

**OXYGEN/ACETYLENE
WELDING/CUTTING
(UNDERGROUND)**

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JOB STEPS		POTENTIAL HAZARDS		SAFE JOB PROCEDURES
Safety precautions				Before any work begins, obtain a Hot Work Permit as outlined in the Hot Work Permit Procedure. Always use eye protection with proper shaded lens (#5 or #6). Wear snug fitting clothing that will not burn or melt readily and welding gloves. Do not wear oil or grease soaked clothing.
1.	Inspect work area	1.	Ignition Slip/trip	1. Clean area of stumbling objects. Inspect and clean area of combustible or flammable material (oil, fuel, paper, etc.). If necessary, wash the area down where welding/cutting will be performed. Remove batteries from area where work is being performed. Ensure entire area within 10' of the worksite is well rock dusted. Take methane tests to ensure there are no methane feeders present by checking against the floor, roof and ribs rather than just measuring 12 inches away from them. On the longwall, an extendable probe must be used to check for methane in and underneath the panline.
2.	Prepare material	2.	Falling objects Overexertion/strain	2. Get assistance if material is too heavy. Position material to minimize the risk of being hit by falling objects and to prevent sparks/slag from striking personnel or equipment below. Mark material to be cut. Brace material if needed. Place brattice or welding curtain to serve as a blind and to deflect sparks from hitting the ribs. Obtain torch tip cleaner.
3.	Equipment check	3.	Explosion Flying objects Overexertion/strain	3. Ensure all items required by the Hot Work Permit are present and functional. Make a visual examination of equipment. Check torch, flash back check valves mounted on the regulators at the hose connection, regulators and tanks for defects or damage. Check all hoses, fittings and adjustment valves. Ensure hoses and connections are free of oil and grease. Make certain all connections are tight. Ensure regulators are not damaged and that all components are present. Clean or replace tip if necessary. Ensure tanks are located at least 10' from work site and secured in an upright position. Back out regulator screws before opening tank valves.

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4.	Cutting	4 Burn Explosion Falling objects Fire Slip/trip	4. Check area for methane before starting and continuously thereafter while cutting or welding. Methane levels must be less than 0.5% before welding/cutting begins. If the methane concentration meets or exceeds 0.5%, the Shift Coordinator must be contacted. The Shift Coordinator may authorize welding/cutting in concentrations between 0.5% to 0.9%. No welding/cutting is allowed when methane concentrations meet or exceed 1.0%. Use proper striker to ignite torch. Always turn acetylene on first when igniting torch. Acetylene valve should be opened 1/4 turn and oxygen valve should be opened all the way. Adjust regulator screws according to the attached schedule. Adjust torch for proper flame characteristics. Keep body parts clear of hot, falling materials. Do not hold material being cut. Regularly check area for hot spots or fires. If conditions change at any time, welding/cutting shall cease until the area has been re-evaluated to ensure conditions are safe for welding/cutting. Replace O ₂ bottle when gauge indicates only 25-30 psi remaining.
5.	Cleanup	5. Burn Explosion Fire Slip/trip	5. If leaving the area, mark cut material as "HOT" to warn co-workers. When finished, always turn Oxygen off first, followed by the Acetylene. Shut off tank valves. Bleed down pressure in the hoses. Back off regulator screws, remove regulators, replace tank caps. Coil and store hoses in proper locations. Secure tanks upright in designated storage area. Clean work area. Make a diligent search for hot spots or fires. Recheck the area for hot spots between 20 and 60 minutes after completing the hot work.

- ALWAYS WEAR PERSONAL SAFETY EQUIPMENT. ADDITIONAL SAFETY EQUIPMENT SHOULD BE WORN IF THE TASK REQUIRES IT.
- MALFUNCTIONS AFFECTING SAFETY MUST BE REPAIRED PRIOR TO OPERATION OF EQUIPMENT.
- ACETYLENE BOTTLES STORED OR TRANSPORTED IN A HORIZONTAL POSITION MUST BE PLACED IN A VERTICAL POSITION FOR A MINIMUM
- OF 30 MINUTES BEFORE USE.
- THIS EQUIPMENT UTILIZES HAZARDOUS CHEMICALS, KNOW HOW TO ACCESS MSDS'S IF NEEDED.

NOTE: WHEN WORKING ON THE LONGWALL, ALWAYS CHECK INSIDE OF PANLINE AND UNDER PANLINE FOR METHANE WITH AN EXTENDABLE PROBE. USE AN AIR LINE OR ADDITIONAL VENTILATION TO CLEAR IF NEEDED. IN CERTAIN CASES, THE PANLINE MAY NEED TO BE RAISED AND BLOCKED IN POSITION TO CLEAR THE METHANE.

SUGGESTED TIP SIZES AND SETTINGS

METAL THICKNESS	TIP SIZE	OXYGEN (PSIG)	ACETYLENE (PSIG)
1/8"	000	20/25	3/5
1/4"	00	20/25	3/5
3/8"	0	25/30	3/5
1/2"	0	30/35	3/5
3/4"	1	30/35	3/5
1"	2	35/40	3/6
1 1/2"	2	40/45	3/7
2"	3	40/45	4/9
2 1/2"	3	45/50	4/10
3"	4	40/50	5/10
4"	5	45/55	5/12
5"	5	50/55	5/13
6"	6	45/55	7/13
8"	6	45/55	7/14
10"	7	45/55	10/15
12"	8	45/55	10/15