

Lyons Sara

From: James Dortch <[REDACTED]>
Sent: Thursday, January 20, 2022 3:09 PM
To: Lyons Sara
Subject: RE: Flare Stack SOP

[CAUTION] This email originated from outside of the organization. Do not click any links or open attachments unless you recognize the sender and know the content is safe.

Sara,

You have our permission to use the form the way it is. If you need to remove the proprietary markings, you have our permission for that as well. Thank you for asking and for your time. Have a wonderful week and I hope you are staying warm.

From: Lyons Sara [mailto:[REDACTED]]
Sent: Thursday, January 20, 2022 1:36 PM
To: [REDACTED]
Subject: FW: Flare Stack SOP

Jimmy,

I need to include the attached flare stack SOP in our public docket for the Farmersville, TX investigation. Can you provide me with a version that does not include the proprietary markings or provide an email indicating your permission for me to remove them?

Please feel free to give me a call if you'd like to discuss. The NTSB is authorized to disclose certain proprietary information per 49 CFR 831.6. If needed, I can loop our attorney in to help answer any questions.


Thanks,
-Sara

Sara Lyons, P.E.
Pipeline Investigator / Investigator-in-Charge
Office of Railroad, Pipeline and Hazardous Materials Investigations
National Transportation Safety Board
[REDACTED]

From: Dwayne Means <[REDACTED]>
Sent: Monday, July 5, 2021 3:25 PM
To: Lyons Sara <[REDACTED]>
Subject: Fwd: Flare Stack SOP

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Sent from my iPhone

Title:	FESCO, LTD Flare Stack Operations	
Document:	Standard Operating Procedure Manual	
Location:	Corporate Office	

10.0 Flare Stack Operation

Safe Work Practice:

- **All flowlines (hard pipe) will be secured by one or more of the following:**
 - a. **Stakes and clamps.**
 - b. **Flowline restraint system.**
 - c. **Chains and binders.**
 - d. **Concrete blocks.**
 - e. **Anchors.**
- **Any piece of equipment that is not completely isolated and/or removed from a source of pressure and/or fluids will be treated as part of the equipment being actively used. All active equipment will be inspected periodically (minimum of once per hour) for fluid and/or pressure leaks or any other abnormalities.**


Always check all inventories before leaving shop.

10.1 Rig Up

Flare stacks will completely dry out and over heat the area below them. Be very cautious about the fire hazard this will present. Choose the flare stack's location carefully.

A. 2" Flare Stacks

1. Spot the stack base well down wind or cross wind from wellhead.
2. Assemble stack sections and leave lying on the ground.
3. Attach the two guy wires and one strong-back cable while on the ground.
 - a. Avoid kinking or snagging the cables.
 - b. Enlist a helper to keep cables separated.
4. Turn the winch handle to raise the flare stack.
5. Snug up the guy cables.
6. Connect the black extension cord to the truck trailer electrical connector.
 - a. The truck and running lights have to be on for correct operation.
 - b. This provides 12-volt power to the flare igniter.
7. Attach the red wire to the igniter tip and the black wire to the mixer tube.
 - a. Turn the switch on and the propane valve on.
 - b. Depress the red button several times until the pilot is lit. Repeat the lighting procedure to insure the igniter system is working.
8. Turn the switch and the propane valve off until needed for the job.

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9. Build the flare line from the separator, manifold or switching valves to the flare stack.

B. 4” and 6” Flare Stacks

1. Spot the flare stack well down wind or cross wind.
2. Extend the outrigger legs and deploy the jacks so the pads are firm on the ground.
3. Assemble the flare sections starting at the base and working toward the tip. Use the provided stands for assembling the sections.
4. Attach the strong-back support cable and tighten using the turnbuckle.
5. Attach the four guy cables just below the flare tip section. Avoid kinking the cables.
6. Remove the dolly with the battery and electrical cable.
7. Unwind black and red wire coil.
8. The black wire is the ground, attach to the back of the pump.
9. The red wire is the power leg, attach to the solenoid.
10. Unwind the yellow and black wire coil. Uncoil all the wire. Do not leave any coils hanging on the dolly.
11. Attach the yellow wire to the igniter rod.
12. Attach the black wire to the mixer pipe for the ground.
13. Check the connections for the $\frac{5}{16}$ ” Stainless steel tubing.
14. Position the 25-gallon propane tank.

CAUTION: Remove the locking nut from the base of the flare stack before attempting to raise the stack. Failure to do so will result in damage to the pivot brackets.

15. Check the hydraulic tank for an adequate fluid level.
16. Turn on the power switch and lift the stack to the vertical position. Do not stop until the stack is vertical. The stack can be damaged by sudden starts and stops.
17. Enlist two men to keep the guy cables from kinking or getting snagged.
18. Secure the guy cables to the flare stack base and take slack out of cables.
19. Remove the dolly for the 25-gallon propane tank and install stainless steel pipe and flex hose.
20. Turn igniter switch and the propane valve on.
21. Push the Red button to ignite the pilot flare.
22. Turn off the propane valve and repeat the lighting procedure to ensure the igniter system is working.
23. On systems equipped with an automatic igniter, check the automatic igniter system by turning off the propane valve to the lit pilot and turning it back on after the flame goes out. Wait and confirm (approximately two seconds) that the automatic

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timer activates the igniter and relights the pilot. It might take more than one cycle for the automatic igniter to relight the pilot, but no more than two or three cycles (four to six seconds). The timers are adjustable and usually pre-set for 2 seconds.

24. Turn the switch and the propane valve off until needed for the job.
25. Build the flow line from the separator outlet, manifold or switching manifold to the flare stack, secure all unions.

10.2 Rig Down


CAUTION: Always allow enough time for the flare stack to cool.

A. 2" Flare Stacks

1. Turn the switch and propane valve off.
2. Remove and store/load the propane tank and all piping.
3. Remove the flow line to the flare stack.
4. Remove the guy cables from the base.
5. Carefully lower the flare stack to the horizontal position.
6. Start removing the flare stack sections, starting at the flare tip.
7. Stack all the sections on the racks. Check all inventories.
8. Perform a walk around before leaving the area.

B. 4" and 6" Flare Stacks

1. Turn the switch and propane valve off.
2. Remove the flow line to the flare stack.
3. Remove the guy cables from the base.
4. Set out the stand to cradle the stack in the horizontal position.
5. Carefully lower the stack slowly and evenly, without jerking the stack.
6. Turn the switch off to the electric pump.
7. Remove and coil the red and black wires and place them on the dolly.
8. Remove and coil the yellow and black wires and place them on the dolly.
9. Remove the flex hose and stainless steel pipe and place them next to the propane tank.
10. Remove and store/load the propane tank and all flex hose and piping.
11. Insert the locking nut to the flare stack base.
12. Remove the guy cables and the strong-back cable from the flare stack.
13. Remove the flange bolts securing the sections, starting at the flare tip.
14. Place all four sections of the flare stack on the rack. Secure all sections.
15. Place the flange bolts, 1 1/4" wrenches and gaskets in the ammo box.
16. Load the flare stack on the trailer or float. Check all inventories.
17. Perform a walk around before leaving the area.

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10.3 Behavioral Job Safety Analysis

BEHAVIORAL JOB SAFETY ANALYSIS

Work Activity: Flare Stacks

<u>Sequence of Job Steps to be Performed</u>	<u>Potential Hazards</u>	<u>Steps to Eliminate/Reduce Hazard; Utilize BBSP Checklist</u>
Rig up.	Equipment damage. Bodily injury. Fire hazard.	Choose location carefully; note wind conditions. Follow procedure. Wear PPE.
Lighting flare stack.	Bodily injury. Fire hazard.	Wear PPE. Follow procedure. Use pilot, do not light main flare manually.
Testing with flare stack.	Fire hazard.	Monitor ground conditions for excessive heat. Monitor wind conditions. Do not allow well fluids to go up flare stack.
Rig down	Equipment damage. Bodily injury	Allow time for cooling. Follow procedure. Wear PPE.

Document No: SOP-10.0-Flare Stack Operations

Written By: David Marsh

Approved by: Richard Brand

Revision No.: 2

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