

COTTER CORPORATION

**GRIND & LEACH BUILDING DEMOLITION
WORK PLAN**

**Prepared by:
Cotter Corporation**

February 2011

TABLE OF CONTENTS

Sect	Title	Page
1.	Grind & Leach Circuit Description	3
2.	Demolition Objectives and Approach	3
3.	Pre-Demolition Activities	3
	3.1 Remove Reagents from Storage	3
	3.2 Remove Oil From Rod and Ball Mill Drives	4
	3.3 Remove Oil From Gearboxes	4
	3.4 Remove Miscellaneous Items	4
4.	Demolition	4
	4.1 Equipment	4
	4.2 Sequence of Demolition – Outside Tanks and Structures	4
	4.3 Sequence of Demolition – Grind & Leach Building	4
	4.4 Sequence of Demolition – Concrete	5
5.	Material Disposal in Main Impoundment	5
6.	Post Demolition Activities	5
	Attachment 1 Mill Site Map	6
	Appendix A Task Hazard Analysis Worksheet – Pre Demolition Activities	7
	Appendix A Task Hazard Analysis Worksheet -- Demolition	8
	Appendix A Task Hazard Analysis Worksheet – Remove Concrete	9
	Appendix A Task Hazard Analysis Worksheet – Rubble Removal	10
	Appendix A Task Hazard Analysis Worksheet – Post Demolition Activities	11
	Appendix B Hazard Identification Worksheet	12

1. Grind & Leach Circuit Description

The Grind & Leach Circuit was part of the new milling facility that began operation in 1979. The Grind circuit received crushed ore from the Fine Ore Bins and ground the ore in the Rod and Ball Mills. The ground ore was then transferred to the Leach circuit, in a slurry, where it was mixed in tanks with acid to begin the extraction of Uranium and Vanadium metals. In addition, a process was developed for the reprocessing uranium contaminated calcium fluoride. The leach circuit was utilized to add a calcium fluoride slurry with acid and the uranium was extracted for reprocessing. This was a short term project. Attachment 1 includes a site plan of the Cotter Mill, showing the location of the Grind & Leach Circuit. For the purpose of this plan the tanks located outside of this building, the tails pump house and tails tanks will be included in this demolition.

2. Demolition Objectives and Approach

Demolition of the Grind & Leach Building will include the removal of the structures described in Section 1.2 and size reduction and disposal of the components in the on-site lined Main Impoundment. The project goals for Grind & Leach Building demolition are:

- Attain an as low as reasonably achievable (ALARA) dose outcome for (1) workers performing the demolition, (2) other on-site personnel, and (3) off-site individuals.
- Complete the demolition and waste disposal in a safe, cost-effective manner, in full compliance with applicable state and federal requirements.
- Contamination control is essential to achieving ALARA(both personal and environmental) and minimizing the need for additional cleanup
- Spills in excess of 100 gallons of liquid are possible and expected for during this activity. Cleanup of spills will be conducted as soon as practicable.
- Provide adequate environmental protection from contaminated dust and water runoff.

The approach involves use of mechanized equipment configured for demolition work, minimizing manual labor. Heavy-duty equipment will allow largely remote demolition of structures and buildings and loading of debris. A water truck with both fire hose and water cannon capability along with fire hose connected to water hydrants will be utilized to minimize dusting during the project.

A pre-demolition characterization (Appendix A and B) of the facilities has been completed and has been used to assess potential contaminants of concern as detailed in Section 5. This characterization has been conducted in accordance with procedure SPA-0012. This information will guide the work practices and/or the implementation of engineering controls to maintain potential exposures ALARA and insure the safety of the workers performing the operation.

During any phase of this operation if circumstances occur that were unanticipated then additional characterization will be conducted in accordance with procedure SPA-0012.

Contemporaneously, a demolition permit and an asbestos abatement permit will be applied for as necessary.

3. Pre-Demolition Activities

The intent of the pre-demolition activities is to prepare the Grind & Leach Building for demolition. The following items must be completed prior to beginning the demolition of that building.

3.1 Remove Reagents From Storage

In the northeast corner of the building, lower level, there is a reagent storage room. These reagents consists of lubricants. All reagents must be removed prior to beginning demolition.

3.2 Remove Oil From Ball Mill and Rod Mill Drives

Both the rod and ball mills contain oil for the lubrication of the bearing and gear drive systems. The oil will be drained from the gear boxes prior to beginning demolition. A hazardous work permit will be issued for the removal of the oil.

3.3 Remove Oil From Gearboxes

There are a total of 16 gearboxes associated with this building. The oil will be drained from the gear boxes prior to beginning demolition. A hazardous work permit will be issued for the removal of the oil.

3.4 Remove Miscellaneous Items

Remove items such as agitators, mixers, pumps, etc. as necessary. In particular the agitators on the autoclaves must be removed to facilitate the removal, transport, and filling of the autoclaves for disposal.

4. Demolition

This section describes how the demolition will be conducted. Demolition will be evaluated on a daily basis and modifications to the plan will be made as necessary based on situations that arise.

- Daily meetings will be conducted and documented to evaluate the progress of the demolition activities and evaluate any problems i.e. safety encountered during the operations. (Attachment 3)
- Daily tailgate meetings will be conducted and documented to evaluate the progress of the demolition activities and evaluate any problems i.e. elevated air samples, haulage routes, safety issues. (Attachment 4)
- Staff will evaluate buildings to determine which equipment will be best suited for the demolition activity.
- Necessary equipment will be available at the start of operations.
- Prior to beginning demolition silt fences and/or berms will be installed along the perimeter of the demolition area.

4.1 Equipment

Equipment used in the demolition activities may include a front end loader, excavator, hydraulic shear, backhoe, water truck, boom truck, 25 ton crane, dozer and dump truck(s). Demolition of the Grind & Leach building will be accomplished using the hydraulic shear, excavator, and dozer. Rubble removal may be conducted using the excavator, front end loader and dump truck(s). Removal of soils may be conducted using the excavator, backhoe, or loader and dump truck(s).

4.2 Sequence of Demolition -- Outside Tanks and Structures

1. Obtain breathing zone sample pump prior to beginning operations.
2. Set barricades or caution tape, as necessary, on roadway to minimize access to demolition area.
3. Notify all personnel that demolition has begun and the haul routes that are being utilized.
4. Prior to starting demolition wet the building, structures, and tanks down, inside and out, using water truck cannon or fire hose.
5. During all phases of demolition use water to control any dusting as necessary.
6. Evaluate wind conditions at start/end of each day and periodically throughout the day for dust control and safety.

4.3 Sequence of Demolition – Grind & Leach Building (Appendix A, “Demolition”)

1. Obtain breathing zone sample pump prior to beginning operations.
2. Set barricades or caution tape, as necessary, on roadway to minimize access to demolition area.
3. Notify all personnel that demolition has begun and the haul routes that are being utilized.
4. Prior to starting demolition wet Grind & Leach building down using water truck cannon or fire hose.
5. During all phases of demolition use water to control any dusting as necessary.

6. Evaluate wind conditions at start/end of each day and periodically throughout the day for dust control and safety.
7. Using an excavator and shear begin by removing the outer building wall (skin) and perlings. This will grant access to the building I-beams and equipment inside the building.
8. The autoclaves (3) and mills (2) will be removed utilizing an outside contractor to lift and transport these items to the Main Impoundment disposal area. A specific plan will be developed by the contractor for this action. These items will be kept as single units and filled with either soils or foam material prior to disposal in the Main Impoundment. The overhead crane will be removed as part of this process and disposed of in the disposal area.
9. Wet all surfaces of items in the building using a fire hose or other water source. This includes tanks (inside and out)(as necessary), ducts (inside and out)(as necessary), lines, and other items prior to beginning and during demolition.
10. Using an excavator and shear begin removing the building structure.
11. Size rubble as necessary for transport by dump truck.
12. Load rubble using the loader into the dump truck for transport to the Main Impoundment disposal area.
13. Water haul roads as necessary.

4.4 Sequence of Demolition – Concrete (Appendix A “Concrete”)

1. Obtain breathing zone sample pump prior to beginning operations.
2. Set barricades or caution tape on roadway to prevent access to demolition area.
3. The Utility Disconnect Verification form must be completed prior to any demolition taking place.
4. Prior to starting demolition wet concrete using water truck cannon or fire hose.
5. During all phases of demolition use water to control any dusting as necessary.
6. Evaluate wind conditions at start/end of each day and periodically throughout the day for dust control and safety.
7. Using the excavator with rock hammer and dozer begin demolition of the concrete. As necessary use shear to cut rebar.
8. Size rubble as necessary for transport by dump truck.
9. Load rubble using the loader into the dump truck for transport to the Main Impoundment disposal area.
10. Water haul roads as necessary.

5. Material Disposal in the Main Impoundment

Materials will be disposed in the Main Impoundment in accordance with the Tailings Reclamation Plan. Demolition materials will be placed in the Main Impoundment according to the procedures outlined below:

1. Material will be cut or dismantled into pieces that can be safely lifted or carried with the equipment being used. Material will also be cut or dismantled to minimize void spaces in the disposal area.
2. A dozer or front-end loader will be used to crush or compact compressible materials.
3. Pipe, conduit, or other items with an opening or diameter larger than 18 inches that cannot be crushed will be filled with earthen materials or a foaming agent prior to disposal.
4. Debris placement will be a minimum distance of 10 feet above the Main Impoundment liner.

6. Post Demolition Activities

Upon completion of soils assessment and removal restore area to grade for proper drainage. Remove silt fences and any residual material at the silt fence. Soils will be treated by chemical treatment or seeded to control dusting from the area. Remove barricades and re-establish traffic roadway.

Attachment 1 Mill Site Map



Appendix A Pre-Demolition Activities**Complete all information use as many sheets as necessary**

Task Location	Grind & Leach Building	Task Title	Pre Demolition Activities
Department	Maintenance	Prepared By	Richard Wooten
Supervisor	Craig Simpson	Reviewed By	ALARA Review Committee (ARC)
		Approved By	ARC

Standard Requirements
(SOP, SP, PPE, etc.)

Sequence of Job Steps	Potential Hazards (P,E,C,R)	Safe Procedures/Practices/Controls	Consequence Level	Likelihood	Risk Code	Hazard ID Code*
Asbestos Survey	P,C,R	Outside contractor	II	B	1	
Obtain Demolition Permit		Submit Permit application	I	A	0	
Determine where lines are routed and where they will be rerouted if necessary.		Internal review of discharge lines.	I	A	0	
Determine where power supply for Fine Ore Bins, Lime Grind, and Yellowcake Storage will come from		Internal review of power availability.	I	A	0	
Determine alternate source of compressed air.		Internal review of compressor availability and needs.	I	A	0	
Remove Reagents from Storage	P,C	Trained Personnel, PPE, SP-0009, SPA-0003, SP-0003, SP-0005, SP-0006	II	B	1	1,8,12,14,16

When a completed analysis indicates that the estimated risk code for any of the steps of this task is "medium" or higher (RC=3 or 4), then develop a formal written procedure for the task and have it reviewed and approved prior to beginning the work.

* From Hazard Identification Sheet

Appendix A Demolition**Complete all information use as many sheets as necessary**

Task Location	Grind & Leach Building	Task Title	Demolition
Contractor	Kessler Reclamation	Prepared By	Richard Wooten
Supervisor	Calvin Kessler	Reviewed By	ARC
		Approved By	ARC

Standard Requirements
(SOP, SP, PPE, etc.)

Sequence of Job Steps	Potential Hazards (P,E,C,R)	Safe Procedures/Practices/Controls	Consequence Level	Likelihood	Risk Code	Hazard ID Code*
Barricade area	P	Work practice, area isolation	I	A	0	12
Install silt fences - Run on/Run off	P	Work practice	I	A	0	12
Wash Down Building – Inside and Outside	P	Work Practice	I	A	0	12
Wash Down Equipment – Inside Building	P	Work Practice	I	A	0	12
Demolition	P,R	SP-0005, training, PPE, Wind Speed in excess of 25mph. No use of man lift at wind gust in excess of 30 mph.	III	B	2	2, 14, 17, 19, 21
Remove Rubble		See Remove Rubble Spreadsheet				

When a completed analysis indicates that the estimated risk code for any of the steps of this task is "medium" or higher (RC=3 or 4), then develop a formal written procedure for the task and have it reviewed and approved prior to beginning the work.

* From Hazard Identification Sheet

Appendix A Remove Concrete**Complete all information use as many sheets as necessary**

Task Location	Grind & Leach Building	Task Title	Remove Concrete
Contractor	Kessler Reclamation	Prepared By	Richard Wooten
Supervisor	Calvin Kessler	Reviewed By	ALARA Review Committee
		Approved By	ALARA Review Committee

(SOP, SP, PPE, etc.)

Sequence of Job Steps	Potential Hazards (P,E,C,R)	Safe Procedures/Practices/Controls	Consequence Level	Likelihood	Risk Code	Hazard ID Code*
Barricade area	P	Work practice, area isolation	I	A	0	12
Install silt fences or berms	P	Work practice	I	A	0	12
Dust control-pre demolition	P,R	Work practice, SP-0005	I	A	0	14, 17, 19, 21
Demolition	P,R	SP-0003,SP-0005, training, PPE, Wind Speed in excess of 25mph. No use of man lift at wind gust in excess of 30 mph.	III	B	2	2, 14, 17, 19, 21

When a completed analysis indicates that the estimated risk code for any of the steps of this task is "medium" or higher (RC=3 or 4), then develop a formal written procedure for the task and have it reviewed and approved prior to beginning the work.

* From Hazard Identification Sheet

Appendix A Remove Rubble**Complete all information use as many sheets as necessary**

Task Location	Grind & Leach Building	Task Title	Remove Rubble
Contractor	Kessler Reclamation	Prepared By	Richard Wooten
Supervisor	Calvin Kessler	Reviewed By	ARC
		Approved By	ARC

Standard Requirements
(SOP, SP, PPE, etc.)

Sequence of Job Steps	Potential Hazards (P,E,C,R)	Safe Procedures/Practices/Controls	Consequence Level	Likelihood	Risk Code	Hazard ID Code*
Barricade area	P	Work practice, area isolation	I	A	0	12
Install silt fences	P	Work practice	I	A	0	12
Dust Control	P,R	SP-0005, training	I	A	0	14, 17, 19, 21
Rubble size reduction	P,R	Work practice, SP-0005	III	B	2	2, 14, 17, 19, 21
Load and transport (track loads)	P,R	SP-0005, training, PPE	III	B	2	2, 12, 14, 17, 19, 21
Placement in Main Impoundment	P,R	SP-0005, training, PPE, Solids Management Plan, Wind Speed in excess of 25 mph. No use of man lift at wind gust in excess of 30 mph.	III	B	2	2, 14, 17, 19, 21

When a completed analysis indicates that the estimated risk code for any of the steps of this task is "medium" or higher (RC=3 or 4), then develop a formal written procedure for the task and have it reviewed and approved prior to beginning the work.

* From Hazard Identification Sheet

Appendix A Post Demolition**Complete all information use as many sheets as necessary**

Task Location	Grind & Leach Building	Task Title	Post Demolition
Contractor	Kessler Reclamation	Prepared By	Richard Wooten
Supervisor	Calvin Kessler	Reviewed By	ARC
		Approved By	ARC

Standard Requirements
(SOP, SP, PPE, etc.)

Sequence of Job Steps	Potential Hazards (P,E,C,R)	Safe Procedures/Practices/Controls	Consequence Level	Likelihood	Risk Code	Hazard ID Code*
Radiation survey (Cotter)	P,R	Training; Work Practice; RH-110	I	A	0	21
Dust Control	P,C,R	Work practice, SP-0005, PPE	II	B	1	1, 2, 10, 14, 17, 21
Regrade area for drainage	P	Work practice, SP-0005, PPE	II	B	1	1, 2, 10, 14, 17, 21
Remove silt fences	P,R	Work practice, SP-0005	I	A	0	12, 14, 17, 21
Remove Barricades	P	Work practice	I	A	0	12

When a completed analysis indicates that the estimated risk code for any of the steps of this task is "medium" or higher (RC=3 or 4), then develop a formal written procedure for the task and have it reviewed and approved prior to beginning the work.

* From Hazard Identification Sheet

Appendix B Hazard Identification Worksheet

Task: Grind & Leach Demolition		Date: February 2011
Instructions: Use the following list as a guide to evaluating task conditions and hazards. Apply information to the task hazard analysis sheet.		
General Conditions		Mitigations
1	Are you familiar with MSDS requirements for the materials being used and the required Personal Protective Equipment (PPE)?	SP-0009 "Hazard Communication"; SPA-0003 "Personal Protective Equipment"; Mill Safety Manual
2	Will you create dust, welding arcs, heat, excessive noise, or chemical mixtures during the task?	SP-0008 "Hearing Protection"; SP-0009 "Hazard Communication"; SP-0018 "Welding"; Mill Safety Manual; RH-190 "Respiratory Protection"; RH-130 "Occupational General Air Particulate Survey"; RH-150 "Occupational Breathing Zone Monitoring"
3	Are there any fire or explosive hazards associated with the task or likely to develop because of the task?	SP-0007 "Hot Work Permit"; SP-0017 "Fire Extinguishers"; Mill Safety Manual
4	Could the task create headaches, breathing problems, or dizziness from odors, etc.?	RH-190 "Respiratory Protection"; Mill Safety Manual
5	Is the task performed where limited entry, egress, or poor ventilation exists?	SP-0004 "Confined Space Entry"; Mill Safety Manual
6	Does the task require compressed, liquefied, or noxious gases?	SP-0014 "Compressed Gas Cylinders: Transportation, Storage, and Use"; Mill Safety Manual
7	Does the task require work in areas or with materials subject to extreme temperatures?	SP-0012 "Guarding"
8	Does the task involve the use of fork lifts, cranes, man lifts?	SP-0003 "Cranes and Lifting Equipment"; Mill Safety Manual
9	Does the task involve the use of powered hand tools?	SP-0010 "Hand & Power Tools"
10	Does the work involve the risk of electrical shock or other forms of hazardous energy?	SP-0001 "Control of Hazardous Energy (Lock Out/Tag Out); SP-0013 "Electrical Safety"; Mill Safety Manual
11	Does the task involve working above or below ground?	SP-0002 "Fall Protection"; SP-0004 "Confined Space Entry"; SP-0011 "Trenching and Shoring; Mill Safety Manual
12	Does the task involve lifting, pulling, pushing, or carrying heavy objects or repetitive motion?	SP-0019 "Proper Lifting"; Mill Safety Manual

13	Does the task involve work with pressurized vessels or lines?	SP-0001 "Control of Hazardous Energy (Lock Out/Tag Out); Mill Safety Manual; Guidelines for Spill Notification
14	Does the task involve the use of mobile equipment such as trucks, loaders, rail cars, etc.?	SP-0003 "Cranes and Lifting Equipment"; SP-0005 "Vehicles"; SP-0015 "Shuttle Car Operation; Mill Safety Manual
15	Does the task involve the use of non-pressurized that could create spills?	Guidelines for Spill Notification
16	Does the task require any permits?	SP-0004 "Confined Space Entry"; SP-0006 "Hazardous Work Permit"; SP-0007 "Hot Work Permit"; RH-060 "Radiation Work Permit"
17	Does the task require specialized training?	SPA-0007 "Training and Education"; Mill Safety Manual
18	Will waste products require special handling or disposal requirements?	
19	Environmental releases such as spills, leaks, dusts, smoke, fumes, gases, etc.	EV-020 "Environmental Air Particulate Sampling"
20	Exposure to insects, reptiles, animals (i.e. mice), etc.?	Mill Safety Manual
21	Radioactive materials present? Uranium Ore, Caldesite Ore, other concentrates, tailings material	RH-010 "Radiological Health & Safety Training"; RH-110 "Beta and/or Gamma Exposure Rate Surveys"; RH-120 "Alpha, Beta/Gamma Contamination Surveys; RH-140 Radon-222/Radon-220 Decay Product Surveys
22	Radioactive materials present? Yellowcake	RH-010 "Radiological Health & Safety Training"; RH-110 "Beta and/or Gamma Exposure Rate Surveys"; RH-120 "Alpha, Beta/Gamma Contamination Surveys
23	Radioactive materials present? Contaminated Materials, soils, dust	RH-010 "Radiological Health & Safety Training"; RH-110 "Beta and/or Gamma Exposure Rate Surveys"; RH-120 "Alpha, Beta/Gamma Contamination Surveys; RH-121 "Alpha, Beta/Gamma Smear Sampling"; RH-200 "Personnel Release Surveys"
24	Radioactive materials present? Nuclear Density Gauges, Nuclear Level Gauges, Other Sources	RH-010 "Radiological Health & Safety Training"; RH-110 "Beta and/or Gamma Exposure Rate Surveys"; RH-120 "Alpha, Beta/Gamma Contamination Surveys; RH-170 "Industrial Device Installation"
25	Is there a possibility of exposure to gaseous or particulate concentrations that are Immediately Dangerous to Life or Health (IDLH)?	Monitor for gaseous or particulate concentrations

26	Does the task involve work with or around moving machinery or conveyor belts?	SP-0012 "Guarding"; Mill Safety Manual
27	Any other hazards that have been overlooked with this list?	