

Project Risk Assessment

Document Control No.: RA-04	Date Assessment Completed: 9/18/2009	Location: Yerington Mine Site	 
Project Name: Transite Pipe Removal Action	Project Description: Transite pipe was used to transport process solutions to various parts of the site and is found in many areas including: process area, dump leach, sulfide tailings, evaporation ponds, and along roadways connecting these locations. Project requirement is to characterize all areas of pipe for asbestos content and radiological occurrence. Radiological containing materials will be disposed in isolated cell onsite or transported off-site for disposal, all other material will be removed from its current location and placed in an on-site landfill constructed for the purpose.	Risk Assessment Leader: Penny Bassett Risk Assessment Team: Roe Souther SIMOPS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Designated PIC: Roe Souther	

Work Plan (List Project Steps) List the jobs required to complete the project scope in the sequence they are carried out.	Any tools or heavy equipment needed? If YES, What Type	Is this a SIMOP? If YES, Include in Mitigation Plan.	Do any of the Golden Rules of Safety apply? If YES, Which of the 8?	Which of the 8 energy or biological root sources could possibly be involved in this job?	What would be the result of exposure to a biological or energy source? (e.g., Bites, Slips, trips, falls, exposures, electrocution, injury, death, etc.); and How, where, or when could an uncontrolled release or unwanted contact with a biological or energy source occur? Note: Humans are biological sources, and their physical abilities, competency, and training should also be considered here.	Environmental Impacts Could there be a release to the air, soil or water, and or, will a waste be generated? If YES, What?	Pre-Mitigation Risk Evaluation				Permit(s) Required? If YES, What kind?	Energy / Biological / Waste Management Plan List control measures required to eliminate, control, or protect against unwanted contact with an uncontrolled biological or energy source to minimize the risk of injury or environmental impact. Hierarchy of Controls: Elimination, Substitution, Isolation, Engineering/ Administrative, PPE	Who is responsible for Hazard Mitigation? Name or Title	Post-Mitigation Risk Evaluation			
							Frequency	Consequence	Likelihood	Risk Score				Frequency	Consequence	Likelihood	Risk Score
Observation 1. Regulated asbestos containing materials (RACM). Transite pipe is a known asbestos material; handling of asbestos materials requires use of workers trained and certified in asbestos.				Chemical	Chemical - Worker exposure to regulated asbestos material or potential dispersal of asbestos fibers that could impact nearby residences or businesses. Exposure to asbestos fibers can result in asbestosis or cancer.	Yes Possible release of asbestos fibers to air or soil	Occasional Exposure	Very Serious Consequence	Unusual but possible	Substantial Risk		AHERA asbestos supervisor	Occasional Exposure	Important Consequence	Remotely possible	Minimal Risk	
Observation 2. Radiological materials may be present. Process solutions carried through these pipes may have been elevated in radiological compounds (uranium, radium) and may still be present in residuals left in the pipes.				Radiation	Radiation - Worker exposure to gamma radiological sources or inhalation of low-level alpha or beta radiological material. Exposure to radiological materials can result in cancer.	Yes Possible release of radiological materials to air or soil	Rare Exposure	Very Serious Consequence	Remotely possible	Minimal Risk		Radiation Health Physicist	Rare Exposure	Serious Consequence	Remotely possible	Minimal Risk	
1. Preliminary characterization of material. Conduct a characterization survey that includes physical sample collection for asbestos and radiochem analysis and a real-time radiometric survey of alpha, beta, gamma radioactivity levels.	No	No	No	Motion Gravity Chemical Radiation Biological	Motion/gravity - Walking or driving to pipe location there is rough uneven terrain with tripping hazards, potential to fall from exposed highwalls that could result in twisted ankle, or serious injury. Chemical - Inhalation of asbestos fibers has long-term chronic health issues. Radiation - Sampling done in the radiological control area (RCA) will expose workers to low-level radiation hazards with inhalation and chronic health issues. Biological - Insects, spiders, snakes could be encountered during the sampling could result in minor sting to a major health issue from snake bite.	No	Rare Exposure	Serious Consequence	Unusual but possible	Low Risk	No	Sample Technician	Rare Exposure	Important Consequence	Conceivable but unlikely	Minimal Risk	
2. Construct RACM landfill. Engineered landfill will be constructed on the south sulfide tailings for disposal of RACM pipe removed during this removal action.	Yes Dozer, loader, haul truck	Yes	Yes Ground Disturbance	Motion Gravity Chemical	Motion - Motion of heavy equipment (bucket swing, forward or reverse movement) could strike workers. Gravity - The open excavation creates falling hazard for workers or equipment to fall into hole. Chemical - The landfill will be constructing in mine sulfide waste with very fine grain size, inhalation of this material may irritate lungs and expose workers to elevated metals. The open excavation is a potential confined space and should be evaluated for atmosphere hazards (limited O2, high CO).	No	Occasional Exposure	Very Serious Consequence	Unusual but possible	Substantial Risk	Other (Specify below) Ground disturbance MOC	Landfill construction contractor project manager	Occasional Exposure	Serious Consequence	Remotely possible	Low Risk	
3. Remove RACM from location and stockpile in staging area. Use a forklift to pick up and transport pipe lengths to staging area.	Yes Forklift	Yes	Yes Lifting Operations	Motion Gravity Chemical Radiation	Motion/Gravity - Access to areas with steep slopes, highwalls etc. may place workers on foot at risk of fall from height and trips on uneven surfaces. Heavy equipment may be at risk of rolling over, collapse of unsupported walls due to weight loading. Old, rarely used roads may be unstable or unsuitable for use by heavy equipment. Gravity/Lifting - If pipe is lifted by method other than forklift (e.g. sling, backhoe, crane) it is possible the lift could be off-balanced, the pipe could swing uncontrolled, the weight could exceed the lifting capacity of the equipment used. Chemical - Workers handling RACM may be exposed to friable or airborne asbestos fibers which is a respiratory hazard. Radiation - Radiological materials may be encountered during the removal phase.	Yes Release of asbestos fibers to air or soil	Frequent Exposure	Disastrous Consequence	Unusual but possible	Very High Risk	Yes Lifting	Abatement contractor project manager	Frequent Exposure	Serious Consequence	Remotely possible	Low Risk	
4. Transport RACM to landfill Load RACM pipe into truck and transport to on-site landfill.	Yes Forklift, haul truck	Yes	Yes Driving Safety	Motion Gravity Chemical	Motion - If there is more than usual traffic on mine roads (including other SIMOP activities) there is greater risk of collision. Trucks may work in tight areas where they have limited maneuverability and potential to drive off a road or strike an obstacle. Gravity - Improperly secured loads could come loose or break the asbestos pipe potentially releasing fibers. Chemical - Improperly encapsulated RACM could release fibers across a wide area during transport.	Yes Release of asbestos fibers to air or soil	Frequent Exposure	Very Serious Consequence	Unusual but possible	High Risk	No	Abatement contractor project manager	Frequent Exposure	Important Consequence	Remotely possible	Minimal Risk	
5. Daily operation of landfill. Unload pipe from trucks & place in layers in landfill. Place soil cover over waste items at end of each day.	Yes Forklift, dozer or loader	Yes	No	Motion Gravity Chemical	Motion/Gravity - Potential for stack of pipe to become unstable when restraints removed and fall during unloading. Chemical - Potential for pipe to break during unloading and release asbestos fibers; If sulfide tailings material is used as the daily cover there is potential for inhalation hazard for workers exposed to dust.	Yes Release of asbestos fibers, sulfide tailings dust released to air and potentially off-site	Frequent Exposure	Serious Consequence	Unusual but possible	Substantial Risk	No	Landfill construction contractor project manager; Abatement contractor project manager	Frequent Exposure	Important Consequence	Remotely possible	Minimal Risk	
6. Final closure of completed landfill. When removal action is complete, the landfill will be backfilled to grade and marked with signs.	Yes Dozer	Yes	No	Motion Chemical	Motion - Movement of heavy equipment could strike a person or obstacle; operator could be injured from vibration (back injury); operators could be injured getting in and out of equipment. Chemical - Inhalation hazard from sulfide tailings dust.	Yes sulfide tailings dust released to air and potentially off-site	Rare Exposure	Serious Consequence	Unusual but possible	Low Risk	No	Landfill construction contractor project manager	Rare Exposure	Important Consequence	Remotely possible	Minimal Risk	