SAFE JOB PROCEDURE **SJP-45**

October 2024 **MUD PLUG INSTALLATION**

PURPOSE/APPLICATION

The purpose of this procedure is to address the required steps and process of installation of product, as well as the management and control of potentially harmful substances that workers may be exposed to while performing hot work activities where the installation of mud plugs will be required. This is a guideline that will not supersede manufacturer mixing instructions but will ensure all necessary precautions are taken to perform the work activity safely.

PPE

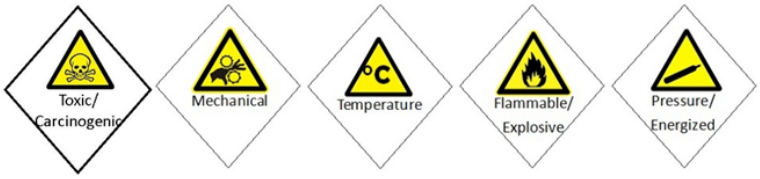
- Strike Minimum Requirements
- SCBA/SABA, as required
- Nitrile Gloves/welding gauntlet gloves

TRAINING

- Strike and Task/Site Specific Requirements
- WHIMS
- Fit Test

HAZARDS

- Occupational Illness
- Compressed Gases
- Concurrent Operations
- Welding Fumes
- Sparks, Fire, Explosion



PRIOR ACTIVITIES

- Ensure all excavations are completed in accordance with Strike COP 07 Ground Disturbance and SWPs (e.g., ground disturbance permits and checklists, and line locate reports, daylight, etc.)
- Inspect all tools and equipment prior to use
- Obtain all required safe work permits and/or agreements
- Ensure safe data sheet (SDS) is available for products being used

THE FOLLOWING STEPS WILL BE TAKEN WHILE INSTALLING MUD PLUGS:

#	Job Steps	Hazards	Control Measures
1.	Enter excavation under air to check the atmosphere with a monitor ❖ Use pump monitor to assess the pipe for harmful gas ❖ If a harmful gas has been detected, continue use of SCBA or SABA as required	❖ Inadequate access/egress into excavation ❖ Unsafe excavation ❖ Uneven ground conditions ❖ Monitor not calibrated/bumped ❖ No fit test ❖ Air hose laying in a pathway ❖ Hazardous atmosphere	• Ensure the monitor has been bumped and calibration is not overdue • Do not don respirator if you are not fit tested or don't have the proper sized mask • Inspect excavation prior to entry • Ensure proper access/egress (stairs or ladders) are located within 8m (25 feet) of the work area • Watch footing when travelling across ditch bottom. Check for wet or slippery spots • Clear all tripping hazards from top of excavation and access/egress points

#	Job Steps	Hazards	Control Measures
2.	File ends of piping to remove sharp edges	❖ Sharp edges	• Use cut-resistant gloves or welding gauntlets
3.	Clean piping of all fluids and debris to ensure proper mud plug seal	❖ Slippery areas ❖ Contact with chemicals ❖ Spills	• Ensure containment is placed underneath pipe to catch all fluids and debris • Wear disposable nitrile gloves
4.	Determine length of mud plug to be used	❖ Procedure not followed ❖ Inadequate length of mud plug	• Ensure mud plug is a minimum of 1.5 times the diameter of the pipe
5.	Install a ring of mud around inside of piping as far back as possible, and then complete mudding by installing mud balls in a pyramid fashion to completely seal off inside of pipe	❖ Muscle strain ❖ Incorrect installation	• Ensure mud balls are at least three-four inches in diameter depending on size of pipe being plugged
6.	Vent behind mud plugs where applicable – **Supervisor to confirm with operations during walk down that all areas have been adequately vented**	❖ Size of vent not adequate	• Ensure vent is minimum or 2" in diameter
7.	Refresh mud plugs as needed	❖ Dried out mud	• Keep direct heat off of mudded area of pipe where possible to prevent drying out
8.	Document LEL check prior to and in between welding or flame cutting	❖ Release of trapped harmful gases/hydrocarbons	• Use sniffer hose on pump monitor • Do not put head directly into open piping
9.	Remove mud plugs if possible after welding	❖ Harmful gases present	• If mud plugs are required to be removed, ensure workers don SCBA or SABA again until atmosphere inside pipe has been deemed safe

PRECAUTIONS:

- ❖ Ensure mud plug has created a seal around the entire inside of the pipe.
- ❖ Inspect mud plug periodically to ensure it has not dried out.
- ❖ Continuous pump monitors must be kept nearby and downwind of mud plug to ensure there is no hazardous atmosphere present.

- In scenarios where the end of the of the pipe remains open during hot work, no workers are to stand in front of the pipe where the mud plug is located.
- If continuous monitoring shows readings that suggest the mud plug may not be holding, stop work and notify operations to isolate and re-assess.
- Winter plugs should be made with water/glycol mix – plugs will not freeze piping.

WARNING: DO NOT USE MUD PLUGS AS A METHOD TO ISOLATE PIPE AND/OR PIPELINES OR TO RETAIN FREE LIQUIDS.

APPENDIX A: MUD PLUG THICKNESS CHART

Pipe (NPS) Diameter	Minimum Mud Plug Thickness
2”	3”
4”	6”
6”	9”
8”	12”
10”	15”
12”	18”
16”	24”
20”	30”
24”	36”

PLUG SIZE EXAMPLE

The industry rule of thumb for length of a completed mud plug is 1½ pipe diameters. (12” pipe = 18” mud plug)

REFERENCES / ADDITIONAL INFORMATION

Strike COP 02 Respiratory Protection Equipment
Strike COP 04 Noise Control and Hearing Conservation
Strike SWP-36 Monitoring for the Release of Hydro Carbons
Strike SJP-25 Tie In To Existing Piping System
Strike SJP-29 Tie-in Welding

Alberta OHS Code

Part 4 Chemical Hazards, Biological Hazards and Harmful Substances
Part 10 Fire and Explosion Hazards
Part 15 Managing the Control of Hazardous Energy

British Columbia OHS Regulations

Part 5: Chemical Agents and Biological Agents

Saskatchewan OHS Regulations

Part 25 Fire and Explosion Hazards

Manitoba OHS Regulations

Part 19 Fire and Explosive Hazards

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