



STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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Ref. No. Docket PG-060571

CERTIFIED MAIL

March 16, 2007

Jim Hogan
Standards and Compliance Manager
Puget Sound Energy
PO Box 90868, EST-07W
Bellevue, Washington 98009-0868

Dear Mr. Hogan:

Subject: 2006 Standard Inspection of Gig Harbor LNG Peak Shaving

We conducted a natural gas inspection from November 28 to 30, 2006 of Puget Sound Energy's (PSE) Gig Harbor LNG Peak shaving facility. The inspection included a review of the operating and maintenance, emergency plans, records review and inspection of the Gig Harbor facility. Enclosed is our report containing the results of the inspection including one item of concern. No areas of probable violations of state and federal pipeline safety codes identified. One area of concern was identified.

A comprehensive review of the 2006-2007 Gig Harbor LNG Operation and Maintenance (O&M) Procedures and Emergency Operating Plan (EOP) was completed. A major benefit of this inspection was a cross reference index that identifies code requirements to the O&M and EOP procedures. A copy of the index is enclosed that will be used in future inspections and to document revision in the manuals. We appreciate the cooperation of Chuck Dougherty, Sharon Morgan, and Don Hunt for their assistance in compiling the index.

Due to the December 14-15, 2006 wind storm, a review of outstanding questions to complete the cross reference index was not completed. As a result, the cross reference index will be finalized during the 2007 LNG inspection.

Response Requested

Please review the attached report and respond in writing by March 20, 2007 concerning the area of concern.



Puget Sound Energy-Gig Harbor LNG

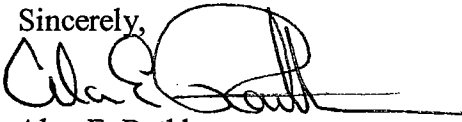
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If you have any questions, or if we may be of any assistance, please contact Al Jones at (360) 664-1321. Please refer to docket numbers PG-060571 in any future correspondence regarding this inspection.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan E. Rathbun", with a long horizontal flourish extending to the right.

Alan E. Rathbun

Pipeline Safety Director

Enclosure: Cross Reference Index
Outstanding Questions List from Procedure Review

The Washington Utilities and Transportation Commission (Commission) has the authority to enforce the minimum safety regulations per Chapter 480-93 of the Washington Administrative Code (WAC) pertaining to the construction, maintenance and operation of pipelines transporting natural gas in the state of Washington. In addition, the Commission adopts the Code of Federal Regulations (CFR) Title 49, Part 191, 192 & .

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
2006 Liquefied Natural Gas Standard Inspection Report
Puget Sound Energy – Gig Harbor LNG Peak Shaving Facility
Docket No. PG-060571

The inspection included a review of the procedures, emergency plan, records, inventory, and field operations and maintenance of the Gig Harbor LNG peak shaving facility. One item of concern was identified.

AREA OF CONCERN

The gas track instrument used at the Gig Harbor LNG facility is not considered a flammable gas detector as specified in NFPA-59A Section 9.7.4. Last year, portable detectors (Bascom-Turner) were available that measured the full range of methane concentration. LNG vapors are not odorized and the sense of smell cannot be relied on to detect the presence methane. The code requires three portable detectors shall be available at all times. Using two for monitoring when required and a third detector for backup. This provides a spare detector in the event of failure of one of the primary detectors and also allows verification if the two primary detectors provide different readings.

Outstanding Questions Review Date: December 15, 2006

Procedure Review

PSE Gig Harbor LNG Peak Shaving Plant

Question #	Code	PSE Procedure	Complete in		WUTC Response
			2006		
7	193.2017(c)	O&M 17.1.2 O&M 17.1.3	No		This procedure needs to specify the 27 months and 2 year criteria. ok
14	193.2803(g)	Vaporization Unit O&M 12.3.7 O&M 12.3.9 O&M 12.3.10 Truck Unloading O&M 13.8.1 O&M 13.8.5 O&M 13.9.6 O&M 13.9.9 O&M 13.12.8 Truck Loading O&M 14.5.1 O&M 14.5.3 O&M 14.8.7	No		This procedure should address monitoring for leaks in the insulated (vacuum) piping from storage tanks to the vaporization unit. ok This procedure should address monitoring for leaks in the insulated (vacuum) piping from storage tanks to the vaporization unit. ok Is the reference to valve, V-42 correct? Should this be valve, V-422? ok ok ok ok ok Note: There are three parts to this requirement. The truck loading and unloading are complete. The procedure need to include monitoring the piping from the storage tanks to the vaporization unit for leaks.
24	193.2017 193.2511(b)	O&M 24.6 EOP Table 2A	Yes		ok n/a. Table 2A, "Plant Normal Staffing Levels" does not address personnel safety issues.
27	193.2017 193.2513(b)(1)	O&M 24.8.1.7 thru O&M 24.9.2.1	No		ok, but does not address purging of lines. ok, but does not address purging of lines. Note: Recommend using O&M 13.8 and 14.5 for truck unloading and loading. O&M 26.1.2 for pre-season startup and definition for "inspect" per Table 24-1 "Maintenance Definitions."

PSE Gig Harbor LNG Peak Shaving Plant

Ques- tion #	Code	PSE Procedure	Complete in		WUTC Response
			2006		
29	193.2017	O&M 4.3.3	No	ok	
	193.2513(b)(3)	O&M 13.9.11		ok	
		O&M 13.11.2.1		ok	Include the "Tank Capacity Chart" in Procedure 13.7.1 or the Appendix.
		O&M 13.11.2.2		ok	
		O&M 14.7.2.1		ok	
					Note: Also, Procedure 13.7.1 needs to be included, because it address the "Tank Capacity Chart" for the thermodynamic expansion (due to warming).
30	193.2017	O&M 11 & 13	No		"Vaporization System" and "Truck Unloading" procedures do not discuss precautions to prevent stratification.
	193.2513(b)(4)				Note: This procedure does not address the possibility of stratification when a vessel is partially filled. Why is stratification not an issue when the storage tanks are top filled? Why is stratification not a concern for horizontal tanks?
32	193.2017	O&M 4.3.3	No		This procedure does not discuss manually terminating the flow before overfilling or overpressuring occurs.
	193.2513(b)(6)				Note: Recommend using O&M 13.9.10 for monitoring transfer for any unusual conditions that require shutdown and O&M 13.12.2 for manual shutdown of liquid flow from the tanker truck.
48	193.2017	O&M 15.1	Yes	ok	This Procedure addresses the plant's intercom system
	193.2519(b)	EOP 2.5		ok.	This Procedure includes the Century-tel land lines and the Nextel handheld units. Also, the Nextel units has cell phone and two-way radios capabilities.
51	193.2017	O&M 17.1.6	Yes	n/a.	This procedure does not address instructions on how to recognize safety-related conditions.
	193.2605(c)	O&M 17.2.1		n/a.	This procedure does not address instructions on how to recognize safety-related conditions.
		O&M 17.2.5.1		ok.	This procedure identifies equipment that should not be used if missing safety devices.
		O&M 17.2.7.1		ok.	This procedure requires a Job Hazard Analysis be performed if a potential health or injury hazard and safety practice exist.
55	193.2017	O&M 24.10.2.8	No		Does "other equipment" includes the auxiliary power supply load capacity test? How is the annual load test performed?
	193.2613	O&M 3.3			This procedure states the power generator is capable of maintaining the operation of the plant, but how is this tested annually?
108	193.2017	Appendix "I"	No		Appendix "I" needs to include a training module for LNG transfer procedure pursuant to 193.2513.
	193.2713(a)(3)(ii)				
132	NFFA-59A	O&M 17.2.7	Yes	ok	

PSE Gig Harbor LNG Peak Shaving Plant

Question #	Code	PSE Procedure	Complete in		WUTC Response
			2006		
	9.2.2	O&M 9.5.4			ok, This is an example when the CVD is disable at the unloading ramp during the LNG unloading procedure.
134	NFPA-59A 9.2.4	EOP II, 2.6.2	Yes		ok Note: Also, include O&M 9.8.2 Manual Activation and Table 9-3 Manual ESD's
140	NFPA-59A 9.3.4	EOP II, 2.5 PSE 2575.1600	No		Not applicable. Not applicable. Note: See O&M 24.1.3 for reference to NFPA-72.
142	NFPA-59A 9.4.2	EOP 3.0 EOP 3.3 EOP 3.3.2.2 EOP 5.5	No		Also, O&M 24.1.3 need reference to NFPA-1221. EOP 3.0 does not include documentation on fire water supply (flow rate) and duration. EOP 3.3 does not include documentation on fire water supply (flow rate) and duration. EOP 3.3 does not include documentation on fire water supply (flow rate) and duration. EOP 5.5 does not include documentation on fire water supply (flow rate) and duration.
145	NFPA-59A 9.5.3	PSE 0100.9010	No		Are vehicles assigned to the LNG plant?
147	NFPA-59A 9.7.2	EOP, III, 6.0 EOP 2.6.8 EOP 3.1 EOP 3.2.1.1 EOP 3.2.2.2 EOP 3.?? EOP 3.3.1 PSE 0150 - 2110 O&M 13.6.5 O&M 18.6.4	No		n/a This procedure does not address equipment to protect workers exposed to fire or smoke. ok, this procedure identifies the type of fire control equipment on site. n/a. EOP II, 3.1 list the types of plant hazards. It does not address equipment to protect workers exposed to fire or smoke. ok, this procedure identifies the dangers worker could be exposed to at the site. n/a. This procedure identifies possible off-site impacts from tanker truck incident. n/a. ESD n/a. Does not identify appropriate protective clothing for LNG facility. ok, identifies personal protective equipment for truck unloading. ok, identifies personal protective equipment for purging and isolation procedures. Note: Recommend using EOP II, 4.7.1 Personal protective gear.
149	NFPA-59A 9.7.4	CVD's Confined Space Entry	No		n/a. Code requires portable flammable gas detectors. n/a. Confined Space Entry located at O&M 19.10.1.2 does not require three portable combustible hydrocarbon detectors. Note: Recommend using EOP II, 4.7.2 appears to meet requirements, but the Gig Harbor facility does not have three portable combustible hydrocarbon detectors on-site.

PSE Gig Harbor LNG Peak Shaving Plant

Ques- tion #	Code	PSE Procedure	Complete in		WUTC Response
			2006		
161	193.2017 193.2907(b)	O&M 8.0.1 O&M 3.3 IR Beam O&M 3.2	No		Could not locate procedure. Facility description with no reference to grates, doors, or doors. Same comment for the above reference. Note: Are the drain pipes to the off-site retention ponds secured with grates? Are drainage ditches or swales that cross the security fence secured with fencing or grates? Are exit gates with panic bars secured from unauthorized entry?
166	193.2017 193.2915	O&M 3.3	No		See question #55 above. How is the plant load of the auxiliary power source verified? Note: This procedure states the power generator is capable of maintaining the operation of the plant, but how is this tested annually?
167	193.2017 193.2917(a)		No		Field Check - Signs are in place on security fence. Note: This requirement is addressed in the O&M 3.2, but the night readable from a distance of 100 foot is not addressed.
168	193.2017 193.2917(b)		No		A procedure was not found for "No Trespassing" sign design and description. Note: "No Trespassing" signs are on the exterior of the security fencing and appear to meet the intent of code.

LNG Code to PSE procedure X-REF table for PSE Gig Harbor LNG

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
		§193.2011 REPORTING PROCEDURES		
1	.2017 191.5 / 191.3	Incident reporting.		
2	.2017	Telephonically reporting incidents to NRC (800) 424-8802. Event that involves a release of gas or liquefied gas from an LNG facility and a death or personal injury requiring hospitalization or property damage (includes cost of lost gas) of \$50,000 or more.	EOP,II, 5.7 EOP,II, 5.7	
3	.2017	Event that involves an emergency shutdown.	EOP,II, 5.7	
4	.2017	Significant event (operator's judgment).	EOP,II, 5.7	
5	.2017	Filing safety-related condition reports.		
6	.2017	Within five (5) working days of determination. Within ten (10) working days of discovery.	PSE O&M 2425.1200.3 PSE O&M 2425.1200.3	
		COMMENTS:		
7	.2017 .2017(c)	§193.2017 Operator must have plans and procedures required for the plant. These plans and procedures must be reviewed and updated:		
7A	.2017(c)(1)	(1) when a component in changed significantly or a new component is installed; and		SEE PROCEDURE REVIEW TABLE for DEC 15
7B	.2017(c)(2)	(2) at intervals not exceeding 27 months, but at least once every 2 calendar years.		SEE PROCEDURE REVIEW TABLE for DEC 15
		COMMENTS:		
		§193.2503 NORMAL OPERATING PROCEDURES		
8	.2017 .2503 .2503(a)	Written operating procedures that cover the topics in (a) through (g) must be provided. Monitoring operating components and buildings for leaks, fires, and malfunctions that could cause a hazardous condition (see '193.2507).	Tables 9.1 & 9.2	
9	.2017 .2503(b)	Startup and shutdown, including initial startup and performance testing to demonstrate that components will operate satisfactorily in service.	PSE 0201-OPI §26.2 & .3, and § 12.4	
10	.2017 .2503(c)	Recognizing abnormal operating conditions.	PSE 0201-OPI §24.6	
11	.2017 .2503(d)	Purging and inerting - procedure must meet the provisions of AGA Purging Principles and Practices after being taken out of service and before being returned to service (see §193.2517).	PSE 0201-OPI §18.9 & .10	
12	.2017 .2503(e)	Maintaining the operation of vaporizers within design limits. (with regard to vaporization rate, temperatures, and pressures).	PSE 0201-OPI §12	

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
13	.2503(f)	Maintaining the operation of liquefaction units within design limits. (with regard to temperatures, pressures, diff. pressures, and flow rates).	N/A	
14	.2503(e)	Cool down of components so thermal stresses are kept within design limits. After stabilization, cryo. piping systems must be checked for leaks. (see '193.2505).		SEE PROCEDURE REVIEW TABLE for DEC 15
		COMMENTS:		
		§193.2509 EMERGENCY PROCEDURES		
15	.2509(a)	The operator must determine the types and locations of non-fire emergencies that may reasonably be expected to occur due to operating malfunctions, structural collapse, personnel error, forces of nature, and activities adjacent to the plant.	EOP, II, §3.1	
16	.2509(b)	Written emergency procedures that cover topics (b)(1) through (b)(4) must be provided.	EOP, II, §5.0	
	.2509(b)(1)	Responding to controllable emergencies including personnel notification and use of appropriate equipment.		
17	.2509(b)(2)	Recognizing and acting on uncontrollable emergencies.	EOP, II, §5.0	
18	.2509(b)(3)	Coordinating evacuation plans with local authorities including catastrophic LNG tank failure.	EOP, II, §4.6.6	
19	.2509(b)(4)	Cooperating with local officials when mutual assistance is required, and keeping them informed of (i) - (iv).		
20	.2509(b)(4)(i)	Types, quantities, and locations of fire control equipment.	EOP, II, §3.1	
21	.2509(b)(4)(ii)	Potential hazards at the plant, including fires.	EOP, II, §2.5	
22	.2509(b)(4)(iii)	Communication and emergency control capabilities at the plant.	EOP, II, §5.0 & EOP, III, §3.1	
		COMMENTS:		
		§193.2511 PERSONNEL SAFETY PROCEDURES		
23	.2511(a)	Appropriate protective clothing and equipment must be provided for personnel who are performing emergency response duties.	EOP, II, §4.7	
24	.2511(b)	Personnel at fixed locations must either be protected from the heat of fires or have a means of escape.	PSE 0201-OP1 §24.6	
25	.2511(c)	First aid materials must be available at a clearly marked location.	EOP, IV, §6.0	
		COMMENTS:		

LNG Code to PSE procedure X-REF table for PSE Gig Harbor LNG

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
		§193-2513 TRANSFER PROCEDURES		
26	.2513(a)	Written procedures for transferring LNG and other hazardous fluids must be provided.	PSE 0201-OP1 §13 & 14	
	.2513(b)	The procedures must include provisions for personnel to perform the tasks in (b)(1) through (b)(7).		
27	.2513(b)(1)	Before transfer, verify that the transfer system is ready for use and that the system has been purged (if necessary).		SEE PROCEDURE REVIEW TABLE for DEC 15
28	.2513(b)(2)	Before transfer, verify that the receiving vessel does not contain an incompatible substance, and that it has enough available capacity to receive the amount of fluid to be transferred.	PSE 0201-OP1 §13.5.8	
29	.2513(b)(3)	Before transfer, verify the maximum filling volume of the receiving vessel to ensure that expansion of the incoming fluid (due to warming) will not result in overfilling or overpressure.		SEE PROCEDURE REVIEW TABLE for DEC 15
30	.2513(b)(4)	When transferring LNG into a partially filled vessel, take whatever steps are necessary to prevent stratification.		SEE PROCEDURE REVIEW TABLE for DEC 15
31	.2513(b)(5)	During transfer, keep an eye on transfer rates, liquid levels, and vapor returns in order to prevent overfilling or overpressuring.	PSE 0201-OP1 §13.9.9	
32	.2513(b)(6)	Manually terminate flow before overfilling or overpressuring occurs.		SEE PROCEDURE REVIEW TABLE for DEC 15
33	.2513(b)(7)	After transfer, deactivate the cargo transfer system in a safe manner (depressuring, venting, disconnecting, etc.).	PSE 0201-OP1 §13.12	
	.2513(c)	Written procedures for cargo transfer must be located at the transfer area, and they must include provisions for personnel to perform the tasks in (c)(1) through (c)(7).		
34	.2513(c)(1)	Be in constant attendance during all cargo transfer operations.	PSE 0201-OP1 §13.5.2	
35	.2513(c)(2)	Whenever a truck is being driven in reverse in the transfer area, ensure that someone is positioned at the back of the truck to aid the driver.	PSE 0201-OP1 §13.5.3	
	.2513(c)(3)	Before transfer, verify (c)(3)(i) through (c)(3)(iv).		
36	.2513(c)(3)(i)	Tank cars and tank trucks comply with applicable regulations.	PSE 0201-OP1 §13.5.7	
37	.2513(c)(3)(ii)	All transfer hoses have been visually inspected for damage and defects.		
38	.2513(c)(3)(iii)	Tank truck is electrically grounded and the wheels are chocked.	PSE 0201-OP1 §13.6.3	
39	.2513(c)(3)(iv)	Tank truck engine is off, unless it is needed for the transfer.	PSE 0201-OP1 §13.5.4	
40	.2513(c)(4)	If the truck engine is off during transfer, it is not to be restarted until the transfer lines are disconnected and any released vapors have dissipated.	PSE 0201-OP1 §13.5.5	
41	.2513(c)(5)	Prevent loading of LNG into a tank car or tank truck that is not in exclusive LNG service, unless specific tests have been performed.	PSE 0201-OP1 §14.2.7	
42	.2513(c)(6)	Verify that all transfer lines have been disconnected and equipment cleared before allowing the tank car or tank truck to move from the transfer position.	PSE 0201-OP1 §13.12.15 & §14.8.15	
43	.2513(c)(7)	Verify that transfers into a pipeline system will not exceed the pressure or temperature limits of the pipeline.	PSE 0201-OP1 §13.9.6	
		COMMENTS:		

LNG Code to PSE procedure X-REF table for PSE Gig Harbor LNG

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
		§193.2605 MAINTENANCE PROCEDURES		
	.2605(a)	The operator must establish a schedule for conducting, consistent with generally accepted engineering practices, the periodic inspections or tests required by Subpart G, and must perform those inspections or tests.		
51	.2605(c)	The maintenance manual must include instructions on how to recognize safety-related conditions that would need to be reported (191.23).	PSE 0201-OP1 §17.2.5.1 & PSE 0201-OP1 §17.2.7.1	
		COMMENTS:		
		§193.2609 SUPPORT SYSTEM PROCEDURES		
52	.2609	Foundations and support systems (e.g., pipe rack supports) must be inspected for changes that could impair their support.	PSE 0201-OP1 §24.13	
		COMMENTS:		
		§193.2611 FIRE PROTECTION PROCEDURES		
53	.2611(a)	The maintenance schedule for fire control equipment must minimize the amount of equipment that is out of service at any one time.	PSE 0201-OP1 §24.2	
54	.2611(b)	Maintain access routes for movement of fire control equipment within the plant to reasonably provide for use in all weather conditions.	PSE 0201-OP1 §22.4	
		COMMENTS:		
		§193.2613 AUXILIARY POWER SOURCE PROCEDURES		
55	.2613	Each auxiliary power source must be tested monthly to check its operational capability and tested annually for capacity. The capacity test must take into account the power needed to start up and simultaneously operate equipment that would have to be served by that power source in an emergency.		SEE PROCEDURE REVIEW TABLE for DEC 15
		COMMENTS:		
		§193.2615 ISOLATING AND PURGING PROCEDURES		

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
56	.2017 2615(a)	Before personnel begin maintenance activities on components handling flammable fluids which are isolated for maintenance, the component must be purged in accordance with a procedure which meets the requirements of AGA "Purging Principles and Practice," unless the maintenance procedures under '193.2605 provide that the activity can be safely performed without purging.	PSE 0201-OP1 §17.2.4	
57	.2017 2615(b)	If the component or maintenance activity provides an ignition source, a technique in addition to isolation valves (such as removing spool pieces or valves and blank flanging the piping, or double block and bleed valving) must be used to ensure that the work area is free of flammable fluids.	PSE 0201-OP1 §17.2.4.1 & §18.8.2	
		COMMENTS:		
58	.2017 .2617(b)	§193.2617 REPAIR PROCEDURES The maintenance procedures must include precautions to be taken when repairing a component while it is operating.	PSE 0201-OP1 §17.2.7.1	
		COMMENTS:		
59	.2017 .2619(a)	§193.2619 CONTROL SYSTEM PROCEDURES Each control system must be properly adjusted to operate within design limits.	PSE 0201-OP1 §17.1.5	
60	.2017 .2619(b)	If a control system is out of service for 30 days or more, it must be inspected and tested for operational capability before returning it to service.	PSE 0201-OP1 §28.8.1.4	
	.2017 .2619(c)	Control systems in service, but not normally in operation, such as relief valves and automatic shutdown devices, and control systems for internal shutoff valves for bottom penetration tanks must be inspected and tested once each calendar year, not exceeding 15 months, with the following exceptions:		
61A	.2017 .2619(c)(1)	(1) Control systems used seasonally, such as for liquefaction or vaporization, must be inspected and tested before use each season.	PSE 0201-OP1 §28.8.1.4 & §24.8.1.7	
61B	.2017 .2619(c)(2)	(2) Control systems that are intended for fire protection must be inspected and tested at regular intervals not to exceed 6 months.	PSE 0201-OP1 §24.8.1.6	
62	.2017 .2619(d)	Control systems that are normally in operation, such as required by a base load system, must be inspected and tested once each calendar year but with intervals not exceeding 15 months.	PSE 0201-OP1 §24.8.1.4, Appendix G	
63	.2017 .2619(e)	Relief valves must be inspected and tested for verification of the valve seat lifting pressure and reseating.	PSE 0201-OP1 §24.9.1, Appendix G	
		COMMENTS:		
		§193.2621 TESTING TRANSFER HOSE PROCEDURES		

LNG Code to PSE procedure X-REF table for PSE Gig Harbor LNG

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
64	.2621(a)	Hoses used for transferring LNG or flammable refrigerant must be tested to the maximum pump pressure or the relief valve setting (whichever is less) once each calendar year, with intervals not to exceed 15 months.	PSE 0201-OP1 §24.14.3.4 & §24.14.2.1.1	
65	.2621(b)	Hoses used for transferring LNG or flammable refrigerant must be inspected for damage or defect before each use. COMMENTS:	PSE 0201-OP1 §24.14.2.2	
		§193.2623 INSPECTING LNG STORAGE TANKS		
	.2623	Storage tanks and their foundations must be inspected or tested to verify that the structural integrity or safety has not been impaired by conditions (a) through (d).		
66	.2623(a)	Foundation and tank movement during normal operation and after each major meteorological or geophysical disturbance.	PSE 0201-OP1 §24.15.1.1.1	
67	.2623(b)	Inner tank leakage.	PSE 0201-OP1 §24.15.1.1.2	
68	.2623(c)	Effectiveness of insulation.	PSE 0201-OP1 §24.15.1.1.3	
69	.2623(d)	Frost heave COMMENTS:	PSE 0201-OP1 §24.15.1.1.4	
		§193.2625 CORROSION PROTECTION PROCEDURES		
70	.2625(a)	Components that might have their integrity or reliability adversely affected by corrosion (internal, external, or atmospheric) must be identified.	PSE 0201-OP1 §24.4.1.3	
71	.2625(b)	Components identified in '193.2625(a) must either be (1) protected from corrosion, or (2) inspected and replaced on a regular basis. COMMENTS:	PSE 0201-OP1 §24.4.3	
		§193.2627 ATMOSPHERIC CORROSION PROCEDURES		
	.2627	Components subject to atmospheric corrosion must either be;		
72	.2627(a)	▪ made of a material that resists such corrosion, or	PSE 0201-OP1 §25.11.2.2	
73	.2627(b)	▪ be protected by a suitable coating or jacketing. COMMENTS:	PSE 0201-OP1 §25.11.3.2	

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
		§193.2629 EXTERNAL CORROSION CONTROL PROCEDURES: BURIED OR SUBMERGED COMPONENTS		
		Buried or submerged components that are subject to external corrosion must be:	NONE	
74	.2629(a)	• made of a material that resists such corrosion, or	N/A	
75	.2629(a)(2)(i)	• protected by an external protective coating that meets 192.461, and	N/A	
76	.2629(a)(2)(ii)	• protected by a cathodic protection system that meets 192.463 (within one year of construction or installation).	N/A	
77	.2629(b)	Where cathodic protection is applied, electrically interconnected components must be protected as a unit.	N/A	
		COMMENTS:		
		§193.2631 INTERNAL CORROSION CONTROL PROCEDURES		
		Components subject to internal corrosion must either be:		
78	.2631(a)	• made of a material that resists such corrosion, OR	PSE 0201-OP1 §25.10.2.3	
79	.2631(b)	• protected by a suitable coating, inhibitor, or other means	N/A See #78 above	
		COMMENTS:		
		§193.2633 INTERFERENCE CURRENT PROCEDURES		
80	.2633(a)	Components subject to electrical current interference must be protected by a continuing program to minimize the detrimental effects of such currents.	PSE 0201-OP1 §25.9.7	
81	.2633(b)	Each cathodic protection system must be designed and installed such that the detrimental effects it might have on adjacent metal components are minimized.	PSE 0201-OP1 §25.8.4	
82	.2633(c)	Each impressed current power source must be installed and maintained in a manner that prevents adverse interference with communication and control systems.	PSE 0201-OP1 §25.8.6	
		COMMENTS:		
		§193.2635 MONITORING CORROSION CONTROL PROCEDURES		
83	.2635(a)	Each buried or submerged component must be tested at least once each calendar year, with intervals not to exceed 15 months.	PSE 0201-OP1 §25.9.5	
84	.2635(b)	Each cathodic protection rectifier or other impressed current power source must be inspected at least 6 times per year, with intervals not to exceed 22 months.	PSE 0201-OP1 §25.9.6	
85	.2635(c)	Each reverse current switch and diode must be checked at least 6 times per year, with intervals not to exceed 22 months.	PSE O&M 2600.1500 §4.3.1	
86	.2017	Each interference bond whose failure would jeopardize component protection must be checked at least 6 times per yr, with intervals not to exceed 22 mo.	PSE O&M 2600.1500 §4.3.1	

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#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
87	.2017	All other interference bonds must be checked at least once each calendar year, with intervals not to exceed 15 months.	PSE O&M 2600.1500 §4.3.1.1	
88	.2017	.2635(d) Each component that is protected from atmospheric corrosion must be inspected at intervals not exceeding 3 years.	PSE 0201-OP1 §25.11.3.3.3	
89	.2017	.2635(e) If corrosion coupons or probes are used to monitor internal corrosion, they must be checked at least twice each calendar year, with intervals not to exceed 72 months. COMMENTS:	PSE 0201-OP1 §25.10.3.2	
90	.2017	.2637 §193.2637 REMEDIAL MEASURE PROCEDURES Prompt remedial action must be taken whenever corrosion control deficiencies are found. COMMENTS:	PSE 0201-OP1 §25.4.3, §25.8.7, §25.9.9 & §25.10.3.4	
91	.2017	.2707(a) §193.2707 OPERATIONS AND MAINTENANCE Operation or maintenance of components must be conducted only by personnel who have demonstrated their capability to perform their assigned functions by-		
91A	.2017	.2707(a)(1) (1) Successful completed training required by §§193.2713 and 193.2717;	PSE 0201-OP1 §17.1.4 Appendix I	
91B	.2017	.2707(a)(2) (2) Experience related to the assigned operation or maintenance function; and,	PSE 0201-OP1 §17.1.4 Appendix I	
91C	.2017	.2707(a)(3) (3) Acceptable performance on a proficiency test relevant to the assigned function.	PSE 0201-OP1 §17.1.4 Appendix I	
92	.2017	.2707(b) Personnel not meeting the requirements of paragraph .2707(a) may operate or maintain a component when accompanied and directed by an individual who meets the requirements.	PSE 0201-OP1 §17.1.4	
93	.2017	.2707(c) Corrosion control including the design, installation, operation, and maintenance of cathodic protection systems, must be carried out by, or under the direction of, a person qualified by experience and training in corrosion control technology. COMMENTS:	PSE 0201-OP1 §25.1	
94	.2017	.02711 §193.2711 PERSONNEL HEALTH Must have a written plan for evaluating the health and physical condition of personnel assigned operations, maintenance, security, or fire protection duties.	EOP, II, 3.3	

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
		COMMENTS:		
95	.2017 .2713(a)(1)	§193.2713 TRAINING PROCEDURES: OPERATIONS AND MAINTENANCE New permanent maintenance, operating, and supervisory personnel must receive initial training in the following subjects. The training must be based on a written plan.	PSE 0201-OP1 §17.1.4 & Appendix I	
96	.2017 .2713(a)(1)(i)	Characteristics and hazards of LNG and other flammable fluids handled at the plant.		
97	.2017 .2713(a)(1)(i)	<ul style="list-style-type: none"> ▪ Low boiling point and storage temperature (-266°F). ▪ Flammable limits of natural gas (5% to 15% in air). 	Appendix I, Training OVP	
98	.2017 .2713(a)(1)(i)	<ul style="list-style-type: none"> ▪ LNG and its vapor are odorless. 	Appendix I, Training OVP	
99	.2017 .2713(a)(1)(i)	<ul style="list-style-type: none"> ▪ LNG boils even more rapidly when spilled onto water or sprayed with water. 	Appendix I, Training OVP	
100	.2017 .2713(a)(1)(ii)	Potential hazards involved in operations and maintenance.	Appendix I, Training OVP	
101	.2017 .2713(a)(1)(iii)	How to carry out operations and maintenance procedures that relate to their assigned functions.	Appendix I, Training OMP	
102	.2017 .2713(a)(2)	All new personnel must receive initial training in the following subjects: How to carry out the emergency procedures that relate to their assigned functions (see 193.2509).	PSE 0201-OP1 §17.1.4	
103	.2017 .2713(a)(2)(ii)	How to administer first aid.	EOP, II, 4.6.2	
104	.2017 .2713(a)(3)	All operating personnel and appropriate supervisory personnel must receive initial training in the following subjects. The training must be based on a written plan. Detailed instructions on facility operations, including:	EOP, II, 4.6.2 PSE 0201-OP1 §17.1.4 & Appendix I	
105	.2017 .2713(a)(3)(i)	<ul style="list-style-type: none"> ▪ Controls 	PSE 0201-OP1 §17.1.4 & Appendix I	
106	.2017 .2713(a)(3)(i)	<ul style="list-style-type: none"> ▪ Functions 	PSE 0201-OP1 §17.1.4 & Appendix I	
107	.2017 .2713(a)(3)(i)	<ul style="list-style-type: none"> ▪ Operating Procedures 	PSE 0201-OP1 §17.1.4 & Appendix I	
108	.2017 .2713(a)(3)(ii)	LNG transfer procedures (see §193.2513).		SEE PROCEDURE REVIEW TABLE for DEC 15
109	.2017 .2713(b)	At intervals not to exceed two years, all personnel must receive refresher training in the subjects in which they received initial training. Refresher training must be based on a written plan.	Appendix I, Page 4 of 7, §1.1, §2.1, & §2.2	
		COMMENTS:		

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#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
110	.2017 .2715(a)	§193.2715 TRAINING; SECURITY Personnel responsible for security at an LNG plant must receive initial training in the following subjects. The training must be based on a written plan.	PSE 0201-OPI, Appendix I, Page 3, SEC	
111	.2017 .2715(a)(1)	How to recognize breaches of security.		
112	.2017 .2715(a)(2)	How to carry out security procedures that relate to their assigned duties (see§193.2903).		
113	.2017 .2715(a)(3)	Whatever plant operations and emergency procedures they need to know to effectively perform their assigned duties.		
114	.2017 .2715(a)(4)	How to recognize conditions that call for security assistance.		
115	.2017 .2715(b)	At intervals not to exceed two years, all personnel must receive refresher training in the subjects in which they received initial training. Refresher training must be based on a written plan.	PSE 0201-OPI, Appendix I, Page 4, §2.1 & §2.2	
		COMMENTS:		
		§193.2717 TRAINING; FIRE PROTECTION PROCEDURES		
	.2017 .2717(a)	All operations and maintenance personnel, and their immediate supervisors, must be trained according to a written plan of initial instruction, including plant fire drills, to:		
116	.2017 .2717(a)(1)	▪ Know the potential causes and areas of fires;	PSE 0201-OPI, Appendix I, Page 5, EOP	
117	.2017 .2717(a)(2)	▪ Know the types, sizes, and predictable consequences of fire; and	PSE 0201-OPI, Appendix I, Page 5, EOP	
118	.2017 .2717(a)(3)	▪ Know and be able to perform their assigned fire control duties according to the procedures established under §193.2509 and by proper use of equipment provided under §193.2801.	PSE 0201-OPI, Appendix I, Page 5, EOP	
119	.2017 .2717(b)	At intervals not to exceed two years, all operations and maintenance personnel, and their immediate supervisors, must receive refresher fire protection training. This training must include fire drills and must be based on a written plan.	PSE 0201-OPI, Appendix I, Page 4, §2.1 & §2.2	
120	.2017 .2717(c)	Plant fire drills must provide personnel hands-on experience in carrying out their duties under the fire emergency procedures required by §193.2509.	EOP, II, 4.6.4	
		COMMENTS:		
		§193.2801 FIRE PROTECTION Note: For plants existing on March 31, 2000, operators have until September 12, 2005 to bring the LNG facility's ESD system, water delivery systems, detection systems, and personnel qualification and training into compliance with NFPA-59A.		
121	.2017 NFPA-59A 9.1.2	The operator must conduct a fire protection evaluation.		

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
122	.2017 NFPA-59A 9.1.2	(1) The type, quantity, and location of equipment necessary for the detection and control of fires, leaks, and spills of LNG, flammable refrigerants, or flammable gases.	PSE 0201-OP1 §9	
123	.2017 NFPA-59A 9.1.2	(2) The type, quantity, and location of equipment necessary for the detection and control of potential electrical fires and fires not involving LNG processes.		
124	.2017 NFPA-59A 9.1.2	(3) The methods necessary for protection of the equipment and structures from the effects of fire exposure.	EOP, II, 3.3.2.2	
125	.2017 NFPA-59A 9.1.2	(4) Fire protection water systems.	EOP, II, 3.3.2.2	
126	.2017 NFPA-59A 9.1.2	(5) Fire extinguishing and other fire control equipment.	EOP, II, 3.3.2.3	
127	.2017 NFPA-59A 9.1.2	(6) The equipment and processes to be incorporated within the ESD system, including analysis of subsystems, if any, and the need for depressurizing specific vessels or equipment.	EOP, II, 3.3.1 PSE 0201-OP1 §9.8.1	
128	.2017 NFPA-59A 9.1.2	(7) The type and location of sensors necessary to initiate automatic operation of the ESD system or its subsystems.	PSE 0201-OP1 §9.8.3 Table 9-4	
129	.2017 NFPA-59A 9.1.2	(8) The availability and duties of individual plant personnel and what response personnel from outside the plant are available during an emergency.	EOP, II, 5.3	
130	.2017 NFPA-59A 9.1.2	(9) The protective equipment, special training, and qualification needed by individual plant personnel for his or her respective emergency duties.	EOP, II, 4.7.1	
131	.2017 NFPA-59A 9.2.1	LNG Facility shall incorporate an ESD system(s) that when operated isolates or shuts off sources of LNG and all other flammable liquids or gases, and shuts down equipment that adds or sustains an emergency if continued to operate.	EOP, II, 3.3.1	
132	.2017 NFPA-59A 9.2.2	Equipment, that when shutdown, introduces an additional hazard or result in substantial mechanical damage to equipment, may be omitted from the ESD system as long as the effects of the continued release of flammable or combustible fluids are controlled.	PSE 0201-OP1 §9.5.4 & PSE 0201-OP1 §17.2.7	
133A	.2017 NFPA-59A 9.2.3	The ESD system(s) shall be of a failsafe design or shall be installed, located, or protected from becoming inoperative during an emergency or failure at the normal control system. ESD systems that are not of a failsafe design, all components that are located within 50 ft (15 m) of the equipment it controls shall be:		
133B		(1) Installed or located where they cannot be exposed to a fire, or	EOP, II, 3.3.1	
134	.2017 NFPA-59A 9.2.4	(2) Protected against failure due to a fire exposure for at least 10 minutes.	EOP, II, 3.3.1	
135	.2017 NFPA-59A 9.2.5	Operating instructions identifying the location and operation of emergency controls must be posted conspicuously in the facility area.	EOP, II, 2.6.2	
136	.2017 NFPA-59A 9.3.1	Initiation of the ESD system(s) shall be manual, automatic, or both manual and automatic. Manual actuators shall be located in an area accessible in an emergency, and at least 50 ft (15 m) from the equipment they serve, and shall be distinctly marked with their designated function.	EOP, II, 2.6.2	
		Areas, including enclosed buildings, that have a potential for flammable gas concentration, LNG, or flammable refrigerant spills and fire must be monitored for the presence of gas or spilled liquid.	PSE 0201-OP1 Table 9-1	

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#	CFR 193	REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
137	.2017	NFPA-59A 9.3.2	Flammable gas detectors must activate visual and audible alarms at the plant site and at an attended location if the facility is not constantly attended.	EOP, II, 2.3	
138	.2017	NFPA-59A 9.3.2	The low-temperature sensors or flammable gas detection system shall sound an alarm at a constantly attended location. Flammable gas detection system must be set no higher than 25% of the LFL of the gas being monitored.	PSE 0201-OP1 §24.4.1.5	
139	.2017	NFPA-59A 9.3.3	Fire detectors must sound an alarm at the plant site and at an attended location if the facility is not constantly attended. If so determined IAW 9.1.2 fire detectors shall activate portions of the ESD system.	PSE 0201-OP1 §9.5.3	
140	.2017	NFPA-59A 9.3.4	Any changes to the detection systems as the result of the NFPA-59A 9.1.2 survey shall be designed, installed, and maintained IAW NFPA-72 or NFPA-1221.		SEE PROCEDURE REVIEW TABLE for DEC 15
141	.2017	NFPA-59A 9.4.1	A fire water supply and delivery system must be provided, unless the fire protection evaluation (9-1.2) indicates that fire water is unnecessary or impractical.		
142	.2017	NFPA-59A 9.4.2	The fire water supply and distribution systems shall provide for the simultaneous supply of fixed fire protection systems, at their design flow and pressure, plus 1000 gpm (63 L/sec) for not less than 2 hours.		SEE PROCEDURE REVIEW TABLE for DEC 15
143	.2017	NFPA-59A 9.5.1	Portable or wheeled fire extinguishers, recommended for gas fires, available at strategic locations.		
144	.2017	NFPA-59A 9.5.2	If automotive and trailer-mounted fire apparatus is provided at the plant it shall not be used for any other purpose.		
145	.2017	NFPA-59A 9.5.3	All automotive vehicles assigned to the plant shall have a minimum of one portable dry chemical extinguisher with a capacity of at least 18 lb (8.2 kg).		SEE PROCEDURE REVIEW TABLE for DEC 15
146	.2017	NFPA-59A 9.7.1	Protective clothing shall be available and readily accessible at the facility to provide protection against exposure to LNG (including cryogenic gloves, safety glasses, face shields, and coveralls or long-sleeve shirts).		
147	.2017	NFPA-59A 9.7.2	Each facility worker who might be endangered by exposure to fire or smoke while performing fire control duties must be supplied with appropriate protective clothing and equipment (including SCBA, if necessary).		SEE PROCEDURE REVIEW TABLE for DEC 15
148	.2017	NFPA-59A 9.7.3	Operator shall have written practices and procedures to protect employees from the hazards if required to enter a confined or hazardous space.	PSE 0201-OP1 §19.10.1.2 Table 9.1	
149	.2017	NFPA-59A 9.7.4	At least three portable flammable gas detectors must be readily available for use.		SEE PROCEDURE REVIEW TABLE for DEC 15
150	.2017	NFPA-59A 9.9.1	Procedures to manually depressurize portions of the plant, as necessary for safety. Isolate portions of the plant from storage tanks or other LNG sources by venting LNG to the atmosphere in case of an emergency. (The direction of discharge shall minimize exposure to personnel or equipment.)	PSE 0201-OP1 §18.8.2	
151	.2017	NFPA-59A 9.9.2	Detailed procedures for taking an LNG container out of service. This action shall not be regarded as a normal operation and not attempted on a routine basis.	PSE 0201-OP1 §18.9	

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
		COMMENTS:		
		\$193.2903 SECURITY PROCEDURES		
152	.2017 .2903	Written security procedures must be available at the plant. The procedures must discuss topics (a) through (g).	Appendix K	
153	.2017 .2903(a)	Description and schedule of security inspections and patrols.	Appendix K §6.2	
154	.2017 .2903(b)	A list of security personnel positions or responsibilities.	Appendix K §5.0	
155	.2017 .2903(c)	Brief description of the security duties of security personnel.	Appendix K §5.2	
156	.2017 .2903(d)	Description of actions to be taken when there is an indication of an actual or attempted breach of security.	Appendix K §7.2 & 8.1	
157	.2017 .2903(e)	Method(s) for determining which persons are allowed access to the LNG plant.	Appendix K §9.2.2	
158	.2017 .2903(f)	Positive identification of all persons who enter the plant or are in the plant area, using a method at least as effective as picture badges.	Appendix K §9.2.2.1	
159	.2017 .2903(g)	Liaison with local law enforcement officials to keep them informed about current security procedures.	Appendix K §9.2.5 EOP, II, 4.9	
		COMMENTS:		
		\$193.2907 PROTECTIVE ENCLOSURE CONSTRUCTION PROCEDURES		
160	.2017 .2907(a)	Each protective enclosure must have a combination of strength and configuration that is sufficient to obstruct unauthorized access to the enclosed facilities.	PSE 0201-OP1 §3.2	
161	.2017 .2907(b)	Openings in or under the enclosure must be secured by grates, doors, or covers that provide at least the same level of protection as the enclosure.		SEE PROCEDURE REVIEW TABLE for DEC 15
		COMMENTS:		
		\$193.2909 SECURITY COMMUNICATIONS PROCEDURES		
162	.2017 .2909(a)	There must be a means for prompt communications between personnel with supervisory security duties and law enforcement personnel.	Appendix K §5.2.13 EOP, II, 5.3	
163	.2017 .2909(b)	There must be a means for communications between all on-duty personnel who have security duties and all control rooms/control stations.	EOP, II, 2.5	
		COMMENTS:		

#	CFR 193 REF	QUESTIONS GROUPED BY SECTIONS	PSE Reference*	COMMENTS
164	.2017 .2911	§193.2911 SECURITY LIGHTING PROCEDURES If security warning systems are not provided for security monitoring, security lighting must be provided for protective enclosures and the areas they enclose (minimum of 2.2 lux from sunset to sunrise). COMMENTS:	PSE 0201-OP1 §3.2	(N/A?)
165A	.2017 .2913 .2913	§193.2913 SECURITY MONITORING PROCEDURES If 250,000 bbls or more of storage capacity: • each protective enclosure and the area around each facility listed in §193.2905(a) must be monitored for the presence of unauthorized persons.	Less than 250,000bbls N/A	
165B	.2017 .2913 .2913	• monitoring must be by visual observation in accordance with the schedule in the security procedures under §193.2903(a) or by security warning systems that continuously transmit data to an If less than 250,000 bbls of storage capacity:	N/A Less than 250,000bbls	
165C	.2017 .2913	• only the protective enclosures need to be monitored. COMMENTS:	Appendix K §3.5	
166	.2017 .2915	§193.2915 ALTERNATIVE POWER SOURCE PROCEDURES An alternative source of power that meets '193.2445 must be provided for security lighting and for security monitoring and warning systems. COMMENTS:		SEE PROCEDURE REVIEW TABLE for DEC 15
167	.2017 .2917(a)	§193.2917 WARNING SIGN PROCEDURES Warning signs, readable at night from a distance of 100 ft, must be placed conspicuously along each protective enclosure.		SEE PROCEDURE REVIEW TABLE for DEC 15
168	.2017 .2917(b)	The signs must be marked with the words (NO TRESPASSING), or words of comparable meaning, on a background of sharply contrasting color. COMMENTS: Procedure does not address placement or sign visibility.		SEE PROCEDURE REVIEW TABLE for DEC 15

