Table of Contents

1. Purpose
2. Roles and Responsibilities
3. Definitions
4. Procedure
5. Flowcharts
6. Documentation
7. Remediation
8. Other Manual References
9. Appendices
10. Forms
11. Exhibits
12. Change Log

1. Purpose

The purpose of this procedure is to ensure a safe work environment when performing hot work. The procedure is also designed to ensure that fires and explosions are not caused by open flames, cutting torches, welding, or other spark producing equipment.

Scope

This procedure applies to all Buckeye Employees and Buckeye's contractors while on Buckeye Partners, L.P. owned, leased, or rented properties.

2. Roles and Responsibilities

See Section 4.

3. Definitions

Hazardous Area	Diked area within 50 feet of areas listed below facilities (100 feet at LPG facilities) which could contain hazardous vapors if pipeline components failed and/or areas where flammable liquids, mists, vapors, or gases are or may be present in enough vapor concentration to produce an ignitable mixture or could pose a threat to a person's health by exposure.

	Examples: • Tank Dikes • Tank Vents • Sump Tanks • Sample Buildings • Oil/Water Separators • A spill area and its flammable zone • Truck Loading/Unloading Racks (Note: During Maintenance Activities Only) • Marine Docks Loading/Unloading Manifolds • Rail Loading/Unloading Manifolds
Buckeye Certified Permit Issuer	Either a Buckeye employee or Inspector fully trained and certified to issue a Buckeye safe work permit.
Intrinsically Safe Devices	A technique that is adopted to make operations (especially electrical operations) safe. After applying this technique, the equipment is called intrinsically safe equipment.
Combustible Material	A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn.
Fabrication Area	A specific location designed and approved for hot work operations that is maintained fire-safe, such as a maintenance shop or a detached outside location, that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. **NOTE:** Hazardous Areas are never Fabrication Areas.
Fire Watch	An individual assigned the responsibility of monitoring hot work and the surrounding area for incipient fires and changing conditions.
LEL (Lower Explosive Limit)	The lowest concentration (by percentage) of a gas or vapor in air that can produce a flash of fire in presence of an ignition source (arc, flame, heat). **NOTE:** Concentrations lower than the Lower Explosive Limit are 'too lean' to burn; those above the Upper Explosive Limit (UEL) are too rich to burn.
Flammable Gas	A term used for brevity in this procedure to include all combustible and flammable gases and vapors that burn in air when the concentration of the gas or vapor is within the range of concentration where combustion can occur.

Hot Work	Hot Work is any work that involves burning, welding, cutting, brazing, soldering, grinding, using fire- or spark-producing tools, or other work that produces a source of ignition.
High Energy Hot Work	Work with equipment and tools that, when used in a normal manner, are likely to ignite a flammable or combustible atmosphere, solid materials, and liquids. High Energy Hot Work is usually present in the form of a flame, electric arc, or incandescent sparks and is considered to be defined to the OSHA definition of Hot Work. Examples: • Arc welding • Sandblasting • Grinding • Thermite Brazing (e.g. thermite welding, cadwelding, welding test leads) • Applying hot coatings (e.g. shrink sleeves, tapecoat 20) • Using holiday detectors for checking coating integrity • Using torches to remove casing from line pipe • Using torches to solder test lead wires • Installing vent pipes to a casing • Other spark causing tools or equipment
Low Energy Hot Work	Any work with equipment and tools that, when used in a normal manner or due to errors or malfunctions, may create lower-energy sparks and ignite a flammable or combustible atmosphere. Low Energy Hot Work is also referred to as “spark potential” hot work. Examples • Using electrical and electronic equipment that is not certified or intrinsically safe or explosion-proof (Examples: mobile phones, cameras, etc..) • Using internal combustion engines (including vehicles) in a Hazardous Area • Mobile plant equipment • Any other tools or equipment that if it fails may create lower-energy sparks

	NOTE: Pneumatic tools are considered a safer alternative to other power tools, but consideration must be given to heat generated at the point of operation.

4. Procedure

4.1 High Energy Hot Work Procedural Protocol

The following conditions shall be verified before High Energy Hot Work is performed in Hazardous Areas:

4.1.1 A Fire Watch shall be assigned.

4.1.2 Affected excavations, conduits, and manholes within 35 feet of the hot work shall either be monitored for the presence of flammable gas or shielded so that an ignition source is not introduced.

4.1.3 Initial and continuous air monitoring shall be performed, and initial air monitoring results as well as hourly results shall be documented within Section 7: Air Monitoring on Buckeye's Safe Work Permit. Furthermore, Section 3 for High Energy Hot Work on the Buckeye Safe Work Permit shall be completed and filled out prior to High Energy Hot Work on the permit.

4.1.4 If hot work is suspended and the worksite is left unattended, repeat air monitoring shall be conducted as part of revalidating the permit for recommencing High Energy Hot Work in a Hazardous Area (greater than one hour and document on permit).

4.2 Low Energy Hot Work Procedural Protocol

Vehicles, mobile plant equipment, and other non-intrinsically safe equipment present potential ignition sources. Consequently, Low Energy Hot Work in Hazardous Areas (such as a tank dike) requires a Hot Work Permit to be issued and air monitoring performed. The following actions shall be taken:

4.2.1 Initial air monitoring shall be performed prior to conducting Low Energy Hot Work in Hazardous Areas and shall be documented within Section 7: Air Monitoring on the Buckeye Safe Work Permit. Furthermore, the Low Energy Checklist within Section 3 shall be completed prior to work.

4.2.2 Before a vehicle or equipment that is not intrinsically safe is allowed to enter a Hazardous Area, air monitoring shall be conducted in the area along the planned path of the vehicle or equipment to its destination.

4.2.3 Only when flammability readings are 0% LEL can the vehicle or equipment proceed into the Hazardous Area.

4.2.4 Continuous air monitoring is required while performing Low Energy Hot Work while in Hazardous Areas.

4.2.5 Fire Extinguishers should be in the line of sight and near the location of work in case of emergency.

4.2.6 If hot work is suspended and the worksite is left unattended, repeat air monitoring shall be conducted as part of revalidating the permit for recommencing Low Energy Hot Work in a Hazardous Area (Note: Greater than 1 hour and document on permit)

4.2.7 Performing Low Energy Hot Work for multiple Hazardous Areas (e.g. lawn mowing multiple tank dikes at a facility, corrosion surveys) can be performed using a single Hot Work Permit as long as the following requirements are adhered to:

1) The full scope of the hot work to be performed is defined on the permit (e.g. lawn mowing tank dike).
2) Initial air monitoring is performed for all the Hazardous Areas prior to entry and the results documented on the Hot Work Permit. The results of the air monitoring from each Hazardous Area shall be recorded on the Hot Work Permit. Prior to going to another Tank Dike ensure to communicate with the Buckeye Certified Permit Issuer to ensure there is no changing conditions from the SIM-OPS (Example: tank receiving product etc.)
3) Snow plowing in hazardous areas will require initial air monitoring and assessment before entering. Follow Safety Manual Section D-7 - Snow Plowing and Snow Removal. In this case only contractor can take initial monitor reading if Buckeye employee is not on site.

NOTE: Continuous air monitoring is required while conducting work in Hazardous Areas

4.3 Fire Watch Requirements & Expectations

Contractors and Buckeyes Fire Watch's shall have fire watch training and meet the requirements of OSHA 1910.252(a)(2)(iii)(B):

4.3.1 The trained fire watch will assist in JSA and Buckeye Safe Work Permit Hot Work Section, as well as review prior to activities.

4.3.2 During hot work a trained individual or individuals shall be designated as a fire watch (s). These persons shall be competent in the use of the fire extinguishing equipment present.

4.3.3 The fire watch (s) should be equipped with a minimum of two 20-pound dry chemical extinguishers and these extinguishers should be readily available to respond in case of an emergency.

4.3.4 Fire extinguishers. Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may be (Examples: Hose, Portable Extinguishers, etc.) depending upon the nature and quantity of the combustible material exposed.

4.3.5 The fire watch shall have the appropriate firefighting equipment for all hazards associated with the type of hot work being conducted.

4.3.6 The fire watch will remain in the hot work area for at least 30 minutes after completion of the hot work, unless the Buckeye Certified Permit Issuer surveys the exposed area and makes a determination that there is no further fire hazard 1915.504(c)(2)(v).

4.3.7 Relocation of combustibles. Where practicable, all combustibles shall be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles shall be protected with flameproofed covers or otherwise shielded with metal or proper guards or curtains.

4.3.8 The fire watch shall continuously monitor LEL levels within the affected area with a properly calibrated and bumped tested air monitor per OSHA and the manufactures requirements as well as be trained on that specific air monitor being utilized.

NOTE: If welding is occurring on the pipeline within an excavation the Fire Watch shall be above grade to be able to respond accordingly from their location without putting themselves in an area where they could be at risk. Therefore, additional air monitoring will need to be conducted and shall be continuous within the excavation as well during the Hot Work.

4.3.9 Fire watch shall have proper method of informing individuals in the work area in the event of a fire by utilizing a proper communication method and shall be familiar with facilities for sounding an alarm in the event of a fire.

4.3.10 Fire watch shall stop all work activities if leaving the area or if assigned other duties or cannot conduct fire watch duties per this procedure.

4.3.11 Fire watch is designated to only one work site or activity and must have a clear view of and immediate access to all areas included in the fire watch per OSHA regulation 1915.504(c)(2)(ii). Furthermore, the Fire Watch must be able to communicate with workers exposed to hot work. If they cannot meet these expectations multiple Fire Watch's shall be assigned.

4.3.12 All fire watches shall be physically capable of performing these duties.

4.3.13 If hot work is occurring in elevated areas, fire watch shall ensure work area is cordoned off and warning signs are posted on sublevels. The fire watch shall consider the need for barriers on subflooring levels when working over head with (fire blankets, metal plates, etc.) to prevent spark, slag, or hot metal from falling to lower subfloor level(s). This evaluation should be done prior to the Hot Work being initiated and should be done in conjunction with the PICs of the jobsite to ensure all fire hazards are addressed.

NOTE: Based on work activities on sublevel flooring, multiple individuals may be needed to fire watch as determined in the JSA.

4.4 Fabrication Areas

Verbal approval must be given by the Regional HSS Specialist for any areas deemed Fabrication Areas. Prior to daily work within these Fabrication Areas the Low Energy checklist upon the Buckeye Safe Work Permit will need to be filled out, and the procedure must be followed as referenced in Section 4.2. The PIC of the work must report immediately to the Project Manager and Regional HSS Specialist if conditions change, and all work must be stopped if for some reason the area is no longer free of combustible and/or flammable contents. If conditions change, please adhere to Section 4.1 High Energy Hot Work of this procedure.

NOTE: The verbal approval of these areas is only good for the duration of a project/job task.

5. Flowcharts

Not applicable.

6. Documentation

See Section 4.

7. Remediation

Not applicable.

8. Other Manual References

Manual/Source	Reference
OSHA	1915.504(c)(2)(ii)
OSHA	1910.252
OSHA	1917.152
OSHA	1926.352
NFPA	NFPA 51B
ANSI	Z49.1

9. Appendices

Not applicable.

10. Forms

Not applicable.

11. Exhibits

Not applicable.

12. Change Log

For an overview of the manual revision process, please refer to 1.01 – Introduction to Using and Revising Manuals.

For a log of all revisions to this manual, please refer to 1.04 – Log of Revisions.

Rev #	Date	Prepared by (Name/Title)	Reviewed by (Name/Title)	Approved by (Name/Title)	Summary of Change(s)
8	10/8/21	Michael Detweiler			New template applied.
9	4/6/22			MOC 354	Moved procedure from 195 O&M F-06 and D-02 of the Contractor Safety Manual