

Sample Job Hazard Analysis
Cleaning Inside Surface of Chemical Tank - Top Manhole Entry

STEP	HAZARD	NEW PROCEDURE OR PROTECTION
1. Select and train operators.	Operator with respiratory or heart problem, other physical limitation Untrained operator--failure to perform task	<ul style="list-style-type: none"> ● Examination by industrial physician for suitability to work ● Train operators ● Dry run [Reference: National Institute for Occupational Safety and Health (NIOSH) Doc #80-406]
2. Determine what is in the tank, what process is going on in the tank, and what hazards this can pose.	Explosive gas Improper oxygen level Chemical exposure-- Gas, dust, vapor: Irritant Toxic Liquid: Irritant Toxic Corrosive Solid: Irritant Corrosive	<ul style="list-style-type: none"> ● Obtain work permit signed by safety, maintenance and supervisors ● Test air by qualified person ● Ventilate to 19.5% - 23% oxygen and less than 10% LEL of any flammable gas. Steaming inside of tank, flushing and draining, then ventilating, as previously described, may be required ● Provide appropriate respiratory equipment - SCBA or air line respirator ● Provide protective clothing for head, eyes, body and feet ● Provide parachute harness and lifeline [Reference: OSHA standards 1910.106, 1926.100, 1926.21(b)(6); NIOSH Doc #80-406] ● Tanks should be cleaned from outside if possible
3. Set up equipment.	Hoses, cord, equipment – tripping hazards Electrical - voltage too high, exposed conductors Motors not locked out and tagged	<ul style="list-style-type: none"> ● Arrange hoses, cords, lines and equipment in orderly fashion, with room to maneuver safely ● Use ground-fault circuit interrupter ● Lockout and tag mixing motor, if present
4. Install ladder in tank.	Ladder slipping	<ul style="list-style-type: none"> ● Secure to manhole top or rigid structure
5. Prepare to enter tank.	Gas or liquid in tank	<ul style="list-style-type: none"> ● Empty tank through existing piping ● Review emergency procedures ● Open tank ● Check of job site by industrial hygienist or safety professional ● Install blanks in flanges in piping to tank (Isolate tank) ● Test atmosphere in tank by qualified person (long probe)
6. Place equipment at tank-entry position.	Trip or fall	<ul style="list-style-type: none"> ● Use mechanical-handling equipment ● Provide guardrails around work positions at tank top
7. Enter tank.	Ladder - tripping hazard Exposure to hazardous atmosphere	<ul style="list-style-type: none"> ● Provide personal protective equipment for conditions found [Reference: NIOSH Doc #80-406; OSHA CFR 1910.134] ● Provide outside helper to watch, instruct and guide operator entering tank, with capability to lift operator from tank in emergency
8. Cleaning tank.	Reaction of chemicals, causing mist or expulsion of air contaminant	<ul style="list-style-type: none"> ● Provide protective clothing and equipment for all operators and helpers ● Provide lighting for tank (Class I, Div. I) ● Provide exhaust ventilation ● Provide air supply to interior of tank ● Frequent monitoring of air in tank ● Replace operator or provide rest periods ● Provide means of communication to get help, if needed ● Provide two-man standby for any emergency
9. Cleaning up.	Handling of equipment, causing injury	<ul style="list-style-type: none"> ● Dry run ● Use material-handling equipment