Hot Work

Standard

1. PURPOSE

The purpose of this Standard is to provide minimum requirements detailing how to safeguard personnel, the environment, and property during hot work activities.

2. SCOPE

This Standard is applicable to employees employed by Expand Energy (EXE), its affiliates or subsidiaries who perform hot work activities on Expand properties or on the company's behalf.

Contractors **shall** have their own Standard that meets or exceeds regulatory requirements.

3. DEFINITIONS

Combustible Material – Non-hydrocarbon materials that can contribute to risk of incidental fires during hot work activities, such as dry vegetation, wood, paper/cardboard/plastic packaging materials, refuse, etc. A combustible liquid is a liquid with a flash point ≥100°F.

Designated Hot Work Area – An area free of combustible and flammable materials designated to perform hot work activities. Area cannot include a hazardous (classified) location and must be:

- More than 75 feet from aboveground hydrocarbon or flammable material - containing equipment
- More than 35 feet from vehicles transporting hydrocarbons or produced water (e.g., vacuum trucks)
- More than 35 feet from combustible materials

Fire Watch – An individual assigned the responsibility of monitoring hot work and the surrounding area for incipient fires and changing conditions.

Flammable Material – Materials that produce ignitable vapors at relatively low temperatures, such as light hydrocarbons, produced fluids (gas, gas liquids, oils, water, etc.), or process lubricants, fuels or chemicals that will readily ignite. Typically, "flammables" are a greater fire hazard than "combustibles". A flammable liquid is a liquid with a flash point <100°F.

Hot Work – Using equipment or tools that can create sufficient heat, arc, spark, or open flame capable of igniting flammables and/or combustibles. Hot work activities are separated into Open Flame Hot Work and Non-Open Flame Hot Work.

Hydrocarbon-Containing or Flammable-Containing Equipment – Process vessels, well heads, piping, piping components, process equipment, storage tanks, etc. that normally contain either produced fluids (gas, gas liquids, oils, water, etc.) or process lubricants, fuels or chemicals that will readily ignite.

Hazardous Location – An area in which an airborne flammable vapor gas may be present and would represent a hazard if a source of ignition were present (see NFPA 70).

- Class I Division 1 areas are likely to contain ignitable concentrations of flammable gases, vapors or liquids in normal operating conditions. (5 ft)
- Class I Division 2 areas are only likely to contain ignitable concentrations of flammable gases, vapors or liquids in abnormal conditions (e.g., equipment malfunction, maintenance activities, etc.) (10 ft)

Open Flame Hot Work – Fire or spark producing activities such as welding, cutting, grinding, open flame, etc.

Non-Open Flame Hot Work – Work that does not involve fire or spark producing activities, but can involve energy capable of triggering ignition in a flammable atmosphere, such as work on electrical circuits, use of electrical tools, motorized equipment, internal combustion engines (excluding brush motors). This also includes non-intrinsically safe electronic devices such as mobile phones, tablets, cameras, calibration equipment.

Shall – Denotes a minimum requirement to conform to the Standard. To aid the reader, "**shall**" requirements are identified in bold. Any deviation from a minimum requirement must be approved via the Standard Exception Form.

Should – Denotes a recommendation, or that which is advised, but not required to conform to the Standard.

4. ROLES & RESPONSIBILITY

SUPERVISOR

- Overall responsibility for execution of Hot Work and compliance with this Standard in their area of responsibility.
- Appoint personnel to perform key Hot Work roles.
- Ensure permit conditions, JSAs, controls, gas testing results, etc. are properly documented.

PERMIT ISSUER

- Determine if the work to be performed requires a Hot Work Permit.
- Ensure the area is safe to conduct Hot Work and prepare the Hot Work Permit.
- Designate a Fire Watch for open flame hot work activities.
- Explain responsibilities to individuals involved in conducting hot work.
- Stop hot work activities if conditions become unsafe and correct unsafe conditions before continuing.
- Remain on site for the duration of the hot work and close the permit.
- Deliver cancelled/closed hot work permits to HSER for retention.
- Permit Issuer may also serve as the Atmospheric Tester.

ATMOSPHERIC TESTER

- Knowledgeable and proficient in the use of the gas monitoring device(s).
- Monitor for the presence of flammable gases, toxic materials, and oxygen as indicated on the Hot Work Permit.
- Permit Issuer may also serve as the Atmospheric Tester.

FIRE WATCH

- Maintain contact and line of sight with those performing hot work.
- Ensure sparks and slag are contained.
- Stop work activities if conditions change or become hazardous.
- Ensure job-specific emergency notification and response procedures are available.
- Remain at the Hot Work Area for at least 30 minutes after hot work has stopped.

WORKERS

- Understand the potential fire and explosion hazards in the work area.
- Maintain communication with Fire Watch.
- Stop work activities if conditions change or become hazardous.
- Be familiar with job-specific emergency notification and response procedures.

HSER

- Provide and facilitate training for EXE personnel related to hot work responsibilities.
- Serve as a technical resource as needed to support the implementation of this Standard.

5. REQUIREMENTS

5.1 GENERAL REQUIREMENTS

Open Flame hot work requires a Hot Work Permit when work is performed within any of the following:

- 75 feet of above ground hydrocarbon-containing or flammable-containing equipment
- 35 feet of vehicles transporting hydrocarbons or produced water
- 35 feet of combustible materials
- Any Hazardous Location (see definition; e.g. electrical area classifications)

Non-Open Flame hot work does not require a Hot Work Permit if the following are met:

- A JSA is completed and utilized
- A personal 4-gas monitor is worn to continuously monitor the area for LEL both before and during the work

Designated Hot Work Areas allow hot work to be performed without a permit or fire watch.

5.2 Preparing for Hot Work

When preparing for hot work, the following precautions **shall** be considered:

- Ensure equipment to be worked on is properly isolated, depressurized, and verified to be free of hydrocarbons after cleaning, purging, or flushing as applicable.
- Ensure potential fuel sources and combustibles have been identified, isolated and/or removed from the area.
- Potential sources of releases and leak points (e.g., valves, flanges, vents, drains) near the work site have been identified.
- Use of flame-retardant barriers/guards around the worksite (to contain sparks, slag, etc.) has been considered.
- Ensure combustibles on opposite side of walls, floors, etc. are addressed (e.g., consider placing a fire watch on level below the work).
- Ensure adequate ventilation is available at the work site.
- Required Fire Watch has been identified.

5.3 Atmospheric Testing

Conduct initial and continuously monitor oxygen (O_2) content and flammable gas concentration (LEL) for all Hot Work Permits and non-open flame hot work. This may be accomplished with a 4-gas personal monitor.

Monitoring results must be and remain < 10% of the LEL. If results are ≥10% of the LEL, all hot work activities must stop immediately until the hazard has been mitigated.

The monitor **shall** be calibrated per the manufacturer's recommendations.

5.4 Portable Fire Extinguishers

The Permit Issuer **shall** specify on the hot work permit the number, size, and type of fire extinguisher(s) required to properly protect workers performing hot work. At a minimum a 20 lb. extinguisher will be required.

5.5 Hot Work Permit

The Permit Issuer initiates the permit, noting all applicable conditions for executing the work safely.

A Hot Work Permit is valid for no more than 12 hours or one work shift.

After the permit is cancelled/closed it **shall** be delivered to the local field office. HSE will maintain Hot Work permits for three years.

6. TRAINING

Permit Issuer **shall** complete the Hot Work Permit Issuer Performance Evaluation form administered by the Supervisor or HSER.

Employees **shall** be trained in their assigned duties associated with Hot Work. Training **shall** be documented and available for review.

7. AUDIT REQUIREMENTS

Audits **shall** be periodically conducted by HSER to confirm compliance with this Standard.

8. STANDARD EXCEPTIONS

Requirements outlined in this Standard **shall** be followed, unless a Standard Exception is filed on behalf of, and with the approval of the Operations Manager. The Company's Standard Exception Form is to be utilized to properly document any exceptions.

9. REFERENCES

- HSER-SAF-EXE-FRM-037 - Hot Work Permit
- HSER-SAF-EXE-FRM-062 - Hot Work Permit Issuer Performance Evaluation
- 29 CFR 1910.252 Welding, Cutting and Brazing

10. DOCUMENT CONTROL TABLE

Title: HOT WORK STANDARD			**Document Number:** HSER-SAF-EXE-STD-016	
Next Review Date: 3/24/28				
Originating Department: HSER				
Version History				
Version	**Issue Date**	**Description**	**Author(s)**	**Approved By**
1.0	3/24/25	Creating new EXE Hot Work Standard in new format.	Katie Rhoads	OGB

11. APPENDICES

Appendix A – Expand Hot Work Permit

Appendix B – Hot Work Permit Issuer Performance Evaluation

APPENDIX A

HOT WORK PERMIT FORM

Document Number: HSER-SAF-EXE-FRM-037
Version Number: 1.0
Effective Date: 03/24/25
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Date:	Start Time: ☐AM ☐PM	End Time: ☐AM ☐PM	Permit Completed? ☐YES ☐NO

WORK DETAILS

Business Unit:	Location:

Description of Work:

Type of Hot Work: ☐ Open Flame ☐ Non-Open Flame

REQUIREMENTS

Answer all questions by checking the appropriate box. IF "NO" CONDITION MUST BE CORRECTED BEFORE PERMIT ISSUED.	Yes	No	NA
1. Have alternative methods that are not hot work been evaluated for use?			
2. Are personnel wearing all required PPE?			
3. Have work practices for this task been reviewed with the workers? (Roster below.)			
4. Have all personnel in the affected area been notified? (Company, and/or outside personnel)			
5. Have impacted operations been notified? (On-site and/or off-site)			
6. Are personnel performing Covered Tasks on DOT jurisdictional pipelines OQ Qualified?			
7. Have LOTO procedures been implemented as required?			
8. Have flammable liquids and vapors within 75 feet been isolated or rendered non-explosive (for open flame hot work)?			
9. Is equipment isolated from the hot work area as necessary? (i.e., fireproof tarps, water fog, etc.)			
10. Have combustible materials within 35 feet been protected or isolated (for open flame hot work)?			
11. Is Fire Watch present and understands their duties? (Fire Watch to remain at site 30 minutes after hot work is completed).			
12. Name of Fire Watch:			
13. Is fire protection equipment properly located on-site?			
14. Type, Size and Number of fire extinguishers to be on-site:			
15. Is gas monitoring equipment being utilized?			
16. Have all hazards been mitigated? (Include Simultaneous Operations)			

HAZARDS (check all that apply)

☐ Excavation	☐ Stored Pressure/Energy	☐ Hazardous Chemicals	☐ Electricity
☐ Confined Space	☐ Adjacent Operations	☐ Heavy Loads	☐ Elevated Working Surface
☐ Noise	☐ Heavy Equipment	☐ Weather	☐ Overhead Hazards
☐ Safety Systems Bypassed	☐ Fall Hazard	☐ _____	☐ _____

Additional hazards and/or special precautions:

PRE-JOB BRIEFING ROSTER (continue on back as needed)

1.	2.	3.	4.
5.	6.	7.	8.

All atmospheric monitoring shall be *continuous*. ATMOSPHERIC MONITORING

Active monitor Serial #:	Are initial atmospheric conditions safe? (Record below, record at least hourly, continue on back as needed.)

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HOT WORK PERMIT FORM

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Initials	Time	O2 (19.5 – 23.5%)	LEL (<10%)	H2S (<10ppm)	Other

MONITORING RESULTS MUST BE AND REMAIN WITHIN ACCEPTABLE ATMOSPHERIC LIMITS DURING HOT WORK ACTIVITY OR WORK SHALL STOP IMMEDIATELY.
Permit is valid for 12 hours maximum, one work shift or until the completion of the job, whichever is shortest.

Permit Issuer (sign): _____ Fire Watch (sign): _____

Permit Received by (print): _____ (sign): _____

THE PERMIT RECEIVER SHALL COMMUNICATE PERMIT REQUIREMENTS TO ALL THEIR PERSONNEL.

All closed/canceled permits **shall** be sent to the field HSER representative and **shall** be retained on file for at least three years.

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HOT WORK PERMIT ISSUER PERFORMANCE EVALUATION FORM

Document Number: HSER-SAF-EXE-FRM-062
Version Number: 1.0
Effective Date: 03/24/25
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Trainee		Employee #	
Division or BU		Location	

Performance Objectives	Trainee(s) will demonstrate /simulate the ability to safely complete the Hot Work Permit process using appropriate materials and all appliable procedures. After completing all requirements with 100% accuracy, trainee(s) will be authorized to issue Hot Work Permits.
Instructions for Evaluator	1. Remind the trainee(s) they are allowed to use the Hot Work Permit Standard as a reference document. 2. Brief the trainee(s) on the content and expectations surrounding this Form and the Evaluation. 3. Explain that coaching or prompting the trainee(s) during the evaluation is not allowed. 4. Explain that questions may be asked by the trainee(s) during the evaluation only to clarify/verify understanding of expectations. 5. Ask the trainee(s) if they have any questions before starting the evaluation. 6. Place a mark in the box indicating PASS or FAIL for each step. 7. Provide comments in the Comment Section if applicable. 8. Provide immediate one-on-one feedback after the evaluation is complete. 9. For disapproved evaluations the trainee(s) is allowed to repeat, but must wait a minimum of 24 hours. 10. Be sure to sign the Pass/Fail section! 11. Obtain the trainee(s)' signature and their supervisor's signature in the Approval Section. 12. Forward a copy of "approved" evaluation results to the HSER Training Department for entry in the Training Database. 13. File all approved and disapproved evaluations in the local HSER file directory.

Evaluator's Comments	

Approval or Disapproval	☐ The trainee has met all requirements and is now authorized to issue Hot Work Permits. ☐ The trainee has not met all requirements and requires additional training.				
Evaluator (Print)		Evaluator (Signature)		Date	
Supervisor (Print)		Supervisor (Signature)		Date	

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HOT WORK PERMIT ISSUER PERFORMANCE EVALUATION FORM

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PROCESS	STEPS	PASS	FAIL
Hot Work Area Preparation	1. Trainee confirmed that energy isolation procedures (if applicable) have been implemented, verified the isolation points noted on the EIP have been LOTO'd.		
	2. Trainee identified and removed all flammable/combustible materials (that were able to be moved) from the hot work area. Where it is not possible to remove flammable/combustible materials, were the following precautions considered: • Relocating the hot work • Using fire-resistant covers / tarps / flame shields • Wetting combustible materials • Shutting in process equipment • Requiring additional fire watch / portable extinguishers Note: Where cutting or welding is done near walls, partitions, ceiling, roof, etc. of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition. Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceiling, roof, etc. shall not be undertaken if the work is close enough to cause ignition by conduction.		
	3. All drains and sumps that could contain hydrocarbons/flammables were isolated.		

		PASS	FAIL
Work Site Review	4. Provided a clear description of sketch of the equipment, work area, and work to be performed on the permit.		
	5. Notified other personnel in the area that hot work operations are to be conducted.		
	6. Verified all equipment used in hot work operations is in proper working order and grounded, before beginning work.		

		PASS	FAIL
Atmospheric Testing	7. Trainee properly operated the multi-gas direct reading instrument (monitor and pump) being used in the area.		
	8. Trainee performed and recorded the following atmospheric tests in the following order: • Oxygen content (19.5 to 23.5%) • Flammable gas concentration (LEL) (<10%) • H2S concentration (<10 ppm) • Any potentially toxic materials in the work area.		
	9. Designated an individual to continuously monitor the atmosphere during hot work operations and document readings on the permit.		

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		PASS	FAIL
Fire Watch	10. Assigned the appropriate number of Fire Watches to monitor for accidental fires during welding, cutting, grinding, and/or other open flame hot work activities, and ensured the Fire Watch remained posted after the hot work operations were completed.		
	11. Identified the number, size, and type of fire extinguishers required for the scenario of the permit.		

		PASS	FAIL
Emergency Preparedness	12. Established emergency communication plan and assembly points during the pre-job safety meeting and JSA review.		

		PASS	FAIL
Posting the Hot Work Permit	13. Posted the permit in the immediate vicinity of the actual work site while hot work operations were in progress.		

		PASS	FAIL
Basic Understanding Verification	14. How long are issued hot work permits valid? • A Hot Work Permit is valid for no more than 12 hours or one work shift.		
	15. List some scenarios that could result in the cancellation of a hot work permit. • An actuation of an ESD system • Sounding of a fire / gas alarm • Detection of any other non-permit, unsafe condition at the work site.		
	16. What steps are required in the LEL increases to 10%, or the Oxygen content moves outside the acceptable range, or a toxic gas concentration reaches the PEL during Hot Work operations? • Stop the work on location • Cancel the hot work permit. • Investigate the source of the unacceptable gas reading, and take appropriate action(s). • Start the Hot Work Permit process anew to issue another Hot Work Permit and finish the job.		

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