

Job Hazard Analysis

(Always Wear Proper PPE)

Project:	Superintendent:
Task: Landfill Gas Line Tie-In	Date:

Step	Potential Hazards	Safe Procedures/ Crew Responsibilities
Preparation		<ul style="list-style-type: none"> Designate a Competent Person or persons Review P3 (Preparation Planning Procedures) and Hazard Analysis with crew Complete and review STA's with crew daily Assess location and conditions
Proper Layout		<ul style="list-style-type: none"> Review plans and specs; discuss with owners representative Review as-built and construction plans with owner to determine how to best isolate the gas system from the tie-in modifications (i.e. valve insertion and/or vacuum redirection (increase vacuum from other source locations on the landfill))
Locate and mark any existing utilities, including existing gas piping networks if any	Damage to existing utility lines or existing gas system	<ul style="list-style-type: none"> Notify Dig Safe and all non-member utilities prior to start Follow 18" rule for locating utilities: Use hand tools to dig within 18" of the marked line until the utility is exposed.
Dig test pits to verify location and size of gas lines	Exposure to explosive and/or poisonous gases	<ul style="list-style-type: none"> Continuous monitoring with 4-gas meter(s) while excavating Also monitor with PID if exposure to volatile organics is likely If these gases reach their working threshold limits, vacate the area or use large fans and/or blower to dilute concentration of hazardous gases to workable levels

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Dig test pits to verify location and size of gas lines continued	Cave-in of trench or test pit	<ul style="list-style-type: none"> • Use proper sloping or shoring while locating utilities and placing gas piping • Do not enter a trench > 5' until it is properly sloped or shored
	Trash debris and other objects falling into trench or test pit	<ul style="list-style-type: none"> • Spoil pile must be at least 2' from edge of excavation • Good housekeeping next to trenches
	Person falling or tripping into trench or test pit	<ul style="list-style-type: none"> • Excavator operator maintains smooth conditions in walking / working areas next to trench • Keep non-essential personnel away from the hole • Ensure back up & travel alarms are working and loud enough
	Person hit or crushed by equipment or trucks	<ul style="list-style-type: none"> • All employees wear high-visibility vests at all times • Maintain eye contact with operators and drivers • Give machines and trucks the right of way
	Hit by excavated materials or released objects projected out of trench	<ul style="list-style-type: none"> • Maintain a safe distance from loading and hauling operations, especially in trash excavation (Trash has a lot of potential energy when excavated, i.e. flying debris) • Drivers stay in haul unit while being loaded • Excavator operator keeps front window closed
	Hit by tires or other objects rolling down landfill slopes	<ul style="list-style-type: none"> • Stay uphill of the trench excavation operation • Do not work downhill of a landfill dumping or pushing operation
	Impalement hazards and sharp objects in walking or working areas	<ul style="list-style-type: none"> • Have excavator operator smooth up work areas and eliminate obvious impalement and sharp object hazards • Wear tough work clothing, boots, and gloves • Use extreme caution when working in landfill trash

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Dig test pits to verify location and size of gas lines continued	Haul truck backs into equipment or other object	<ul style="list-style-type: none"> • Train and observe any new haul truck operators • If possible, have haul units drive forward to loading unit • When backing up is required, use all means to ensure there are no obstructions • Use turnarounds, etc. to keep back up distances short • Use radio communication and a spotter if necessary
	Haul truck and compaction equipment rollovers	<ul style="list-style-type: none"> • Use berms next to steep slopes along haul roads • Maintain haul roads in good condition • Keep dump areas level • Do not run trucks and rollers perpendicular to steep slopes
	Dusty conditions	<ul style="list-style-type: none"> • Water haul roads as often as necessary to keep the dust down
Excavate at tie-in location and pre-fuse tie-in assembly**	Same as test pits	<ul style="list-style-type: none"> • Same as tests pits • For excavations deeper than 5 feet, cut slopes at 1½ to 1 or work inside a trenchbox • Excavate at least a foot of working room beneath the gas line • Pre-measure and fuse tie-in assembly • ** Refer to the 'Fusing HDPE Pipe' JHA
Prep pipes and conduct dry run to verify fit	Rigging failure	<ul style="list-style-type: none"> • Competent person uses proper rigging and inspects before use
	Tie-in assembly falling on personnel	<ul style="list-style-type: none"> • Stay well away from tie-in assembly being lowered into excavation • Use tag lines to control assembly movements
	Leachate in trenches	<ul style="list-style-type: none"> • Wear waterproof tyvec suit and rubber gloves and boots

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Prep pipes and conduct dry run to verify fit continued	Exposure to explosive and/or poisonous gases	<ul style="list-style-type: none"> • Continuous monitoring with 4-gas meter(s) while excavating • Also monitor with PID if exposure to volatile organics is likely • If these gases reach their working threshold limits, vacate the area or use large fans and/or blower to dilute concentration of hazardous gases to workable levels
Cutting and tying in gas line to existing system	Exposure to extremely high levels of explosive and poisonous gases	<ul style="list-style-type: none"> • Coordinate with the owner to operate existing valves to control the vacuum at the tie-in location • Monitor the concentration of gases in the pipe prior to cutting into the system. If gas concentration in the pipe are within explosive limits, decreasing or increasing vacuum can remove the explosion hazard • Use supplied air during all tie-in work where a hazardous atmosphere may be encountered • Become practiced and well skilled at using the supplied air system prior to actually conducting tie-in work • Lockout and tagout valves controlling flow to tie-in location • Use intrinsically safe tools to drill or cut into existing system
	Rigging failure	<ul style="list-style-type: none"> • Competent person uses proper rigging and inspects before use
	Tie-in assembly falling on personnel	<ul style="list-style-type: none"> • Stay well away from tie-in assembly being lowered into excavation • Use tag lines to control assembly movements
	Condensate from gas line	<ul style="list-style-type: none"> • Wear waterproof tyvec suit and rubber gloves and boots
	Struck-by hammer while pounding on electrofusing coupling	<ul style="list-style-type: none"> • Use two by four or four by four as a safety post between hammer and others legs

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Cutting and tying in gas line to existing system continued	Explosion and fire from burn electrofusing coupling	<ul style="list-style-type: none"> Monitor the concentration of gases in the pipe prior to burning electrofusing coupling. If gas concentration in the pipe are within explosive limits, decreasing or increasing vacuum can remove the explosion and/or fire hazard
Other Steps (if any):	Other Hazards:	Other Safe Procedures: