RECEIPT OF REGULATORY INFORMATION 0032494

INSPECTION TITLE:	DATE:	NUMBER: 93-037
REGULATORY AGENCY: Ecology	REPRESENTATIVE: Laura Russell	
REGULATORY SUPPORT REPRESENTATIVE: Steve A. Szendre		

ITEM #	DOCUMENTS ISSUED (Include Revision/Date and Title/Description)	CLEAR. REQ.	
1	Evaluation Dangerous Waste Tanks 7/27/89 (letter)	Y	N
2	Generator Accumulation Tank System Assessments For The Plutonium Finishing Plant	Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N
		Y	N

GENERAL COMMENTS:

NOV 1993 RECEIVED EPIC

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SIGNATURE Laura Russell	DATE 10/7/93	SIGNATURE Steve A Szendre	DATE 10/7/93
TITLE RCRA Compliance Inspector		TITLE Plnt Eng RCRA Compliance	

Date Received: 10-7-93 TP

INFORMATION RELEASE REQUEST

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93-037

ID Number (include revision, volume, etc.): Reg-0115

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Date Release Required:

Title: Documents requested by Laura Russell during PFP inspection on 9/24/93.

Unclassified Category: UC-

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Group or Society Sponsoring: N/A

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Communications	[]	[X]			
RL Program/Project	[X]	[]	David W. Templeton +	David W Templeton	10/1/93
Publication Services	SAS ~~[X]~~	[X]			
Other Program/Project	SAS ~~[X]~~	[X]			

Information conforms to all applicable requirements. The above information is certified to be correct.

	Yes	No
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Author/Requestor (Printed/Signature) Date
S. A. Szendre Steve A Szende

Intended Audience
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E. M. Greager Eric M. Greager 10/5/93

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Additional Information

Index

Title	Number
Generator Accumulation Tank System Assessments For the Plutonium Finishing Plant	

INFORMATION

Date Received: 10-7-93	INFORMATION RELEASE REQUEST	Reference: WHC-CM-3-4

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Publication Services	SAS ~~[X]~~	[X]			
Other Program/Project	SAS ~~[X]~~	[X]			

Information conforms to all applicable requirements. The above information is certified to be correct.

	Yes	No
References Available to Intended Audience	[]	[X]
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Author/Requestor (Printed/Signature): S. A. Szendre — Date:

Intended Audience: [] Internal [] Sponsor [X] External

Responsible Manager (Printed/Signature): E. M. Greager — Date: 10/5/93

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Additional Information

Westinghouse
Hanford Company

Internal Memo

From: PFP Systems and Technology
Phone: 3-3341 231-Z/200W T4-10
Date: July 27, 1989
Subject: EVALUATING DANGEROUS WASTE TANKS

12720-89-JWG-117

To:

R. W. Carpenter	X3-59	G. J. LeBaron	S5-80
D. M. Gerboth	T5-54	W. E. Toebe	T7-20
M. J. Hall	T6-12		

cc: wo/att.

G. A. Glover	T4-10
M. Haas	T5-53
J. R. Knight	R2-52
G. J. Kosiancic	R2-15
D. J. Thompson	S6-01
JWG File/LB	

Attached is a copy of a checklist to help in evaluating your dangerous waste tanks. The checklist is presented in flowchart and question/answer format for ease in making evaluations. The Appendices help define items referred to in the checklists.

If there are any questions please call me.

J. W. Green, Principal Engineer
Chemical Processing Dangerous Waste
Tank Task Force Representative

klm

Attachment

DANGEROUS WASTE TANK TECHNICAL EVALUATION CHECKLIST FOR: PFP PRF Tanks

APPLICABILITY CHECKLIST

A1.	yes	
A2.	yes	tank system
A3.	no	
A4.	yes	
A5.	yes	
A6.	yes	
A7.	yes	
A8.	no	go to A16
A16.	yes	go to A19(i)
A19(i).	no	go to A19
A19.	no	go to A22 and question 1
A22.	yes	tank system
A23.	no	
A24.	no	
A25.	yes	
A26.	yes	go to 47

EXISTING TANK SYSTEMS INTEGRITY ASSESSMENT

1.	no	
2.	no	E1-E6,E8,E9, go to 14
14.	no	E10, go to 47

CONTAINMENT AND DETECTION OF RELEASES

47.	yes	
48.	yes	
49.	yes	
50.	yes	
51.	yes	
52.	yes	
53.	yes	
54.	yes	
55.	no	
56.	yes	go to 63
63.	yes	
64.	yes	go to 66
66.	yes	
67.	yes	
68.	yes	
69.	N/A	assume no hydraulic gradient, go to 74
74.	yes	go to 80
80.	yes	go to 85

DANGEROUS WASTE TANK TECHNICAL EVALUATION CHECKLIST FOR: PFP PRF Tanks

GENERAL OPERATING REQUIREMENTS

85.	yes	
86.	yes	
87.	yes	
88.	no	go to 93
93.	yes	
94.	no	
95.	yes	tank spill response procedures are required by WHC-CM-7-5, Environmental Compliance Manual, Part T, go to 109

IGNITABLE AND REACTIVE WASTE

109.	no	go to 114

INCOMPATIBLE WASTES

114.	no	
115.	no	end

SUMMARY OF CORRECTIVE ACTIONS

EXISTING TANK SYSTEMS INTEGRITY ASSESSMENT: E1-E6,E8-E10

DANGEROUS WASTE TANK TECHNICAL EVALUATION CHECKLIST FOR: PFP 241-Z (Accum.)

APPLICABILITY CHECKLIST

A1.	yes	
A2.	yes	tank system
A3.	no	
A4.	yes	
A5.	yes	
A6.	yes	
A7.	yes	
A8.	no	go to A16
A16.	yes	go to A19(i)
A19(i).	no	go to A19
A19.	no	go to A22 and question 1
A22.	yes	tank system
A23.	no	
A24.	no	
A25.	yes	
A26.	yes	go to 47

EXISTING TANK SYSTEMS INTEGRITY ASSESSMENT

1.	no	
2.	no	E1-E6,E8,E9, go to 14
14.	no	E10, go to 47

CONTAINMENT AND DETECTION OF RELEASES

47.	yes	
48.	no	questionable, C1
49.	no	questionable, C3
50.	no	questionable, C4
51.	yes	
52.	yes	
53.	yes	
54.	yes	
55.	no	
56.	yes	go to 63
63.	yes	
64.	yes	go to 66
66.	no	questionable, C16
67.	no	C17
68.	yes	
69.	N/A	assume no hydraulic gradient, go to 74
74.	yes	go to 80
80.	no	go to 82
82.	yes	go to 84
84.	no	C28

DANGEROUS WASTE TANK TECHNICAL EVALUATION CHECKLIST FOR: PFP 241-Z (Accum.)

GENERAL OPERATING REQUIREMENTS

85.	yes	
86.	yes	
87.	yes	
88.	no	go to 93
93.	yes	
94.	no	
95.	yes	tank spill response procedures are required by WHC-CM-7-5, Environmental Compliance Manual, Part T, go to 109

IGNITABLE AND REACTIVE WASTE

109.	no	go to 114

INCOMPATIBLE WASTES

114.	no	
115.	yes	go to 116
116.	yes	end

SUMMARY OF CORRECTIVE ACTIONS

EXISTING TANK SYSTEMS INTEGRITY ASSESSMENT: E1-E6,E8-E10

CONTAINMENT AND DETECTION OF RELEASES: C1,C3,C4,C16,C17,C28

0032487

GENERATOR ACCUMULATION TANK SYSTEM ASSESSMENTS FOR THE PLUTONIUM FINISHING PLANT

COVER SHEET

Tank System Identification:

241-Z Waste Treatment and Storage Facility	Tanks TK-D4, TK-D7, and TK-D8 and TK-D5
236-Z Plutonium Reclamation Facility	Tanks TK-19, TK-39, TK-40, and TK-40

Submitter Name: J. E. Bramson

Date: 11 Feb 1993

Submitter Signature: original signed this date

GENERATOR ACCUMULATION TANK SYSTEM ASSESSMENTS FOR THE PLUTONIUM FINISHING PLANT

241-Z Waste Treatment and Storage Facility

Tank System Identification: Tanks TK-D4, TK-D7, and TK-D8

A. Applicability Checklist

A1	YES	
A2	YES	Tank, Tank System
A3	NO	
A4	YES	
A5	YES	
A6	NO	tank system is not Generator Accumulation
A10	YES	go to A14
A14	NO	go to A16
A16	YES	go to A19
A19	NO	go to Q1 and A22
A22	YES	as part of tank system
A23	NO	
A24	NO	
A25	YES	
A26	YES	go to Q47

B. Compliance Checklist

Q1	NO	
Q2	NO	go to E1 through E9 and Q14
Q14	NO	go to E10 AND Q47
Q47	YES	
Q48	NO	go to C1 through C2
Q49	NO	go to C3
Q50	NO	go to C4
Q51	YES	
Q52	YES	
Q53	YES	
Q54	YES	
Q55	NO	
Q56	YES	go to Q63
Q63	YES	
Q64	YES	go to Q66
Q66	NO	go to C16
Q67	NO	go to C17
Q68	YES	
Q69	NO	go to C19 and Q74
Q74	YES	go to Q80
Q80	NO	go to Q82
Q82	YES	
Q83	NO	
Q84	NO	go to C28
Q85	YES	
Q86	YES	
Q87	YES	
Q88	NO	go to Q93
Q93	YES	
Q94	NO	
Q95	YES	
Q96	YES	
Q97	YES	
Q98	YES	
Q99	YES	
Q100	NO	go to Q109
Q109	NO	go to Q114
Q114	NO	
Q115	YES	
Q116	YES	end of checklist

C. Specific Corrective Measures

Existing Tank Systems Integrity Assessment
E1 through E6 and E8 through E10 (E7 applies only to nonenterable underground tanks)

Containment and Detection of Releases
C1 through C4, C16, C17, C19, and C28

GENERATOR ACCUMULATION TANK SYSTEM ASSESSMENTS FOR THE PLUTONIUM FINISHING PLANT

241-Z Waste Treatment and Storage Facility

Tank System Identification: TK-D5

A. Applicability Checklist

A1	YES	
A2	YES	Tank System
A3	NO	
A4	YES	
A5	NO	tank system is not Generator Accumulation
A10	YES	go to A14
A14	NO	go to A16
A16	YES	go to A19
A19	NO	go to Q1 and A22
A22	YES	as part of tank system
A23	NO	
A24	NO	
A25	YES	
A26	YES	go to Q47

B. Compliance Checklist

Q1	NO	
Q2	NO	go to E1 through E9 and Q14
Q14	NO	go to E10 and Q47
Q47	YES	
Q48	NO	go to C1 through C2
Q49	NO	go to C3
Q50	NO	go to C4
Q51	YES	
Q52	YES	
Q53	YES	
Q54	YES	
Q55	NO	
Q56	YES	go to Q63
Q63	YES	
Q64	YES	go to Q66
Q66	NO	go to C16
Q67	NO	go to C17
Q68	YES	
Q69	NO	go to C19 and Q74
Q74	YES	go to Q80
Q80	NO	go to Q82
Q82	YES	
Q83	NO	
Q84	NO	go to C28
Q85	YES	
Q86	YES	
Q87	YES	
Q88	NO	go to Q93
Q93	YES	
Q94	NO	
Q95	NO	go to Q109
Q109	NO	go to Q114
Q114	NO	
Q115	NO	end of checklist

C. Specific Corrective Measures

Existing Tank Systems Integrity Assessment
E1 through E6 and E8 through E10 (E7 applies only to nonenterable underground tanks)

Containment and Detection of Releases
C1 through C4, C16, C17, C19, anc C28

GENERATOR ACCUMULATION TANK SYSTEM ASSESSMENTS FOR THE PLUTONIUM FINISHING PLANT

236-Z Plutonium Reclamation Facility

Tank Unit Identification: Tanks TK-19, TK-39, TK-40, and TK-WM1

A. Applicability Checklist

A1	YES	
A2	YES	Tank, Tank System
A3	NO	
A4	YES	
A5	YES	
A6	YES	
A7	YES	tanks system is Generator Accumulation
A8	NO	go to A16
A16	YES	go to A19
A19	NO	go to Q1 and A22
A22	YES	as part of tank system
A23	NO	
A24	NO	
A25	YES	
A26	YES	go to Q47

B. Compliance Checklist

Q1	NO	
Q2	NO	go to E1 through E9 and Q14
Q14	NO	go to E10 and Q47
Q47	YES	
Q48	YES	
Q49	YES	
Q50	YES	
Q51	YES	
Q52	YES	
Q53	YES	
Q54	YES	
Q55	NO	
Q56	YES	go to Q63
Q63	YES	
Q64	YES	go to Q66
Q66	Yes	
Q67	YES	
Q68	YES	
Q69	NO	(not applicable to this vault structure) go to Q74
Q74	YES	go to Q80
Q80	NO	go to Q82
Q82	YES	
Q83	NO	
Q84	NO	go to C28
Q85	YES	
Q86	YES	
Q87	YES	
Q88	NO	go to Q93
Q93	YES	
Q94	NO	
Q95	YES	
Q96	YES	
Q97	Yes	
Q98	YES	
Q99	YES	
Q100	NO	go to Q109
Q109	NO	go to Q114
Q114	NO	
Q115	NO	end of checklist

C. Specific Corrective Measures

Existing Tank Systems Integrity Assessment
E1 through E6 and E8 through E10 (E7 applies only to nonenterable underground tanks)

Containment and Detection of Releases
C28

PART I

CHECKLISTS

This document provides a series of checklists for evaluating the status of a waste management unit relative to Washington state's dangerous waste tank standards under Chapter 173-303 WAC, Dangerous Waste Regulations. The checklists will help you determine the applicability of the tank standards, when compliance with the standards is required, and the compliance status of a waste management unit under the relevant tank standards.

The first part, the Applicability Checklist, will help you evaluate the applicability of the tank standards to your waste management unit and, if applicable, when your tank system or component became subject to the standards. It will also direct you to pertinent sections and questions in the Compliance Checklist. The Applicability Checklist questions are all preceded by the letter "A" to distinguish them from the Compliance Checklist questions.

The second part, the Compliance Checklist, will help you determine whether or not your tank system or component satisfies the requirements of the tank standards. It also provides direction to relevant corrective measures (Part II of this document) for achieving compliance when necessary. The Compliance Checklist is divided into various parts for the different types of tank standards. All of the checklist questions are ordered numerically.

As you complete the checklists, be sure to document all decisions by checking the appropriate "Yes" or "No" boxes. Do not identify any responses as "NA" or "Not Applicable". If necessary, you can provide detailed explanations of your rationale for specific decisions on separate documentation sheets.

APPLICABILITY CHECKLIST

This checklist will help you determine the applicability and compliance deadlines under the tank standards relevant to your waste management unit. The appendices provide information and guidance on the various evaluations that must be made. You may need to refer to the appendices periodically as you determine the applicability of the tank standards to your waste management unit.

DANGEROUS WASTES

Yes	No		
[ ]	[ ]	A1.	Does your waste management unit treat, store, accumulate, distribute, or otherwise handle dangerous wastes?
		Yes	Go to question A2.
		No	Your waste management unit is not subject to the tank standards. **STOP. You do not have to complete the rest of this checklist.**

TANK SYSTEMS

Yes	No		
		A2.	Is your dangerous waste management unit a:
[ ]	[ ]		Tank?
[ ]	[ ]		Ancillary Equipment?
[ ]	[ ]		Tank System?
			(See appendix 1 for guidance on evaluating your unit relative to the above types of equipment.)
		Yes	If your unit is one or more of these three types of equipment, then it is, or is part of, a dangerous waste tank system. Go to question A3.

No — If your unit is none of these three types of equipment, then your unit is not subject to the tank standards.

STOP. You do not have to complete the rest of this checklist.

EXEMPT TANK SYSTEMS

Yes	No	
		A3. Is your dangerous waste tank system (or portion of a tank system) a:
[ ]	[ ]	Manufacturing Process Unit?
[ ]	[ ]	Recycling Unit?
[ ]	[ ]	Permit-by-rule Totally Enclosed Treatment Facility?
[ ]	[ ]	Permit-by-rule Elementary Neutralization Unit?
[ ]	[ ]	Permit-by-rule Wastewater Treatment Unit?

(See appendix 3 for guidance on evaluating your unit relative to the above exempt tank systems.)

Yes — If your dangerous waste tank system is one or more of the above, then it is exempt from the tank standards.

STOP. You do not have to complete the rest of this checklist.

No — If none of the above is relevant to your tank system, then it is not exempt from the tank standards.

Go to question A4.

GENERATOR ACCUMULATION

Yes	No		
[ ]	[ ]	A4.	Does your tank system handle <u>only</u> dangerous wastes that have been generated by you (i.e., you do not handle any dangerous wastes that are generated at a site other than your own)?
		Yes	Go to question A5.
		No	**Your tank system is <u>not</u> Generator Accumulation.** Go to question A10.
[ ]	[ ]	A5.	Is your tank system used <u>only</u> to temporarily store or accumulate the dangerous wastes (i.e., you do not neutralize, solidify, evaporate, incinerate, or otherwise treat the dangerous wastes in the tank system)?
		Yes	Go to question A6.
		No	**Your tank system is <u>not</u> Generator Accumulation.** Go to question A10.
[ ]	[ ]	A6.	Is the dangerous waste stored or accumulated for ninety days or less (i.e., you do not keep the dangerous waste in the tank system for more than ninety days)?
		Yes	Go to question A7.
		No	**Your tank system is <u>not</u> Generator Accumulation.** Go to question A10.
[ ]	[ ]	A7.	Is the dangerous waste sent, within ninety days after it was generated, to a permitted (interim status, final status, permit by rule) facility that treats, stores, recycles, incinerates, or disposes of the dangerous waste?
		Yes	**Your tank system <u>is</u> Generator Accumulation.** Go to question A8.

No — Your tank system is <u>not</u> Generator Accumulation.

Go to question A10.

[ ] [ ] A8. Does your tank system include an underground tank?

Yes — Go to question A9.

No — Go to question A16.

Also, see discussion titled **Generator Accumulation - State Only** in Appendix 5.

[ ] [ ] A9. Was your underground tank installed prior to November 23, 1987? ("Installed" includes: actual installation of the underground tank; or a continuous on-site physical construction or installation program for the underground tank; or a contractual obligation for installation of the underground tank.)

No — Your tank system is subject to the New Tank Design and Installation requirements. You must be in compliance with these requirements **Now**.

Go to question 15, and to question A17.

Also, see discussion titled **Generator Accumulation - State and Federal** in Appendix 5.

Yes — Go to question A16.

Also, see discussion titled **Generator Accumulation - State Only** in Appendix 5.

INTERIM STATUS

Yes	No	
[ ]	[ ]	A10. Has your tank system been identified in a Part A Permit Application to Ecology or EPA as an interim status facility, or as an interim status unit at an interim status facility?

Yes — **Your tank system <u>is</u> Interim Status.**

Go to question A14.

No — Go to question A11.

[ ] [ ] A11. Does your tank system handle dangerous wastes that were generated at off-site locations (i.e., does your tank system receive dangerous wastes generated at sites other than yours)?

Yes — **Your tank system <u>is</u> Interim Status.**

Go to question A14.

No — Go to question A12.

[ ] [ ] A12. Are dangerous wastes neutralized, evaporated, solidified, incinerated, or otherwise treated in your tank system?

Yes — **Your tank system <u>is</u> Interim Status.**

Go to question A14.

No — Go to question A13.

[ ] [ ] A13. Are dangerous wastes stored in your tank system for more than ninety days?

Yes — **Your tank system <u>is</u> Interim Status.**

Go to question A14.

No — You may have a Generator Accumulation tank system, and you should re-evaluate your tank system for that applicability.

Go to question A4.

[ ] [ ] A14. Does your tank system include an underground tank?

Yes — Go to question A15.

No — Go to question A16.

Also, see discussion titled **Interim Status - State Only** in Appendix 5.

[ ] [ ] A15. **Was your underground tank installed prior to November 23, 1987? ("Installed" includes: actual installation of the underground tank; or a continuous on-site physical construction or installation program for the underground tank; or a contractual obligation for installation of the underground tank.)**

No — Your tank system is subject to the New Tank Design and Installation requirements. You must be in compliance with these requirements **Now**.

Go to question 15, and to question A17.

Also, see discussion titled **Generator Accumulation - State and Federal** in Appendix 5.

Yes — Go to question A16.

Also, see discussion titled **Generator Accumulation - State Only** in Appendix 5.

NEW TANK SYSTEMS AND COMPONENTS

Yes	No	
[ ]	[ ]	A16. Was your tank system or component installed prior to February 3, 1989? ("Installed" includes: actual installation of the underground tank; or a continuous on-site physical construction or installation program for the underground tank; or a contractual obligation for installation of the underground tank.)

No — Your tank system is subject to the New Tank Design and Installation requirements. You must be in compliance with these requirements **Now**.

Go to question 15, and to question A17.

Yes — Go to question A19.

[ ]	[ ]	A17. Are you evaluating a component that is ancillary equipment?

Yes — Go to question A18.

No — Your tank system or component is subject to the Containment and Detection of Releases requirements. You must be in compliance with these requirements **Now**, or if the tank system or component has not started operating yet, prior to its being put into service.

Go to question 47.

[ ]	[ ]	A18. Is this ancillary equipment:

- o Above ground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis?
- o Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis?
- o Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis?
- o Pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices) that are inspected for leaks on a daily basis?

Yes — Go to question 85.

No — Your ancillary equipment is subject to the Containment and Detection of Releases requirements. You must be in compliance with these requirements Now, or if the ancillary equipment has not started operating yet, prior to its being put into service.

Go to question 47.

EXISTING TANK SYSTEMS AND COMPONENTS

Yes	No	
[ ]	[ ]	A19. Are you evaluating a component that is an underground tank?

Yes — Go to question A20.

No — You are required to comply with the Integrity Assessments for Existing Tank Systems or Components requirements. The deadline for complying with these requirements is January 12, 1990.

Go to question 1, and to question A22.

[ ]	[ ]	A20. Is the underground tank enterable for inspection?

Yes — You are required to comply with the Integrity Assessments for Existing Tank Systems or Components requirements. The deadline for complying with these requirements is January 12, 1990.

Go to question 1, and to question A22.

No — Go to question A24.

[ ]	[ ]	A21. Does the underground tank have a secondary containment system that complies with the regulations for containment and detection of releases?

Yes — You are required to comply with the Integrity Assessments for Existing Tank Systems or Components requirements. The deadline for complying with these requirements is January 12, 1990.

Go to question 1, and to question A24.

No — You are required to comply with the Integrity Assessments for Existing Tank Systems or Components requirements. The deadline for complying with these requirements was January 12, 1988.

Go to question 1, and to question A24.

[ ] [ ] A22. Are you evaluating a component that is ancillary equipment?

Yes — Go to question A23.

No — Go to question A24.

[ ] [ ] A23. Is this ancillary equipment:

- o Above ground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis?
- o Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis?
- o Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis?
- o Pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices) that are inspected for leaks on a daily basis?

Yes — Go to question 85.

No — Go to question A24.

[ ] [ ] A24. Is your tank system used to treat or store Dangerous Waste Nos. F020, F021, F022, F023, F026, or F027?

Yes — You must comply with the Containment and Detection of Releases requirements. The deadline for complying with these requirements is January 12, 1991.

Go to question 47.

No — Go to question A25.

[ ] [ ] A25. Is your tank system of known and documented age?

Yes — Go to question A26.

No — You must comply with the Containment and Detection of Releases requirements. The deadline for complying with these requirements is January 12, 1991.

Go to question 47.

[ ] [ ] A26. Was the tank system installed prior to January 12, 1976?

Yes — You must comply with the Containment and Detection of Releases requirements. The deadline for complying with these requirements is January 12, 1991.

Go to question 47.

No — You must comply with the Containment and Detection of Releases requirements. You must comply with these requirements by the time your tank system is 15 years of age.

Go to question 47.

COMPLIANCE CHECKLIST

This checklist will help you determine the status of your tank system's or component's compliance under the tank standards. The appendices provide information and guidance on the various evaluations that must be made. You may need to refer to the appendices periodically as you evaluate the compliance of your tank system or component with the tank standards.

EXISTING TANK SYSTEMS INTEGRITY ASSESSMENT

Yes	No		
[]	[]	1	WAC 173-303-640 (2)(a): Is your existing tank system leaking? Yes — Go to question 96, and question 2. No — Go to question 2.
[]	[]	2	WAC 173-303-640 (2)(a): Has the tank system had an integrity assessment? Yes — Go to question 3. No — Go to Part II #E1 - #E9, and question 14.
[]	[]	3	WAC 173-303-640 (2)(a): Is the integrity assessment written and on file? Yes — Go to question 4. No — Go to Part II #E1, and question 4.
[]	[]	4	WAC 173-303-640 (2)(a): Was the integrity assessment reviewed and certified by an independent, qualified registered professional engineer? Yes — Go to question 5. No — Go to Part II #E2, and question 5.
[]	[]	5	WAC 173-303-640 (2)(c)(i): Did the tank integrity assessment look at the design details available to show that the tank system is adequate, structurally sound and compatible with the waste handled? Yes — Go to question 6. No — Go to Part II #E3, and question 6.
[]	[]	6	WAC 173-303-640 (2)(c)(ii): Did the integrity assessment take into account, the dangerous characteristics of the waste that have been or will be handled? Yes — Go to question 7. No — Go to Part II #E4, and question 7.

[] [] 7 WAC 173-303-640 (2)(c)(iii): Did the tank system integrity assessment consider the existing corrosion protection measures?
Yes Go to question 8.
No Go to Part II #E5, and question 8.

[] [] 8 WAC 173-303-640 (2)(c)(iv): Did the tank system integrity assessment document the age of the tank system or, if not available, estimate the age?
Yes Go to question 9.
No Go to Part II #E6, and question 9.

[] [] 9 WAC 173-303-640 (2)(c)(v): Is the component you are evaluating a nonenterable underground tank?
Yes Go to question 10.
No Go to question 11.

[] [] 10 WAC 173-303-640 (2)(c)(v)(A): Has the tank had a leak test?
Yes Go to question 14.
No Go to Part II #E7, and question 14.

[] [] 11 WAC 173-303-640 (2)(c)(v)(B): Has the component been assessed using a leak test, or other integrity examination that addresses cracks, leaks, corrosion, and erosion?
Yes Go to question 12.
No Go to Part II #E8, and question 14.

[] [] 12 WAC 173-303-640 (2)(c)(v)(B): Was an integrity examination other than a leak test used?
Yes Go to question 13.
No Go to question 14.

[] [] 13 WAC 173-303-640 (2)(c)(v)(B): Has the integrity examination been certified by an independent, qualified, registered professional engineer?
Yes Go to question 14.
No Go to Part II #E9, and question 14.

[] [] 14 WAC 173-303-640 (2)(e): For generators accumulating waste in tanks, has a schedule for conducting integrity assessments over the life of the tank system been developed that ensures that the tank will retain its structural integrity and will not collapse, rupture, or fail?
Yes Go to question 47.
No Go to Part II #E10, and question 47.

NEW TANK SYSTEM/COMPONENT DESIGN AND INSTALLATION

Yes	No		
[]	[]	15	WAC 173-303-640 (3)(a): Does the tank system or component have an integrity assessment, attesting that it has sufficient structural integrity and is acceptable for the storing and treating of dangerous waste? Yes Go to question 16. No Go to Part II #N1 - #N4, and question 19.
[]	[]	16	WAC 173-303-640 (3)(a): Is the integrity assessment in writing and has it been reviewed and certified by an independent, qualified registered professional engineer? Yes Go to question 17. No Go to Part II #N2, and question 17.
[]	[]	17	WAC 173-303-640 (3)(a)(i): Does the assessment include the design standards to which the tank system is constructed? Yes Go to question 18. No Go to Part II #N3, and question 18.
[]	[]	18	WAC 173-303-640 (3)(a)(ii): Does the assessment include information about the dangerous characteristics of the waste to be handled? Yes Go to question 19. No Go to Part II #N4, and question 19.
[]	[]	19	WAC 173-303-640 (3)(a)(iii): Is the external shell of the tank or any external component constructed of metal? Yes Go to question 20. No Go to question 25.
[]	[]	20	WAC 173-303-640 (3)(a)(iii): Will the external shell of the metal tank or any external metal component of the tank system be in contact with soil or with water? Yes Go to question 21. No Go to question 25.
[]	[]	21	WAC 173-303-640 (3)(a)(iii)(A): Has corrosion expert evaluated the soil or water contacting component for corrosion causing factors including at least: - Soil moisture content; - Soil pH; - Soil sulfides level; - Soil resistivity; - Structure to soil potential; - Influence of nearby underground metal structures (e.g. piping); - Existence of stray electric current; - Existing corrosion-protection measures (e.g.

coatings).
Yes Go to question 22.
No Go to Part II #N5 - #N8, and question 25.

[] [] 22 WAC 173-303-640 (3)(a)(iii)(B): Has a corrosion expert evaluated the soil or water contacting component against the need for corrosion-resistant materials?
Yes Go to question 23.
No Go to Part II #N6, and question 23.

[] [] 23 WAC 173-303-640 (3)(a)(iii)(B): Has a corrosion expert evaluated the soil or water contacting component against the need for corrosion-resistant coating with cathodic protection?
Yes Go to question 24.
No Go to Part II #N7, and question 24.

[] [] 24 WAC 173-303-640 (3)(a)(iii)(B): Has a corrosion expert evaluated the soil or water contacting component against the need for electrical isolation devices such as insulating joints, flanges, etc.?
Yes Go to question 25.
No Go to Part II #N8, and question 25.

[] [] 25 WAC 173-303-640 (3)(a)(iv) and (3)(d): Is the component you are evaluating an underground tank?
Yes Go to question 26.
No Go to question 34.

[] [] 26 WAC 173-303-640 (3)(d): Was the tank system or components backfilled with material that was noncorrosive, porous, and homogeneous material, and was the backfill placed completely around the tank and compacted to ensure that the tank and piping would be fully and uniformly supported?
Yes Go to question 27.
No Go to Part II #N17, and question 27.

[] [] 27 WAC 173-303-640 (3)(a)(iv): Is the underground tank system designed, or are there operational measures that will protect it from any likely vehicular traffic?
Yes Go to question 28.
No Go to Part II #N9, and question 28.

[] [] 28 WAC 173-303-640 (3)(a)(v)(A): Is the underground tank system designed to ensure that the tank foundation will maintain the load of the full tank?
Yes Go to question 29.
No Go to Part II #N10, and question 29.

[] [] 29 WAC 173-303-640 (3)(a)(v)(B): Is the underground tank located in a saturated zone?
Yes Go to question 30.
No Go to question 31.

[] [] 30 WAC 173-303-640 (3)(a)(v)(B): Is it anchored to prevent flotation or dislodgement?
Yes Go to question 31.
No Go to Part II #N11, and question 31.

[] [] 31 WAC 173-303-640 (3)(a)(v)(B): Is the underground tank located within a seismic fault zone?
Yes Go to question 32.
No Go to question 33.

[] [] 32 WAC 173-303-640 (3)(a)(v)(B): Is it engineered to withstand dislodgement due to seismic activity?
Yes Go to question 33.
No Go to Part II #N12, and question 33.

[] [] 33 WAC 173-303-640 (3)(a)(v)(C): Is the underground tank system designed to withstand the effects of frost heave?
Yes Go to question 34.
No Go to Part II #N13, and question 34.

[] [] 34 WAC 173-303-640 (3)(b): For generators accumulating waste in tanks, is there a schedule for conducting integrity assessments over the life of the tank to ensure that the tank retains its structural integrity and will not collapse, rupture, or fail?
Yes Go to question 35.
No Go to Part II #N14, and question 35.

[] [] 35 WAC 173-303-640 (3)(c): Were proper handling procedures adhered to in order to prevent damage to the system during installation?
Yes Go to question 36.
No Go to Part II #N15, and question 36.

[] [] 36 WAC 173-303-640 (3)(c): Prior to covering, enclosing, or placing in to use the new tank system or components, was an independent, qualified installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in proper installation of tank systems, present to inspect the system?
Yes Go to question 37.
No Go to Part II #N16, and question 37.

[] [] 37 WAC 173-303-640 (3)(e): Was the new tank and all new ancillary equipment tested for tightness prior to being covered, enclosed, or placed in use?
Yes Go to question 38.
No Go to Part II #N18, and question 38.

[] [] 38 WAC 173-303-640 (3)(e): Was the new tank and all new ancillary equipment found to be tight after testing?
Yes Go to question 40.
No Go to Part II #N18, and question 39.

[] [] 39 WAC 173-303-640 (3)(e): Were all repairs, necessary to remedy the leaks in the system, made prior to covering, enclosing, or placing the system in use?
Yes Go to question 40.
No Go to Part II #N18, and question 40.

[] [] 40 WAC 173-303-640 (3)(f): Is ancillary equipment supported and protected against physical damage or excessive stress, due to settlement, vibration, expansion, or contraction?
Yes Go to question 41.
No Go to Part II #N19, and question 41.

[] [] 41 WAC 173-303-640 (3)(g): Was the type and degree of corrosion protection recommended by the corrosion expert incorporated into the installed system?
Yes Go to question 42.
No Go to Part II #N20, and question 42.

[] [] 42 WAC 173-303-640 (3)(g): Was a field fabricated corrosion protection system installed?
Yes Go to question 43.
No Go to question 44.

[] [] 43 WAC 173-303-640 (3)(g): Was the field fabricated corrosion protection system installation supervised by an independent corrosion expert?
Yes Go to question 44.
No Go to Part II #N20, and question 44.

[] [] 44 WAC 173-303-640 (3)(h): Have written statements, by those persons required to certify the tank system's integrity and supervise the installation, been obtained?
Yes Go to question 45.
No Go to Part II #N21, and question 47.

[] [] 45 WAC 173-303-640 (3)(h): Are the written statements kept on file at the facility?
Yes Go to question 46.
No Go to Part II #N21, and question 46.

[] [] 46 WAC 173-303-640 (3)(h): Are the written statements or certifications as presented in WAC 173-303-810 (13)(a)?
Yes Go to question 47.
No Go to Part II #N21, and question 47.

CONTAINMENT AND DETECTION OF RELEASES

Yes	No		
[]	[]	47	WAC 173-303-640 (4)(b)(i): Is secondary containment provided for the tank system or component you are evaluating? Yes Go to question 48. No Go to Part II #C1 - #C29, and to question 85.
[]	[]	48	WAC 173-303-640 (4)(b)(i) and (ii): Is the secondary containment system designed, installed, and operated to prevent any migration of waste or accumulated liquid (stormwater) out of the system to the surrounding environment (soil, groundwater, surface water) at any time during use of the tank system and is it capable of detecting and collecting releases of waste and accumulated liquid until it is removed? Yes Go to question 49. No Go to Part II #C1 - #C2, and to question 49.
[]	[]	49	WAC 173-303-640 (4)(c)(i): Is the secondary containment system constructed of or lined with materials that are compatible with the wastes? Yes Go to question 50. No Go to Part II #C3, and to question 50.
[]	[]	50	WAC 173-303-640 (4)(c)(i): Is the secondary containment system constructed of or lined with materials that have sufficient strength and thickness to prevent failure due to pressure gradients, physical contact with the waste, climactic conditions, or daily operations? Yes Go to question 51. No Go to Part II #C4, and to question 51.
[]	[]	51	WAC 173-303-640 (4)(c)(ii): Is the secondary containment system placed on a foundation or base capable of providing support, resistance to pressure gradients, and capable of preventing failure due to settlement, compression, or uplift? Yes Go to question 52. No Go to Part II #C5, and to question 52.
[]	[]	52	WAC 173-303-640 (4)(c)(iii): Is the secondary containment system designed and operated to detect the failure of the primary or secondary containment structure, or the presence of any release to the secondary system, within 24 hours? Yes Go to question 53. No Go to Part II #C6, and to question 53.
[]	[]	53	WAC 173-303-640 (4)(c)(iv): Is the secondary containment system sloped or otherwise designed or operated to drain and remove liquids, within 24 hours, resulting from leaks, spills, or precipitation? Yes Go to question 54. No Go to Part II #C7 - #C8, and to question 54.

[] [] 54 WAC 173-303-640 (4)(c)(iv): Are you evaluating a tank?
Yes Go to question 55.
No Go to question 74.

[] [] 55 WAC 173-303-640 (4)(d)(i): Is the device which provides secondary containment for the tank an external liner?
Yes Go to question 58.
No Go to question 56.

[] [] 56 WAC 173-303-640 (4)(d)(ii): Is the device which provides secondary containment for the tank a vault?
Yes Go to question 63.
No Go to question 57.

[] [] 57 WAC 173-303-640 (4)(d)(iii): Is the device which provides secondary containment for the tank a double walled tank?
Yes Go to question 70.
No Go to Part II #C9, and to question 74.

[] [] 58 WAC 173-303-640 (4)(e)(i)(A): Is the external liner system designed to contain one hundred percent of the capacity of the largest tank within its boundary?
Yes Go to question 59.
No Go to Part II #C10, and to question 59.

[] [] 59 WAC 173-303-640 (4)(e)(i)(B): Is the external liner system designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system?
Yes Go to question 61.
No Go to question 60.

[] [] 60 WAC 173-303-640 (4)(e)(i)(B): Is the external liner system designed with excess capacity to contain precipitation from a twenty-five-year, twenty-four-hour rainfall event?
Yes Go to question 61.
No Go to Part II #C11, and to question 61.

[] [] 61 WAC 173-303-640 (4)(e)(i)(C): Is the external liner system free of cracks or gaps?
Yes Go to question 62.
No Go to Part II #C12, and to question 62.

[] [] 62 WAC 173-303-640 (4)(e)(i)(D): Is the external liner system designed and installed to surround the tank completely and to cover all surrounding earth which may come in contact with the waste if a release was to occur?
Yes Go to question 74.
No Go to Part II #C13, and to question 74.

[] [] 63 WAC 173-303-640 (4)(e)(ii)(A): Is the vault system designed or operated to contain one hundred percent of the capacity of the largest tank within its boundary?
Yes Go to question 64.
No Go to Part II #C14, and to question 64.

[] [] 64 WAC 173-303-640 (4)(e)(ii)(B): Is the vault system designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system?
Yes Go to question 66.
No Go to question 65.

[] [] 65 WAC 173-303-640 (4)(e)(ii)(B): Is the vault system designed with excess capacity to contain precipitation from a twenty-five-year, twenty-four-hour rainfall event?
Yes Go to question 66.
No Go to Part II #C15, and to question 66.

[] [] 66 WAC 173-303-640 (4)(e)(ii)(C): Is the vault system constructed with chemical resistant water stops at all joints?
Yes Go to question 67.
No Go to Part II #C16, and to question 67.

[] [] 67 WAC 173-303-640 (4)(e)(ii)(D): Is the vault system provided with an impermeable interior coating or lining that is compatible with the waste?
Yes Go to question 68.
No Go to Part II #C17, and to question 68.

[] [] 68 WAC 173-303-640 (4)(e)(ii)(E): Is the vault system provided with a means of protecting against the formation of and ignition of vapors, if the waste meets the definition of an ignitable or reactive waste?
Yes Go to question 69.
No Go to Part II #C18, and to question 69.

[] [] 69 WAC 173-303-640 (4)(e)(ii)(F): Is the vault system designed with an external moisture barrier, or some other means to prevent migration of moisture into the vault?
Yes Go to question 74.
No Go to Part II #C19, and to question 74.

[] [] 70 WAC 173-303-640 (4)(e)(iii)(A): Is the double walled tank designed as an integral structure so that any leak from the inner tank is contained by the outer shell?
Yes Go to question 71.
No Go to Part II #C20, and to question 71.

[] [] 71 WAC 173-303-640 (4)(e)(iii)(B): Is the double walled tank constructed of metal?
Yes Go to question 72.
No Go to question 73.

[] [] 72 WAC 173-303-640 (4)(e)(iii)(B): Is the double walled tank protected from corrosion of the primary tank interior and external surface of the outer shell?
Yes Go to question 73.
No Go to Part II #C21, and to question 73.

[] [] 73 WAC 173-303-640 (4)(e)(iii)(C): Is the double walled tank provided with a built-in continuous leak detection system capable of detecting a release within twenty-four hours?
Yes Go to question 74.
No Go to Part II #C22, and to question 74.

[] [] 74. WAC 173-303-640 (4)(f): Is secondary containment provided for all ancillary equipment?
Yes Go to question 80.
No Go to question 75.

[] [] 75 WAC 173-303-640 (4)(i)(C): For ancillary equipment, is a leak test or other integrity assessment conducted at least annually?
Yes Go to question 76.
No Go to Part II #C29, and to question 76.

[] [] 76 WAC 173-303-640 (4)(f)(i): Is all aboveground piping (exclusive of flanges, joints, valves, and other connections) visually inspected for leaks on a daily basis?
Yes Go to question 77.
No Go to Part II #C23, and to question 77.

[] [] 77 WAC 173-303-640 (4)(f)(ii): Are all welded flanges, welded joints, and welded connections visually inspected for leaks on a daily basis?
Yes Go to question 78.
No Go to Part II #C24, and to question 78.

[] [] 78 WAC 173-303-640 (4)(f)(iii): Are all sealless or magnetic coupling pumps and sealless valves visually inspected for leaks on a daily basis?
Yes Go to question 79.
No Go to Part II #C25, and to question 79.

[] [] 79 WAC 173-303-640 (4)(f)(iv): Are all pressurized aboveground piping systems with automatic shut-off devices inspected for leaks on a daily basis?
Yes Go to question 80.
No Go to Part II #C26, and to question 80.

[] [] 80 WAC 173-303-640 (4)(i)(A): Is this a nonenterable underground tank for which secondary containment has not been provided?
Yes Go to question 81.
No Go to question 82.

[] [] 81 WAC 173-303-640 (4)(i)(A): Has a leak test or other tank integrity method been conducted at least annually?
Yes Go to question 85.
No Go to Part II #C27, and to question 85.

[] [] 82 WAC 173-303-640 (4)(i)(B): Is this tank other than a nonenterable underground tank?
Yes Go to question 83.
No Go to question 84.

[] [] 83 WAC 173-303-640 (4)(i)(B): Has a leak test been conducted by an independent, qualified, registered professional engineer?
Yes Go to question 85.
No Go to question 84.

[] [] 84 WAC 173-303-640 (4)(i)(B): For other than nonenterable underground tanks, has a schedule and procedure for an assessment of the overall condition of the tank system been developed and performed by an independent, qualified registered professional engineer?
Yes Go to question 85.
No Go to Part II #C28, and to question 85.

GENERAL OPERATING REQUIREMENTS

Yes **No**

[] [] 85 WAC 173-303-640 (5)(a): Are procedures or controls in place which will prevent dangerous wastes or treatment reagents from entering the tank system which may have deleterious effects on the tank system (i.e. rupture, leak, corrode, or fail)?
Yes Go to question 86.
No Go to Part II #G30, and to question 86.

[] [] 86 WAC 173-303-640 (5)(b)(i): Are spill prevention controls (check valves, dry disconnect couplings) and practices in place to prevent spills and overflows from the tank and containment systems?
Yes Go to question 87.
No Go to Part II #G31, and to question 87.

[] [] 87 WAC 173-303-640 (5)(b)(ii): Are overfill prevention controls (level sensing devices, high level alarms, bypass devices) in place to prevent accidental overflow of the tank and containment systems?
Yes Go to question 88.
No Go to Part II #G32, and to question 88.

[] [] 88 WAC 173-303-640 (5)(b)(iii): Is this an uncovered tank?
Yes Go to question 89.
No Go to question 93.

[] [] 89 WAC 173-303-640 (5)(b)(iii): Is this tank subject to interim status standards?
Yes Go to question 92.
No Go to question 90.

[] [] 90 WAC 173-303-640 (5)(b)(iii): Is this tank subject to generator accumulation standards?
Yes Go to question 91.
No Go to question 93.

[] [] 91 WAC 173-303-640 (5)(b)(iii): Is at least two feet of freeboard maintained?
Yes Go to question 93.
No Go to Part II #G33, and to question 93.

[] [] 92 WAC 173-303-640 (5)(b)(iii): Is sufficient freeboard maintained to prevent accidental overtopping?
Yes Go to question 93.
No Go to Part II #G33, and to question 93.

[] [] 93 WAC 173-303-640 (5)(e): Does the tank system allow the escape of vapors, fumes, or other emissions into the air?
Yes Go to question 94.
No Go to question 95.

[] [] 94 WAC 173-303-640 (5)(e): Does the tank hold waste that is acutely or chronically toxic by inhalation and designated extremely hazardous waste?
Yes Go to Part II #G34, and to question 95.
No Go to question 95.

RESPONSE TO SPILLS AND LEAKS

Yes **No**

[] [] 95 WAC 173-303-640 (7)(a): Has a leak or spill occurred from the tank or containment system?
Yes Go to question 96.
No Go to question 109.

[] [] 96 WAC 173-303-640 (7)(a): In response to a leak or spill from a tank or containment system, is the flow of waste to the tank immediately ceased and the system inspected to determine the cause of the release?
Yes Go to question 97.
No Go to Part II #R35, and to question 97.

[] [] 97 WAC 173-303-640 (7)(b)(i): If a release is detected from the tank system, is the waste removed within twenty-four hours to allow inspection and repair of the system?
Yes Go to question 98.
No Go to Part II #R36, and to question 98.

[] [] 98 WAC 173-303-640 (7)(b)(ii): If a release is to the secondary containment system, is the material removed within twenty-four hours?
Yes Go to question 99.
No Go to Part II #R37, and to question 99.

[] [] 99 WAC 173-303-640 (7)(e)(ii) and (iii): If a release to the tank system or secondary containment system occurs from the primary tank, and the cause has not damaged the integrity of the system or secondary containment, are repairs made prior to returning the tank system to service?
Yes Go to question 100.
No Go to Part II #R38, and to question 100.

[] [] 100 WAC 173-303-640 (7)(e)(iv): Has there been a release to the environment?
Yes Go to question 101.
No Go to question 109.

[] [] 101 WAC 173-303-640 (7)(e)(iv): Was the release from an underground component of the tank system without secondary containment?
Yes Go to question 102.
No Go to question 103.

[] [] 102 WAC 173-303-640 (7)(e)(iv): Was secondary containment provided for the component before it was returned to service?
Yes Go to question 105.
No Go to Part II #R39, and to question 105.

[] [] 103 WAC 173-303-640 (7)(e)(iv): Was the release from an aboveground component of a tank system without secondary containment?
Yes Go to question 104.
No Go to question 105.

[] [] 104 WAC 173-303-640 (7)(e)(iv): Was the component visually inspected, repaired, and documented in a certification of repair by an independent, qualified, registered professional engineer before it is returned to service?
Yes Go to question 105.
No Go to Part II #R40, and to question 105.

[] [] 105 WAC 173-303-640 (7)(e)(iv): If a release occurs from any component of a tank system that is not readily accessible for visual inspection, is that component provided with secondary containment before it is returned to service?
Yes Go to question 106.
No Go to Part II #R41, and to question 106.

[] [] 106 WAC 173-303-640 (7)(f): If any extensive repair is necessary to a tank system as a result of a spill or release, is a certification of repair obtained from an independent, qualified, register professional engineer before the system is returned to service?
Yes Go to question 107.
No Go to Part II #R42, and to question 109.

[] [] 107 WAC 173-303-640 (7)(f): Does the certification certify that the repaired system is capable of handling dangerous wastes without release for the intended life of the system?
Yes Go to question 108.
No Go to Part II #R42, and to question 108.

[] [] 108 WAC 173-303-640 (7)(f): Is the certification submitted to the Department of Ecology within seven days after returning the tank system to service?
Yes Go to question 109.
No Go to Part II #R42, and to question 109.

IGNITABLE AND REACTIVE WASTES

Yes No

[] [] 109 WAC 173-303-640 (9)(a): Is ignitable or reactive waste placed in a tank system?
Yes Go to question 110.
No Go to question 114.

[] [] 110 WAC 173-303-640 (9)(a)(i): Is the ignitable or reactive waste treated or mixed either before or immediately after placement in the tank system so that the resulting waste is not considered ignitable or reactive?
Yes Go to question 113.
No Go to question 111.

[] [] 111 WAC 173-303-640 (9)(a)(ii): Is the ignitable or reactive waste stored or treated in a manner that it is protected from ignition or reaction with any other material?
Yes Go to question 113.
No Go to question 112.

[] [] 112 WAC 173-303-640 (9)(a)(iii): Is the tank system used solely for emergencies?
Yes Go to question 113.
No Go to Part II #I43, and to question 113.

[] [] 113 WAC 173-303-640 (9)(b): Are tanks which store ignitable or reactive waste inspected yearly by a professional person familiar with the Uniform Fire Code or in the presence of a fire marshall?
Yes Go to question 114.
No Go to Part II #I44, and to question 114.

INCOMPATIBLE WASTES

Yes No

[] [] 114 WAC 173-303-640 (10)(a): Is waste which is incompatible with other wastes, or with the tank system materials, placed in the tank system?
Yes Go to question 116.
No Go to question 115.

[] [] 115 WAC 173-303-640 (10)(b): Is dangerous waste placed in a tank system which previously held incompatible waste or material which may be incompatible with the dangerous waste?
Yes Go to question 116.
No END.

[] [] 116 WAC 173-303-640 (10)(b): Has the tank system been decontaminated prior to the introduction of the dangerous waste into the system?
Yes END.
No Go to question 117.

[] [] 117 WAC 173-303-640 (10)(a): Are procedures or equipment in place which prevent the generation of extreme heat, pressure, fire, or explosion?
Yes Go to question 118.
No Go to Part II #X45, and to question 118.

[] [] 118 WAC 173-303-640 (10)(a): Are procedures or equipment in place which prevent the formation of uncontrolled toxic mists, fumes, dusts, or gases?
Yes Go to question 119.
No Go to Part II #X45, and to question 119.

[] [] 119 WAC 173-303-640 (10)(a): Are procedures or equipment in place which prevent the formation of flammable fumes or gases?
Yes Go to question 120.
No Go to Part II #X45, and to question 120.

[] [] 120 WAC 173-303-640 (10)(a): Are procedures or equipment in place which prevent any structural damage to the facility or device containing the waste?

Yes END.

No Go to Part II #X45. END.

PART II

SPECIFIC CORRECTIVE MEASURES

This document describes specific measures that can be taken to correct tank system or tank component deficiencies identified during completion of the preceding checklist. The corrective measures provided below are numbered to correspond to the directions given in the checklist.

EXISTING TANK SYSTEMS INTEGRITY ASSESSMENT

E1. **Provide, and keep on file, a written tank integrity assessment.** The assessment should be retained for regulatory agency review, if so requested. For interim status facilities, this documentation should be incorporated into the facility operating record.

E2. **Provide for the review and certification of the written tank integrity assessment by an independent, qualified registered professional engineer.** The engineer must attest to the tank systems integrity in the certification.

E3. **Ensure the tank integrity assessment examines the available design detail.** This examination must ensure that the system has sufficient structural strength and compatibility with the waste, and ensure that the system will not collapse, rupture, or fail.

E4. **Ensure the tank integrity assessment examines the characteristics of the dangerous waste to be managed in the tank.** This examination must ensure that the wastes characteristics will not jeopardize the tank systems integrity.

E5. **Ensure the tank integrity assessment examines the existing corrosion protection measures.** This examination must ensure that the measures are adequate to protect the integrity of the tank system.

E6. **Ensure the tank integrity assessment documents the age of the tank system.** If the exact age is unknown, the assessment must estimate the age of the system.

E7. **For nonenterable underground tanks, perform a leak test.** This test must be capable of taking into account the effects of temperature variations, tank end deflections, vapor pockets, and high water table.

E8. **For other than nonenterable underground tanks and ancillary equipment, perform a leak test, or other integrity examination.** The test or examination must address cracks, leaks, corrosion, and erosion. For interim status components only the integrity examination can include an internal inspection. If the integrity examination is other than a leak test, it should be presented to the Department of Ecology for review and approval prior to implementation.

E9. **Ensure that the integrity examination is certified by an independent, qualified registered professional engineer.**

E10. **Develop a schedule for conducting integrity assessments over the life of the tank system.** The schedule is to be based on the results of previous assessments, the age of the tank, the materials of construction, the waste characteristics, and other relevant factors. This requirement does not apply to interim status tanks.

NEW TANK DESIGN AND INSTALLATION

N1. **Develop a written integrity assessment for the new tank system.** The integrity assessment must be a written document that attests that the tank system (including components) has sufficient structural integrity and is acceptable for storing and treating this specific dangerous waste. Refer to the checklist for other specific elements of the assessment.

N2. **Ensure that the written integrity assessment has been reviewed by a independent, qualified registered professional engineer.** The reviewer must certify in writing that the tank system is acceptable and structurally sound. The engineer must be independent of the owner/operator and with no conflicts of interest with respect to the tank system. He must be qualified to review the structural integrity and the acceptability of the design to safely store or treat the unique characteristics of the dangerous waste. Finally, this engineer must be registered as a professional engineer in the state of Washington. With the array of details surrounding a tank system, it is probable that there will be a team of engineers and/or a team of professionals working under a qualified registered professional engineer.

N3. **Ensure the assessment includes the design standards to which the tank system is constructed.** Gather all available design notes, calculations, specifications, and plans used to design the tank system. This may also include manufacturers information, fabrication notes and inspection certifications, and other as-built drawing and construction plans. If complete documentation is not available, interviews with the design team may be necessary.

N4. **Ensure the assessment includes all information about the dangerous characteristics of the waste to be managed.** Gather all information that has been developed to characterize the dangerous waste in question. This information may include pilot treatability studies, chemical analysis, technical references, and other information that notes the principle characteristic or properties of the dangerous waste. Assess the integrity of the structure and the element of the design (e.g. pumps, pressurized containment) against these characteristics. Each element of the system (and component) must be assessed for its compatibility with the chemical and physical properties of the dangerous waste handled.

N5. **Ensure that a corrosion expert has evaluated those portions of the tank system that is in contact with soil or water for potential for corrosion.** The corrosion expert must evaluate the appropriate portions of the tank system for at least the factors listed in WAC 173-303-640 (3) (a) (iii) (A), and also listed on the checklist. The corrosion expert should document his evaluation in writing.

N6. **Ensure that the corrosion expert has evaluated the water or soil contacting component against the need for corrosion- resistant materials.** Corrosion-resistant materials may include special alloys, fiberglass reinforced plastic, etc.

N7. **Ensure that the corrosion expert has evaluated the water or soil contacting component against the need for corrosion-resistant coating with cathodic protection.** Coatings (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes) should be used.

N8. **Ensure the corrosion expert has evaluated the water or soil contacting component against the need for electrical isolating devices.** Such electrical isolation devices may include insulation joints, flanges, etc.

N9. **Design underground tank systems, or develop and implement operational controls, that protect the system from any likely vehicular traffic.** Assess whether there is any likely traffic in the area above the "underground" tank system. If there is, evaluate the tank system's design for appropriate design considerations, such as live and static load calculations. Operational measures may also be used to prevent or retard likely traffic from the areas of concern.

N10. **Design the underground tank system foundation to ensure that it will maintain the load of the full tank.** Incorporate into the design of the underground tank system calculations, references, or actual tests to determine whether the tank foundation is sufficient to maintain the load of a full tank. If the tank is resting on the ground, geotechnical tests, such as proctor tests, or other soil density examinations may be appropriate.

N11. **Anchor all underground tank systems that are located in saturated zones to prevent flotation or dislodgment.** Design an anchoring system that prevents the underground tank system from accidental dislodging or floatation due to seasonal or permanent saturated condition in the zone where the tanks are located.

N12. **Design the underground tank system to withstand dislodgment due to seismic activity.** The system design may incorporate combinations of anchoring, backfill material, and/or tank design to reduce this potential.

N13. **Design the underground tank system to withstand the effects of frost heave.** The assessment must include design considerations that reduce or eliminate the potential effects of frost heave.

N14. **Develop and implement a schedule for conducting integrity assessments of the tank system over the life of the tank.** The schedule must be based on the results of past integrity assessments, the age of the tank system, the materials of construction, the characteristics of the waste managed, and any other relevant factors. This requirement does not apply to interim status tanks.

N15. **Ensure that proper handling procedures were adhered to in order to prevent damage to the system during installation.** This may be accomplished by requiring an installation procedure be developed by the company doing the installation. The procedure should be submitted for approval and carefully scrutinized by an individual knowledgeable in the installation of tank systems. This individual may be found inhouse, or it may be necessary to go to an independent firm for assistance. Once the procedure is approved, the installation should be carefully monitored by someone knowledgeable in the installation of tank systems, and with the authority to suspend work if the procedure is not followed as approved. The installation should be fully documented via notes and photographs. The documentation should be retained for regulatory agency review, if so requested. For interim status facilities, the documentation should be incorporated into the facility operating record.

N16. **Ensure the new tank system is inspected by an independent, qualified installation inspector or professional registered engineer prior to enclosing, covering, or placing the new tank system or component into service.** This individual should be the person who initially reviewed the installation procedure and/or who witnessed the actual installation of the tank system. The inspector must inspect the system for the presence of: weld breaks; punctures; scrapes of protective coatings; cracks; corrosion; and other structural damage or inadequate construction or installation. All discrepancies must be remedied before the system is covered, enclosed, or placed in use. The individual should document the results of their inspection, and that documentation should be retained for regulatory agency review, if so requested. For interim status facilities, the documentation

should be incorporated into the facility operating record.

N17. **Ensure that the new tank system or component is backfilled with a noncorrosive, porous, homogeneous backfill material, and the backfill is placed completely around the tank.** These materials may include sand, gravel, pit run, or similar material that will allow liquids to drain away from the tank system or component. The reviewing engineer should evaluate the material that will be in contact with the tank system or component to ensure that it will not be corrosive due to potential generation of current when in contact with the tank system or component, excess moisture that could induce rusting, or contamination with corrosive materials. When placed, the backfilling material must provide uniform support for the tank system and component. Thus any compacting techniques must be carefully followed to avoid uneven compaction or promotion of settling. Again, the reviewing engineer should evaluate the backfilling methods to ensure that they will provide uniform support for all of the tank, piping, and other components.

N18. **Test the new tank and all new ancillary equipment for tightness prior to being covered, enclosed, or placed in use.** After a new tank system (tanks and/or ancillary equipment) has been installed, it must be tightness tested. Tightness testing can include pressurization or drawing a vacuum and watching for pressure changes, or any other method recommended by the component manufacturer or otherwise suggested by recognized sources. Such sources can include various American Petroleum Institute (API) and American National Standards Institute (ANSI) publications (e.g., API Publication 1615, ANSI Standards B31.3 and B31.4).

The goal of the testing is to identify potential sources of leaks in the system and its components before they are put into service, or covered, enclosed, or otherwise rendered unavailable for repair. If leaks are detected through tightness testing, they must be repaired before the tank system is covered or put into use. Appropriate repair techniques should be determined in conjunction with the component manufacturer or installer, and the reviewing engineer. Documentation of any leaks found and the repairs that were made should be maintained.

Although not required by the regulations, a second tightness test should be performed after repairs have been completed to ensure that they were effective in fixing the identified problem.

N19. **Provide support and protection for all ancillary equipment against physical damage or excessive stress.** Ancillary equipment must not suffer physical damage or excessive stress due to settlement, vibration, expansion, or contraction. For example, foundations for ancillary equipment should be capable of withstanding the weight of the equipment without settling. Tie rods, cables, straps, or other devices used to support ancillary equipment should not allow excessive sway or vibration of the equipment. If the ancillary equipment is outdoors or in locations subject to large temperature changes, or high or low temperature extremes, the ancillary equipment should be insulated, covered, refrigerated/heated, or otherwise protected to maintain a stable temperature within the design parameters of the equipment. Documentation showing that the ancillary equipment has been adequately supported and protected should be maintained.

N20. **Ensure the type and degree of corrosion protection recommended by the corrosion expert is incorporated into the installed system.** If any external metal tank or metal component will be in contact with soil or water, ensure that the type and degree of corrosion protection identified for the tank system has been provided. For example, if an anti-corrosion paint or coating has been specified for the outside of a tank by the corrosion expert, coupled with use of nonabrasive backfill materials, this corrosion protection method must be provided.

If the corrosion protection system is fabricated in the field (e.g. coating the tank at the site, installation of a protective liner requiring heat seals or welds), a corrosion expert must supervise the installation of the field fabricated portions of the corrosion protection system. Documentation should be maintained showing that the corrosion protection system that has been installed meets the identified design specifications, and that it has been installed properly.

N21. **Obtain written statements from those persons required to certify the design of the tank system, and supervise the installation of the tank system.** The written statements must attest that the tank system was properly designed, installed, tested, and (if necessary) repaired. The written statements must include the certification language presented in WAC 173-303-810(13)(a), and they must be kept on file at

the facility (or accumulating generator's site). Although not specifically required by the regulations, these statements should be obtained prior to or, as soon as possible, after putting the tank system, tank, or ancillary equipment into service.

CONTAINMENT AND DETECTION OF RELEASES

C1. **Provide a secondary containment system that is capable of preventing any migration of waste or stormwater out of the system to the surrounding environment.** The system may be constructed as a liner, vault, double walled tank, or other device which is consistent with the intent of the regulations. The system is to be routinely monitored, either personally or electronically, for the presence of accumulated liquid. Procedures must be in place to expeditiously remove any accumulated liquid as soon as they are encountered.

C2. **Provide a secondary containment system that is capable of detecting and collecting any release of waste or accumulated liquid until it is removed from the system.** Detection of releases or accumulated liquids can be either as a result of daily visual inspections, or electronic devices such as conductivity probes and alarms. Collection of releases or accumulated liquids can be accomplished through a well designed containment system, free of all cracks and gaps, constructed and lined with waste compatible materials, and sloped to a common point for ease of collection.

C3. **Provide a secondary containment system constructed of or lined with materials that are compatible with the waste.** Common construction materials include concrete and asphalt. These materials are often not completely compatible with the waste however. In these instances, protective liners or coatings are installed within the containment structure which are designed to withstand the chemical environment.

C4. **Provide a secondary containment system which is constructed of or lined with materials that have sufficient strength to withstand physical and chemical stress and fatigue imposed by the waste, waste handling equipment, and climactic conditions.** A reinforced concrete pad and berm, singularly poured with no joints, sealed and lined with a waste compatible coating, and placed on an engineered base or foundation, will often suffice as a system that will withstand the attack of most chemical waste and loads from equipment and daily use.

C5. **Provide a foundation or base for the secondary containment that will support the activities taking place on and around the containment system.** The foundation should be designed by a qualified engineer, taking into account potential for settlement, compression and uplift. Soil integrity, soil compaction, overburden, and differential settlement are all key to a design that is successful.

C6. **Provide a secondary containment system that is capable of detecting a leak to the system within 24 hours of the release.** This may be accomplished by daily visual inspections in accordance with a written inspection plan, or by remote sensing equipment such as a conductivity probe or vapor detector. Remote equipment must be monitored on a daily basis, or actuate an alarm, notifying personnel of a release.

C7. **Provide a secondary containment system that is sloped to a central location, or otherwise designed or operated to drain and remove accumulated liquids.** A containment floor, sloped to an accumulation sump that is equipped with a level actuated pump for removing liquids, is a common and accepted design to accommodate a release within the secondary containment structure.

C8. **Provide operating procedures that will ensure the removal of accumulated waste or liquids from the secondary containment structure within 24 hours of detection.** These procedures should be in writing, with facility personnel trained in the procedures via a written training plan.

C9. **Provide an equivalent secondary containment device as approved by the Department of Ecology.** Prior to installing an equivalent device, it must be provided to the department for review and approval.

C10. **Provide an external liner that is capable of containing one hundred percent of the capacity of the tank within its boundary.** Typically, if more than one tank is located within the containment structure, the capacity of the largest tank must be provided. Calculations should be developed for the design and retained for review by the regulatory agency, if so requested. For interim status facilities, the calculations should be incorporated into the facility written operating record. Calculations should provide for the displacement of the tank, ancillary equipment, and any other structure located within the containment structure.

C11. **Provide an external liner system that is designed to accommodate the volume of the tank and a volume of precipitation from a twenty-four-hour, twenty-five-year storm event, if the prevention of run-on or infiltration of precipitation is not provided.** Calculations should be developed for the design and retained for regulatory agency review, if so requested. For interim status facilities, the calculations should be incorporated into the facility written operating record.

C12. **Provide an external liner that is free from cracks or gaps.** As an example, a prefabricated sheet metal or fiberglass liner with welded seams or molded corners and joints would meet the requirements. A synthetic, hypalon liner with heat welded seams would also be considered adequate. Foundation or base preparation is critical to assure that impediments will not disrupt the installation and fit of the liner. Documentation of inspections provided by the manufacturer or installation company should be retained for review by the regulatory agency, if so requested. For interim status facilities, this information should be incorporated into the facility written operating record. Routine facility inspections should verify the liners integrity is maintained.

C13. **Provide an external liner that is designed and installed to completely surround the tank and which covers all surrounding earth which may come in contact with a release.** The design of the liner should account for the potential of a horizontally projected, concentrated stream of waste that may exceed the logical liner boundary.

C14. **Provide a vault system that is designed or operated to contain one hundred percent of the capacity of the largest tank within its boundary.** The design should take into account any displacement for the tank(s), ancillary equipment, and any other structure in the vault. Calculations should be developed and retained for regulatory agency review, if so requested. For interim status facilities, the documentation should be incorporated into the facility written operating record.

C15. **Provide a vault system that is capable of containing the capacity of the largest tank and the volume of precipitation from a twenty-five-year, twenty-four-hour storm event if prevention of run-on or infiltration of precipitation is not provided.** Calculations should be developed for the design of the vault and retained for regulatory agency review, if so requested. For interim status facilities, the documentation should be incorporated into the facility written operating record.

C16. **Provide a vault system that is constructed with chemical resistant water stops at all joints,** if applicable. If at all possible, joints should be avoided in the design and construction of the containment structure. If joints are necessary, the material used as water stops must be compatible with the waste managed in the tank. Specifications on the material used as water stops should be retained for regulatory agency review, if so requested. For interim status facilities, the specifications should be incorporated into the facility written operating record.

C17. **Provide a vault system that is designed and constructed with an interior coating or liner that is compatible with the waste managed in the tank.** The interior coating is often brush or roller applied, while a lining is either attached by hangers or chemically bonded to the surface of the vault. Specifications on

the coating, liner, hanger material, or chemical bonding agent should be retained for regulatory agency review, if so requested. For interim status facilities, the specifications should be incorporated into the facility written operating record.

C18. **Provide a means of protecting against the formation of and ignition of flammable vapors in the vault.** One means of providing this protection is to vent the tank to a system designed to accommodate flammable vapors and which arrests the potential for ignition. Ventilation of the vault may also be necessary. Providing grounding straps for the tank and equipment, constructing ancillary equipment from non-sparking materials, and equipping the vault with remote sensing vapor devices will reduce the risk of vapor ignition.

C19. **Design and construct the vault system with an external moisture barrier or some other means of protecting against the migration of moisture into the vault.** If concrete is used as the vault construction material, a sealer may be applied that will reduce the potential for outside moisture entering the vault system. All conduit voids in the wall of the vault should be caulked with a chemical resistent compound. Water stops in the joints of the vault, if applicable, should be chemically resistent. If a cover block is used over the vault, the covers should be keyed and seals provided to reduce the intrusion of moisture from above.

C20. **Provide a double walled tank that is designed as an integral structure so that any release from the inner tank is contained by the outer shell.** Manufacturer specifications of the double walled tank should be retained for regulatory agency review, if so requested. For interim status facilities, the specifications should be incorporated into the facility written operating record.

C21. **Provide protection from corrosion for the primary tank interior and the external surface of the outer shell.** Develop and retain any corrosion protection designs and proof of installation for regulatory agency review, if so requested. For interim status facilities, all designs and installation documentation and certifications should be incorporated into the facility written operating record.

C22. **Provide the double walled tank with a built-in continuous leak detection system capable of detecting a release within 24 hours.** If the leak detection system did not come installed from the manufacturer, develop a design and install remote electronic devices, such as conductivity probes, into the void between the inner tank and the outer shell. The device must be capable of detecting a release from the inner tank and relaying the information to either personnel monitored instrumentation or to an alarm system for notification.

C23. **Provide secondary containment for all ancillary equipment, including aboveground piping.** Secondary containment is not required for aboveground piping if these components are visually inspected for leaks on a daily basis. Inspections are to be in accordance with a written inspection plan and schedule. All inspection results should be retained for regulatory agency review, if so requested. For interim status facilities, inspection results should be incorporated into the facility written operating record.

C24. **Provide secondary containment for all ancillary equipment, including flanges, joints, and connections.** Secondary containment is not required for all welded flanges, joints, and connections if these components are visually inspected for leaks on a daily basis. Inspections are to be in accordance with a written inspection plan and schedule. All inspection results should be retained for regulatory agency review, if so requested. For interim status facilities, inspection results should be incorporated into the facility written operating record.

C25. **Provide secondary containment for all ancillary equipment, including sealless or magnetic coupling pumps and sealless valves.** Secondary containment is not required for all sealless or magnetic coupling pumps and sealless valves if these components are visually inspected for leaks on a daily basis. Inspections are to be in accordance with a written inspection plan and schedule. All inspection results should be retained for regulatory agency review, if so requested. For interim status facilities, inspection results should be incorporated into the facility written operating record.

C26. **Provide secondary containment for all ancillary equipment, including all pressurized aboveground piping systems with automatic shut-off devices.** Secondary containment is not required for all pressurized aboveground piping systems with automatic shut-off devices if these components are visually inspected for leaks on a daily basis. Inspections are to be

in accordance with a written inspection plan and schedule. All inspection results should be retained for regulatory agency review, if so requested. For interim status facilities, inspection results should be incorporated into the facility written operating record.

C27. **Conduct an annual leak test on all nonenterable underground tanks for which secondary containment has not been provided.** If an alternate tank integrity method is chosen, the method should be developed and presented to the Department of Ecology for review and approval prior to implementation. Data from the test should be retained for regulatory agency review, if so requested. For interim status facilities, leak test data results should be incorporated into the facility written operating record.

C28. **Ensure the leak test, or development of a schedule and procedure for an assessment of the overall condition of the tank system, is performed by an independent, qualified, registered professional engineer.** The schedule and procedure must be capable of detecting obvious cracks, leaks, and corrosion or erosion that may lead to cracks or leaks. If necessary, the waste must be removed from the tank so that all interior surfaces of the tank may be assessed. The frequency of these assessments must be based on the material of construction, age of the system, type of corrosion or erosion protection used, rate of corrosion or erosion observed, and the characteristics of the waste managed.

C29. **Perform an annual leak test or other integrity assessment on ancillary equipment for which secondary containment has not been provided.** If an alternate integrity method is chosen, the method should be developed and presented to the Department of Ecology for review and approval prior to implementation. Data from the test should be retained for regulatory agency review, if so requested. For interim status facilities, leak test data results should be incorporated into the facility written operating record.

GENERAL OPERATING REQUIREMENTS

G30. **Develop and implement procedures or controls which will prevent the placement of wastes or treatment reagents into the tank system that may cause the system to rupture, leak corrode or otherwise fail.** The procedures should be written, and the facility personnel trained in their implementation in accordance with a written training plan. Wastes or treatment reagents that may be incompatible with the tank construction materials, containment construction materials, liners, coatings, or ancillary equipment must be avoided. Excessive pressure buildup in the tank or equipment must be avoided. Unexpected chemical reactions must be avoided. Monitoring equipment must be routinely maintained and calibrated to assure a level of accuracy. Procedures should be retained for regulatory agency review, if so requested. For

interim status facilities, operating procedures should be incorporated into the facility written operating record.

G31. **Provide and implement appropriate spill prevention controls and practices that will prevent accidental spills and overflows from the tank and containment system.** Spill contingency procedures, as provided in the facility contingency plan, should be developed, and facility personnel trained in their implementation in accordance with a written training plan. Equipment, such as check valves, backflow prevention valves, dry disconnect couplings, and automatic cut-off devices should be employed whenever practicable. Documentation as to the in-place controls and practices should be documented and retained for regulatory agency review, if so requested. For interim status facilities, procedures should be incorporated into the facility written operating record.

G32. **Provide overfill prevention controls to prevent accidental overflow of the tank and containment system.** Operating procedures should be developed and implemented, and facility personnel trained in their implementation in accordance with the facility training plan. Equipment, such as level sensing devices, high level alarms, and bypass devices should be installed. Equipment should be routinely maintained and calibrated to assure accuracy. All data developed from these controls should be documented and retained for regulatory agency review, if so requested. For interim status facilities, all documentation should be incorporated into the facility written operating record.

G33. **Provide sufficient freeboard for all uncovered tanks to prevent overtopping due to wave or wind action or by precipitation.** The amount of freeboard to provide is generally site and facility specific. However, generators accumulating waste in uncovered tanks must provide at least two feet of freeboard per WAC 173-303-200 (1)(b).

G34. **Design and construct all tanks, which contain extremely hazardous waste that is acutely or chronically toxic by inhalation, with a means of preventing the escape of emissions into the ambient air.** Chlorine, ammonia, and hydrogen cyanide gases are excellent examples of hazardous materials for which specific tanks and containers are constructed. For similar wastes, tank construction specifications should be equally rigid.

RESPONSE TO SPILLS AND LEAKS

R35. **Develop and implement procedures or practices which, in response to a spill or leak from a tank or containment system, will immediately cease the flow of the waste to the tank and initiate an inspection of the system to determine the cause of the release.** The cessation of flow may be controlled by remote equipment, such as an automatic cut-off device, which actuates an audible alarm

that notifies facility personnel of a release. Written operating procedures may then require, as a result of the alarm, a visual inspection of the tank or containment system to determine the cause of the release. The procedures may be a combination of equipment and facility personnel, as in this example, or other scenarios utilizing just equipment or personnel. The procedures should be documented in the facility contingency plan and retained for regulatory agency review, if so requested. For interim status facilities, all documentation should be incorporated into the facility written operating record.

R36. **Develop and implement procedures or controls which, if a release is detected from the tank system, provides for the removal of the waste within 24 hours to allow inspection and repair of the system.** Automatic removal of the waste may be accomplished via equipment such as a liquid level actuated pump or jet located in the tank. The activation of the pump may trigger an alarm which notifies facility personnel of a release, prompting a procedural requirement that an immediate visual inspection of the tank be accomplished. Based upon the visual inspection, repairs may then commence. Procedures should be documented in the facility contingency plan and retained for regulatory agency review, if so requested. For interim status facilities, all documentation should be incorporated into the facility written operating record.

R37. **Develop and implement procedures and controls which, if a release from a tank occurs to the secondary containment system, provides for the removal of the release from the containment system within 24 hours.** Automatic removal of the waste may be accomplished via a liquid level actuated pump located in the secondary containment sump. Manual removal of the liquid may sometimes be preferred, and may be accomplished by the use of a manually operated suction pump. Liquid level sensing equipment, located in the sump, would alert facility personnel of the presence of liquid in need of removal. In either case, procedures should be documented in the facility contingency plan and retained for regulatory agency review, if so requested. For interim status facilities, all documentation should be incorporated into the facility written operating record.

R38. **Ensure the tank system is returned to service only after the waste has been removed and repairs are made to the system.** If this requirement is not satisfied, the tank system must be closed.

R39. **Provide secondary containment for the component before it is placed back into service.** If this requirement is not satisfied, the tank system must be closed.

R40. **Provide secondary containment for the tank system component, unless the component is aboveground and can be visually inspected.** If a release to the environment occurs from an aboveground component of the tank system without secondary containment (i.e. a welded flange, a sealless pump, or pressurized pipe with automatic shut-off) and can be visually inspected, the component must be repaired and can be returned to service without secondary containment if a certification of repair is prepared by an independent, qualified registered professional engineer. If this requirement is not satisfied, the tank system must be closed.

R41. **Provide secondary containment for the component from which the release occurred.** The secondary containment must be designed, installed, and operated to prevent releases to the environment and must be capable of detecting and collecting releases until the released material is removed. The secondary containment must comply with the applicable requirements for the type of tank component from which the release occurred.

R42. **Obtain a certification of repair from an independent, qualified, registered, professional engineer prior to returning the repaired tank system to service.** Examples of extensive repairs include: installation of an internal liner; repair of a ruptured primary or secondary containment vessel; replacement of a tank; replacement of all ancillary equipment; and, installation or replacement of a secondary containment liner. The certification must state that the repaired system is capable of handling dangerous wastes without release for the intended life of the system. The certification statement must include the certification language specified in WAC 173-303-810(13)(a). The certification must be submitted to the Department of Ecology within seven days after returning the tank system to use. For interim status facilities, all documentation should be incorporated into the facility operating record.

IGNITABLE AND REACTIVE WASTES

I43. Ensure that ignitable or reactive wastes are either:

- o Treated, rendered, or mixed before or immediately after placement in the tank system to no longer be ignitable or reactive. Such practices could include controlled neutralization of reactive wastes during or immediately after placement in the tank. Addition of compatible, non-ignitable wastes to ignitable wastes to raise the flashpoint could also be employed;

  OR

- o Protected from materials or conditions that could cause them to ignite or react. This may include isolating ignitable wastes from sources of heat and ignition, grounding of tanks and ancillary equipment, and the use of non-sparking tanks and liners for containing the ignitable waste. Wastes that are reactive due to sulfide or cyanide content should be isolated from contact with acids, bases, or other solutions that could cause sulfide or cyanide gases to evolve. Efforts to protect the wastes from ignition or reaction must include consideration of ancillary equipment (e.g., is it non-sparking, is it made of or does it contain materials that could cause ignition or reaction), and any other conditions that might cause ignition or reaction (e.g., static electricity, sparks from tools, employee smoking).

I44. Ensure that areas where tanks are used to store ignitable or reactive wastes are annually inspected in the presence of a local, state, or federal fire marshal, or of a professional person who is familiar with the Uniform Fire Code. Information on the results of the inspection must be entered in the inspection log (for accumulating generators or interim status facilities) or the operating record (interim status facilities only). This information must include the following items:

- o Date and time of the inspection;
- o Name of the fire marshal or professional inspector;
- o Notation of the observations made; and
- o Any remedial actions taken as a result of the inspection.

INCOMPATIBLE WASTES

X45. Ensure that the addition of incompatible wastes or incompatible wastes and materials to the same tank system, or the addition of dangerous wastes to a tank which previously held incompatible waste or material and has not been decontaminated, is conducted in a manner that does not result in:

- Generation of extreme heat or pressure, fire or explosion, or violent explosion;
- Production of toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
- Production of uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- Damage to the structural integrity of the tank system or the facility;
- Other potential threats to human health or the environment.

Methods to ensure that the above situations do not occur can include: controlling the rate at which incompatible wastes and/or materials are added to prevent reactions from occurring or to keep potential reactions slow enough to avoid adverse reactions; evacuation of evolving gases or fumes with fans, blowers, filters, or other ventilation devices; use of tank systems that are in vaults or other areas to which people do not have access during addition of incompatible wastes/materials; and, employment of special ancillary equipment (e.g., pressure relief valves, carbon absorption gas vents, cooling or refrigeration equipment) that can control potential adverse reactions.