installation of Ceramic Tile With Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar		X								
A112.6.1 Supports for Off-the-Floor Plumbing Fixtures for Public Use		X								
A112.18.1 Finished and Rough Brass Plumbing Fixture Fittings		X								
A112.19.1 Enameled Cast Iron Plumbing Fixtures		X								
A112.19.2 Vitreous China Plumbing Fixtures		X								
A112.19.3 Stainless Steel Plumbing Fixtures		X								
A112.19.4 Porcelain Enameled Formed Steel Plumbing Fixtures		X								
A112.19.5 Trim for Water Closet Bowls, Tanks and Urinals		X								
A112.21.1 Floor Drains		X								
A112.21.2 Roof Drains		X								
A112.26.1 Water Hammer Arresters		X								
A115.1-88 Door and Frame Preparation for Mortise Door Locks for 1-3/4 inch Doors	X	X								
A115.2-88 Door and Frame Preparation for Bored or Cylindrical Locks for 1-3/4 inch Doors	X	X								
A115.4-88 Door and Frame Preparation for Lever Extension Flush Bolts	X	X								

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
A115.6-88	Door and Frame Preparation for Unit Door Locks	X	X								
A115.9-88	Door and Frame Preparation for Closer, Offset hung, Single Acting	X	X								
A117.1-86	Building and Facilities - Providing Accessibility and Visibility for Physically Handicapped People	X	X								
A118.1-85	Dr-Set Portland Cement Mortar		X								
A118.4-85	Latex-Portland Cement Mortar		X								
A135.4-82	Basic Hardboard		X								
A137.1-88	Ceramic Tile		X								
A156.1-88	Butts and Hinges	X	X								
A156.2-89	Locks and Lock Trim	X	X								
A156.3-89	Exit Devices	X	X								
A156.4-86	Door Controls (Closers)	X	X								
A156.6-86	Architectural Door Trim	X	X								
A156.7-86	Template Hinges	X	X								
A156.8	Door Controls-Closers		X								
A156.9	Cabinet Hardware		X								
A156.12	Interconnected Locks and Latches		X								
A156.13	Mortise Locks and Latches		X								
A156.16	American National Standard for Auxiliary Hardware		X								
A156.17	Self-Closing Hinges and Pivots		X								

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
A156.18	Materials and Finishes		X								
A202	Metal Bar Grating Manual		X								
A208.1	Mat-Formed Wood Particleboard		X								
A208.2	Medium Density Fiberboard for Interior Use		X								
A224	Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames		X								
B1.1-82	Unified Inch Screw Threads (UN and UNR Thread Form)		X								
B1.20.1-83	Pipe Threads, General Purpose (Inch)	X	X			X		X			
B16.1-89	Cast Iron Pipe Flanges and Flanged Fittings	X	X					X			
B16.3-85	Malleable Iron Threaded Fittings, Class 150 and 300	X									
B16.5-88	Pipe Flanges and Flanged Fittings	X	X			X		X			
B16.9-86	Factory-Made Wrought Steel Buttwelding Fittings	X	X			X		X			
B16.10	Face-to-Face and End-to-End Dimensions of Valves		X								
B16.11-91	Forged Steel Fittings, Socket-Welding and Threaded	X	X					X			
B16.18	Cast Copper Alloy Solder Joint Pressure Fittings		X							X	
B16.22	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings		X			X				X	
B16.24	Bronze Pipe Flanges and Flanged Fittings, Class 150 and 300		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
B16.25 Buttwelding Ends		X								
B16.28 Wrought Steel Buttwelding Short Radius Elbows and Returns		X								
B16.34 Valves-Flanged, Threaded and Flanged Fittings		X								
B16.35 Ductile Iron Pipe Flanges and Flanged Fittings		X								
B18.2.1-81 Square and Hex Bolts and Screws, Inch Series Including Hex Cap Screws and Lag Screws		X								
B18.2.2-87 Square and Hex Nuts (Inch Series)		X								
B18.6.1 Wood Screws (Inch Series)		X								
B18.21.1-83 Lock Washers		X								
B18.22.1-81 Plain Washers		X					X			
B30.16 Overhead Hoists		X								
B31.3 Chemical Plant and Petroleum Refining Piping							X		X	
B31.9 Building Service Piping							X			
B56.1 Safety Standards for Powered Industrial Trucks		X								
B73.1 Specifications for Horizontal End Suction Centrifugal Pumps for Chemical Process									X	X
B73.2 Specifications for Vertical In-Line Centrifugal Pumps for Chemical Process						X				X
C19 Series Control Devices		X					X			
C37.20 Switchgear Assemblies Including Metal enclosed Bus		X					X			

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
C37.40 Service Conditions and Definitions for High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories		X								
C37.41 Design Tests for High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories		X								
C37.42 Specifications for Distribution Cutouts and Fuse Links		X								
C37.44 Specifications for Distribution Oil Cutouts and Fuse Links		X								
C37.45 Specifications for Distribution Enclosed Single-Pole Air Switches		X								
C37.46 Specifications for Power Fuses and Fuse Disconnecting Switches		X								
C37.47 Specifications for Distribution Fuse Disconnecting Switches, Fuse Supports and Current-Limiting Fuses		X								
C37.48 Guide for Application, Operation, and Maintenance of Distribution Cutouts and Fuse Links, Secondary Fuses, Distribution Enclosed Single-Pole Air Switches, Power Fuses, Fuse Disconnecting Switches and Accessories		X								
C57.12.00 General Requirements for Liquid Immersed Distribution, Power and Regulating Transformers		X								
C57.12.01 General Requirements for Dry-Type Distribution and Power Transformers		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
C57.12.20 Requirements for Overhead Type Distribution Transformers, 500 KVA and Smaller: High-Voltage, 67000 Volts and Below; Low-Voltage, 15000 Volts and Below		X								
C57.12.22 Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers with High-Voltage Bushings 2500 KVA and Smaller: High-Voltage, 34500 GRDY/19920 Volts and Below; Low Voltage, 480 Volts and Below		X								
C57.12.25 Requirements for Pad-Mounted Compartmental-Type Single-Phase Distribution Transformers with Seperable Insulated High-Voltage Connectors: High-Voltage, 24940 GRDY/14400 Volts and Below; Low-Voltage 240/120; 167 KVA and Smaller		X								
C57.12.26 Requirements for Pad-Mounted Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformer for Use With Seperable Insulated High-Voltage Connectors: High-Voltage, 24940 GRDY/14400 Volts and Below; 2500 KVA and Smaller		X								
C57.12.70 Terminal Markings and Connections for Distribution and Power Transformers		X								
C57.12.90 Test Code for Liquid Immersed Distribution, Power and Regulating Transformers		X					X			
C57.12.90a Distribution and Power Transformer Short-Circuit Test Code		X								
C57.12.91 Test Code for Dry-Type Distribution and Power Transformers		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
C73 Specification for Electrical Power Connector, Plug, Receptacle, and Cable Outlet							X			
C78 Series Incandescent Lamps, Electric Discharge Lamps (Fluorescent), Electric Discharge Lamps (HID)		X					X			
C78.379-83 Electric Lamps	X						X			
C80.1 Rigid Steel Conduit, Zinc-Coated	X	X							X	
C80.3 Electrical Metal Tubing, Zinc-Coated		X								
C81 Series Electric Lamp Bases and Holders		X					X			
C82 Series Lamp Ballasts		X					X			
C82.1-85 Ballasts for Fluorescent Lamps- Specifications	X						X			
C82.4-85 Ballasts for HID and LPS Lamps	X						X			
C97.1 Low-Voltage Cartridge Fuses, 600 Volts or Less		X					X			
C114.1-73 Recommended Practice for Grounding of Industrial and Commercial Power Systems		X			X					
D6.1-88 Manual on Uniform Traffic Control Devices for Streets and Highways		X								
D100-84 Welded Steel Tanks for Water Storage							X			
N13.1-69 Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities		X								
N41.18-90 Specification and Performance of Onsite Instrumentation for Continuously Monitoring Radioactivity in Effluents		X								
NQA-1-1988 Quality Assurance Programs For Nuclear Facilities	X	X						X	X	X

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
SNT-TC-1A	Practices for Nondestructive Testing Personnel Qualification and Certification		X				X				
Z53.1	Safety Color Code for Marking Physical Hazards, Swatches for Safety Colors		X				X				
Z55.1	Gray Finishes for Industrial Apparatus and Equipment										
Z97.1	Safety Performance and Methods of Test for Safety Glazing Materials Used in Buildings		X								
Z124.2	Gel-Coated Glass-Fiber Reinforced Polyester Resin Shower Receptor and Shower Stall Units		X								
Z358.1	Emergency Wye Wash and Shower Equipment		X			X		X		X	
APA AMERICAN PLYWOOD ASSOCIATION											
PRP-108	Performance Standards and Policies for Structural-Use Panels, Form E445M		X								
Form E30K	APA Design/Construction Guide-Residential and Commercial		X								
API AMERICAN PETROLEUM INSTITUTE											
6	Pipeline Valves (Gate, Plug, Ball and Check Valves)		X								
12	Specification for Bolted Tanks for Storage of Production Liquids		X								
594	Wafer Check Valves		X								
595	Cast-Iron Gate Valves, Flanged Ends		X								
598	Valve Inspection and Test		X								
599	Steel Plug Valves, Flanged and Buttwelding Ends		X								

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
600	Steel Gate Valves, Flanged and Buttwelding Ends		X								
602	Compact Steel Gate Valves										
603	Class 150, Corrosion-Resistant Gate Valves		X								
607	Firetest for Soft-Seated Quarter-Turn Valves		X								
609	Butterfly Valves, Lug Type and Wafer type		X								
617-88	Centrifugal Compressors for General Refinery Service	X									
619-85	Rotary-Type Positive Displacement Compressors for General Refinery Service	X									
650	Standard for Closed Top Steel Tanks										X
ARI AIR-CONDITIONING AND REFRIGERATION INSTITUTE											
10	Standard for Unitary Air Conditioning Equipment		X					X			
210/240	Standard for Unitary Air-Conditioning and Air-Source Heat Pump Equipment		X								
ASA											
83-89	Method for Designation of Sound Power Emitted by Machinery and Equipment	X									
89-90	Survey Methods for Determination of Sound Power Levels of Noise Sources	X									
ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS											
7-88	Minimum Design Loads for Buildings and Other Structures						X			X	

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
ASHRAE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS											
General Reference	Various standards and practices for design of heating, ventilation and air conditioning systems	X	X			X		X			
52-76	Method of Testing Performance of HEPA Filters		X								
110	Method of Testing Performance of Laboratory Fume Hoods		X								
ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS											
General Reference	Multiple standards related to equipment, components, design methods, and fabrication and construction methods	X	X	X	X	X	X	X	X	X	X
	Boiler and Pressure Vessel Code, Section VIII, Division I (Pressure Vessels)	X	X				X	X		X	X
	Boiler and Pressure Vessel Code, Section IX (Welding)	X	X				X	X		X	X
B31.1	Power Piping	X	X								X
B31.3	Chemical Plant and Petroleum Refinery Piping		X				X			X	X
B1.20.1-83	Pipe Threads, General Purpose (Inch)	X									X
B16.5-88	Pipe Flanges and Flanged Fittings	X									X
B16.9-86	Factory-Made Wrought Steel Buttwelding Fittings										X
B16.11	Forged Steel Fittings, 3000 Pound									X	X
B16.3-85	Malleable Iron Threaded Fittings, Classes 150 and 300										X

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
B16.21-78	Nonmetallic Flat Gaskets for Pipe Flanges	X									
B16.22-89	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings									X	
B16.25-86	Buttwelding Ends									X	
B16.39-86	Pipe Unions, Malleable Iron, Threaded									X	X
ASSE AMERICAN SOCIETY OF SANITARY ENGINEERS											
1001	Vacuum Breakers		X			X					
1010-82	Performance Requirements for Water Hammer Arrestors	X									
1011/1019	Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types		X			X					
1013	Performance Requirements for Reduced Pressure Principle Backflow Preventers					X				X	
ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS											
General Reference	Multiple standards for materials, equipment and components	X	X	X	X	X	X	X	X	X	X
A6-90	General Requirements for Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use		X								
A27	Steel Castings, Carbon, General Applications		X								
A36-91	Standard Specification for Structural Steel	X	X					X		X	X
A47-84	Ferritic Malleable Iron Castings		X								X
A48-83	Gray Iron Castings		X								X

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
A53-90 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless	X	X					X		X	X
A74-87 Cast Iron Soil Pipe and Fittings		X								
A82-90 Cold-Drawn Steel Wire for Concrete Reinforcement	X	X								
A105-87 Forgings, Carbon Steel, for Piping Components		X					X		X	
A106-90 Seamless Carbon Steel Pipe for High-Temperature Service		X			X		X			X
A108-90 Steel Bars, Carbon, Cold-Finished, Standard Quality		X								
A116-88 Standard Specification for Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric					X				X	
A121-86 Standard Specification for Zinc-Coated (Galvanized) Steel Barbed Wire								X		
A123-89 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products		X							X	X
A126-84 Gray Iron Castings for Valves, Flanges and Pipe Fittings		X					X			
A153-87 Zinc Coating (Hot Dip) on Iron and Steel Hardware		X							X	X
A167-90 Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip		X								
A182-90 Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service		X								
A185-90 Steel Welded Wire Fabric, Plain, for Concrete Reinforcement		X					X			

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
A193-90 Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service		X			X		X		X	X
A194-90 Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service		X			X		X		X	X
A197-87 Cupola Malleable Iron		X							X	
A216 Steel Castings, Carbon, Suitable for Fusion Welding for High-Temperature Service							X		X	
A234-90 Piping Materials of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures		X			X		X		X	
A240 Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels							X			
A269-90 Seamless and Welded Austenitic Stainless Steel Tubing for General Service		X								
A276-90 Stainless and Heat-Resisting Steel Bars and Shapes		X								
A307-92 Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength	X	X					X		X	X
A312-92 Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipes	X	X								
A325-90 High-Strength Bolts for Structural Steel Joints		X					X		X	X
A366-85 Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality		X								X
A370-92 Standard Test Methods and Definitions for Mechanical Testing of Steel Products	X									

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
A392-89 Standard Specification for Zinc-Coated Steel Chain Link Fence Fabric									X	
A403-91 Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings	X	X								
A416-90 Steel Strand, Uncoated Seven-Wire Stress-Relieved for Prestressed Concrete		X								
A446-89 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality	X	X							X	X
A449-90 Quenched and Tempered Steel Bolts and Studs		X								
A490-90 Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength		X					X			
A497-86 Welded Deformed Steel Wire Fabric for Concrete Reinforcement		X								
A500-90 Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes		X					X		X	X
A501-89 Hot-Formed Welded and Seamless Carbon Steel Structural Tubing		X					X			X
A510-82 General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel		X								
A525-87 General Requirements for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process	X	X							X	
A526-90 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality		X								X
A527-90 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Lock-Forming Quality		X								
A529-89 Structural Steel with 42,000 psi Minimum Yield Point									X	

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A554 Welded Stainless Steel Mechanical Tubing		X								
A563-90 Carbon and Alloy Steel Nuts		X								
A568 General Requirements for Steel Sheet, Carbon and High-Strength, Low Alloy, Hot-Rolled, and Cold-Rolled		X								
A569-85 Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip, Commercial Quality		X							X	
A570-90 Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality		X								
A572 High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality							X		X	
A576-90 Steel Bars, Carbon, Hot-Wrought, Special Quality									X	
A611-90 Steel, Sheet, Carbon, Cold-Rolled, Structural Quality		X								
A615-90 Deformed and Plain Billet-Steel Bars for Concrete Reinforcing	X	X					X		X	
A641-89 Zinc-Coated (Galvanized) Carbon Steel Wire		X								
A642 Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Drawing Quality, Special Killed		X								
A666-92 Standard Specifications for Austenitic Stainless Steel Sheet									X	
A675-90 Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties		X								
A706 Low-Alloy Steel Deformed Bars							X		X	
A780 Practice for Repair of Damaged Hot-Dip Galvanized Coatings		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Corter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPT	Fernald AAWT Facility	B16	B19	B30	B32-89	B61	B62	B75-86	B88-92	B98-84	B164-84	B209-90	B221	B221-91	B283-89	B316	B456
											Free-Cutting Brass Rod, Bar and Shapes for Use in Machines	Cartridge Brass Sheet, Strip, Plate, Bar and Disks (Blanks)	Copper-Base Alloys in Ingot Form	Solder Metal	Steam or Valve Bronze Castings	Composition Bronze or Ounce Metal Castings	Seamless Copper Tube	Standard Specification for Seamless Copper Water Tube	Copper-Silicon Alloy Rod, Bar and Shapes	Nickel Copper Alloy Rod, Bar and Wire	Aluminum and Aluminum-Alloy Sheet and Plate	Aluminum and Aluminum-Alloy Bars, Rods and Wire	Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes	Copper and Copper-Alloy Die Forgings (Hot-Pressed)	Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods	Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium
											X	X	X	X				X	X	X	X	X	X	X	X	X

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
B633-85 Electrodeposited Coatings of Zinc on Iron and Steel		X								
B828-92 Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings							X			
C11 Definitions of Terms Relating to Gypsum and Related Building Materials		X								
C31 Practice for Making and Curing Concrete Test Specimens in the Field					X				X	
C33-90 Specification for Concrete Aggregates	X	X			X		X		X	
C36-91 Gypsum Wallboard	X	X			X					
C39 Test Method for Compressive Strength of Cylindrical Concrete Specimens					X				X	
C42-84a Methods for Obtaining and Testing Drilled Cores	X									
C79 Gypsum Board Sheathing		X								
C90-90 Hollow Load-Bearing Concrete Masonry Units		X								
C91-91 Masonry Cement		X								
C94-90 Standard Specification for Ready-Mixed Concrete		X					X		X	
C109-92 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars									X	
C136-92 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates									X	
C140-90 Methods of Sampling and Testing Concrete Masonry Units		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
C143 Test Method for Slump of Hydraulic Cement Concrete					X				X	
C144-89 Aggregate for Masonry Mortar		X								
C150-89 Specification for Portland Cement	X	X					X		X	
C171 Sheet Materials for Curing Concrete							X		X	
C172 Practice for Sampling Freshly Mixed Concrete					X					
C207-88 Hydrated Lime for Masonry Purposes		X								
C227 Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bed Method)							X			
C231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method					X				X	
C236-87 Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box	X	X								
C260-86 Specification for Air-Entraining Admixtures for Concrete	X	X			X		X		X	
C270-89 Mortar for Unit Masonry		X								
C309 Liquid Membrane-Forming Compounds for Curing Concrete							X		X	
C404-87 Aggregates for Masonry Grout		X								
C443 Joints for Circular Concrete Sewer and Culvert Pipe		X								
C475-89 Joint Treatment Materials for Gypsum Wallboard Construction	X	X								

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C476-83 Grout for Masonry		X								
C478-90 Precast Reinforced Concrete Manhole Sections		X								
C494-90 Chemical Admixtures for Concrete		X			X		X		X	
C509 Cellular Elastomeric Preformed Gasket and Sealing Material		X								
C514 Nails for the Application of Gypsum Board					X		X			
C534-88 Preformed Flexible Elastomeric Thermal Insulation in Sheet and Tubular Form									X	
C542 Lockstrip Gaskets		X								
C547 Mineral Fiber Preformed Pipe Insulation		X					X			
C564-88 Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings	X	X								
C578-87 Preformed, Cellular Polystyrene Thermal Insulation		X								
C618 Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete					X		X			
C630-91 Water Resistant Gypsum Wallboard	X	X								
C635-91 Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings		X								
C636-91 Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels		X								
C645-88 Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board	X	X								

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C645-88 Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board	X	X								
C665-88 Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing		X								
C716 Installing Lockstrip Gaskets and Infill Glazing Materials		X								
C719 Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement		X								
C754-88 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board, or Water-Resistant Backing Board	X	X			X		X			
C780 Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry		X								
C790 Guide for Use of Latex Sealing Compounds		X								
C827-87 Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures									X	
C881 Epoxy-Resin-Base Bonding Systems for Concrete							X			
C834 Specification for Latex Sealing Compounds		X								
C805-85 Test Method for Rebound Number of Hardened Concrete	X									
C840 Application and Finishing of Gypsum Board		X								
C858 Specification for Underground Precast Concrete Utility Structures		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
C891 Practice for Installation of Underground Precast Concrete Utility Structures		X								
C919 Practice for Use of Sealants in Acoustical Applications		X								
C920-87 Elastomeric Joint Sealants		X					X		X	
C962 Guide for Use of Elastomeric Joint Sealants		X								
C976 Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box		X								
C1019 Method for Sampling and Testing Grout		X								
C1036-90 Flat Glass		X								
C1047 Accessories for Gypsum Wallboard and Gypsum Veneer Bases		X								
C1048-90 Heat-Treated Flat Glass-Kind KS, KIND FT Coated and Uncoated Glass		X								
C1142 Specification for Ready-Mix Mortar for Unit Masonry		X								
D16-91 Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products									X	
D256-90 Test Methods for Impact Resistance of Plastics and Electrical Insulating Materials		X								
D412-87 Test Method for Rubber Properties in Tension		X								
D420-87 Practice for Investigating and Sampling Soil and Rock for Engineering Purposes	X									
D422-63 Method for Particle-Size Analysis of Soils	X								X	
D570-88 Test Method for Water Absorption of Plastics		X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
D573-88 Test Method for Rubber - Deterioration in an Air Oven		X								
D635 Test for Surface Burning Characteristics of FRP Grating										X
D653-90 Terminology Relating to Soil, Rock, and Contained Fluids		X								
D698-78 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb (2.49 kg) Rammer and 12-in. (305-mm) Drop	X				X		X		X	
D746-87 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact		X								
D883-91 Standard of Terminology Relating to Plastics	X									
D1056-85 Flexible Cellular Material-Sponge or Expanded Rubber		X							X	
D1140-54 Test Method for Amount of Material in Soils Finer Than the No. 200 (75-um) Sieve	X									
D1248-89 Polyethylene Plastics Molding and Extrusion Materials		X					X			
D1351 Specification for Polyethylene Insulated Cable and Wire		X								
D1556-82 Test Methods for Density of Soil In Place by the Sand-Cone Method	X									
D1751 Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)		X								
D1784-90 Rigid Poly(Vinyl Chloride (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds		X			X	X	X			

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
D1785-91 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120	X	X			X	X				
D2000-90 Classification System for Rubber Products in Automotive Application		X								
D2167-84 Test Method for Density and Unit Weight of Soil In Place by the Rubber Balloon Method	X									
D2216-80 Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures	X									
D2287 Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds		X								
D2321 Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications							X		X	
D2464-90 Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80						X				
D2466-90 Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40		X								
D2467-90 Socket-Type Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80		X			X		X			
D2487-85 Test Method for Classification of Soils for Engineering Purposes	X									
D2564-88 Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings		X			X	X	X			
D2657-90 Practice for Heat Joining of Polyolefin Pipe and Fittings		X				X	X			

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D2683-90 Standard Specification for Socket-Type Polyethylene Fittings for Outside-Diameter-Controlled Polyethylene Pipe and Tubing	X	X								
D2729-89 Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings		X							X	
D2837-90 Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials		X								
D2855-83 Practice for Making Solvent Cemented Joints With Poly(Vinyl Chloride) (PVC) Pipe and Fittings					X	X	X			
D2922-81 Test Methods for Classification of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)	X									
D2996-88 Standard Specification for Filament Wound Fiberglass (Glass-Fiber-Reinforced Thermosetting Resin) Pipe	X									
D3017-88 Test Method for Water Content of Soil and Rock In Place by Nuclear Method (Shallow Depth)	X									
D3034-89 Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings	X	X								
D3035-91 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter	X									
D3261-90 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing	X	X					X			
D3299-88 Standard Specifications for Filament Wound Glass-Fiber-Reinforced Thermoset Resin Chemical-Resistant Tanks						X	X			

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D3350-84 Polyethylene Plastic Pipe and Fittings Materials							X			
D3359-87 Method for Measuring Adhesion by Tape Test	X									
D3487-88 Mineral Oil Used in Electrical Apparatus		X								
D3740-88 Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction	X									
D3841-88 Standard Specification for Glass-Fiber Reinforced Polyester Plastic									X	
D4101-88 Propylene Plastic Injection and Extrusion Materials		X								
D4253-83 Test Methods for Maximum Index Density of Soils Using a Vibratory Table					X		X			
D4254-83 Test Methods for Minimum Index Density of Soils and Calculation of Relative Density					X		X			
D4318-84 Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils	X								X	
D4397 Polyethylene Sheeting for Construction, Industrial and Agricultural Applications		X								
E84-89 Test Method for Surface Burning Characteristics of Building Materials		X					X		X	
E90-90 Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions		X								
E96-90 Test Methods for Water Vapor Transmission of Materials		X							X	
E119-88 Test Methods for Fire Tests of Building Construction and Materials		X								

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E152 Methods of Fire Tests of Door Assemblies		X								
E163 Methods of Fire Tests of Window Assemblies		X								
E164 Practice for Ultrasonic Contact Examination of Weldments		X								
E165 Practice for Liquid Penetration Inspection Method		X								
E283-84 Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors		X								
E329-90 Recommended Practice for Inspection and Testing Agencies for Concrete and Steel Used in Construction	X									
E330 Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference		X								
E331 Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference		X								
E413-87 Classification for Rating Sound Insulation		X								
E447-84 Test Methods for Compressive Strength of Masonary Prisms		X								
E557 Practice for Architectural Application and Installation of Operable Partitions		X								
E580 Application of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Requiring Seismic Restraint		X								
E709-85 Practice for Magnetic Particle Examination		X								
E774 Sealed Insulating Glass Units		X								

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E795	Practice For Mounting Test Specimens During Sound Absorption Tests		X								
E814	Test Method for Fire Tests of Through-Wall Penetration Fire Stops		X								
E1264-90	Classification for Acoustical Ceiling Products		X								
F436-90	Hardened Steel Washers		X								
F438-88	Socket Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80	X					X				
F441-89	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80						X				
F493-89	Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Pipe and Fittings						X				
F593-86	Stainless Steel Bolts, Hex Cap Screws and Studs		X								
F594-86	Stainless Steel Nuts		X								
F844-90	Washers, Steel, Plain (Flat), Unhardened for General Use		X					X			
F959	Compressible-Washer Type Direct Tension Indicator for Use With Structural Fasteners		X								
AWS AMERICAN WELDING SOCIETY											
General Reference	Multiple standards for welding procedures and materials	X	X	X	X	X	X	X		X	X
A5.1-91	Carbon Steel Electrodes for Shielded Metal Arc Welding									X	
A5.8-89	Filler Metal for Brazing									X	

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B2.1	Standard for Welding Procedure and Performance Qualification		X								
D1.1-90	Structural Welding Code, Steel	X	X			X	X	X		X	X
D1.2-90	Structural Welding Code, Sheet Steel		X				X				X
D1.3-89	Structural Welding Code, Aluminum		X								X
D1.4-79	Structural Welding Code, Reinforcing Steel		X					X			
D9.1-90	Specification for Welding of Sheet Metal		X								
D10.9-80	Qualification of Welding Procedures Welders for Piping & Tubing									X	
QC-1	Standard for AWS Certification of Welding Inspectors		X								
AWI ARCHITECTURAL WOODWORK INSTITUTE											
	Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program		X								
AWPA AMERICAN WOOD PRESERVERS ASSOCIATION											
C2	Lumber, Timbers, Bridge Ties and Mine Ties - Preservation Treatment by Pressure Process		X								
M4	Standard for the Care of Preservative Treated Wood Products		X								
AWWA AMERICAN WATER WORKS ASSOCIATION											
General Reference	Various standards and practices related to water treatment equipment, chemicals and equipment		X				X				

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C104-90 Standard for Cement-Mortar Lining for Ductile-Iron and Gray-Iron Pipe and Fittings for Water		X							X	
C110-87 Standard for Gray-Iron and Ductile-Iron Fittings, 3 Inch Through 48 Inch, for Water and Other Liquids		X							X	
C111-90 Standard for Rubber Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings									X	
C151-86 Standard for Ductile-Iron, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids		X							X	
C153 Standard for Ductile-Iron Compact Fittings for Water and Other Liquids		X								
C500-86 Gate Valves, 3 through 48 NPS, for Water and Sewage Systems									X	
C502-85 Dry-Barrel Fire Hydrants							X			
C509 Standard for Gate Valves, 3 Inch Through 48 Inch, for Resilient Seated Gate Valves and ULFM Approved		X							X	
C600-87 Installation of Gray and Ductile Cast-Iron Water Mains and Appertenances		X					X		X	
C603-90 Installation of Asbestos-Cement Pressure Pipe							X			
C651-86 Standard for Disinfecting Water Mains		X							X	
C900-89 Polyvinyl Chloride (PVC) Pressure Pipe, 4 Inch Through 12 Inch for Water Distribution		X								
D102-78 Standard for Painting Steel Water Storage Tanks		X								
D103-87 Standard for Factory-Coated Bolted Steel Tanks for Water Storage		X								

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BOCA BUILDING OFFICIALS AND CODE ADMINISTRATORS INTERNATIONAL INC.											
	National Building Code	X									
	Basic Mechanical Code	X									
	Basic Plumbing Code	X									
	Basic Fire Prevention Code	X									
BHMA BUILDERS HARDWARE MANUFACTURERS ASSOCIATION											
General Reference	General standards and practices for hardware	X									
CBM CERTIFIED BALLAST MANUFACTURERS											
	Standards and practices for lighting ballasts	X									
COE CORPS OF ENGINEERS											
CRD-C 621-83	Specification for Nonshrink Grout		X					X			
CABO COUNCIL OF AMERICAN BUILDING OFFICIALS											
NER-272	Pneumatic or Mechanically Driven Staples, Nails, P-Nails and Allied Fasteners for Use in All Types of Building Construction		X								
CRSI CONCRETE REINFORCING STEEL INSTITUTE											
	Manual of Standard Practice		X					X			
DHI DOOR AND HARDWARE INSTITUTE											
	Recommended Locations for Builders Hardware	X	X								

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DOD DEPARTMENT OF DEFENSE										
P-21035A Paint, High Zinc Dust Content, Galvanizing Repair		X								
DOE DEPARTMENT OF ENERGY										
Order 6430.1A General Design Criteria		X						X	X	X
DOE/EV/1830-T5 A Guide to Radiation Exposure to As Low As Reasonably Achievable (ALARA)		X								
DOE/NE/SP-6001T Writers Guide For Technical Procedures	X									
UCRL 15910 Design and Evaluation Guidelines for Department of Energy Facilities Subjected to Natural Phenomena Hazards						X				X
EPA ENVIRONMENTAL PROTECTION AGENCY										
EPA QAMS 005/80 Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans	X									
EPA-600/4-82-029 Handbook for Sampling and Sample Preservation of Water and Wastewater	X									
Radiochemistry Procedures Manual	X									
EPA-600/4-79-020 Methods for Chemical Analysis of Water and Wastes	X									
SW-846 Test Methods for Evaluating Solid Waste	X									
EPRI ELECTRIC POWER RESEARCH INSTITUTE										
NP-5067 Good Bolting Practices		X								
NP-6316 Guidelines for Threaded Fastener Application in Nuclear Power Plants										

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ETL											
General Reference	Various standards and practices for testing of electrical components and systems	X									
FM FACTORY MUTUAL											
General Reference	Various standards and practices related to product performance	X	X	X	X	X	X	X			
FS FEDERAL SPECIFICATIONS											
CCC-W-408-71	Vinyl-Coated Wall Covering		X								
DD-G-451	Glass, Float or Plate, Sheet, Figured (Flat, for Glazing, Mirrors, and Other Uses)		X								
DD-G-1403	Glass, Plate (Float), Sheet, Figured, and Spandrel (Heat Strengthened and Fully Tempered)		X								
FF-B-561	Bolts, (Screw), Lag		X								X
FF-B-575	Bolts, Hexagon and Square		X								
FF-B-588	Bolt, Toggle, and Expansion Sleeve, Screw		X								X
FF-N-105	Nails, Brads, Staples and Spikes: Wire, Cut and Wrought		X								
FF-S-92	Screw, Machine		X								X
FF-S-111	Screw, Wood		X								X
FF-S-325	Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonary)		X								X
FF-W-84	Lock Washers		X								X
FF-W-92	Plain Washers		X								X

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J-C-30	Cable and Wire, Electrical (Power, Fixed Installation), Federal Supply Classification 6145		X								
QQ-W-343	Wire, Electrical (Uninsulated), Federal Supply Classification 6145		X								
SS-T-312	Tile, Floor; Asphalt, Rubber, Vinyl, Vinyl Composition		X								
SS-W-40	Wall Base; Rubber and Vinyl Plastic		X								
TT-E-489	Enamel, Alkyd, Gloss, Low VOC Content (for Exterior and Interior Surfaces)		X					X			
TT-E-506	Enamel, Alkyd, Gloss, Tints and White (for Interior Use)		X								
TT-E-509	Eneamel, Odorless, Alkyd, Interior, Semigloss, White and Tints		X								
TT-E-543	Enamel, Interior, Undercoat, White and Tints		X								
TT-P-29	Paint, Latex Base, Interior, Flat, White and Tints		X								
TT-P-641	Primer Coating; Zinc Dust-Zinc Oxide (for Galvanized Surfaces)		X								
TT-P-645	Primer, Paint, Zinc-Molybdate Alkyd Type		X					X			
TT-P-650	Primer Coating, Latex Base, Interior, White (for Gypsum Wallboard or Plaster)		X								
TT-P-664	Primer Coating, Alkyd, Corrosion-Inhibiting, Lead and Chromate Free, VOC Compliant		X			X		X			
TT-S-001657	Sealing Compound-Single Component, Butyl Rubber Based, Solvent Release Type (For Building and Other Types of Construction)										X

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TT-S-0023C Sealing Compound: Elastomeric Type, Single Component (For Caulking, Sealing, and Glazing in Buildings and Other Structures)							X			
SS-L-30D Lath and Board Products, Gypsum	X									
W-C-375/GEN Circuit Breakers, Molded Case, Branch Circuit and Service, Federal Supply Classification 5925		X					X			
W-C-375/1 to 20 Circuit Breakers, Molded Case, Branch Circuit and Service (Combinations of types, poles and amperages), Federal Supply Classification 5925		X								
W-C-596 Electrical Power Connector, Plug, Receptacle and Cable Outlet		X								
W-F-1814 Fuse Cartridge, High Interrupting Capacity, Federal Supply Classification 5920		X								
W-L-101 Incandescent Lamps							X			
W-L-00111 Fluorescent Lamps							X			
W-L-00116 Fluorescent Lamps							X			
W-P-879 Fuseholder (For Plug and Enclosed Cartridge Fuses)		X								
W-P-115 Panel, Power Distribution		X					X			
GA GYPSUM ASSOCIATION										
GA-216 Recommended Specifications for the Application and Finishing of Gypsum Board	X				X		X			
GA-505 Gypsum Board Products-Glossary of Terminology		X								
HEI HEAT EXCHANGER INSTITUTE										
Standards for Power Plant Heat Exchangers	X									

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HMI	HOIST MANUFACTURERS INSTITUTE										
100-74	Specifications for Electric Wire Rope Hoist		X								
IFI	INDUSTRIAL FASTENER INSTITUTE										
88	Fasteners Standards		X								
ICBO	INTERNATIONAL COUNCIL OF BUILDING OFFICIALS										
	Uniform Building Code	X	X	X			X			X	X
ICEA	INSULATED CABLE ENGINEERS ASSOCIATION										
General Reference	Various standards for electrical cable and wire	X	X	X							
ICEA WC-30	Color Coding of Wires and Cables	X									
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS										
General Reference	Various standards and practices for electrical components and systems	X	X	X	X	X	X	X	X	X	X
18	Standard for Shunt Power Capacitors		X								
48	Test Procedures and Requirements for High Voltage AC Cable Terminations		X								
93	Guide for Transformer Impulse Tests		X								
112-84	Standard Test for Polyphase Induction Motors and Generators							X		X	
114	Recommended Practice for Grounding of Industrial and Commercial Power Systems							X			

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141 Electric Power Distribution for Industrial Plants		X					X			
142-82 Recommended Practice for Grounding of Industrial and Commercial Power Systems					X					
241 Electric Systems for Commercial Buildings		X					X			
446 Emergency Standby Power Systems for Industrial and Commercial Applications		X								
519 IEEE Guide for Harmonic Control and Reactive Compensation of Static Power Converters		X								
587 Surge Protection Criteria		X								
592 Exposed Semiconducting Shields on Premolded High-Voltage Cable Joints and Separable Insulated Connectors		X								
944 Recommended Practice for Application and Testing of UPS for Power Generating Stations		X								
Y32E Electrical and Electronics Graphic Symbols and Reference Designations	X									X
IES ILLUMINATING ENGINEERING SOCIETY										
Illuminating Engineering Society Lighting Handbook	X	X								
ISA INSTRUMENT SOCIETY OF AMERICA										
General Reference Multiple standards and practices for design of instrumentation and control systems	X	X	X	X	X	X	X	X	X	X
RP16.1 Terminology, Dimensions and Safety Practices for Indication Variable Area Meters									X	
RP42.1 Nomenclature for Instrument Tubing Fittings (Threaded)									X	

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S5.1 Instrumentation Symbols and Identification	X					X				X
S5.2 Binary Logic Diagrams for Process Operations						X				
S5.3 Graphic Symbols for Distributed Control/Shared Display Instrumentation, Logic and Control Systems	X									
S5.4 Instrumentation Loop Diagrams	X									
S5.5 Graphic Symbols for Process Displays	X									
S7.3 Quality Standard for Instrument Air	X									
S18.1 Annunciator Sequences and Specifications						X				
JIC JOINT INDUSTRY COUNCIL										
General Reference Standards and practices for electrical components and systems	X	X				X				
LPI LIGHTNING PROTECTION INSTITUTE										
175-87 Lightning Protection Institute Standard of Practice	X						X			
MBMA METAL BUILDING MANUFACTURERS ASSOCIATION										
General Reference Design and fabrication standards for engineered metal buildings	X									
MIL MILITARY PRODUCT SPECIFICATIONS										
I-16411D Insulation Felt, Thermal, Glass Fiber, to 1200 F		X								
P-29183 Panelboard, Power Distribution, Portable, Weatherproof, General Specification, Federal Supply Classification 6110		X					X			

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P-24395	Panel, Ground Detector, General Specification, Federal Supply Classification 6110		X					X			
R-6130C	Rubber, Cellular, Chemical Blown		X								
R-6855D	Rubber, Synthetic Sheets, Strips, Molded or Extruded Shapes		X								
S-12514C	Starter, Motor, Across-the-Line and Reduced Voltage Types, A-C Induction, 3/4 to 100 HP, Manual and Electric		X								
W-L-101 Series	Incandescent Lamps, Federal Supply Classification 6240		X								
W-L-111 Series	Fluorescent Lamps, Federal Supply Classification 6240		X								
W-L-116 Series	Fluorescent Lamps, Federal Supply Classification 6240		X								
MSS	MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY										
SP-25	Marking System for Valves, Fittings, Flanges and Unions		X								
SP-58-88	Pipe Hangers and Supports (Materials, Design, and Manufacturer)							X		X	
SP-69-91	Pipe Hangers and Supports - Selection and Application	X						X		X	
SP-79	Socket Welding Reducer Inserts		X								
SP-83	Carbon Steel Pipe Unions, Socket Weld and Threaded		X								

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SP-85 Cast Iron Globe and Angle Valves, Flanged and Threaded Ends		X								
SP-89-91 Pipe Hangers and Supports (Fabrication and Installation Practices)									X	
NAAMM NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS										
Metal Finishes Manual for Architectural and Metal Products		X								
Metal Stairs Manual		X								
NBS (NIST) NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY										
PS-1 U.S. Product Standard for Construction and Industrial Plywood		X								
PS-20 American Softwood Lumber Standard		X								
PS-21-70 Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120						X				
22-700 Polyvinyl Chloride (PVC) Plastic Pipe, Standard Dimension Ratio Class Rated Pipe						X				
NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION										
General Reference Multiple standards and practices dealing with electrical components and equipment	X	X	X	X	X	X	X	X	X	X
250 Enclosures for Electrical Equipment (1000 Volts Maximum)		X					X			
260 Safety Labels for Padmounted Switchgear and Transformers Sited in Public Areas		X								

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AB-1 Molded Case Circuit Breakers and Molded Case Switches		X					X		X	
FB-1 Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies		X								
FU-1 Low Voltage Cartridge Fuses		X					X			
ICS-1 General Standards for Industrial Control and Systems		X					X		X	
ICS-2 Industrial Control Devices, Controllers and Assemblies		X					X		X	
ICS-3 Industrial Systems									X	
ICS-3.1 Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable Speed Drive Systems		X								
ICS-6-78 Enclosures for Industrial Controls and Systems		X					X		X	
KS-1 Enclosed Switches		X					X		X	
LD-3 High Pressure Decorative Laminates		X								
LE-1 Fluorescent Light Fixtures		X								
LE-2 HID Lighting System Noise Criterion Ratings		X								
MG-1-87 Motors and Generators							X		X	
MG-2 Safety Standards for Construction and Guide for Selection, Installation and Use of Electrical Motors and Generators						X	X			
MG-13-84 Frame Assignments for AC Integral Horsepower Induction Motors									X	
PB-1-90 Panelboards									X	

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PB-2	Deadfront Distribution Switchboards		X								
PB-2.1	Proper Handling, Installation, Operation and Maintenance of Deadfront Switchboards Rated 600 Volts or Less		X								
PE-1	Uninterruptible Power Supplies		X								
PE-5	Constant Potential Electric Utility Battery Chargers		X								
RN-1	Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal CONduit		X								
ST-20-78	Dry-Type Transformers for General Applications							X		X	
TR-1	Transformers, Regulators and Reactors		X								
TR-5	Guide to the Installation and Maintenance of Oil-Immersed Transformers		X								
WD-1-79	General Purpose Wiring Devices		X					X			
VE-1	Metallic Cable Tray Systems		X								
NETA NATIONAL ELECTRICAL TESTING ASSOCIATION											
	Acceptance Testing of Electrical Power System Equipment	X	X	X	X	X	X	X			
NFPA NATIONAL FIRE PROTECTION ASSOCIATION											
10	Portable Fire Extinguishers		X								
13-89	Standard for the Installation of a Sprinkler System	X	X							X	
13A-87	Recommended Practice for the Inspection, Testing and Maintenance of Sprinkler Systems	X	X								

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
24-87 Private Fire Service Mains and Appurtenances		X					X		X	
26-88 Recommended Practice for the Supervision of Valves Controlling Water Supplies for Fire Protection		X								
45-86 Fire Protection for Laboratories Using Chemicals		X								
70-92 National Electric Code	X	X	X	X	X	X	X	X	X	X
72 Standard for the Installation, Maintenance and Use of Protective Signaling Systems		X							X	
72A-90 Installation, Maintenance, and Use of Local Protective Signaling System for Guard's Tour, Fire Alarm, and Supervisory Service	X									
72B-90 Installation, Maintenance, and Use of Auxiliary Protective Signaling Systems for Fire Alarm Service	X									
72C-90 Installation, Maintenance and Use of Remote Station Protective Signaling System	X									
72E-90 Automatic Fire Detectors	X	X					X			
72G-90 Notification Appliances for Protective Signaling Systems	X								X	
72H-90 Guide for Test Procedures for Protective Signaling Systems	X	X							X	
78-90 Lightning Protection Code	X									
80-90 Fire Doors and Windows		X								
80A Recommended Practices for Protection of Buildings From Exterior Fire Exposure						X				

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
90A-89	Standard for the Installation of Air Conditioning and Ventilation Systems	X	X					X			
90B	Warm Air Heating and Air Conditioning Systems		X					X			
91-90	Installation of Blower and Exhaust Systems for Dust, Stack and Vapor Removal for Conveying		X					X			
101-90	Life Safety Code	X	X	X			X	X		X	X
231	Standard for General Storage		X								
231C	Standard for Rack Storage of Materials		X								
252-90	Standard Methods of Fire Tests of Door Assemblies	X									
255-90	Method of Test of Surface Burning Characteristics of Building Materials		X					X			
291	Fire Flow Testing and Marking of Hydrants		X								
497 A&B	Hazardous Locations for Electrical Installations in Chemical Process Areas							X			
780	Lightning Protection Code							X			
1221-90	Standard for the Installation, Maintenance and Use of Public Service Communications		X								
NPA NATIONAL PARTICLEBOARD ASSOCIATION											
NPA 8	Voluntary Product Standard for Formaldehyde Emission From Particleboard		X								
PDI PLUMBING AND DRAINAGE INSTITUTE											
General Reference	Various standards and practices for plumbing materials and components	X									

Design Standards		Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
WH-201	Water Hammer Arresters		X								
PCI PRECAST/PRESTRESSED CONCRETE INSTITUTE											
MNL-117	Manual for Quality Control for Plants and Production of Architectural Precast Products		X								
SAE SOCIETY OF AUTOMOTIVE ENGINEERS, INC.											
J429-83	Mechanical and Material Requirements for Externally Threaded Fasteners		X								
SDI STEEL DOOR INSTITUTE											
SDI-100	Requirements for Steel Doors	X	X								
SDI STEEL DECK INSTITUTE											
	Design Manual for Composite Decks, Form Decks and Roof Decks		X								
SMACNA SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC.											
General Reference	Multiple standards for design of sheet metal and air conditioning equipment and systems	X	X					X			
	Low Pressure Duct Construction Standard		X								
	Round Industrial Duct Construction Standards		X					X			
	Guide for Steel Stack Design and Construction		X								
	Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems		X								
	HVAC Duct Construction Standards, Metal and Flexible		X					X			

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
SMIF SHEET METAL INDUSTRY FUND										
Guidelines for Seismic Restraint of Mechanical Systems and Plumbing Piping Systems		X								
SSPC STEEL STRUCTURES PAINTING COUNCIL										
General Reference Multiple standards and practices for surface preparation and painting	X	X	X	X	X	X	X		X	
PA-1 Paint Application Specification No. 1		X								
PA-2 Paint Application Specification No. 2		X								
PA-12 Paint Application Specification No. 12 Cold Applied Asphalt Mastic (Extra Thick Film)		X								
SP-1 Solvent Cleaning		X								
SP-2 Hand Tool Cleaning		X			X	X	X			
SP-3 Power Tool Cleaning	X	X				X	X			
SP-5 White Metal Blast Cleaning							X			
SP-6 Commercial Blast Cleaning						X	X			
SP-7 Brush-Off Blast Cleaning							X			
SP-8 Pickling					X		X			
SP-10 Near-White Blast Cleaning		X					X			
TCA TILE COUNCIL OF AMERICA, INC.										
Handbook for Ceramic Tile Installation		X								
TEMA TUBULAR EXCHANGE MANUFACTURERS ASSOCIATION										
Heat Exchanger Design Standards	X									

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
UL UNDERWRITERS LABORATORY										
General Reference Various standards and practices for electrical and mechanical equipment construction	X	X	X	X	X	X	X	X	X	X
Building Materials Directory		X								
6 Rigid Metal Conduit		X								
20 Standard for Snap Switches		X					X			
50 Cabinets and Boxes		X					X			
57 Electric Lighting Fixtures		X					X			
67 Panelboards		X								
96-88 Lightning Protection Components	X						X			
96A-88 Installation Requirements for Lightning Protection Systems	X						X			
98 Enclosed Switches		X					X			
198 Class R Fuses		X					X			
198.2 High Interrupting Capacity Fuses, Current Limiting Type		X								
228 Door Closers-Holders, With or Without Integral Smoke Detectors		X								
305 Panic Hardware		X								
325-86 Doors, Drapery, Gate, Louver, and Window Operators and Systems	X									
360-86 Liquid-Tight Flexible Steel Conduit					X				X	

Design Standards	Weldon Spring	Hanford DLF	UMTRA Program	Cotter Pilot Plant	Bell Aerospace Textron	Rocky Flats Mobile Trailers	Hazardous Waste Landfill Leachate Treatment	INEL TAN GWTF	Fernald SPIT	Fernald AWWT Facility
404-79 Standard for Safety Gauges, Indicating Pressure for Compressed Gas Service, Fourth Edition.									X	
425 Fire Resistance Rating		X								
429-82 Standard for Safety Electrically Operated Valves, Third Edition									X	
467 Grounding and Bonding Equipment		X					X			
486A-78 Wire Connectors and Soldering Lugs for Use With Copper Conductors		X					X		X	
489 Molded Case Circuit Breakers and Circuit Breaker Enclosures		X					X			
498 Attachment Plugs and Receptacles		X					X			
506-79 Safety Standards for Specialty Transformers							X			
508 Safety Standard for Industrial Control Equipment		X					X			
510-86 Insulating Tape									X	
514 Outlet Boxes and Fittings		X			X					
705-84 Standards for Safety Power Ventilators									X	
723 Test for Surface Burning Characteristics of Building Materials							X			
797 Electrical Metal Tubing		X								
845 Standard for Motor Control Centers		X					X			
943 Class A Ground Fault Circuit Interrupters		X					X			
1025-80 Standards for Safety Electric Air Heaters									X	
1572 High Intensity Discharge Lighting Fixtures		X					X			

12A

REFERENCE STANDARDS

DIRECTORY

Prepared By:

KAISER ENGINEERS HANFORD
SPECIFICATIONS DISCIPLINE

FOREWORD

The Referenced Standards contained herein are a compilation of standards commonly referenced in construction and procurement documents for Hanford projects. The format indicated such as title, acronyms, number designations, abbreviations, etc, are consistent with that which appears in the agency, association, or bureau publication. However, such words as "standard", "specifications", and "publications" have been deleted from actual titles where their inclusion is considered a hinderance to easy reference.

This document will be revised periodically as updated information is received. The current revision date shown in the lower right-hand corner of each page should correspond with the date in the Table of Contents.

The location of the documents is shown as follows:

LIB	KEH Specification Library
	Room 170, TCPC
SPEC	Specification Group
	6th floor, TCPC
VSMF	Visual Search Micro Film
	KEH Specification Library
	Room 170, TCPC

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Abbreviation	Organization Name	Current Revision
AA	The Aluminum Association	12/91
AASHTO	American Association of State Highway and Transportation Officials	8/91
ACGIH	American Conference of Governmental Industrial Hygienists	8/91
ACI	American Concrete Institute	12/91
AISC	American Institute of Steel Construction, Inc	12/91
AISI	American Iron and Steel Institute	8/91
AITC	American Institute of Timber Construction	12/91
AMCA	Air Movement and Control Association, Inc	12/91
ANSI	American National Standards Institute	12/91
API	American Petroleum Institute	8/91
AREA	American Railway Engineering Association	8/91
ARI	Air-Conditioning and Refrigeration Institute	8/91
ASCE	American Society of Civil Engineers	8/91
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	8/91
ASME	American Society of Mechanical Engineers	12/91
ASNT	American Society for Nondestructive Testing	8/91
ASTM	American Society for Testing and Materials	12/91
AWI	Architectural Woodwork Institute	8/91
AWPA	American Wood-Preservers Association	12/91
AWS	American Welding Society	12/91
AWWA	American Water Works Association	12/91
BHMA	Builders Hardware Manufacturers Association	8/91

Abbreviation	Organization Name	Current Revision
CFR	Code of Federal Regulations	8/91
CGA	Compressed Gas Association, Inc	8/91
CISPI	Cast Iron Soil Pipe Institute	8/91
CMAA	Crane Manufacturers Association of America, Inc	8/91
CRSI	Concrete Reinforcing Steel Institute	8/91
CS	Commercial Standard - See USDC	
EEI	Edison Electrical Institute	8/91
EIA	Electronic Industries Association (includes Telecommunication Association)	12/91
EPA	Environmental Protection Agency	8/91
FGMA	Flat Glass Marketing Association	8/91
FM	Factory Mutual System	8/91
FS	Federal Specifications	12/91
^S FED STD	Federal Standards	8/91
GA	Gypsum Association	8/91
HI	Hydraulic Institute	12/91
HMI	Hoist Manufacturers Institute	8/91
HPS	Hanford Plant Standards	12/91
IAPMO	International Association of Plumbing and Mechanical Officials	8/91
ICBO	International Conference of Building Officials	8/91
IEEE	Institute of Electrical and Electronics Engineers	12/91
IES	Illuminating Engineering Society	12/91
ISA	Instrument Society of America	12/91
MBMA	Metal Building Manufacturers Association	8/91
MS	Military Specifications	8/91

Abbreviation	Organization Name	Current Revision
WSDOT	Washington State Department of Transportation	12/91

LOCATION: LIB

THE ALUMINUM ASSOCIATION (AA)

AA-45

Designation System For Aluminum
Finishes, 7th Edition, September 1980

ASD-1*

Aluminum Standards and Data, 1990

SAS-30*

Aluminum Construction Manual Series,
December 1986

*For information only, not in file

LOCATION: LIB

AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)

102-72	Design of Structural Timber Framing
103-72	Structural Glued Laminated Timber
110-84	Appearance Grades for Structural Glued Laminated Timber
111-79	Recommended Practice for Protection of Structural Glued Laminated Timber During Transit, Storage, and Erection
117-87	Structural Glued Laminated Timber of Softwood Species
Timber Construction Manual	Third Edition, 1985

LOCATION: LIB

AIR MOVEMENT AND CONTROL ASSOCIATION, INC (AMCA)

99-83 Revised 1986	Standards Handbook
210-85	Laboratory Methods of Testing Fans for Rating Purposes
300-85	Reverberant Room Method for Sound Testing of Fans
301-76	Methods for Calculating Fan Sound Ratings from Laboratory Test Data
303-79	Application of Sound Power Level Ratings for Fans
500-83 Revised 1986	Test Methods for Louvers, Dampers and Shutters

LOCATION: LIB

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)*

A13.1-1981 (R 1985)		Scheme for the Identification of Piping Systems
A58.1		See ASCE
A108.1-1985		Installation of Ceramic Tile with Portland Cement Mortar
A108.4-1985		Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile Setting Epoxy Adhesive
A108.5-1985		Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar
A108.6-1985		Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and Grouting Epoxy
A108.7-1985		Electrically Conductive Ceramic Tile Installed with Conductive Dry-Set Portland Cement Mortar
A115 Series	(DHI)	Steel Door Preparation Standards
A117.1-1986		Buildings and Facilities -- Providing Accessibility and Usability for Physically Handicapped People
A118.1-1985		Dry-Set Portland Cement Mortar
A118.2-1985		Conductive Dry-Set Portland Cement Mortar
A118.3-1985		Chemical Resistant Water Cleanable Tile-Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive
A118.4-1985		Latex-Portland Cement Mortar
A135.4-1982 (R 1988)	(AHA)	Basic Hardboard

*ANSI is in the process of listing documents by sponsoring agency; this standard will try to follow the ANSI practice.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)*

A136.1-1985	Organic Adhesives for Installation of Ceramic Tile
A137.1-1988	Ceramic Tile
A156 Series	See BHMA
A161.1-1990 (NKCA)	Recommended Performance and Construction Standards for Kitchen and Vanity Cabinets
A161.2-1979 (R 1987)	Performance Standards for Fabricated High Pressure Decorative Laminate Countertops
B1.20.1	See ASME
B16.1	See ASME
B16.3	See ASME
B16.4	See ASME
B16.5	See ASME
B16.9	See ASME
B16.11-1980	Forged Steel Fittings, Socket-Welding and Threaded
B16.12-1983	Cast Iron Threaded Drainage Fittings
B16.15	See ASME
B16.21-1978	Nonmetallic Flat Gaskets for Pipe Flanges
B16.22	See ASME
B16.24-1979	Bronze Pipe Flanges and Flanged Fittings, Class 150 and 300
B16.28	See ASME
B16.39	See ASME

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)*

B18.2.1-1981	Square and Hex Bolts and Screws Inch Series Including Hex Cap Screws and Lag Screws
B18.2.2	See ASME
B30.2	See ASME
B30.10	See ASME
B30.11	See ASME
B30.16	See ASME
B30.17	See ASME
B31.1	See ASME
B31.3	See ASME
B31.5	See ASME
B31.9	See ASME
B36.10M	See ASME
B46.1	See ASME
B70.1	See SAE J513
C2-1990	National Electrical Safety Code
C29.2-1983	Insulators--Wet-Process Porcelain and Toughened Glass--Suspension Type
C29.4-1989	Wet-Process Porcelain Insulators--Strain Type
C29.5-1984	Wet- Process Porcelain Insulators--Low- and Medium-Voltage Types
C37.13	See IEEE
C37.20-1969 (R 1981)	Switchgear Assemblies, Including Metal-Enclosed Bus

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)*

C37.32-1990	Schedules of Preferred Ratings, Manufacturing Specifications, and Application Guide for High-Voltage Air Switches, Bus Supports, and Switch Accessories
C39.1-1981	Requirements for Electrical Analog Indicating Instruments
C57.12.00	See IEEE
C57.12.10-1987	Requirements for Transformers 230 kV and Below 833/958 Through 8333/10 417 kVa, Single-Phase, and 750/862 Through 60 000/80 000/100 000 kVa, Three-Phase
C57.12.20-1988	Transformers--Overhead-Type Distribution Transformers, 500 kVA and Smaller: High Voltage, 34 500 Volts and Below; Low Voltage, 7970/13 800Y Volts and Below
C57.12.22-1989	Transformers--Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers with High-Voltage Bushings, 2500 kVA and Smaller: High Voltage, 34 500GrdY/19 920 Volts and Below; Low Voltage, 480 Volts Below--Requirements
C57.12.70-1978 (R1987)	Terminal Markings and Connections for Distribution and Power Transformers
C57.12.90	See IEEE
C57.13	See IEEE
C80.1-1990	Rigid Steel Conduit--Zinc Coated
C80.3-1983	Electrical Metallic Tubing--Zinc Coated
C80.5-1990	Rigid Aluminum Conduit
C82.1-1985	Fluorescent Lamp Ballasts

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)*

C97.1-1972 (Withdrawn)	Use NEMA FU 1
C135.1-1979	Galvanized Steel Bolts and Nuts for Overhead Line Construction
C135.2-1987	Threaded Zinc-Coated Ferrous Strand-Eye Anchor Rods and Nuts for Overhead Line Construction
C135.4-1987	Zinc-Coated Ferrous Eyebolts and Nuts for Overhead Line Construction
C135.5-1987	Zinc-Coated Ferrous Eynuts and Eyebolts for Overhead Line Construction
C135.17-1988	Insulator Pins with Lead Threads for Overhead Line Construction, Galvanized Ferrous Bolt-Type, NA
C135.30-1988	Zinc-Coated Ferrous Ground Rods for Overhead or Underground Line Construction, NA
D6.1-1988	Manual on Uniform Traffic Control Devices for Streets and Highways
MC96.1-1982	Temperature Measurement Thermocouples
N13.1-1969 (R 1982)	Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities
N42.18-1980 (R 1985)	Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents.
N509	See ASME
N510	See ASME
NQA-1	See ASME
NQA-2	See ASME
05.1-1987	Wood Poles--Specifications and Dimensions

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AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)*

Y1.1	See ASME
Y14 Series	Engineering Drawings and Related Documentation Practices
Z17.1-1973	Preferred Numbers
Z41-1983	Personnel Protection - Protective Footwear
Z49.1-1988	Safety in Welding and Cutting
Z53.1-1979	Safety Color Code for Marking Physical Hazards
Z55.1-1967 (R 1973)	Gray Finishes for Industrial Apparatus and Equipment
Z87.1-1989	Practice for Occupational and Educational Eye and Face Protection
Z88.2-1980	Practices for Respiratory Protection
Z358.1-1990	Emergency Eyewash and Shower Equipment

*ANSI is in the process of listing documents by sponsoring agency, this standard will try to follow the ANSI practice.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

B & PV Code	Boiler and Pressure Vessel Code, 1989 Edition, w/Addenda through Dec 1990
Section II	Material Specifications
Section III	Rules for Construction of Nuclear Power Plant Components
Section IV	Rules for Construction of Heating Boilers
Section V	Nondestructive Examination
Section VIII	Rules for Construction of Pressure Vessels
Section IX	Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators
Section X	Fiber-Reinforced Plastic Pressure Vessels
Section XI	Rules for Inservice Inspection of Nuclear Power Plant Components
Code Cases	Boiler and Pressure Vessels, 1989
Code Cases	Nuclear Components, 1989
B1.20.1-1983	Pipe Threads, General Purpose (Inch)
B16.1-1989	Cast Iron Pipe Flanges and Flanged Fittings
B16.3-1985	Malleable Iron Threaded Fittings, Classes 150 and 300
B16.4-1985	Cast Iron Threaded Fittings, Classes 125 and 250
B16.5-1988	Pipe Flanges and Flanged Fittings
B16.9-1986	Factory-Made Wrought Steel Buttwelding Fittings
B16.15-1985	Cast Bronze Threaded Fittings, Classes 125 and 250

*Some ASME standards are filed with ANSI.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

B16.22-1989	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
B16.28-1986	Wrought Steel Buttwelding Short Radius Elbows and Returns
B16.39-1986	Pipe Unions, Malleable Iron, Threaded
B18.2.2-1987	Square and Hex Nuts
B30.2-1990	Safety Standards for Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)
B30.10-1987 w/Addenda a	Safety Standards for Hooks
B30.11-1988 w/Addenda a and b	Safety Standard for Monorails and Underhung Cranes
B30.16-1987 w/Addenda a and b	Safety Standards for Overhead Hoists (Underhung)
B30.17-1985 w/Addenda a, b, c, and d	Safety Standards for Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)
B31.1-1989 w/Addenda a and b	Power Piping
B31.3-1990 w/Addenda a and b	Chemical Plant and Petroleum Refinery Piping
B31.5-1987 w/Addenda a and b	Refrigeration Piping
B31.9-1988 w/Addenda a	Building Service Piping
B36.10M-1985	Welded and Seamless Wrought Steel Pipe
B46.1-1985	Surface Texture (Surface Roughness, Waviness, and Lay)
N509-1989	Nuclear Power Plant Air-Cleaning Units and Components

*Some ASME standards are filed with ANSI.

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AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

N510-1989

Testing of Nuclear Air Treatment
Systems

NQA-1-1989
w/Addenda a & b

Quality Assurance Program Requirements
for Nuclear Facilities

NQA-2-1989

Quality Assurance Requirements for
Nuclear Facility Applications

Y1.1-1972 (R 1991)

Abbreviations for Use on Drawings and
in Text

*Some ASME standards are filed with ANSI.

REFSTD.SP.116

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

LOCATION: LIB

VOLUME

A 6-90a	General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use	01.04
A 20-89a	General Requirements for Steel Plates for Pressure Vessels	01.04
A 36-90	Structural Steel	01.04
A 47-84 (1989)	Ferritic Malleable Iron Castings	01.02
A 48-83 (1990)	Gray Iron Castings	01.02
A 53-90a	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless	01.01
A 74-87	Cast Iron Soil Pipe and Fittings	01.02
A 82-90a	Steel Wire, Plain, for Concrete Reinforcement	01.04
A 90-81	Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles	01.06, 02.03
A 102-87	Ferrovanadium	01.02
A 105-87a	Forgings, Carbon Steel, for Piping Components	01.01
A 106-90	Seamless Carbon Steel Pipe for High-Temperature Service	01.01
A 108-90a	Steel Bars, Carbon, Cold Finished, Standard Quality	01.05
A 111-66 (1985)	Zinc-Coated (Galvanized) "Iron" Telephone and Telegraph Line Wire	01.06
A 116-88	Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric	01.06
A 120	Discontinued 1988, use ASTM A 53	
A 121-86	Zinc-Coated (Galvanized) Steel Barbed Wire	01.06

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A 123-89a	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products	01.06, 15.08
A 126-84	Gray Iron Castings for Valves, Flanges, and Pipe Fittings	01.02
A 134-90	Pipe, Steel, Electric-Fusion (Arc)-Welded (Sizes NPS 16 and Over)	01.01
A 139-89b	Electric-Fusion (ARC)-Welded Steel Pipe (NPS 4 and Over)	01.01
A 153-82 (1987)	Zinc Coating (Hot-Dip) on Iron and Steel Hardware	01.06, 15.08
A 165	Discontinued 1987, use ASTM B 766	
A 167-90	Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip	01.03
A 181-87	Forgings, Carbon Steel, for General-Purpose Piping	01.01
A 182-90a	Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service	01.01
A 183-83 (1990)	Carbon Steel Track Bolts and Nuts	01.04, 15.08
A 185-90a	Steel Welded Wire Fabric, Plain, for Concrete Reinforcement	01.04
A 193-90	Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service	01.01, 15.08
A 194-90	Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service	01.01, 15.08
A 197-87	Cupola Malleable Iron	01.02

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

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A 213-90	Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes	01.01
A 216-89	Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service	01.01, 01.02
A 234-90a	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures	01.01
A 239-89	Test Method for Locating the Thinnest Spot in a Zinc (Galvanized) Coating on Iron or Steel Articles by the Preece Test (Copper Sulfate Dip)	01.06
A 240-90	Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels	01.03, 01.04
A 269-90a	Seamless and Welded Austenitic Stainless Steel Tubing for General Service	01.01
A 276-90a	Stainless and Heat-Resisting Steel Bars and Shapes	01.05
A 283-88	Low and Intermediate Tensile Strength Carbon Steel Plates	01.04
A 285-82 (1987)	Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength	01.04
A 307-90	Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength	01.01, 15.08
A 312-89a	Seamless and Welded Austenitic Stainless Steel Pipes	01.01
A 320-90	Alloy Steel Bolting Materials for Low-Temperature Service	01.01, 15.08

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

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D 1777-64 (1975)	Method for Measuring Thickness for Textile Materials	07.01
D 1779-65 (1983)	Adhesive for Acoustical Materials	15.06
D 1784-90	Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds	08.02, 08.04
D 1785-89	Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120	08.04
D 1790-90	Test Method for Brittleness Temperature of Plastic Film by Impact	08.02
D 1863-86	Mineral Aggregate Used on Built-Up Roofs	04.02, 04.04
D 2000-90	Classification System for Rubber Products in Automotive Applications	09.01, 09.02
D 2134	Discontinued 1990	
D 2136-84 (1989)	Test Method for Coated Fabrics-Low-Temperature Bend Test	09.01, 09.02
D 2167-84 (1990)	Test Method for Density and Unit Weight of Soil In-Place by the Rubber Balloon Method	04.08
D 2178-89	Asphalt Glass Felt Used in Roofing and Waterproofing	04.04
D 2240-86	Test Method for Rubber Property-Durometer Hardness	08.02, 09.01

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
D 2241-89	Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)	08.04
D 2244-89	Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates	06.01
D 2261-83	Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Extension Tensile Testing Machine)	07.01
D 2262-83	Test Method for Tearing Strength of Woven Fabrics by the Tongue (Single Rip) Method (Constant-Rate-of-Traverse Tensile Testing Machine)	07.01
D 2321-89	Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications	08.04
D 2464-90	Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	08.04
D 2466-90a	Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	08.04
D 2467-90	Socket-Type Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	08.04
D 2487-90	Test Method for Classification of Soils for Engineering Purposes	04.08, 08.04
D 2510-83	Test Method for Adhesion of Solid Film Lubricants	05.02
D 2564-88	Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings	08.04
D 2657-90	Practice for Heat-Joining Polyolefin Pipe and Fittings	08.04
D 2680-90	Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping	08.04

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
D 2729-89	Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings	08.04
D 2822-91	Asphalt Roof Cement	04.04
D 2823-90	Asphalt Roof Coatings	
D 2837-90	Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials	08.04
D 2842-69 (1990)	Test Method for Water Absorption of Rigid Cellular Plastics	08.02
D 2855-90	Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings	08.04
D 2856-87	Test Method for Open Cell Content of Rigid Cellular Plastics by the Air Pycnometer	08.02
D 2922-81 (1990)	Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)	04.08
D 2996-88	Filament-Wound "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe	08.04
D 3017-88	Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)	04.08
D 3034-89	Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings	08.04
D 3083-89	Flexible Poly(Vinyl Chloride) Plastic Sheet for Pond, Canal, and Reservoir Lining	04.08
D 3139-89	Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals	08.04
D 3212-89	Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals	08.04

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
D 3350-84	Polyethylene Plastics Pipe and Fittings Materials	08.03, 08.04
D 3370-82	Practices for Sampling Water	11.01
D 3381-83	Viscosity-Graded Asphalt Cement for Use in Pavement Construction	04.03
D 3487-88	Mineral Insulating Oil Used in Electrical Apparatus	10.03
D 3672-86	Venting Asphalt-Saturated and Coated Inorganic Felt Base Sheet Used in Roofing	04.04
D 3776-85 (1990)	Test Methods for Mass Per Unit Area (Weight) of Woven Fabric	07.02
D 3787-89	Test Method for Bursting Strength of Knitted Goods--Constant-Rate-of-Traverse (CRT) Ball Burst Test	07.02
D 3895-80 (1986)	Test Method for Oxidative Induction Time of Polyolefins by Thermal Analysis	
D 3985-81 (1988)	Test Method for Oxygen Gas Transmission Rate Through Plastic Film and Sheeting Using a Coulometric Sensor	15.09
D 4021-86	Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks	08.04
D 4101-82 (1988)	Propylene Plastic Injection and Extrusion Materials	08.03
D 4253-83	Test Methods for Maximum Index Density of Soils Using a Vibratory Table	04.08
D 4254-83	Test Methods for Minimum Index Density of Soils and Calculation of Relative Density	04.08
D 4263-83 (1988)	Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method	06.01

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
D 4318-84	Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils	04.08
D 4491-85	Test Methods for Water Permeability of Geotextiles by Permittivity	04.08
D 4533-85	Test Method for Trapezoid Tearing Strength of Geotextiles	11.03
D 4632-86	Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)	04.08
D 4716-87	Test Method for Constant Head Hydraulic Transmissivity (in-Place Flow) of Geotextiles and Geotextile Related Products	04.08
D 4751-87	Test Method for Determining Apparent Opening Size of a Geotextile	04.08
D 4759-88	Practice for Determining the Specification Conformance of Geosynthetics	

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
E 11-87	Wire-Cloth Sieves for Testing Purposes	04.01, 04.02, 04.06, 04.07, 05.05, 14.02
E 31-85 (1989)	Methods for Chemical Analysis of Ferroalloys	03.05
E 84-89a	Test Method for Surface Burning Characteristics of Building Materials	04.07
E 90-90	Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions	04.06
E 96-90	Test Methods for Water Vapor Transmission of Materials	04.04, 04.06, 08.03, 15.09
E 119-88	Test Methods for Fire Tests of Building Construction and Materials	04.07
E 154-88	Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover	04.07
E 235-88	Thermocouples, Sheathed, Type K, for Nuclear or for Other High-Reliability Applications	12.02
E 283-84	Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors	04.07
E 380-89a	Practice for the Use of International System of Units (SI)	14.02
E 413-87	Classification for Rating Sound Insulation	04.06
E 427-90	Practice for Testing for Leaks Using the Halogen Leak Detector (Alkali-Ion Diode)	03.03

LOCATION: LIB

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
E 447-84	Test Methods for Compressive Strength of Masonry Prisms	04.07
E 596-90	Test Method for Laboratory Measurement of the Noise Reduction of Sound-Isolating Enclosures	04.06
E 621-84	Practice for the Use of Metric (SI) Units in Building Design and Construction	04.07, 08.04
E 709-80 (1985)	Practice for Magnetic Particle Examination	03.03
E 736-86	Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members	04.07
E 779-87	Test Method for Determining Air Leakage Rate by Pressurization	04.07
E 1264-90	Classification for Acoustical Ceiling Products	04.06

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

		VOLUME
F 104-88	Classification System for Nonmetallic Gasket Materials	09.02
F 436-90	Hardened Steel Washers	15.08
F 437-89b	Threaded Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	08.04
F 439-90	Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	08.04
F 441-89	Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80	08.04
F 477-76 (1985)	Elastomeric Seals (Gaskets) for Joining Plastic Pipe	08.04
F 493-89	Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings	08.04
F 606-90	Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets	15.08
F 844-90	Washers, Steel, Plain (Flat), Unhardened for General Use	15.08

AMERICAN WOOD-PRESERVERS ASSOCIATION (AWPA)

C1-88	All Timber Products--Preservative Treatment by Pressure Processes
C2-89	Lumber, Timbers, Bridge Ties and Mine Ties--Preservative Treatment by Pressure Processes
C7-89	Western Red Cedar, Northern White Cedar and Alaska Yellow Cedar Poles--Preservative Treatment of Incised Pole Butts by the Thermal Process
C9-85	Plywood--Preservative Treatment by Pressure Processes
C20-88	Structural Lumber--Fire-Retardant Treatment by Pressure Processes
C27-88	Plywood--Fire-Retardant Treatment by Pressure Processes
P1-89	Coal Tar Creosote for Land, Fresh Water and Marine (Coastal Water Use)
P5-89	Water-Borne Preservatives
P8-89	Oil-Borne Preservatives
P9-87	Solvents and Formulations for Organic Preservative Systems

ELECTRONIC INDUSTRIES ASSOCIATION (EIA)

EIA-170 Nov 1957	Electrical Performance Standards - Monochrome Television Studio Facilities
EIA-195-C July 1985	Electrical and Mechanical Characteristics for Terrestrial Micro- wave Relay System Antennas and Passive Reflectors
RS-222-D Nov 1986	Structural Standards for Steel Antenna Towers and Antenna Supporting Structures
EIA-310-C November 1977 (Reaffirmed 1982)	Racks, Panels and Associated Equipment

ELECTRONIC INDUSTRIES ASSOCIATION/TELECOMMUNICATION INDUSTRIES ASSOCIATION
(EIA/TIA)

568-91	Commercial Building Telecommunication Wiring Standard
569-90	Commercial Building Standard for Telecommunication Pathways and Spaces

AMERICAN WELDING SOCIETY (AWS)

A2.4-86	Symbols for Welding, Brazing, and Nondestructive Examination
A5.4-81	Corrosion-Resisting Chromium and Chromium-Nickel Steel Covered Welding Electrodes
A5.8-89	Filler Metals for Brazing
A5.9-81	Corrosion-Resisting Chromium and Chromium-Nickel Steel Bare and Composite Metal Cored and Stranded Arc Welding Electrodes and Welding Rods
B2.1-84	Welding Procedure and Performance Qualification
C5.4-84	Recommended Practices for Stud Welding
D1.1-90	Structural Welding Code - Steel
D1.2-90	Structural Welding Code - Aluminum
D1.3-89	Structural Welding Code - Sheet Steel
D1.4-79	Structural Welding Code - Reinforcing Steel
D9.1-90	Sheet Metal Welding Code
D14.1-85	Welding of Industrial and Mill Cranes and Other Material Handling Equipment
QC1-88	Certification of Welding Inspectors
Brazing Manual	1976, 3rd Edition

AMERICAN WATER WORKS ASSOCIATION (AWWA)

A100-90	Water Wells
B300-87	Hypochlorites
C104-90	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
C110-87	Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in., for Water and Other Liquids
C111-90	Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings
C151-86	Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids
C200-86	Steel Water Pipe 6 in. and Larger
C203-86	Coal-Tar Protective Coatings and Linings for Steel Water Pipelines--Enamel and Tape--Hot-Applied
C500-86	Gate Valves for Water and Sewerage Systems
C502-85	Dry-Barrel Fire Hydrants
C506-78(R83)	Backflow Prevention Devices -- Reduced Pressure Principle and Double Check Valve Types
C600-87	Installation of Ductile-Iron Water Mains and Their Appurtenances
C603-90	Installation of Asbestos-Cement Pressure Pipe
C651-86 w/Addendum a	Disinfecting Water Mains
C900-89	Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in., for Water
C950-88	Glass-Fiber-Reinforced Thermosetting-Resin Pipe

LOCATION: LIB

AMERICAN WATER WORKS ASSOCIATION (AWWA)

M14 (1990)	Recommended Practice for Backflow Prevention and Cross-Connection Control
M23 (1980)	Manual for PVC Pipe--Design and Installation

PACIFIC NORTHWEST SECTION - AWWA

Accepted Procedure and Practice in Cross Connection Control	Manual, May 1990, Fifth Edition
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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
A-A-1192A	21 Sep 87	Bracket, Pipe
A-A-1926A	15 Jan 88	Closer, Door
A-A-2339	26 Nov 84	Stain (Wood, Solvent-Dye Type)
L-F-475A, Including AMD 1 And INT AMD 2	11 Mar 65 11 Oct 65 9 Feb 71	Floor Covering Vinyl, Surface (Tile And Roll), With Backing
L-F-001641, Including AMD 2	28 Jan 71 24 Sep 82	Floor Covering Translucent Or Transparent Vinyl Surface With Backing
L-P-508H and Valid Notice 1	19 Apr 77 10 Apr 91	Plastic Sheet, Laminated, Decorative And Nondecorative
O-A-51G	3 Jul 84	Acetone, Technical
O-E-760D Including AMD 1 and AMD 2	28 May 87 6 Sep 90 14 Jan 91	Ethyl Alcohol (Ethanol): Denatured Alcohol; Proprietary Solvents And Special Industrial Solvents
W-A-450C	28 Aug 90	Alarm Systems, Interior, Components For
W-C-375B/GEN	22 Jul 75	Circuit Breakers, Molded Case; Branch Circuit And Service
W-C-1094A	3 Jul 75	Conduit And Conduit Fittings Plastic, Rigid
W-F-406D	10 Aug 87	Fittings For Cable, Power, Electrical And Conduit, Metal, Flexible
W-P-115C	14 Mar 90	Panel, Power Distribution
W-S-896E, Including AMD 2 And Valid Notice 1	25 Jul 74 30 Sep 82 1 Apr 88	Switches, Toggle (Toggle And Lock), Flush Mounted (General Specification)

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
AA-D-600B, Including INT AMD 4	26 Mar 69 13 Jun 73	Door, Vault, Security
FF-B-561D	20 Jul 89	Bolt, (Screw), Lag
FF-B-575C	26 May 70	Bolts, Hexagon And Square
FF-B-588D	2 Oct 89	Bolt, Toggle: And Expansion Sleeve, Screw
FF-C-450D, Including AMD 1	6 Mar 73 14 May 74	Clamps, Wire Rope
FF-H-106C	19 Jul 74	Hardware, Builders'; Locks And Door Trim: General Specification For
FF-H-121D	Canceled	Use FS A-A-1926
FF-H-1820	30 Jul 74	Hardware, Builders'; Exit Devices
FF-N-105B, Including AMD 3, INT AMD 4, And Valid Notice 1	17 Mar 71 4 Oct 74 23 Aug 77 27 Apr 87	Nails, Brads, Staples And Spikes: Wire, Cut And Wrought
FF-N-836D, Including AMD 3	24 Apr 72 31 Jan 89	Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding And Single Ball Seat
FF-S-111D, Including AMD 1	27 Aug 74 28 Jul 89	Screw, Wood
FF-S-325, Including INT AMD 3	10 Sep 57 16 Jul 65	Shield, Expansion; Nail, Expansion; And Nail, Drive Screw (Devices, Anchoring, Masonry)
HH-I-521F	Canceled	
HH-I-530B, Including INT AMD 1	12 Aug 81 27 Sep 82	Insulation Board, Thermal, Unfaced, Polyurethane Or Polyisocyanurate

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
HH-I-545B	Canceled	Use ASTM C 1071
HH-I-558B, Including AMD 3	22 Nov 71 24 Aug 76	Insulation, Blocks, Boards, Blankets, Felts, Sleeving (Pipe And Tube Covering), And Pipe Fitting Covering, Thermal (Mineral Fiber, Industrial Type)
MM-L-751H	13 Aug 70	Lumber, Softwood
QQ-A-250/1F	30 Jun 83	Aluminum 1100, Plate And Sheet
QQ-C-40, Including AMD 2	15 Apr 63 17 Nov 70	Calking: Lead Wool And Lead Pig
QQ-L-171E, Including Valid Notice 1	10 Oct 66 1 Mar 88	Lead Pig
QQ-L-201F, Including AMD 2	29 Nov 65 17 Nov 70	Lead Sheet
QQ-W-461H	Canceled	Use ASTM A 641, A 809, A 818, A 853
RR-C-271C	17 Jul 86	Chains And Attachments, Welded And Weldless
RR-F-191K	14 May 90	Fencing, Wire And Post, Metal (And Gates, Chain-Link Fence Fabric, And Accessories) (General Specification)
RR-F-191/1D	14 May 90	Fencing, Wire And Post, Metal (Chain-Link Fence Fabric) (Detailed Specification)
RR-F-191/2D	14 May 90	Fencing, Wire And Post, Metal (Chain-Link Fence Gates) (Detailed Specification)
RR-F-191/3D	14 May 90	Fencing, Wire And Post, Metal (Chain-Link Fence Posts, Top Rails And Braces)

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
RR-F-191/4D	14 May 90	Fencing, Wire And Post, Metal (Chain-Link Fence Accessories)
RR-F-221G	Canceled	Use ASTM A 116, A 121, A 390, A 584, A 585, and A 702
RR-F-221/1A	Canceled	Use ASTM A 121 and A 585
RR-F-221/2A	Canceled	Use ASTM A 116, A 390, and A 584
RR-F-221/3A	Canceled	Use ASTM A 702
RR-G-661E, Including AMD 1	21 Mar 84 1 Oct 87	Grating, Metal, Bar Type (Floor, Except For Naval Vessels)
RR-T-650D	22 Sep 88	Treads, Metallic And Nonmetallic, Skid Resistant
RR-W-410D, Including AMD 1	25 Apr 84 22 Apr 88	Wire Rope And Strand
SS-A-701B	15 Jul 74	Asphalt, Petroleum (Primer, Roofing, And Waterproofing)
SS-C-153C	13 Dec 74	Cement, Bituminous, Plastic
SS-C-1960/1A	24 May 77	Cement, Masonry
SS-L-30D, Including INT AMD 3	27 Feb 74 22 Sep 76	Lath, And Board Products, Gypsum
SS-R-630D, Including INT AMD 2	3 Jul 69 12 Nov 71	Roofing Felt (Roll, Asphalt- Prepared, Mineral Surfaced)
SS-S-118B	Canceled	Use ASTM E 1264
SS-S-1996	28 Nov 80	Sealer, Water And Weather Resistant, For Asphalt, Concrete, And Masonry Surfaces

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
SS-T-312B, Including INT AMD 1 And Valid Notice 1	10 Oct 74 14 Nov 79 28 May 90	Tile, Floor: Asphalt, Rubber, Vinyl, Vinyl Composition
SS-W-40A, Including INT AMD 1, And Valid Notice 1	28 Mar 66 25 Sep 70 7 Jun 74	Wall Base: Rubber, And Vinyl Plastic
SS-W-110C	11 Oct 79	Water-Repellent, Colorless, Silicone Resin Base
TT-C-490C, Including AMD 2	18 Mar 85 29 Jun 90	Cleaning Methods For Ferrous Surfaces And Pretreatments For Organic Coatings
TT-C-520B	Canceled	Use MS MIL-C-62218
TT-C-535B, Including AMD 2	2 Aug 72 23 Jun 77	Coating, Epoxy, Two Component, For Interior Use On Metal, Wood, Wallboard, Painted Surfaces, Concrete And Masonry
TT-C-542E	14 Jul 78	Coating, Polyurethane, Oil-Free, Moisture Curing
TT-C-550C	21 Jul 78	Coating System, Glaze, High Performance (Solvent Base) For Interior Surfaces
TT-C-555B, Including AMD 1	9 Feb 73 5 Aug 75	Coating, Textured (For Interior And Exterior Masonry Surfaces)
TT-C-00598C, Including AMD 1	23 Jun 70 18 Mar 71	Calking Compound, Oil And Resin Base Type (For Building Construction)
TT-E-487E, Including AMD 1	16 Apr 80 22 Aug 84	Enamel: Floor And Deck
TT-E-489H	22 Aug 88	Enamel, Alkyd, Gloss, Low VOC Content

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
TT-E-491C	1 Aug 77	Enamel; Gloss, Synthetic (For Metal And Wood Furniture)
TT-E-505B	4 Feb 85	Enamel (Odorless, Alkyd, Interior, High Gloss)
TT-E-509C	5 Dec 86	Enamel, Odorless, Alkyd, Interior, Semigloss, White And Tints
TT-E-529G	6 Jun 88	Enamel, Alkyd, Semigloss, Low VOC Content
TT-E-545C	11 Sep 86	Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints And White)
TT-F-336E	1 Mar 78	Filler, Wood, Paste
TT-F-340C	6 Feb 79	Filler, Wood, Plastic
TT-F-1098D	23 Sep 74	Filler, Block, Solvent-Thinned, For Porous Surfaces (Concrete Block, Cinder Block, Stucco, Etc.)
TT-I-735A, Including AMD 3	11 Jul 63 9 Nov 76	Isopropyl Alcohol
TT-L-26C	18 May 81	Lacquer (Brushing, Clear And Pigmented For Exterior And Interior Use)
TT-P-19D	7 Feb 85	Paint, Latex (Acrylic Emulsion, Exterior Wood And Masonry)
TT-P-25E Including AMD 2	14 Mar 73 23 Jun 77	Primer Coating, Exterior Undercoat for Wood, Ready-Mixed, White and Tints
TT-P-29J, Including AMD 1 and INT AMD 2	27 Aug 76 23 Jun 77 1 Sep 83	Paint, Latex Base, Interior, Flat, White And Tints

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
TT-P-30E, Including AMD 1	30 Jun 77 21 Mar 84	Paint, Alkyd, Odorless, Interior, Flat White And Tints
TT-P-91D, Including AMD 2	26 Feb 74 12 Jul 83	Paint, Rubber-Base, For Interior Use (Concrete And Masonry Floors)
TT-P-96D, Including AMD 2	11 Jun 76 27 Jun 83	Paint, Latex Base For Exterior Surfaces (White And Tints)
TT-P-97D, Including INT AMD 1	25 Jan 68 1 Feb 72	Paint, Styrene-Butadiene Solvent Type, White (For Exterior Masonry)
TT-P-102E, Including INT AMD 1	15 Apr 80 18 Jan 83	Paint, Oil (Alkyd Modified, Exterior, White And Tints)
TT-P-620C, Including AMD 3	11 Oct 68 23 Jun 77	Primer Coating, Conditioner For Chalking Exterior Surfaces
TT-P-636D	Canceled	Use FS TT-P-664 or MS MIL-P-53030
TT-P-641G, Including AMD 1	9 Jul 76 23 Jun 77	Primer Coating; Zinc Dust-Zinc Oxide (For Galvanized Surfaces)
TT-P-645B	21 Mar 90	Primer, Paint, Zinc-Molybdate Alkyd Type
TT-P-650D	25 Aug 88	Primer Coating, Latex Base, Interior, White (For Gypsum Wallboard, Or Plaster)
TT-P-659C	Canceled	
TT-P-664D	1 Sep 88	Primer Coating, Alkyd, Corrosion-Inhibiting, Lead And Chromate Free, VOC-Compliant
TT-P-1510A, Including AMD 1	3 Jan 75 23 Jun 77	Paint, Latex, Exterior, For Wood Surfaces, White And Tints

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
TT-P-1511B	15 Jul 81	Paint, Latex (Gloss And Semigloss, Tints And White) (For Interior Use)
TT-P-1728A, Including AMD 1	4 Feb 74 23 Jun 77	Paint, Latex-Base, Interior, Flat, Deep-Tone
TT-P-001984	18 Sep 75	Primer Coating, Latex Base, Exterior, (Undercoat For Wood), White And Tints
TT-S-176E, Including AMD 1	23 Jul 74 23 Jun 77	Sealer, Surface, Varnish Type, Floor, Wood And Cork
TT-S-178B, Including AMD 1	27 Jul 72 23 Jun 77	Sealer, Surface Renewer For Wood And Sealer For Concrete
TT-S-179B, Including AMD 1	12 Jun 75 23 Jun 77	Sealer, Surface: Pigmented Oil, For Plaster And Wallboard
TT-S-00227E, Including AMD 3	4 Nov 69 9 Oct 70	Sealing Compound: Elastomeric Type, Multi-Component (For Calking, Sealing, And Glazing In Buildings And Other Structures)
TT-S-00230C, Including AMD 2	2 Feb 70 9 Oct 70	Sealing Compound: Elastomeric Type, Single Component (For Calking, Sealing, And Glazing In Buildings And Other Structures)
TT-S-708A, Including AMD 2	27 Apr 62 23 Jun 77	Stain, Oil: Semi-Transparent, Wood Exterior
TT-S-711C	1 Jun 78	Stain; Oil Type, Wood, Interior
TT-S-001543A	9 Jun 71	Sealing Compound: Silicone Rubber Base (For Calking, Sealing, And Glazing In Buildings And Other Structures)

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FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
TT-S-001657	8 Oct 70	Sealing Compound--Single Component, Butyl Rubber Based, Solvent Release Type (For Buildings And Other Types Of Construction)
TT-S-001992	29 Dec 75	Stain, Latex, Exterior For Wood Surfaces
TT-V-85C, Including AMD 1, and INT AMD 2	5 Apr 76 23 Jun 77 18 Jan 83	Varnish, Oil, Low Sheen, Brush Or Spray Application
TT-V-119D, Including AMD 2	6 Jul 73 23 Jun 77	Varnish, Spar, Phenolic-Resin
TT-W-550G	Canceled	Wood Preservative, Chromated Copper Arsenate Mixture
TT-W-00571J	31 Oct 74	Wood Preservatives Treating Practices
UU-B-790A	Canceled	Building Paper, Vegetable Fiber: (Kraft, Waterproofed, Water Repellent And Fire Resistant)
WW-C-00540C, Including INT AMD 1	15 May 67 18 Jul 68	Conduit, Metal, Rigid: And Coupling, Elbow, And Nipple, Electrical Conduit: Aluminum
WW-C-566C	21 Oct 75	Conduit, Metal, Flexible
WW-F-406D	Canceled	Use ANSI B16.1, ANSI B16.24
WW-H-171E	Canceled	Use ANSI B16.28; FS A-A-1192; MSS SP-58; NFPA 11, 12, 13, 14, 15, 16, 17
WW-P-405B	Canceled	Use ASTM A 760, A 761, A 762, A 849
WW-P-541E, Including AMD 1	1 Aug 80 16 Apr 90	Plumbing Fixtures (General Specification)

*For information only, not part of reference.

FEDERAL SPECIFICATIONS (FS)

Document Number	Date*	Title
WW-U-531F	16 Apr 84	Unions, Pipe, Steel Or Malleable Iron; Threaded Connection, 150 Lb And 250 Lb
ZZ-R-765D	10 May 89	Rubber, Silicone (General Specification)
LLL-B-810B	Canceled	Use ANSI A135.4
MMM-A-130B Including INT AMD 3	9 Dec 74 7 Apr 76	Adhesive, Contact
MMM-A-188C	2 Jan 75	Adhesive, Urea-Resin-Type (Liquid And Powder)

*For information only, not part of reference.

LOCATION: LIB

HYDRAULIC INSTITUTE (HI)

Hydraulic Institute Standards

Engineering Data Book

14th Edition (1983)

Second Edition (1990)

HANFORD PLANT STANDARDS (HPS)
DESIGN CRITERIA

General

SDC-1.1	R8 Void	Functional Design Criteria, Specifications, Acceptance Test Procedures, and Certified Vendor Information Field
SDC-1.2	R11	Hanford Plant Standards and National Codes and Standards
SDC-1.3	R6	Preparation and Control of Engineering and Architectural Drawings
SDC-1.4	R0	Preparation and Control of Multiuse Hanford Specifications

Architectural-Civil

SDC-2.1	R6 Void	Architectural Design
SDC-3.1	R6	Railroads
SDC-3.2	R2	Minimum Depth of Underground Water Lines
SDC-4.1	R11	Design Loads for Structures

Mechanical

SDC-5.1	R6	Heating, Ventilating, and Air Conditioning
---------	----	--

Electrical

SDC-7.2	R16	Outside Lighting and Aerial Distribution
SDC-7.4	R15	Underground Power Distribution
SDC-7.5	R25	Interior Power and Lighting
SDC-7.7	R8	Communication, Signaling, and Low-Voltage Control Systems
SDC-7.8	R12	Fire Alarm Systems
SDC-7.10	R11 Void	Corrosion Protection

HANFORD PLANT STANDARDS (HPS)
DESIGN CRITERIA

Safeguards and Security

SDC-8.1 R0

Installation Details for Safeguards/
Security Equipment

Miscellaneous

SDC-9.1 R4 Void

Noise Control

HANFORD PLANT STANDARDS (HPS)

Architectural-Civil

AC-1-20	R3	Portable Stanchion
AC-1-21	R4	Laundry Bag Holder
AC-3-3	R4	Beryllium Zone Sign
AC-3-22	R5	Fissile Material Symbol
AC-3-23	R1	Radiation Zone Sign - Small Size
AC-3-24	R1	Radiation Zone Signs - Medium and Large Size
AC-3-25	R1	Radiation Underground Sign
AC-3-26	R1	Radiation Pipeline Sign
AC-3-29	R1	Fire Fighting Category Signs for Fissile Material Areas
AC-3-30	R5	Sign Post
AC-3-31	R0	Signs for Underground Radioactive Material
AC-4-2	R5	Precast Concrete Manhole
AC-4-5	R3	Shallow Concrete Manhole
AC-5-1	R5	Barricade
AC-5-2	R3	Marker Barricade
AC-5-3	R7	Single Post Marker or Guard Post
AC-5-4	R4	Post Barricade for Fire Hydrant and Post Indicator Valves
AC-5-40	R8	Marker Posts for Buried Radioactive Material
AC-6-1	R5	Inter-Area Highway Cross-Sections
AC-6-2	R6	Intra-Area Roadway Cross-Sections
AC-6-20	R4	Minimum Road Clearances

LOCATION: LIB

HANFORD PLANT STANDARDS (HPS)

AC-7-20	R4	Railroad Crossing
AC-7-30	R4	Railroad Mile Post
AC-7-31	R4	Whistle Post
Architectural-Civil		
HPS-556-AC	R3	Chain Link Security Fence
DG-500-AC	R0	Rack for Manifold Gas Cylinders
DG-508-AC	R0	Design of Anchor Bolts in Concrete

HANFORD PLANT STANDARDS (HPS)

Electrical

E-2-10	R2	Warning and Counterpoise Road Crossing Structure - 115, 230 and 500 kV Lines
E-3-10	R2	Grounding of Fences Enclosing Outdoor Electrical Equipment
E-3-12	R1	Grounding of Fences at Power Line Crossings and Lines Parallel to Fences
E-7-1	R1	Phase Identification for Aerial Power Cable and Service Drop Cables
E-7-35	R1	Transformer Connections 2400 V Delta to 120/240 V Delta
E-7-36	R1	Transformer Connections 2400/4160Y Volt to 120/240 Volt Delta
E-7-37	R1	Transformer Connections 2400 Volt Delta to 208Y/120 and 408Y/277 Volt
E-7-38	R1	Transformer Connections 2400 Delta and 2400/4760Y Volts to 480 Volt Delta
E-7-39	R1	Transformer Connections 13,800 Delta to 120/240, 240, 480, and 2400 Volt Delta
E-7-40	R1	Transformer Connections 13,800 Delta to 480Y/277 and 2400/4160Y Volts
E-10-1	R3	Concrete Encased Underground Ducts-One and Two Conduits
E-10-2	R3	Concrete Encased Underground Ducts-Three and Four Conduits
E-10-3	R3	Concrete Encased Underground Ducts-Six and Eight Conduits
E-10-10	R1	Riser and Drain-Encased, Underground Non-metallic Conduit
E-10-11	R1	Riser and Drain-Encased, Underground Steel Conduit
E-10-15	R1	Ventilated Pole Riser-Steel Conduit

HANFORD PLANT STANDARDS (HPS)

E-10-20	R5	Direct Burial Cable Details - 600 Volts and Under
E-12-1	R3	Typical Electrical System Grounding for Buildings
E-12-2	R1	Auxiliary Bonding of Electrical Equipment and Frames
E-12-5	R2	Typical Grounding Grid and Connections for Buildings
E-14-1	R3	Building and Process Wire and Cable - 600 Volt
E-14-5	R2	Multiple Conductor Control Cable and Control Wiring
E-14-8	R1	Color Codes for Flexible Cords
E-14-10	R1	Color for Indicator Lamps
E-14-35	R2	15 Ampere, 120 Volt Receptacle and Plugs for Instrumentation
E-14-40	R2	20 Ampere, 480 Volt Receptacle
E-14-45	R2	30 Ampere, 480 Volt Receptacle
E-14-48	R2	60 Ampere, 480 Volt Receptacle for Welding and Other Heavy Duty Service
E-15-1	R2	Meter Installation for 480Y/277V or 208Y/120V, 3-Phase, 4 Wire Service, 200 Amps and Above
E-15-2	R2	Meter Installation for 480 or 240 Volt, 3-Phase, 3 Wire Service, 200 Amps and Above
E-15-3	R3	Meter Installation for 480Y/277V or 208Y/120V, 4 Wire Service Under 200 Amps
E-15-4	R2	Meter Installation for 480 or 240 Volt, 3-Phase, 3 Wire Service Under 200 Amps

HANFORD PLANT STANDARDS (HPS)

E-15-5	R1	Meter Installation for 120/240 Volt, 1-Phase, 3 Wire Service, 200 Amps and Above
E-15-6	R1	Meter Installation for 120/240 Volt, 1-Phase, 3 Wire Service, Under 200 Amps
HPS-314-E	R3	Plastic Insulated, Jacketed Control Cable - 300 to 1000 Volts
HPS-319-E	R2	Ethylene-Propylene Rubber Insulated Cable 5 kV to 15 kV
HPS-359-E	R1	Emergency Audible Alarm Signals

HANFORD PLANT STANDARDS (HPS)

Instrumentation

I-2-1	R1	Instrument Panel
I-2-4	R2	Instrument Panel Curb and Panel Grounding
I-2-5	R1	Finishing and Refinishing of Instrument Panels
I-2-7	R3	Equipment Nameplates
I-2-8	R1	Instrument Panel Supports for I-2-1 Panels
I-3-10	R1	Fabrication of Flowmeter Orifice Plates for Bolted Pipe Flanges
I-3-20	R2	Instrument Dip Tube Assemblies
I-4-1	R1	Gamma Radiation Detector, Ionization Chamber - Assembly
I-4-2	R1	Gamma Radiation Detector, Ionization Chamber - Details
I-4-3	R1	Gamma Radiation Detector - Mounting Bracket
I-5-1	R3	Underground, Direct Burial Tubing Installations
I-5-5	R2	Marker Flag and Post for Underground Tubing and Piping or Electrical Cable Runs
DG-405-I	R3	Instrument Air Systems

HANFORD PLANT STANDARDS (HPS)

Mechanical

M-2-17	R7	Safety Showers for Unheated Installations
M-2-18	R7	Safety Showers for Heated Installations
M-2-19	R5	Emergency Eye-Face Wash Fountain
M-5-1	R5	Stainless Steel Glove Box Port Ring
M-5-2	R7	Formed Metal Glove Box Port Rings
M-5-3	R6	Plastic Glove Box Port Ring, Type "A" and "B"
M-5-4	R7	Aluminum Glove Box Port Ring
M-5-7	R6	Glove Box Shielding Window
M-5-8	R8	Glove Box Window Gaskets
M-5-9	R8	Glove Box Window Assembly
M-5-11	R7	Glove Box Access Port Outer Band Clamp
M-5-12	R8	Glove Box Port Ring and Glove Installation
M-5-13a	R6	Glove Box Access Port Cover and Gasket Type I
M-5-13b	R7	Glove Box Access Port Cover and Gasket Type II
M-5-14a	R6	Glove Box Sphincter Seal for Sample Bottle
M-5-14b	R7	Glove Box Sphincter Seal for Quart Carton
M-5-15	R6	Glove Box Window Clamp
M-5-16	R8	Glove Box Window Opening for 3-Inch Modular Sizes
M-5-17	R8	Glove Box Window Opening, Nonmodular Sizes

HANFORD PLANT STANDARDS (HPS)

M-5-18	R7	Fire-Extinguishing Connection for Glove Box
M-5-19	R7	Glove Box Exhaust Filter, Type 3 PF
M-5-20	R6	Wire Mesh Prefilter Frame
M-5-21a	R5	Inner Clamp Band for Plastic, Aluminum, and Machined Stainless Steel Port
M-5-21b	R5	Lever Device - Subassembly
M-5-21c	R5	Inner Clamp Band for Formed Stainless Steel Port
M-5-22	R0	Glove Box Zipper Gasket Window
M-5-23a	R0	Glove Box Zipper Gasket Service Panel
M-5-23b	R0	Glove Box Zipper Gasket Service Panel Details
M-5-24	R0	Glove Box Service Panel/Access Panel
M-5-25a	R0	Glove Box Exhaust Filter Housing Assembly
M-5-25b	R0	Glove Box Exhaust Filter Housing Assembly
M-5-25c	R0	Glove Box Exhaust Filter Details
M-5-25d	R0	Glove Box Exhaust Filter Details
M-5-25e	R0	Glove Box Exhaust Filter Details
M-5-26a	R0	Glove Box Light Fixture Support
M-5-26b	R0	Glove Box Light Fixture Support
M-5-27a	R0	Glove Box Threaded Penetrations
M-5-27b	R0	Glove Box Threaded Penetrations
M-5-28	R0	Port Ring Installation on Shielded Glove Box
M-5-29	R0	Glove Box Shielded Window Cover

HANFORD PLANT STANDARDS (HPS)

M-5-30	R0	Glove Box Inside Port Covers
M-5-31a	R0	Glove Box Surge Relief Device Assembly
M-5-31b	R0	Glove Box Surge Relief Device Details
M-5-31c	R0	Glove Box Surge Relief Device Details
M-5-31d	R0	Glove Box Surge Relief Device Details
M-5-31e	R0	Glove Box Surge Relief Device Details
M-5-31f	R0	Glove Box Surge Relief Device Details
HPS-111-M	R1	Identification of Piping Systems
HPS-112-M	R1	Disinfecting Sanitary Water Systems
HPS-155-M	R0	Safety Showers in Sodium Areas
HPS-156-M	R2	Breathing Air Systems
HPS-157-M	R1	Fire- and Moisture- Resistant Nuclear Grade HEPA Filters
HPS-158-M	R1	Hydrogen Fluoride- and Caustic-Resistant Nuclear Grade HEPA Filters
HPS-159-M	R1	Fire-, Moisture-, and Chemical-Resistant Nuclear Grade HEPA Filters
HPS-160-M	R1	Fire- and Moisture- Resistant, High Temperature and High Humidity Nuclear Grade HEPA Filters
HPS-161-M	R0	Self-Contained Fire and Moisture-Resistant Nuclear Grade HEPA Filters
HPS-162-M	R0	Self-Contained Fire-, Moisture-, and Chemical-Resistant Nuclear Grade HEPA Filters
HPS-163-M	R0	Self-Contained Fire-, and Moisture-Resistant, High Temperature and High Humidity Nuclear Grade HEPA Filters
DG-1-M	R1	Spacing of Supports and Gradient for Steam Distribution Lines

LOCATION: LIB

HANFORD PLANT STANDARDS (HPS)

DG-102-M R5

Packing and Gasket Materials

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

*C37.13-1981 (R1990)	Low-Voltage AC Power Circuit Breakers Used in Enclosures
*C57.12.00-1987	General Requirements for Liquid- Immersed Distribution, Power and Regulating Transformers
*C57.12.90-1987	Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers and Guide for Short- Circuit Testing of Distribution and Power Transformers
*C57.13-1978 (R1987)	Requirements for Instrument Transformers
*C62.1-1984	Surge Arresters for AC Power Circuits
142-1982	Recommended Practice for Grounding of Industrial and Commercial Power Systems
260-1978 (R1985)	Standard Letter Symbols for Units of Measurement
308-1980	Criteria for Class 1E Power Systems for Nuclear Power Generating Stations
323-1984	Qualifying Class 1E Equipment for Nuclear Power Generating Stations
334-1974 (R1982)	Type Tests of Continuous Duty Class 1E Motors for Nuclear Power Generating Stations
336-1985	Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities
344-1987	Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations

*Filed under ANSI

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

382-1985	Qualification of Actuators for Power Operated Valve Assemblies with Safety-Related Functions for Nuclear Power Plants
383-1974 (R 1982)	Type Test of Class 1E Electric Cables; Field Splices and Connections for Nuclear Power Generating Stations
384-1981	Criteria for Independence of Class 1E Equipment and Circuits
386-1985	Separable Insulated Connector System for Power Distribution Systems Above 600V
387-1984	Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations
422-1986	Guide for the Design and Installation of Cable Systems in Power Generating Stations
467-1980 (Withdrawn)	Quality Assurance Program Requirements for Design and Manufacture of Class 1E Instrumentation and Electric Equipment for Nuclear Power Generating Stations
494-1974 (R 1988)	Method for Identification of Documents Related to Class 1E Equipment and Systems for Nuclear Power Generating Stations
535-1986	Qualification of Class 1E Lead Storage Batteries for Nuclear Power Generating Stations
603-1980	Criteria for Safety Systems for Nuclear Power Generating Stations
628-1987	Criteria for the Design, Installation, and Qualification of Raceway Systems for Class 1E Circuits for Nuclear Power Generating Stations
690-1984	Design and Installation of Cable Systems for Class 1E Circuits in Nuclear Power Generating Stations

LOCATION: LIB

ILLUMINATING ENGINEERING SOCIETY (IES)

RP1-1982	Practice for Office Lighting
RP7-1983	Practice for Industrial Lighting
Reference Volume	Lighting Handbook (1984)
Application Volume	Lighting Handbook (1987)

LOCATION: LIB

INSTRUMENT SOCIETY OF AMERICA (ISA)

ISA-RP7.1-1956

Recommended Practice Pneumatic Control
Circuit Pressure Test

ISA-S5.1-1984

Instrumentation Symbols and
Identification

ISA-S20-1981 (Manual)

Specification Forms for Process
Measurement and Control Instruments,
Primary Elements and Control Valves

NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)

RP-01-69 (Rev 1983)	Recommended Practice - Control of External Corrosion on Underground or Submerged Metallic Piping Systems
RP-02-74	Recommended Practice - High Voltage Electrical Inspection of Pipeline Coatings Prior to Installation
RP0188-90 (Item 5306)	Recommended Practice - Discontinuity (Holiday) Testing of Protective Coatings

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

11 (1988)	Low Expansion Foam and Combined Agent Systems
12 (1989)	Carbon Dioxide Extinguishing Systems
12A (1989)	Halon 1301 Fire Extinguishing Systems
13 (1991)	Installation of Sprinkler Systems
14 (1990)	Installation of Standpipe and Hose Systems
15 (1990)	Water Spray Fixed Systems for Fire Protection
16 (1991)	Deluge Foam-Water Sprinkler and Foam-Water Spray Systems
17 (1990)	Dry Chemical Extinguishing Systems
24 (1987)	Installation of Private Fire Service Mains and Their Appurtenances
26 (1988)	Recommended Practice for the Supervision of Valves Controlling Water Supplies for Fire Protection
30 (1990)	Flammable and Combustible Liquids Code
37 (1990)	Installation and Use of Stationary Combustion Engines and Gas Turbines
45 (1986)	Fire Protection for Laboratories Using Chemicals
50 (1990)	Bulk Oxygen Systems at Consumer Sites
50A (1989)	Gaseous Hydrogen Systems at Consumer Sites
51 (1987)	Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting and Allied Processes
54 (1988)	National Fuel Gas Code
58 (1989)	Storage and Handling of Liquefied Petroleum Gases

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

70 (1990)	National Electrical Code (NEC)
72 (1990)	Installation, Maintenance and Use of Protective Signaling Systems
72E (1990)	Automatic Fire Detectors
72G (1989)	Guide for the Installation, Maintenance, and Use of Notification Appliances for Protective Signaling Systems
72H (1988)	Guide for Testing Procedures for Local, Auxiliary, Remote Station, and Proprietary Protective Signaling Systems
80 (1990)	Fire Doors and Windows
86 (1990)	Ovens and Furnaces
90A (1989)	Installation of Air Conditioning and Ventilating Systems
91 (1990)	Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying
101 (1991)	Code for Safety to Life from Fire in Buildings and Structures
204M (1991)	Guide for Smoke and Heat Venting
214 (1988)	Water-Cooling Towers
253 (1990)	Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
255 (1990)	Method of Test of Surface Burning Characteristics of Building Materials
505 (1987)	Firesafety Standard for Powered Industrial Trucks Including Type Designations, Areas of Use, Maintenance, and Operation
701 (1989)	Methods of Fire Tests for Flame-Resistant Textiles and Films

LOCATION: LIB

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

1221 (1991)

Installation, Maintenance and Use of
Public Fire Service Communication
Systems

1963 (1985)

Screw Threads and Gaskets for Fire Hose
Connections

LOCATION: LIB

NATIONAL READY MIXED CONCRETE ASSOCIATION (NRMCA)

Certificate of Conformance
for Concrete Production
Facilities

Certification of Ready Mixed
Concrete Production Facilities
January 1, 1984
(Fourth Revision)

SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC
(SMACNA)

HVAC Duct Construction Standards Metal and Flexible	1985, 1st Edition
Fibrous Glass Duct Construction Standards	1979, 5th Edition
Accepted Industry Practice for Industrial Duct Construction	1975
Round Industrial Duct Construction Standards	1977
Rectangular Industrial Duct Construction Standards	1980
HVAC Systems--Testing, Adjusting and Balancing	1983, 1st Edition
HVAC Air Duct Leakage Test Manual	1985, 1st Edition
Energy Recovery Equipment and Systems	1978, 1st Edition
Architectural Sheet Metal Manual	1987

*NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB)

Testing, Adjusting, Balancing of Environmental Systems	1983, 4th Edition
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*For information only, use SMACNA

WASHINGTON ADMINISTRATIVE CODE (WAC)

Title 246, Department of Health

Chapter 246-290, Public Water Supplies

246-290-020, Applicability

246-290-250, Treatment design

246-290-310, Maximum contaminant levels

246-290-490, Cross-connection control

Chapter 246-272, On-Site Sewage System

246-272-230, Installer requirements

Title 296, Department of Labor and Industries

Chapter 296-24, General Safety and Health Standards

Part C Machinery and machine guarding

Part D Materials handling and storage, including cranes, derricks, etc, and rigging

Part E Hazardous materials, flammable and combustible liquids, spray finishing, dip tanks

Chapter 296-44, Safety Standards - Electrical Construction Code

Chapter 296-155, Safety Standards for Construction Work

Part A General safety and health provisions

Part B Occupational health and environmental control

Part C Personal protective and life saving equipment

Part D Fire protection and prevention

Part F Material handling, storage, use and disposal

Part G Tools hand and power

Part J Ladders, scaffolds, and elevating work platforms

Part L Cranes, derricks, hoists, elevators, and conveyors

LOCATION: LIB

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT)

M21-01-85 w/Revisions through May 1991	Standard Plans for Road, Bridge, and Municipal Construction	:
M22-01-89	Design Manual	
M41-01-84 w/Revisions through June 90	Construction Manual	
M41-10-91	Road, Bridge, and Municipal Construction	
M46-01-88	Materials Branch Laboratory Manual	

LOCATION: LIB

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

16-1970 (R 1984)

Grading Rules for West Coast Lumber

WASHINGTON ADMINISTRATIVE CODE (WAC)

Part N	Excavation, trenching and shoring
Part O	Concrete, concrete forms and shoring
Part P	Steel erection
Part S	Demolition
Part T	Refer to Chapter 296-52, Safety standards for the possession, handling and use of explosives

Title 173, Department of Ecology

Chapter 173-160	Maintenance of water wells
Chapter 173-303	Dangerous waste regulations

WASTE CHARACTERIZATION INFORMATION - SUMMARY OF INFLUENT DATA TO TA-50 TREATMENT FACILITY
 RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM AND TREATMENT FACILITY
 LOS ALAMOS NATIONAL LABORATORY
 LOS ALAMOS, NEW MEXICO

Stream ID							
Parameter	Units	TA-50 Influent					
Activity Description		1988	1989	1990	1991	1992	Maximum
Chemicals Used							
<u>Flow/Volume</u>							
Avg Flow	gpm						
Max. Flow	gpm						
Min. Flow	gpm						
Total Monthly Flo	gal/month						
Total Annual Volu	gal	*****	53,942	549,016	306,225	33,224	549,016
Discharge Mode	NA						
<u>General</u>							
Alkalinity	mg/l						
Alkalinity-MO	mg/l	30	56	*	2190	13	2,190
Alkalinity-P	mg/l	3.6	13	*	2070	0	2,070
Ammonia	mg/l	5	5.6		6.3	3	6.3
BOD	mg/l						-
Chloride	mg/l	0.0075	119	100		45	119
COD	mg/l	0.0075	99	116	10	55	116
Conductivity	mg/l	1980	2580	*	11,100	599	11,100
Hardness	mg/l	21	30	38.4	29.3	16	38.4
Nitrate	mg/l	0.3	0.25	0.09	0.0017	0.0045	0.3
Nitrite	mg/l	192	287	306	119	52	306
pH	mg/l	x					-
Phosphate	mg/l	3	5.8	4.4	5.7	4	5.8
Silica	mg/l						-
Sulfate	mg/l	23	27	39.9	32.3	17	39.9
TDS	mg/l	1480	2040	*	3,570	498	3,570
TOC	mg/l						-
Total Cations	mg/l	17	25	43.3	52.6	5	52.6
TSS	mg/l	33	34	58.8	70.4	15	70.4
<u>Organics</u>							
<u>Inorganics</u>							
Arsenic	mg/l	0.0026	0.0029	0.0034	0.0037	0.0033	0.0037
Barium	mg/l	0.12	0.11	0.2	0.1	0.083	0.2
Cadmium	mg/l	0.0031	0.0041	0.02	0.01	0.0049	0.02
Calcium	mg/l	17	26	34	24	13	34
Chromium, total	mg/l	78	0.12	0.1	0.1	0.1	78
Copper	mg/l	0.57	0.35	1.0	1.2	0.4	1.2
Cyanide	mg/l	0.15	0.21	0.2	0.2	0.059	0.21
Fluoride	mg/l	6	14	14.9	4	2	14.9
Lead	mg/l	0.19	0.14	0.2	0.3	0.4	0.4
Magnesium	mg/l	3	4.6	4.8	4.8		4.8
Mercury	mg/l	0.017	0.03	0.01	0.01	0.0092	0.03
Nickel	mg/l	0.088	0.17	0.3	0.3	0.3	0.3
Potassium	mg/l	123	168	146	34.4		168
Selenium	mg/l	0.001	0.0017	0.0018	0.0037	0	0.0037
Silver	mg/l	0.028	0.02	0.02	0.02	0.0064	0.028

WASTE CHARACTERIZATION INFORMATION - SUMMARY OF INFLUENT DATA TO TA-50 TREATMENT FACILITY
 RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM AND TREATMENT FACILITY
 LOS ALAMOS NATIONAL LABORATORY
 LOS ALAMOS, NEW MEXICO

Stream ID							
Parameter	Units	TA-50 Influent					
Activity Description		1988	1989	1990	1991	1992	Maximum
Sodium	mg/l	246	0.0017	*	2,100	52	2,100
Zinc	mg/l	0.33	0.24	0.3	0.5	0.3	0.5
Radionuclides							
Alpha	uCi/l						
Am-241	uCi/l	x		1.30E-07	4.90E-08	1.33E-08	1.30E-07
Beta	uCi/l						
Co-56	uCi/l			2.50E-07			2.50E-07
Co-57	uCi/l	x		8.80E-07	5.90E-07	0.00E+00	8.80E-07
Co-58	uCi/l			8.40E-07			8.40E-07
Co-60	uCi/l	x		2.10E-07	5.10E-07	0.00E+00	5.10E-07
Cs-137	uCi/l	x		5.90E-07	3.10E-06	2.73E-08	3.10E-06
Gamma	uCi/l						
MAP	uCi/l						
MFP	uCi/l						
Mn-54	uCi/l	x		1.20E-07	0.00E+00	0.00E+00	1.20E-07
Na-22	uCi/l						
Pu-238	uCi/l	x		9.90E-09	1.40E-08	1.60E-08	1.60E-08
Pu-239	uCi/l	x		2.70E-08	4.40E-08	1.93E-08	4.40E-08
Rb-83	uCi/l			9.90E-06	1.20E-05		1.20E-05
Rb-84	uCi/l			1.10E-06	7.20E-07		1.10E-06
Se-75	uCi/l			4.70E-06	1.20E-06		4.70E-06
Sr-85	uCi/l	x		4.40E-06		8.50E-06	8.50E-06
Sr-89	uCi/l	x		3.60E-06	2.50E-07	0.00E+00	3.60E-06
Sr-90	uCi/l	x		1.50E-08	3.90E-06	0.00E+00	3.90E-06
Tc	uCi/l						
Thorium	uCi/l						
Tritium	uCi/l			5.90E-04	4.80E-04	0.000542	5.90E-04
TRU	uCi/l						
U-234	uCi/l	x		3.40E-09	3.00E-09	2.65E-09	3.40E-09
U-235	uCi/l						
U-238	uCi/l						
Uranium	uCi/l						
Y-88	uCi/l			8.10E-08	3.90E-07		3.90E-07
Zr-95	uCi/l						
Data Source		D					
Notes:							
Annual Report Summary of Operating Data, Liquid Waste Management, 1988-1992. The values reported are the yearly averages.							

WASTE CHARACTERIZATION INFORMATION
RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM AND TREATMENT FACILITY
LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

Stream ID		TA/Building/Room Number				
Parameter	Units	48/1/305B	48/1/309	48/1/326	48/1/307-2R	48/1/305
Activity Description		Extraction/Separation to isolate As-73, As-74, W-18 W-185, W-188 from NTS de	Tritration of water from Rocky Flats to remove radionuclides.	Low level chemistry laboratory	Preparation of low-activity solns of NTS older than 1 month	Preparation of low-activity solns of NTS older than 1 month
Chemicals Used		HNO ₃ , HCl, NaOH	Ba-133	HCl	HNO ₃ , HCl	HNO ₃ , HCl
Flow/Volume						
Avg Flow	gpm					
Max. Flow	gpm					
Min. Flow	gpm					
Total Monthly Flow	gal/month	>55	>55	>55	>55	>55
Total Annual Volun	gal					
Discharge Mode	NA					
General						
Alkalinity	mg/l					
Alkalinity-MO	mg/l					
Alkalinity-P	mg/l					
Ammonia	mg/l					
BOD	mg/l					
Chloride	mg/l					
COD	mg/l					
Conductivity	mg/l					
Hardness	mg/l					
Nitrate	mg/l					
Nitrite	mg/l					
pH	mg/l					
Phosphate	mg/l					
Silica	mg/l					
Sulfate	mg/l					
TDS	mg/l					
TOC	mg/l					
Total Cations	mg/l					
TSS	mg/l					
Organics						
Inorganics						
Arsenic	mg/l					
Barium	mg/l					
Cadmium	mg/l					
Calcium	mg/l					
Chromium, total	mg/l					
Copper	mg/l					
Cyanide	mg/l					
Fluoride	mg/l					
Lead	mg/l					
Magnesium	mg/l					
Mercury	mg/l					
Nickel	mg/l					
Potassium	mg/l					
Selenium	mg/l					
Silver	mg/l					
Sodium	mg/l					
Zinc	mg/l					

[illegible]

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WASTE CHARACTERIZATION INFORMATION
 RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM AND TREATMENT FACILITY
 LOS ALAMOS NATIONAL LABORATORY
 LOS ALAMOS, NEW MEXICO

Stream ID		TA/Building/Room Number					
Parameter	Units	48/1/305B	48/1/309	48/1/326	48/1/307-2R	48/1/305	Not As
Activity Description		Extraction/Separation to isolate As-73, As-74, W-185, W-188 from NTS de	Tritration of water from Rocky Flats to remove radionuclides.	Low level chemistry laboratory	Preparation of low-activity solns of NTS older than 1 month	Preparation of low-activity solns of NTS older than 1 month	Test fac: BCCI transmutation c
Chemicals Used		HNO3, HCl, NaOH	Ba-133	HCl	HNO3, HCl	HNO3, HCl	
Flow/Volume							
Avg Flow	gpm						
Max. Flow	gpm						
Min. Flow	gpm						
Total Monthly Flow	gal/month	>55	>55	>55	>55	>55	
Total Annual Volun	gal						
Discharge Mode	NA						
General							
Alkalinity	mg/l						
Alkalinity-MO	mg/l						
Alkalinity-P	mg/l						
Ammonia	mg/l						
BOD	mg/l						
Chloride	mg/l						
COD	mg/l						
Conductivity	mg/l						
Hardness	mg/l						
Nitrate	mg/l						
Nitrite	mg/l						
pH	mg/l						
Phosphate	mg/l						
Silica	mg/l						
Sulfate	mg/l						
TDS	mg/l						
TOC	mg/l						
Total Cations	mg/l						
TSS	mg/l						
Organics							
Inorganics							
Arsenic	mg/l						
Barium	mg/l						
Cadmium	mg/l						
Calcium	mg/l						
Chromium, total	mg/l						
Copper	mg/l						
Cyanide	mg/l						
Fluoride	mg/l						
Lead	mg/l						
Magnesium	mg/l						
Mercury	mg/l						
Nickel	mg/l						
Potassium	mg/l						
Selenium	mg/l						
Silver	mg/l						
Sodium	mg/l						
Zinc	mg/l						

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WASTE CHARACTERIZATION INFORMATION
 RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM AND TREATMENT FACILITY
 LOS ALAMOS NATIONAL LABORATORY
 LOS ALAMOS, NEW MEXICO

Stream ID		TA/Building/Room Number					
Parameter	Units	48/1/305B	48/1/309	48/1/326	48/1/307-2R	48/1/305	Not As
Activity Description		Extraction/Separation to Isolate As-73, As-74, W-185, W-188 from NTS de	Tritration of water from Rocky Flats to remove radionuclides.	Low level chemistry laboratory	Preparation of low-activity solns of NTS older than 1 month	Preparation of low-activity solns of NTS older than 1 month	Test facil acce transmutation of
Radionuclides							
Alpha	uCi/l		x		x	x	
Am-241	uCi/l						
Beta	uCi/l	x 1/	x	x	x	x	
Co-58	uCi/l						
Co-57	uCi/l						
Co-58	uCi/l						
Co-60	uCi/l						
Cs-137	uCi/l						
Gamma	uCi/l	x	x	x	x	x	
MAP	uCi/l						
MFP	uCi/l				x	x	
Mn-54	uCi/l						
Na-22	uCi/l						
Pu-238	uCi/l						
Pu-239	uCi/l						
Rb-83	uCi/l						
Rb-84	uCi/l						
Se-75	uCi/l						
Sr-85	uCi/l						
Sr-89	uCi/l						
Sr-90	uCi/l						
Tc	uCi/l						
Thorium	uCi/l						
Tritium	uCi/l		x				
TRU	uCi/l						
U-234	uCi/l						
U-235	uCi/l						
U-238	uCi/l						
Uranium	uCi/l						
Y-88	uCi/l						
Zr-95	uCi/l						
Data Source		A	A	A	A	A	

Notes:

1/ An x in lieu of a value for a specific parameter indicates that the constituent is believed present , however, there is no data available.

Data Source

A/ TA-48 RLW Generators, 8/4/93

B/ Radioactive Liquid Waste Data Base, 8/4/93

C/ Radioactive Liquid Waste Data Base, Waste Coordinators, 8/4/93.

D/ Annual Report Summary of Operating Data, Liquid Waste Management, 1988-1992. The values reported are the maximum value for the parameter.

hed	21/3/	3/34/	3/SM66/	48/RC-1	3/1268	21/150/602A	16/459/101	3/66/H100B	TA-50
for tor ste.	Research chemical tech. of making new complexes of U-235 and Thorium.	R&D on samples of U-238 and Thorium.	Casting, machining plating, etc of depleted uranium.	Weapons radiochemical diagnostics	Material science laboratory	Technetium chemistry	Weapons eng. tritium facility	U-238 processing	Treatment plant Influent
									-
									1.30E-07
									-
									2.50E-07
									8.80E-07
									8.40E-07
									5.10E-07
									3.10E-06
									-
x									-
									-
									1.20E-07
					x				-
									1.60E-08
									4.40E-08
									1.20E-05
									1.10E-06
									4.70E-06
									8.50E-06
									3.60E-06
									3.90E-06
							?		-
	x	x							-
								?	5.90E-04
x				x					-
									3.40E-09
	x								-
		x		x				?	-
				x				?	-
									3.90E-07
					x				-
B	B	B	B	B	C	C	C	C	D

from the yearly averages. Radionuclide data is from the years 1989-1992 only.

WASTE CHARACTERIZATION INFORMATION
 RADIOACTIVE LIQUID WASTE COLLECTION SYSTEM AND TREATMENT FACILITY
 LOS ALAMOS NATIONAL LABORATORY
 LOS ALAMOS, NEW MEXICO

Stream ID						
Parameter		TA/Building/Room Number				
Units		48/1/305B	48/1/309	48/1/326	48/1/307-2R	48/1/305
Activity Description		Extraction/Separation to Isolate As-73, As-74, W-185, W-188 from NTS de	Titration of water from Rocky Flats to remove radionuclides.	Low level chemistry laboratory	Preparation of low-activity solns of NTS older than 1 month	Preparation of low-activity solns of NTS older than 1 month
Chemicals Used		HNO ₃ , HCl, NaOH	Ba-133	HCl	HNO ₃ , HCl	HNO ₃ , HCl
Flow/Volume						
Avg Flow		gpm				
Max. Flow		gpm				
Min. Flow		gpm				
Total Monthly Flow gal/month		>55	>55	>55	>55	>55
Total Annual Volun gal						
Discharge Mode		NA				
General						
Alkalinity		mg/l				
Alkalinity-MO		mg/l				
Alkalinity-P		mg/l				
Ammonia		mg/l				
BOD		mg/l				
Chloride		mg/l				
COD		mg/l				
Conductivity		mg/l				
Hardness		mg/l				
Nitrate		mg/l				
Nitrite		mg/l				
pH		mg/l				
Phosphate		mg/l				
Silica		mg/l				
Sulfate		mg/l				
TDS		mg/l				
TOC		mg/l				
Total Cations		mg/l				
TSS		mg/l				
Organics						
Inorganics						
Arsenic		mg/l				
Barium		mg/l				
Cadmium		mg/l				
Calcium		mg/l				
Chromium, total		mg/l				
Copper		mg/l				
Cyanide		mg/l				
Fluoride		mg/l				
Lead		mg/l				
Magnesium		mg/l				
Mercury		mg/l				
Nickel		mg/l				
Potassium		mg/l				
Selenium		mg/l				
Silver		mg/l				
Sodium		mg/l				
Zinc		mg/l				

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