

# Job Hazard Analysis

(Always Wear Proper PPE)

<b>Project:</b>	<b>Superintendent:</b>
<b>Task: Landfill Gas Collection Pipe Installation</b>	<b>Date:</b>

Step	Potential Hazards	Safe Procedures/ Crew Responsibilities
<b>Preparation</b>		<ul style="list-style-type: none"> <li>Designate a Competent Person or persons</li> <li>Review P3 (Preparation Planning Procedures) and Hazard Analysis with crew</li> <li>Complete and review STA's daily</li> <li>Assess location and conditions</li> </ul>
<b>Proper Layout</b>		<ul style="list-style-type: none"> <li>Review plans and specs; discuss with owners representative</li> </ul>
<b>Locate and mark any existing utilities, including existing gas piping networks if any</b>	Damage to existing utility lines or existing gas system	<ul style="list-style-type: none"> <li>Notify Dig Safe and all non-member utilities prior to start</li> <li>Follow 18" rule for locating utilities: Use hand tools to dig within 18" of the marked line until the utility is exposed.</li> </ul>
<b>Excavate trench for gas piping and backfill</b>	Exposure to explosive and/or poisonous gases	<ul style="list-style-type: none"> <li>Continuous monitoring with 4-gas meter(s) while excavating</li> <li>Also monitor with PID if exposure to volatile organics is likely</li> </ul>
	Cave-in of trench or test pit	<ul style="list-style-type: none"> <li>Use proper sloping or shoring while locating utilities and placing gas piping</li> <li>Do not enter a trench &gt; 5' until it is properly sloped or shored</li> </ul>
	Rocks and other objects falling into trench or test pit	<ul style="list-style-type: none"> <li>Spoil pile must be at least 2' from edge of excavation</li> <li>Good housekeeping next to trenches</li> </ul>

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<b>Excavate trench for gas piping and backfill continued</b>	Person falling or tripping into trench or test pit	<ul style="list-style-type: none"> <li>• Excavator operator maintains smooth conditions in walking / working areas next to trench</li> <li>• Keep non-essential personnel away from the hole</li> </ul>
	Person hit or crushed by equipment or trucks	<ul style="list-style-type: none"> <li>• Ensure back up &amp; travel alarms are working and loud enough</li> <li>• All employees wear high-visibility vests at all times</li> <li>• Maintain eye contact with operators and drivers</li> <li>• Give machines and trucks the right of way</li> </ul>
	Hit by excavated materials or released objects projected out of trench	<ul style="list-style-type: none"> <li>• Maintain a safe distance from loading and hauling operations</li> <li>• Drivers stay in haul unit while being loaded</li> <li>• Excavator operator keeps front window closed</li> </ul>
	Hit by tires or other objects rolling down landfill slopes	<ul style="list-style-type: none"> <li>• Stay uphill of excavation operation</li> <li>• Communicate with landfill to inform them you'll be downhill</li> <li>• Use effective barriers if working downhill of a landfill dumping and pushing operation is unavoidable</li> </ul>
	Impalement hazards and sharp objects in trench slopes and floor	<ul style="list-style-type: none"> <li>• Have excavator operator smooth up work areas and eliminate obvious impalement and sharp object hazards</li> <li>• Wear tough work clothing, boots, and gloves</li> <li>• Use extreme caution when working in landfill trash</li> </ul>
	Haul truck backs into equipment or other object	<ul style="list-style-type: none"> <li>• If possible, have haul units drive forward to loading unit</li> <li>• When backing up is required, use all means to ensure there are no obstructions</li> <li>• Use turnarounds, etc. to keep back up distances short</li> <li>• Use radio communication and a spotter if necessary</li> </ul>

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<b>Excavate trench for gas piping and backfill</b>	Haul truck and compaction equipment rollovers	<ul style="list-style-type: none"> <li>• Use berms next to steep slopes along haul roads</li> <li>• Maintain haul roads in good condition</li> <li>• Keep dump areas level</li> <li>• Do not run trucks and rollers perpendicular to steep slopes</li> </ul>
	Dusty conditions	<ul style="list-style-type: none"> <li>• Water haul roads as often as necessary to keep the dust down</li> </ul>
<b>Install gas collection pipe**</b>	Rigging failure	<ul style="list-style-type: none"> <li>• ** If HDPE pipe is used, see also 'Fusing HDPE Pipe' JHA</li> <li>• Competent person uses proper rigging and inspects before use</li> </ul>
	Pipe falling on personnel	<ul style="list-style-type: none"> <li>• Stay well away from gas line being pulled into trench</li> </ul>
	Leachate in trenches	<ul style="list-style-type: none"> <li>• Wear waterproof tyvec suit and rubber gloves and boots</li> </ul>
	Explosive and poisonous gases in existing system	<ul style="list-style-type: none"> <li>• Coordinate with owner's rep. to locate and operate existing valves to isolate tie-in</li> <li>• Lockout and tagout valves controlling flow to tie-in location</li> <li>• Use intrinsically safe tools to drill or cut into existing system</li> <li>• Monitor air quality on a continuous basis</li> <li>• If confined space entry is required, follow all requirements for Permit Confined Spaces in the Health and Safety Plan</li> </ul>
<b>Other Steps (if any):</b>	<b>Other Hazards:</b>	<b>Other Safe Procedures:</b>