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	STANDARD: **API 537 / EPA 40 CFR Part 60 / OSHA 1910.119**	AUDIT FREQUENCY: **Quarterly Operational Audit**

Flare Stack Operational Safety Audit Safety Audit Checklist

Operational Scope: This audit protocol establishes systematic verification parameters for upstream and downstream flare stack systems to mitigate catastrophic ignition and thermal radiation hazards. Compliance with this checklist ensures adherence to environmental emissions standards and operational safety integrity.

MANDATORY PPE:	Flame-Resistant Clothing (FRC NFPA 2112), Hard Hat with Chin Strap (ANSI Z89.1), Safety Glasses with Side Shields (ANSI Z87.1), Steel-Toe Composite Safety Boots (ASTM F2413), Gas Monitor (Multi-Gas H2S/LEL/O2/CO)
PREREQUISITES:	Verify atmospheric gas levels via pre-entry monitoring before ascending or approaching the flare zone. | Review current weather and wind conditions to ensure safe dispersion parameters. | Notify control room operators and issue necessary Hot Work / Confined Space permits if applicable.

IGNITION & PILOT SYSTEM INTEGRITY

#	COMPONENT / ITEM	VERIFICATION CRITERIA & ACCEPTANCE STANDARD	SEVERITY	STATUS
1	**Pilot Burner Assemblies**	Confirm continuous flame monitoring sensors (thermocouples/optical detectors) are actively transmitting to the control room without signal degradation.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
2	**High-Energy Electronic / Gas Ignition System**	Test backup ignition panels for spark generation response, fuel gas supply pressure, and automatic sequencing functionality.	**Warning**	[ ] PASS [ ] FAIL [ ] N/A
3	**Pilot Fuel Gas Supply Line**	Inspect pressure regulators, flame arrestors, and manual isolation valves for signs of corrosion, leakage, or pressure drops.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A

STRUCTURAL & MECHANICAL SAFETY

#	COMPONENT / ITEM	VERIFICATION CRITERIA & ACCEPTANCE STANDARD	SEVERITY	STATUS
4	**Flare Stack Derrick / Guy Wires**	Inspect structural tower members for warping, thermal stress cracking, and verify guy wire tensioning meets structural engineering specifications.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
5	**Stack Tip Assembly**	Examine the flare tip for metal degradation, distortion, and carbon buildup using remote optical inspection or post-shutdown physical checks.	**Warning**	[ ] PASS [ ] FAIL [ ] N/A
6	**Liquid Seal Drum / Knock-Out Drum**	Verify liquid level instrumentation, high-level alarms, and internal siphon drain functionality to prevent liquid carryover into the flare stack.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A

PURGE GAS & ENVIRONMENTAL CONTROLS

#	COMPONENT / ITEM	VERIFICATION CRITERIA & ACCEPTANCE STANDARD	SEVERITY	STATUS
7	**Purge Gas Flow Monitoring**	Confirm continuous positive pressure and volumetric flow rate of natural gas or nitrogen purge to prevent air ingress and flashback hazards.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
8	**Steam / Air Assist Systems**	Inspect assist manifolds, control valves, and nozzles for smoke suppression efficiency and pneumatic response time.	**Standard**	[ ] PASS [ ] FAIL [ ] N/A
9	**Emergency Shutdown (ESD) Interlocks**	Perform functional trip test on emergency isolation valves to verify fail-safe closure during overpressure scenarios.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A

Certified Operations Auditor / Safety Engineer Signature: _____	**Date / Time:** _____	**Badge / Cert #:** _____
Facility Operations Manager / HSE Director Sign-off: _____	**Review Date:** _____	**Audit Status:** [ ] Approved [ ] Rectify

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