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Distribution List:

2014 Changes to the Roaster Complex Deconstruction Waste Management Plan

Planning for the 2014 operating season for the deconstruction of the Giant Mine Roaster Complex is underway and changes to the Roaster Complex Deconstruction Waste Management Plan (WMP) are required. Before submitting the revised WMP to the Mackenzie Valley Land and Water Board for approval, the Giant Mine Project Team is seeking your input and questions on the proposed changes.

Those sections of the WMP that are affected by the changes include Figure 8 from the main body of the WMP and Appendices C and D, which are enclosed for your review. To assist your review of the changes, red text has been used to identify the changes and the changes to the appendices are listed in Attachment A to this letter. To access a complete copy of the current approved version of the WMP, please use the following link or contact the undersigned. Link to the approved WMP: http://www.mvlwb.ca/Boards/mv/Registry/2012/MV2012L8-0010/MV2012L8-0010%20-%20AANDC%20-%20CARD%20-%20Roaster%20Complex%20Deconstruction%20-%20Apr19-13.pdf

The changes fall into the following two categories:

1) ***Arsenic-containing waste sub-types:*** Arsenic-containing wastes are currently described under Item 4-Hazardous Wastes in section 2.1 of the WMP and include items that are expected to exceed the testing thresholds set out in Figure 8. Footnote 2 to Figure 8 specifically identifies those items that are difficult to clean and to this list we need to add steel or fiberglass with arsenic trioxide dust fixed between layers of the material. The testing protocols and waste management and storage procedures for arsenic-containing wastes will remain the same, it is only the list of sub-types under arsenic-containing wastes that has to be updated.

2) ***Additions to the equipment list:*** In accordance with Schedule 2, item 1(b), which requires that the equipment used for deconstruction be approved, the equipment lists provided in the appendices to the WMP are being updated to accommodate the needs of the upcoming field season and equipment availability. Most of the changes involve changing brand name or model of the equipment but approval to bring additional equipment to site will be requested. The additional equipment includes items such as additional tool cribs, an additional water tank, and Dust Destroyers. The Dust Destroyers will be used to control dust through wetting in addition to the water sprayers already approved in the WMP.

If you have any questions or require additional information or clarification, please contact the undersigned by telephone at 867-669-2425 or by email at Adrian.Paradis@aandc-aadnc.gc.ca, or Katherine Ross at 819-934-9223 or Katherine.Ross@aandc.gc.ca.

Yours sincerely,

Adrian Paradis
Regulatory Manager
Giant Mine Remediation Project

Encl.

Attachments:

- Attachment A - Summary of Proposed Changes to Roaster Waste Management Plan Appendices
- Revised Figure 8
- WMP Appendices C and D

ATTACHMENT A

Summary of Proposed Changes to Roaster Waste Management Plan Appendices

The list below represents required changes based on the work plan for the 2014 construction season.

Appendix	Section	Change	Rationale
C - Waste Classification and Packaging	Waste Handling and Packaging, paragraph 3, first bullet	Added "*3 or*" before the words "*6 cubic metre bags*"	This additional size of waste container was omitted from the first draft of the WMP and needed to be added. The additional size bags meet the same standards and provide the same level of protection as the waste bags that are already approved for use on the site.
D	1.1.1 - Paragraph 3	Added sentence "*with three additional shipping containers configured for tool and equipment storage*"	Updated based on what is being used onsite for this construction season
D	1.1.1 - Paragraph 3	Added "*a 37,000 L tank*" to the last sentence.	Updated based on what is being used onsite for this construction season.
D	1.1.2 - first bullet	Changed "*two*" to "*three*" smaller support excavators.	Updated based on what is being used onsite for this construction season
D	1.1.2 - first bullet	Added " *excavator"* and changed *"Cat 303*" to "*Cat 303.5*".	Updated based on what is being used onsite for this construction season.
D	1.1.2 - third paragraph	Changed the size of the Genie aerial lifts to include a range from 13.7 m to 18.3 m	Updated based on what is being used onsite for this construction season
D	1.1.2 - Equipment List	Added "*John Deer 120 excavator"*	Updated based on what is being used onsite for this construction season
D	1.1.2 - Equipment List	Changed "*Cat 303*" to "*Cat 303 or 303.5*"	Updated based on what is being used onsite for this construction season
D	1.1.2 - Equipment	Removed the words "*Volvo AT*"	Updated based on what is being

Appendix	Section	Change	Rationale
	List		used onsite for this construction season
D	1.1.2 - Equipment List	Added "*Tri-axle truck and end dump trailer*"	Updated based on what is being used onsite for this construction season
D	1.1.2 - Equipment List	Added ""or *JCB Telehandler*"	Updated based on what is being used onsite for this construction season
D	1.1.2 - Equipment List	Removed the words "*Cat 262*" before "*Skid steer with forks*"	Updated based on what is being used onsite for this construction season
D	1.1.2 - Equipment List	Changed the size of the *Genie Articulated boom lift* to from 20 m to 13.7 m	Updated based on what is being used onsite for this construction season
D	2.3 - Paragraph 1, bullet 5	Added "*and two Dust Destroyers capable of providing long range water to the work area*" to the end of the second sentence.	Additional equipment that will be added in 2014. This equipment is required in order to provide dust suppression in areas that are not directly and/or safely accessible by workers. Examples include areas in close proximity to working machinery, deconstruction at heights, work that requires higher levels of saturation, etc. Dust suppression will be conducted in a controlled manner.
D	2.3 - Paragraph 1, bullet 6	Added "*or directly loaded into lined sealand containers*" to the second sentence.	Additional procedure for packaging of larger waste if sealand containers are approved for use again during the 2014 construction season.
D	2.4.1 Bullet 2	Changed "*303*" to "303 or *303.5*" mini excavator	Updated based on equipment that will be utilized in 2014.

1. Is material aqueous, semi-processed ore/calcine, or other waste?
    - If aqueous, filter for asbestos, treat for hydrocarbons[1] and transport to NW Tailings Pond.
    - If semi-processed ore/calcine, go to #2.
    - If other waste, go to #3.
2. Is semi-processed ore/calcine coated with arsenic dust?
    - Yes → Go to #3.
    - No → Transport to NW Tailings Pond for disposal.
3. Can material be safely or feasibly[2] decontaminated of arsenic dusts, friable and dispersible materials?
    - Yes → Go to #4.
    - No → Go to #8.
4. Decontamination of material (bulk removal of all dusts, friable and dispersible materials). Is the material visually free of dusts and other surface contamination?
    - Yes → Go to #5.
    - No → Re-clean material (repeat step #4).
5. Decontamination testing of material by interior aggressive air sampling[3] following the WSCC Code of Practice for Asbestos Abatement and an additional criterion for arsenic completed prior to the removal of any containment. Do the tests confirm that the material is at or below the decontamination criteria?

    Decontamination Criteria: 0.001 mg arsenic /m^3
    0.01 asbestos fibre per cm^3
    - Yes → Go to #6.
    - No → Re-clean material (repeat step #4).
6. Is material a hazardous waste or dangerous good as defined by Transportation of Dangerous Goods Act, Canadian Environmental Protection Act, and GNWT Guideline for the General Management of Hazardous Waste
    - Yes → go to #7.
    - No → go to #10.
7. Does the material contain leachable arsenic >2.5 mg arsenic / litre[4] as determined by the Toxicity Characteristic Leaching Procedure?
    - Yes → go to #8.
    - No → go to #9.
8. Containerize Material as per TDGR, decontaminate exterior of container as required, and store in Temporary Materials Storage Area (Arsenic Containing Hazardous Waste).
9. Containerize Material as per TDGR, decontaminate exterior of container as required, and ship for offsite disposal at appropriate facility (Non-arsenic Containing Hazardous Waste).
10. Consolidate with like material, stack and store in Temporary Materials Storage Area (Non-Hazardous Waste).

Notes:

[1] Criteria are those from the former water license: 5.0 mg/L in any grab sample.

[2] Materials that cannot be cleaned include the following:

- Arsenic trioxide dust
- Asbestos containing insulation coated with arsenic trioxide dusts
- Asbestos containing wall and ceiling insulation and exterior siding coated with arsenic trioxide dust
- Asbestos containing pipe and process vessel insulation coated with arsenic trioxide dust
- Asbestos containing floor products coated with arsenic trioxide dust
- Sodium cyanide dusts co-mingled with arsenic trioxide dust
- Wooden building materials and process equipment contaminated with sodium cyanide and arsenic trioxide
- Refractory brick contaminated with arsenic trioxide
- Personal protective equipment (PPE) coated with asbestos and arsenic trioxide dusts
- Steel or fiberglass with arsenic trioxide dust fixed between layers of the material

[3] Aggressive air sampling as defined in the WSCC Code of Practice for Asbestos Abatement. Aggressive air sampling is a procedure developed to assess that surfaces have been remedied of dispersible and friable material to an extent that the containment can be removed. If the final air test fails, the containment cannot be dismantled.

[4] Criterion is set in the Transportation of Dangerous Good Regulations and Government of the Northwest Territories Guidelines for the General Management of Hazardous Waste in the NWT (February 1998).

APPENDIX A
DETAILED DECONTAMINATION PLAN

DETAILED DECONTAMINATION PLAN

The following abatement procedures were prepared for individual buildings, areas containing hazardous materials and type of hazardous material.

1.0 FLUES

1.1 Summary

- The flues are insulated with asbestos and contain arsenic contaminated dust on their interior. Quantities of arsenic contamination are approximately defined.
- The flues around the stack will be one of the first areas to be abated. The intent is to abate the hazardous materials that will impact the stack deconstruction as soon as the critical site facilities (Decontamination Trailers, Electrical Distribution, Water Supply etc.) are operational.
- Prior to commencing any work overhead hazards and structure stability will be surveyed and risk assessed to ensure the work area is safe for entry of site personnel.

1.2 Abatement of Flues – General Approach

i. Assess the area for overhead and fallen asbestos debris.

ii. Review potential other unforeseen hazards.

iii. Clear safe access.

iv. Run water and electrical distribution systems.

v. Place ground cover, which include filter cloth and drop sheets.

vi. Complete overhead removal actions as required in the various work locations.

vii. Install scaffolding and plastic sheeting containments where necessary.

viii. Install WETF and personnel entry chambers to match the scope of work being performed. Generally assumed to be smaller scale versions of those facilities used at the building locations. Some of the flue locations will use the entry exit systems connected to the surrounding building containments.

ix. Open duct for the HEPA extraction of arsenic dust.

x. Complete asbestos abatement.

xi. Water wash interior surfaces in situ or insert plugs into the flues in preparation for bring them to grade. Water washing would then be completed at a later time. The flues would be relocated to a building pad where the existing water controls are being used in the water washing of other site equipment.

xii. The flues would then have the interior surfaces sealed with encapsulant in preparation for further abatement or disposal.

1.3 Abatement of Flues – Specific Approach

1.3.1 Flue – South West Side of Cottrell Building (hot side)

i. The exterior asbestos insulation on this flue section is in poor condition. The work location will be made safe from falling debris via boom lift access.

ii. Waste asbestos dispersed in the general area will be packaged using high-risk PPE.

iii. Material that can be vacuumed, will be HEPA vacuumed and down loaded into metre bags. Other disturbed/exposed waste will be saturated with water and loaded while wet into asbestos disposal packaging.

iv. Potentially, intact portions of the exterior duct will be differed until the cladding access scaffolding is installed around the Cottrell precipitator.

v. The interior surface of the flue will be accessed from the interior of the Cottrell building through existing service hatches. New entry ports will be cut into the flue to permit the HEPA vacuuming of the arsenic dust where required.

1.3.2 Miscellaneous Exterior Pipes

i. Through photo observations, it appears as though various exterior small diameter insulated pipe lines require abatement. The extent of this work appears to be minimal. The exact asbestos abatement method for the various insulated pipe locations have not been defined but is assumed that high-risk and or moderate risk work procedures would be followed.

ii. Other non-hazardous pipe insulation materials will be collected and packaged using moderate PPE or as risk assessed for the given location.

1.3.3 Flue – Cottrell to Bag House – (North West Side of the Cottrell Building) – Visible Highway Side

i. Based on photo observations, this flue appears to be in a reasonable exterior condition (minor deterioration).

ii. Since the external insulation composition could not be confirmed, it has been assumed that this flue will be abated within a scaffold and plastic sheeting wrapped high-risk containment.

iii. The work will be performed while the bag house building abatement is underway to allow for the use of the waste and equipment transfer facility and personnel transfer rooms that will be attached to the bag house.

iv. The flue insulation was observed to be damaged therefore the area will be cleaned and the damaged portion will be made safe during the preparation process that forms part of the containment installation.

v. The 2003 North West Hazmat report indicated that the portion of flue had minimal residual arsenic dust located on its interior.

vi. The arsenic dust in the interior of the duct will be HEPA vacuumed and pressure washed while the containment remains around the flue. The flue interior will be access via the interior of the Cottrell, Bag House and or additional access ports cut into its length.

1.3.4 Flue – AC Roaster and Cottrell Flues to the Stack Fan Building

This description is for flues confined to the area north of the AC Roaster and east of the Cottrell Building.

i. Prior to commencing work, the underside of these flues will be made safe from overhead falling hazards.

ii. A large quantity of asbestos insulation used on these flues is deteriorated.

iii. Ground surfaces will be scoured and loose asbestos insulation will be packaged as asbestos waste.

iv. All handling of deteriorated flue insulation in the area will be conducted using high-risk PPE.

v. The grounds under the flues will be prepared with filter cloth using moderate risk PPE while the asbestos debris is being abated. The intent is to saturate the damaged asbestos insulation, which will allow it to fall to grade on to the prepared filter cloth surfaces. Boom lift equipment will be used for access to the asbestos insulation.

vi. The disturbed wet asbestos insulation will be immediately packaged into disposal containers.

vii. The exterior surfaces of the flue are not considered to be contaminated with arsenic. Water running off the exterior surface of the flues will fall on to 300 micron filter cloth.

viii. Some portion of the flue may have asbestos insulation in an intact condition. These locations will be risk assessed to determine best method for completing the asbestos abatement process.

ix. High-risk containments will be erected where required.

x. Scaffolding will be erected to create staging areas along the length of the flues for completing exterior and interior surface decontamination.

xi. The intent is to enclose flue openings using plastic sheeting to prevent wind and rain impacting the locations prior to HEPA vacuum cleaning.

xii. All waste arsenic dust will be extracted from the flues using the HEPA vacuum. Water washing and sealing with encapsulant may be completed in situ or relocated to a wash pad. Openings in the duct will be covered and sealed while waiting for the final decontamination process of water washing and encapsulation.

1.3.5 Flue – AC Roaster to Dorrco Building

i. This is a small section of exterior flue. The flue's asbestos insulation appears to be intact, meaning the asbestos does not appear to be exposed. Should the exterior insulation be deteriorated flue lines, the approach described previously for the flues north of the AC Roaster and east of the Cottrell building will be undertaken.

ii. The intent is to scaffold and enclose the flue section within high-risk containment in preparation for asbestos abatement. The plastic sheeting covering will also assist during the internal HEPA vacuuming of the built up arsenic debris.

iii. This process will be followed by pressure washing and sealing with encapsulation prior to the flue being brought to grade during deconstruction.

iv. Access to the contained work area will be through exiting entry chambers installed off the AC Roaster and or Dorrco building containments.

1.3.6 Flue – Dorrco Building to Cottrell

This segment of exterior flue is similar to the Flue detailed under AC Roaster to Dorrco Building. Please refer to the work description detailed therein.

1.3.7 Flue – Bag House to Stack Fan

i. This is a new fiberglass flue insulated with non-asbestos insulation. Our intent is to remove the non-asbestos insulation under moderate risk PPE via a boom lift. The ground surfaces below the duct will be protected with filter cloth tarpaulins to capture the insulation for packaging as either clean or contaminated waste.

ii. Upon the external insulation being removed, predetermined section of the duct will be opened and interior seals installed to enclose the identified trace arsenic contamination within the flue segments. This will be completed using high-risk PPE. The trace arsenic at the cut locations will be HEPA vacuumed and the exposed internal surfaces will be wiped and sealed with an encapsulant.

iii. The duct will then be ready to cut for lowering to grade. All contaminated surfaces will remain contained within the flue segment.

iv. The flue will be brought to grade in the pre-determined segments. Final cleaning of the flue's internal surface will be completed on the prepared wash pad.

2.0 Stack Fan Building

i. No internal survey was completed for this structure. It is indicated that arsenic contamination is likely. The structure will be used as the containment walls and roof for the high-risk work area. All internal decontamination of the structure will be completed using high-risk worker protective measures.

ii. Interior surfaces throughout the structure will be HEPA vacuumed, pressure washed, and sealed with an encapsulant.

iii. Asbestos cladding will be removed under high-risk PPE due to the potential of arsenic dust being trapped in the overlaps and concealed surfaces of the cladding.

iv. Other interior conditions will be risk assessed upon access being made available.

3.0 Weigh Scale Building and Silo

i. The weigh scale will be pre-cleaned by HEPA vacuuming all residual dust and surface debris. These materials will be treated as arsenic waste. The final cleaning process will include pressure washing the interior structure and applying an encapsulant to the exposed surfaces prior to deconstruction. The work will be carried out using high-risk PPE. Doorways into the weigh scale will be covered in plastic sheeting during the process to contain potential waste from being expelled outside of the building.

ii. The Silo and auger will be contained within a high-risk containment prior to disturbing residual arsenic. During the cleaning process, the augers will be opened, HEPA vacuumed and pressure washed.

iii. The silo will be opened and the approximate 10 drums of arsenic trioxide will be HEPA vacuumed and collected into metre bags.

iv. The silo will then be agitated to dislodge the adhered arsenic surface debris. The HEPA vacuum collection process will be repeated. The silo will then be opened for a visual assessment of the interior surface.

v. The intent will be to reposition the silo to a prepared wash slab.

vi. The silo will be cut open for final water washing and encapsulation of the interior surface.

vii. Water collection and control is detailed under a separate heading.

4.0 Interior Decontamination/Abatement Procedure

The following abatement procedures are steps that will be followed for the abatement activities in all of the building interiors.

The typical work area abatement preparations would proceed as follows:

i. Conduct an initial site/building assessment to determine potential hazards. Hazards typically include the presence of waste and debris.

ii. Clear safe entry/exit to the building and flag and/or mitigate hazards.

iii. Distribute power to the work location.

iv. Install perimeter seals to the building exterior.

v. Construct the personnel entry staging rooms.

vi. Construct the exterior “clean” segments of the waste and equipment transfer room.

vii. Install lighting systems.

viii. Install interior power distribution lines and negative air systems. Minimal disturbance of hazardous materials will occur until the structure is sealed and under negative pressure.

ix. HEPA vacuum of the accumulated waste from floor trenches in preparation for the installation of drain plugs.

x. Seal flues to prevent the movement of air.

xi. Install a water control and collection system.

xii. Conduct a documented review of the containment systems. All parties involved will inspect the containment prior to the commencement of the interior abatement activities.

Typical Work Area Abatement Process would be as follows:

i. Prior to commencing any new abatement activities, hazards will be mitigated which will include an initial cleaning of debris and waste piles within the building interior.

ii. All accessible surfaces that can be abated will have the asbestos removed prior to the installation of interior scaffolding. Scaffold crews will then erect decking where necessary for the safe access to remaining abatement surfaces. The exception to this in the event that there is exterior asbestos sprayed wall cladding to be removed. A review of air monitoring results will have to be assessed to determine the sequence of activities.

iii. Remaining asbestos insulating materials will be abated.

iv. Flues and equipment will be opened and debris extracted. Arsenic dust will be HEPA vacuumed from these confined surfaces. Clean-up methods will be used that limit the generation of dust.

v. Following dust removal with the HEPA vacuum of the interior surfaces, and associated equipment, all surfaces will be pressure washed and inspected. If the surfaces successfully pass inspection an encapsulant sealer will be sprayed on all exposed surfaces to capture and lock down any residual fine dusts and or grime that may persist on some surfaces.

vi. The work area will be air cleared in preparation for moderate risk deconstruction of abatement equipment, systems and scaffolding.

vii. All temporary systems installed for the abatement process will be cleaned and or packaged by sealing in clear 6-mil bags for use in the next containment area.

viii. Abatement equipment will be cleaned prior to encapsulating the work area so that contaminants are not adhered to their surfaces. Decontamination and sampling of the equipment surfaces will be completed at project completion.

5.0 Bag House

i. The bag house exterior cladding and metal roof will be used as the containment structure. These surfaces will be inspected and sealed where required to ensure all large breaches are sealed in plastic cover.

ii. Roof vents will be access via boom lift for air sealant installation.

iii. See typical work area preparations and typical work area abatement processes listed above.

iv. The bag house will be opened and the 2400 filter socks removed from the interior.

v. The interior of the bag house, collection hoppers and auger systems will be opened and bulk arsenic debris will be HEPA vacuumed.

vi. It is assumed that the contaminants of concern in the interior surface of the bag house will be limited to arsenic dust. It is anticipated that the internal arsenic debris will be abated using a HEPA vacuum then pressure washed following removal of the bulk of the dust.

vii. Flues throughout the bag house will be opened and treated using a typical abatement approach – (HEPA Vacuuming, Pressure Washing, encapsulated).

6.0 Cottrell Building (Precipitator)

The exterior scaffolding processes listed herein will be followed for the Cottrell, Dorrco and Calcine buildings.

i. Scaffolding will be placed around the full exterior of the building to allow for the enclosure of the asbestos cement wall cladding within a plastic sheeting containment. The scaffold work area will be monitored to define the fiber concentrations in the air.

ii. It is assumed that the work to erect the scaffold around the exterior of the building will be conducted at a moderate to high-risk PPE respirator action level.

iii. The scaffold will be engineered to receive the plastic sheeting containment system.

iv. The perimeter grounds of the building will be prepared with filter cloth and reinforced plastic sheeting prior to erection of the scaffolding.

v. The plastic sheeting will be attached to the protective plastic ground cover and be extended to the underside of the metal roof deck. The purpose of this is to minimize rain water from entering the containment.

vi. Wood scaffold decks will be covered with plastic sheeting to assist in final cleaning of the work area. Scaffold connections where hazardous waste can be trapped will be covered with plastic sheeting.

vii. It is anticipated that the scaffold and ground cover will be disassembled upon completion at moderate risk to high-risk PPE respirator action level.

viii. Negative air equipment and electrical distribution will be installed around the scaffold structure.

ix. Scaffolding on the interior of the building will be installed following the completion of all other containment preparation. Interior scaffold installation will be delayed until it is confirmed that PAPR protection meets known contaminant action levels.

x. The highly friable asbestos spray insulation on the interior walls will be removed with the wall cladding. Our current risk assessment plan is to remove the most friable asbestos materials prior to introducing machine deconstruction into the buildings. An added benefit of doing this procedure is the introduction of additional light and space in the work area.

xi. Interior surfaces within the Precipitator will be accessed through existing hatches or additional openings will be cut as required. Where possible methods will be used to reduce confined space entry.

xii. Dust debris will be HEPA vacuumed from within the precipitator (rod housing, hopper and auger systems).

xiii. Electrostatic rod extraction will be completed during the deconstruction phase of the work.

xiv. The exterior asbestos wall cladding will be removed in sheets for packaging.

xv. The steel wall framing structure will be scraped clean of the residual asbestos spray insulation.

xvi. The roof system consists of smooth metal interior cladding “sandwiching” non-asbestos insulation with an exterior Q deck profile metal cladding. The primary difference between the precipitator roofs and the bag house roofs is that the roof purlins were once sprayed with what appears to be asbestos fireproofing. Residual spray is present.

xvii. The roof purlins will be pressure washed prior to the final cleaning process. Loose residual spray insulation will be dislodged. The purlins will be sprayed with a heavy coat of encapsulant during the final stage in preparation for the final air clearance sampling.

xviii. The roof purlins will be collected during the deconstruction phase of the work and packaged as asbestos/arsenic waste.

xix. The final steps in preparing the precipitator structures for deconstruction will be pressure washing and sealing with encapsulant all interior surfaces. Please see the typical and abatement processes detailed above under General Interior Decontamination/Abatement Procedures.

7.0 Dorrco Roaster

Preparing and abating the Dorrco will follow similar procedures as those followed for the Cottrell building abatements.

The unique building components of this structure are as follows:

i. The interior structure may have failed walkways caused by corrosion of the building’s structural components. The extent of this damage will require assessment during preparation of the building for abatement.

ii. The main east side roof cladding (gable roof structure) has failed (observed in the photo log provided). Sealing of the roof to acquire an air seal, (mandatory for a high-risk enclosure) will be attained through the installation of tarpaulins drawn across the roof, which will be secured, to the perimeter wall scaffolding being erected on all surrounding elevations.

iii. The interior thickeners, vats, and tanks containing contaminated products will be machine processed while the building is under a high-risk containment.

iv. The highly friable asbestos insulation applied to the walls will be removed with the wall cladding. Our current strategy is to remove the most friable asbestos materials prior to introducing deconstruction equipment into the building. This procedure is currently thought to offer a more definable occupation risk level and will provide ambient lighting for deconstruction.

v. The roof insulation is listed as being contaminated with arsenic however non-asbestos containing. It is suspected that there is residual asbestos spray on the roof purlins. The contamination is suspected to be remnants from the original building construction. This is similar to what is expected on the Cottrell building purlins but is not as obvious due to the new non-asbestos spray obscuring the view. It is assumed that the original structure was clad with asbestos transite roofing and sprayed with a similar asbestos insulation as is currently found on the perimeter walls.

vi. A pressure washer will be used to abate the upper roofs spray insulation (bulk removal) .

vii. Filter cloth will be placed on the top floor decking below the upper roof surface to assist in capturing the spray insulation as it falls. The filter cloth will permit water to pass through it, while capturing the majority of the spray material. The lower shed roof is metal clad and sprayed with non-asbestos insulation contaminated with arsenic. There may be similar issues with potential asbestos contamination on the purlins.

viii. The common practice of adhering spray insulation to metal decking is using adhesives directly applied to the metal roof cladding. This method is common in all manufactures specifications. Cleaning the sprayed metal cladding dust free is not likely possible. Residual fiber will persist, however; the majority of this insulation from the surface will be pressure washed and the remainder will be encapsulated. This will be completed on both roof elevations.

ix. The metal roof cladding and purlins will receive a heavy application of encapsulated during the sealing phase of the abatement work.

x. During the wet deconstruction process, the roof cladding and purlins will be separated and packaged as asbestos arsenic contaminated waste.

8.0 Interior – Dorrco Roaster

The following procedure will be completed for abatement in the interior of the building inclusive of the General Interior Decontamination/Abatement Procedure:

i. Package and extract all loose debris throughout the building.

ii. Removal of the asbestos insulation

iii. Commence interior deconstruction of thickeners, vats, and tanks.

iv. The interior reactors (3 units) have external asbestos insulation common on numerous vessels, flues and pipe. All of this material will be removed first during the abatement process.

v. The interior refractor in the reactors will require the following process: Loosen dust will be HEPA vacuum from the external ports and then be sealed during deconstruction using durable metal or plastic caps. Site inspection of the openings will confirm the type of caps to be installed. The units will then be toppled to grade and moved aside.

vi. When the building site is generally cleared, the internal refractor within the reactors will be loosened using an excavator, impacting the exterior metal surface, denting the metal while loosening the refractory.

vii. The following procedures will be followed depending on the presence or absence of friable asbestos:

   a. Friable asbestos – The reactors will then be contained in a high-risk separate containment. Enclosure chambers (waste and personnel) will be placed against the vessel(s). The reactor will be opened using torch cutters and the refractory will be extracted. Final cleaning the reactors and the associated chamber will be conducted in the same procedure as all other high-risk containments – HEPA vacuuming, pressure washing and encapsulation.

   b. No asbestos or non-friable asbestos – The reactors will be sheared open under wet conditions. The work will be completed on the water collection pad that was assembled for the abatement of the building. The existing building trench and catch basins will remain in operation during the deconstruction process.

viii. Flue ducts will be accessed using scaffolding. Existing and or new openings will be used to assess the bulk dust materials contained with these flues. The extraction process will be completed using a HEPA vacuum.

ix. The final stages of abatement will consist of HEPA vacuuming, water washing and encapsulation.

x. Upon the deconstruction work being completed, the pad will be washed and trenches and catch basins HEPA will be vacuumed.

9.0 Calcine Plant

Preparing and abating the Calcine Plant will follow the General Interior Decontamination/Abatement Procedures and further expanded on in the Cottrell building asbestos cladding removal process.

This building is completely clad with sprayed asbestos transite panels (walls and roof).

i. The building will be completely enclosed with an engineered scaffold covered with plastic sheeting covering the walls and roof.

ii. Roof access will be through either a roof ladder system or scaffolding installed within the structure supported from the trusses. This procedure will be reviewed and engineered on site. The method chosen will be based on the safest access.

iii. Interior scaffolding is required to access piping insulation, ductwork insulation, and equipment insulation.

iv. It is anticipated that machine deconstruction of the remaining thickeners and equipment known to be contaminated with bulk materials will take place once the bulk of the asbestos thermal insulation and cladding have been abated.

v. Upon the interior hazardous material being removed, the final cleaning process will follow the same sequence as for the previous buildings – pressure washing, visual inspection, encapsulation, air clearance and the enclosure tear down in preparation for deconstruction.

vi. Slab trenches and catch basins will be HEPA vacuumed prior to final wash down.

10.0 AC Roaster Building

i. This building is constructed of a wood exterior. The asbestos paper will be left on the building exterior until the interior work is completed. Upper air seals will be installed on the roof hut vents. The lower walls will be covered with plastic sheeting around the exterior where the asbestos paper cladding has been removed. The purpose of the plastic sheeting is to provide the air seals necessary to acquire 0.02 negative pressure. The plastic sheeting will be hammer tacked in place.

ii. Interior asbestos insulation will be abated from the main plant area as work progresses.

iii. The arsenic dust in the abandoned flues will be HEPA vacuum extracted.

iv. Interior deconstruction of tanks, vessels, and thickeners will be machine processed and packaged.

v. The building will be pressure washed. Boom lifts will be used on the interior to access the elevated surfaces.

vi. After visual confirmation of abatement, an encapsulant will be applied to the interior surfaces and air clearance sampling will be conducted.

vii. The exterior asbestos wall cladding will be abated prior to deconstruction of the structure. Having completed the abatement of the raw feed conveyor in 2012, the process is confirmed to be a moderate risk PPE level using a PAPR. The cladding is hosed down with water then pried from the walls. Drop sheets will be placed below all work surfaces to capture potential falling debris.

viii. Slab trenches and catch basins will be HEPA vacuumed prior to final wash down.

APPENDIX B
MSDS - WETTING AGENTS, ENCAPSULANTS AND CLEANSERS

APPENDIX C
WASTE CLASSIFICATION AND PACKAGING

Appendix C: Giant Mine Hazardous Waste Classification

DEFINITIONS:

UN Number: United Nations number. A four-digit numbers used world-wide in international commerce and transportation to identify hazardous chemicals or classes of hazardous materials.

Hazard Class: TDG regulations classify dangerous goods into nine classes according to the type of hazard they present.

Packing Group: Packing groups are assigned based on the level of hazard the dangerous good presents. There are three packing groups ranging from I (very hazardous substances) to III (moderately hazardous substances).

WASTE HANDLING AND PACKAGING:

Containerized and decontaminated waste accumulated at the Waste Transport Staging Area to the east of the Roaster Complex will be primarily organized by non-hazardous versus hazardous, and each waste stream will have a designated storage area, separate from other waste type storage areas. There will be one designated entry/exit point where material quantities will be monitored and inventoried for reporting requirements.

All material will be sorted and segregated mechanically throughout the decontamination and deconstruction process. Non-hazardous wastes will be stored separately from hazardous wastes and will be separated neatly into piles or stacks of like materials.

- Waste packaging is as follows: Arsenic and asbestos containing waste will be packaged first in 6-mil polyethylene bags, then will be placed in cubic metre bags. Depending on size, shape and accessibility of the waste the bag type will be determined, with smaller waste types going into the 1 cubic metre bags, and larger waste types going into the 3 or 6 cubic metre bags. The additional size bags meet the same standards and provide the same level of protection as the waste bags that are already approved for use on the site.
- Liquid wastes will either be packed in UN rated drums or transferred into appropriate UN rated drums at the waste source. The anticipated UN rated drums will consist of 16 gauge open head and 16 gauge tight head drums. Small waste amounts will be packaged in UN rated 20L polyethylene pails.
- All waste containers will be sealed and labeled according to TDG regulations for the waste type in question. If the waste type is not known then appropriately trained workers will use test kits to safely determine and classify the waste type to determine appropriate packaging.

The following table describes waste classification and the appropriate type of packaging to be used for each waste type:

Waste Type	TDG shipping name	Hazard Class	UN#	Packing Group	Packaging
Asbestos containing floor products decontaminated of arsenic trioxide	Asbestos, White (Waste)	9	UN2590	II	Double wrapped and sealed in 6 mil poly in cubic metre bags

Waste Type	TDG shipping name	Hazard Class	UN#	Packing Group	Packaging
Asbestos containing gaskets free of arsenic trioxide	Asbestos, White (Waste)	9	UN2590	II	Double wrapped in 6 mil poly in cubic metre bags
Sodium cyanide containers potentially containing residual quantities	Residue Last Containing, Sodium Cyanide (Waste)	6.1	UN1689	I	UN rated pails/drums
Containers of motor oil and grease	Non-hazardous in NWT and AB	n/a	n/a	n/a	Specific packaging not required
Cans of paint	Paint Related Material (Waste)	3	UN1263	II	UN rated pails/drums
Spray Paint	Aerosols (Waste)	2.1	UN1950	n/a	UN rated pails/drums
De-greasers	Could be chlorinated solvents. Need MSDS to classify (if available)				
Misc. cleaning products	Need MSDS to classify (if available)				
Cans of glue/adhesives	Adhesives (Waste)	3	UN1133	II	UN rated pails/drums
Mercury containing control valves	Mercury (Waste)	8	UN2809	III	UN rated pails/drums
Mercury containing light tubes	Non-hazardous in NWT and AB	n/a	n/a	n/a	specific packaging not required
Dielectric fluids in transformers (potentially PBC containing)	Shipping name: Articles Containing Polychlorinated Biphenyls (PCB) (Waste)	9	UN2315	II	**Note:** Without knowing the actual PCB concentration, assumption is over 50ppm.
PCB containing light ballasts	Articles Containing Polychlorinated Biphenyls (PCB) (Waste)	9	UN2315	II	UN rated pails/drums (for metals drums minimum of 18 gauge)
Fuel storage tank and piping with residual contents	Can be cleaned prior to transport as that will make it non-hazardous	n/a	n/a	n/a	
Granular sulphur	Non-hazardous in NWT and AB	n/a	n/a	n/a	specific packaging not required
Barrels of sodium hydroxide	Sodium Hydroxide, Solution (Waste) Note: assuming liquid state	8	UN1824	II	UN rated pails or poly drums
Barrels of penetrating asbestos encapsulate	Need MSDS but most likely non-hazardous	n/a	n/a	n/a	

Waste Type	TDG shipping name	Hazard Class	UN#	Packing Group	Packaging
Antifreeze	If used antifreeze then Leachable Waste (selenium) otherwise non-hazardous	n/a	n/a	n/a	specific packaging not required
Small quantities of lab chemicals:					
Silver Nitrate	Silver Nitrate (Waste)	5.1	UN1493	II	UN rated pails/ drums
Potassium Iodide	non-hazardous	n/a	n/a	n/a	specific packaging not required
Potassium Permanganate	Potassium Permanganate (Waste)	5.1	UN1490	II	UN rated pails/drums
pH buffer solutions	if pH is between 2 - 12.5, then non-hazardous				specific packaging not required
Citrex cleaner	non-hazardous	n/a	n/a	n/a	specific packaging not required
Partially full barrels of unknown liquids	Need to do a field test on the unknowns to determine the characteristics for classification				
Water coolers potentially containing chlorofluorocarbons (CFCs)/ozone depleting substances (ODS)	Transport the coolers as non-hazardous				specific packaging not required. Exempt from transport as hazardous waste in Class 2, Gases, in Refrigerating Machines Exemption (Section 1.32) of TDG Regulation. Note: Send for extraction of CFC's by Tervita and recycling
Lead-acid batteries	Batteries, Wet, Filled with Acid (Waste)	8	UN2794	III	Tervita has Transport Canada Equivalency Certificates which allows packaging on pallets
Leachable lead items (lead sheeting and items painted with leachable lead-amended paint)	Leachable Waste	n/a	n/a	n/a	specific packaging not required

APPENDIX D

DETAILED DECONSTRUCTION PLAN

DETAILED DECONSTRUCTION PLAN

1.0 SUPPORTING ACTIVITIES

1.1 Mobilization

The mobilization and demobilization of personnel (maximum of 70) and equipment will be conducted in three phases, Phase 1, Phase 2 and Phase 3. The first two phases will consist primarily of ground transportation for the mobilization of the bulk of the equipment required for project start-up and decontamination in Phase 1, followed by the mobilization of heavier equipment required for the deconstruction of the buildings in Phase 2. Phase 3 will consist of the mobilization of site personnel using a primarily air transportation or ground transportation when possible. Demobilization will generally occur in the opposite order, beginning with the demobilization of site personnel, followed by the demobilization of the heavy deconstruction equipment, then the remainder of the equipment onsite. The following is a detailed description of the three phases of mobilization and demobilization:

1.1.1 Phase 1

The initial mobilization of equipment, site supplies and personnel vehicles will be from local suppliers when possible or from either Calgary or Edmonton, Alberta to the Giant Mine site in Yellowknife, Northwest Territories via the Mackenzie Highway. Phase 1 of mobilization will consist primarily of the required site trailers, containment, scaffolding, and water treatment and decontamination systems required for abatement purposes as well as service equipment to prepare the laydown areas for site set-up.

The first equipment to be moved to the site will be two locally procured office trailers and light service equipment including a skid steer, zoom-boom and a 345 Cat excavator to be used to clear any remaining snow from the proposed laydown area and perform any landscaping required for the office trailer set up. This equipment will also be utilized for future offloading of incoming loads, for the set-up and construction of the proposed water treatment facilities and holding tanks and for any additional materials handling requirements. Equipment will be stored and staged in the Office and Equipment Laydown Areas as indicated on Figure 5 in the main body of the Waste Management Plan.

The second portion of Phase 1 of the mobilization will include moving the decontamination facilities and related equipment as well as all scaffolding loads and containment systems. The decontamination facilities consist of two self-contained 16.7 m (55') Decontamination Unit (DCU) trailer vans each equipped with multiple showers, laundry facilities and water heating equipment in addition to treatment and collection process equipment. Along with the decontamination units, three additional ~~16.7 m (55') supply and tool cribs~~ shipping containers configured for supply and tool cribs will be moved to the site. The cribs will be fully stocked with all abatement containment materials, abatement tools, securing materials and packaging for asbestos and arsenic containing materials. After completion of the office and lay down set up, the water handling, treatment facilities and associated equipment will be mobilized to the site. The water handling system will be comprised of pumps to recover water from the Polishing Pond, a 22,000 L fresh water holding tank, pumps that will provide a fresh water supply to the

decontamination units and move waste water from the decontamination units to the collection and treatment system. Additional equipment to be mobilized will also include a 37,000 L tank, various pumps, distribution lines and surge tanks for abatement and dust suppression purposes.

The final portion of the Phase 1 mobilization will consist of mobilizing the scaffolding equipment, which will be driven to the site using as many as four flat deck trailer loads over the entire course of the project, three being within in the first season of operation. The scaffolding system will be comprised of aluminum tube and clamp components paired with wooden toe board planks, laminated deck material and plywood, some of which may be obtained locally pending available quantities. All facilities and equipment for used for scaffolding, abatement, decontamination and water treatment will remain in place for the duration of the entire project including the off season.

During Phase 1 mobilization, all fuel requirements will be met by local vendors and delivered to site by crew trucks carrying slip tanks until the bulk fuel storage facilities have been installed on site. These materials and systems will all be mobilized via tractor trailer units in accordance with all applicable codes, standards, guidelines and permits including provincial regulations and road restrictions. All personnel supervising, piloting or operating equipment will be properly certified. Phase 1 mobilization and set up will employ up to fifteen personnel at a given time.

1.1.2 Phase 2

Phase 2 will consist of the mobilization of heavy equipment required for deconstruction purposes which will be transported from Edmonton to the site. The excavation equipment, rock trucks, payloaders and all associated attachments will be driven to the site on the Mackenzie Highway using highway tractors paired with an adequate low bed trailer to comply with weight limitations.

- The primary deconstruction machine will be the Caterpillar 345 excavator. This machine will be mobilized on a thirty wheeled combination trailer (depending on seasonal road restrictions), consisting of a tandem highway tractor pulling tri-axle trailer with a tri-axle booster and a tandem Jeep. Accompanying this load will be one pilot truck for operations within Alberta and a second pilot truck once in the Northwest Territories in accordance with provincial regulations. The Caterpillar 345 excavator will be equipped with the Genesis GXP 400 shear attachment. This machine will perform the majority of the structural deconstruction of the Roaster Complex. Assisting the Cat 345 will be ~~two~~ three smaller support excavators, a Cat 330 that will be mobilized on tri-axle trailer with an eight wheeled jeep to comply with provincial regulations, a 120 excavator and a Cat 303 or 303.5 mini which will be mobilized on a standard legal load combined with attachments and miscellaneous site equipment. Phase 2 of mobilization will also include two off-highway haulage trucks. The Volvo AT 30 rock truck will be mainly used for the transportation of materials to the intermediate materials storage area as well as any bulk hauling required for the deconstruction access. The off-highway haul truck will be moved from Edmonton on a standard tri-axle or step deck low-bed trailer. A second load of excavator attachments will be mobilized by truck including a Stanley 100 concrete breaker, concrete processor and skid steer. It is anticipated that a second load will be needed to move additional support equipment including bulk fuel cells. Both loads of attachments and support equipment will be also moved on standard tri-axle trailers. A pre-

fabricated bathroom trailer and a 7,600 L insulated sewage tank with electric heat trace on lines will be installed.

In addition to the deconstruction equipment, a variety of specialized equipment for abatement and decontamination purposes will be employed. Multiple configurations of man-lift equipment will be used throughout the execution of this project including ~~a 20 m (65') and 24 m (80'~~Genie aerial lift platforms between 13.7 m (45') and 18.3 m (60'). These articulated boom lifts are required for a variety of abatement purposes including interior dust removal, asbestos abatement and exterior cladding removal. A variety of scissor style lifts will also be employed during containment construction and interior abatement processes. The man-lifts will be moved in two loads on standard tri-axle trailers. Phase 2 mobilization and pre-project set-up, scaffolding and containment will employ up to 30 personnel at any given time. All personnel supervising, piloting or operating equipment via overland or marine routes will be certified in accordance with applicable regulations.

Equipment list

The following is a list of equipment that will be used during either decontamination or deconstruction activities:

- Cat 345 excavator: The primary deconstruction machine. It will be configured to operate a variety of deconstruction attachments.
- Cat 330 excavator: Support excavator capable of low-angle deconstruction purposes, but will primarily be employed for interior prep work and the processing and loading of deconstructed materials.
- John Deer 120 excavator: support excavator capable of interior deconstruction, waste sorting, segregation and loading of debris
- Cat 303 or 303.5 excavator: Support excavator used primarily for interior bulk dust removal, interior materials handling and pre-deconstruction prep work.
- Wood processor/Grinder: Used for cutting and grinding wood deconstruction waste.
- ~~Volvo A~~30 ton rock truck: Used for the transportation of materials to the intermediate materials storage area as well as any bulk soil hauling required for deconstruction access.
- Tri-axle truck and end dump trailer: Used for the transportation of materials to the intermediate materials storage area as well as bulk soil hauling, including mineral waste.
- Cat 9,000 lbs zoom boom or JCB Telehandler x 2: This equipment will be utilized for offloading purposes and for the set-up and construction of water treatment facilities and containment and decontamination structures.
- ~~Cat 262 s~~ Skid steer with forks x2: This equipment will be utilized for offloading purposes and for the set-up and construction of water treatment facilities and containment and decontamination structures.
- Torch trailer
- Genie articulated boom lift ~~20~~ 13.7 m (~~6~~45') to 18.3 m (60'): Man-lift equipment used for a variety of abatements purposes including interior dust removal, asbestos abatement, and exterior cladding removal.

- Scissor lift: Man-lift equipment employed during containment construction and interior abatement processes.

Equipment Attachments

- GXP 400 shear
- Labounty UP 30
- Stanley MP 100 Hammer

Specialty Equipment

Worker Decontamination Unit (DCU) – 2 separate units are planned for the site

The DCU is a manufactured personnel decontamination facility contained within a 16 m semi-trailer. The units are designed to be detached from the hazardous waste work areas and contain all required decontamination systems. The facilities within the trailer(s) are made up of the following connected rooms.

- Clean room – clean side entry. Personnel change and store their regular site clothing and change into clean personal protective suits. Dirty towel washer and dryers are also located in this room.
- Mask Room – Clean side room, used to store cleaned respirators and comes with a PAPR charging center and flow testing tools.
- Dirty room – Field personnel enter this room after having been exposed to hazardous materials, in preparation for shower decontamination. This area contains washing facilities for contaminated PPE.
- Shower room – 3 to 4 showers in a separated room, running the length of the trailer. Each shower is a separate stall. The end stall will have added curtains hung to provide greater privacy.
    - Water systems include passive dirty water drainage and storage with an automatic asbestos filtration pump system.
    - Water heating will be modified to a propane fired demand water system.
    - Each trailer will be wired with its own service drop connection and GFI breaker panel.
    - The trailers will be insulated to R-15 insulation and will have skirting installed to enclose the underside systems from adverse weather.
    - Heating is electric with outside gas fired forced air connections that will provide forced air heating to all clean side rooms and the underside of the DCU floor surface.
    - Air flow is designed to travel from the clean side rooms into the dirty room where it is discharged through a DOP tested negative air HEPA filtration fan.
    - All rooms are separated by doors with built in self closing plastic flaps to prevent air in the dirty room from entering into clean areas.

Industrial HEPA Vacuum – "Vac Loader" – one unit

The vac loader is a manufactured 2350CFM/27"Hg industrial vacuum trailer. This unit is designed to extract large volumes of dust and debris. Waste is vacuum transported through a 125 mm flexible hose

with a vacuum hose range of up to 300 m. The units have been purpose ordered for hazardous waste handling.

- The unit has a cyclone hopper to drop waste, a primary bag house filtration system and a di-octyl phthalate (DOP) tested HEPA filter for final air discharge.
- The conveying hose is flexible, ground, static resistant line with a backup explosion relief hatch built into the cyclone.
- The units have an auto bagging system for packaging hazardous waste designed to discharge into metre bags.
- The waste down loading system has a built in auger at the discharge hatch. This prevents overloading of the waste containers being used for packaging.
- A water spraying system is located at the waste drop hatch to control dust and includes a separate vacuum inlet for dust and debris control if required.

Shrink Wrap/Plastic Sheeting

Shrink wrap is a fire rated thermal plastic sheeting manufactured to shrink when heat is applied to its surface. The heat causes the plastic to be drawn to the scaffold to provide a wind resistant 9-mil translucent "skin." The product if punctured and or cut, will not continue to run (tear) past the cut location.

Plastic sheeting will be used on all containment facilities and structures. This product has been found to be resistant to most weather environments throughout Canada. The methods used to secure the sheeting are organized and secured so that the sheeting, if compromised, will not cause the whole structure to fail.

Additional Containment System Information:

- Enclosures are capable of withstanding winds up to 140 km/hour.
- Repairs and or modification to the containment are quick and offer the same original design strength as the initial installation.
- Installation of the sheeting is efficient and is often used as scaffold toe boards on the plastic sheeting applied side. This leaves the decks less encumbered for personnel access and cleaning.
- The use of plastic sheeting as the external containment barrier provides a relatively air tight containment.
- The plastic sheeting will not support fire and is static resistant.

Scaffolding

System Scaffolding will be used. This is a common scaffold system that locks together at all connection points. The rosette design provides excellent versatility when scaffolding in irregular spaces. System scaffold is one of the preferred scaffolds for engineer certification and is one of the most efficient scaffolds to erect.

For locations where the System Scaffolding is not suited, tube and clamp scaffold gear will be used. The quantity of tube and clamp installations will likely be minimal. No current locations have been confirmed with the exception of the personnel entry/exit chambers.

Wood scaffold decks and toe boards are assumed potentially non-salvageable upon project completion and will be treated as arsenic contaminated waste.

Mercury Vacuum
A specifically designed vacuum is used to collect spilt mercury without volatilizing the metal during the collection process. Waste bulk mercury is separated during vacuuming and is collected in a catch container attached to the vacuum. Associated mercury contaminated debris is deposited into a standard issue vacuum bag for easy packaging as potential mercury waste. The vacuum is DOP tested – complete with HEPA filter.

Manometer
These instruments will be used to measure air pressure differences between two separated atmospheres. Used as part of a high risk containment safety check, the manometer will be installed within active high risk containments to measure the effectiveness of the operating negative air system. The manometer will have an audible alarm to notify personnel if the desired pressure differential is not being achieved.

Water Filter Canister
The units are an engineered high-pressure filter sock canister, operated by an external submersible sump pump. The sump pump pushes the water through a filter sock liner secured within a pressure canister. The filter will be used to remove particulate from wash water collected during the abatement process. The filter sock that lines the canister(s) comes in cloth capacities as small as 2 microns. The filter canister design allows for quick changing of the single use sock filters and can be connected in series to process the contaminated water to a designated particulate size. Other notable system benefits are that the units are lightweight, easy to move and offer a high processing capacity.

Negative Air Cabinets with DOP testing Equipment on Site
Negative air cabinets are fans designed to continually operate under increasing load. Particulate collects on the front changeable pre-filters. The primary filter is a HEPA filter that is DOP tested on site to confirm it is operating to the 3-micron filter capacity.

Multiple negative air units are placed within containments to ensure redundancy. Each cabinet draws 56 m^3 (2000 cfm) at optimal condition. The negative air system is specifically designed for each work area enclosure. The negative air placement design will consider air movement, personnel and waste transfer facilities, air volume exchange rate and a 0.5 mm (0.02”) water column negative pressure differential.

To confirm the negative air cabinet filters are effective, a DOP test is run on each unit. The DOP test is run prior to the negative air cabinet being used in a containment design. DOP equipment will be available on site for the certified personnel to run the mandatory test.

Metre Bag Hopper

- The Hopper will be used to prepare and package hazardous waste. The hoppers are designed to funnel/down load the waste directly into the metre bag prepared below the hopper.
- Measured waste is loaded from above. The metre bag is attached to the hopper funnel base. Upon the bag being loaded the metre bag sleeve is sealed and the bag closed.
- The benefit is the metre bag is never exposed to the work area. Its external surface remains clean.
- The hopper units are installed against the 2nd stage of the Waste and Equipment Transfer Facility. All sides facing the work area are sealed and hoarded from the internal contaminated work area.

Emergency Backup power

- The DCU trailers will have a standby generator ready for use in the event that power to the facility is lost. The purpose is to ensure that field personnel can safely decontaminate and exit the containment if required.
- Smaller mobile generator units will be available to move to specific site locations and provide the temporary power that may be necessary during an unforeseen event, for example, if a site emergency was underway and power was then lost.

Site Lighting

- Lighting will be progressively installed into the structures while clearing safe entry. Lighting will be comprised of two separate systems. The first stage lighting will be incandescent string lighting for general passage. It will immediately illuminate an area when plugged into a power source.
- Pillar lighting will be moved to work locations to generate optimum lighting while the work is progressing. These lights will take several minutes to warm up and will not immediately re-light in the event of a power failure.
- Emergency lighting will be provided by personal flashlights that will be carried by all personnel when in buildings that have temporary lighting systems. These flashlights will also provide emergency exit lighting in the event of power failure.
- Ambient natural lighting will increase visibility in the Cottrell, Dorrco and Calcine once the exterior asbestos cladding being removed.

1.1.3 Phase 3

Local workers, companies and laboratories will be sourced whenever possible throughout the duration the project. Phase 3 of mobilization includes transportation of personnel that could not be locally sourced from Edmonton and Calgary to Yellowknife and back on regular shift rotations, transportation from lodgings to site as well as onsite transportation. Local commercial airlines will be utilized to transport crews from Edmonton to Yellowknife on regular rotations as well as for the mobilization of various consumable supplies and equipment throughout the duration of the project. Crew transportation to site daily will be done via passenger vans driven by qualified and designated personnel

from designated pick up points at provided lodgings. The onsite transportation requirements will also be handled in part by the crew vans as well as crew trucks as needed.

1.2 Demobilization

Phase I (Year 1)

The main objective of the Phase I demobilization at the end of the first operating season will be site securement. Phase I demobilization will mainly consist of the packaging of site supplies, dewatering and stabilizing all treatment equipment and preparing machinery and all other provisions for long-term storage as the majority of these systems will remain onsite during the off season. Phase I demobilization will also include the removal of any locally procured equipment from the site and off-site storage of Tervita machinery.

Phase I demobilization will begin with the decontamination of equipment, supplies and machinery to be removed from site for the off-season. A decontamination basin will be constructed on the concrete pad of the bag house and existing drainage and sumps will be utilized to contain and collect the wash water for subsequent treatment. All equipment leaving site will be given a thorough high-pressure wash prior to demobilization. It is anticipated that all Tervita equipment attachments and large excavators will be cleaned and demobilized from site for the off-season. This equipment includes, but is not limited to:

CAT 330

Labounty UP30

CAT 305 mini excavator

The Cat 330 will be demobilized on tri-axle trailer with an eight wheeled jeep to comply with territorial regulations. Any attachments will be moved on standard legal loads using tri-axle or step deck low beds.

In addition to the primary deconstruction equipment, we will also be decontaminating and demobilizing the majority of our locally procured support equipment including:

- Volvo AT 30 rock truck
- CAT 9,000 lbs zoom boom
- CAT 262 skid steer

The off highway rock truck, zoom boom and support equipment will be moved overland from site to Yellowknife on standard tri-axle or step deck low beds. All personnel supervising, piloting or operating equipment via overland or marine routes will be properly certified.

The majority of the specialized lift equipment including Genie and scissor lifts will remain onsite for the duration of the project. Also, scaffold, containment, and negative air/abatement equipment are not expected to be removed from site during the offseason.

Phase I demobilization will also include the cleaning and stabilizing of the dust suppression and decontamination units as well as all other associated pumps, lines and tanks. Most of this equipment simply needs to be drained to eliminate freezing and pressure washed to remove any residual dust contaminants on the surface. The decontamination unit will require a more thorough cleaning of its interior components and wastewater collected for further treatment.

The final portion of Phase I demobilization will be the final run of the water treatment facility, final cleaning and stabilization for the offseason.

Once all waste and wash water is collected from demobilization activities and treated, the water treatment system will cleaned and purged for winter storage. All tanks, pumps and associated transfer lines will be pressure washed and dewatered for cold storage. The water treatment system will be winterized and secured on site for storage over the offseason.

Phase II (Year 2)

Phase II demobilization will come at the end of the 2014 work season upon the completion of the entire project. The primary element of demobilization will require the thorough decontamination discussed for Phase I demobilization, this time being applied to all machinery, equipment and facilities that have been used over the duration of the project.

Phase II demobilization will begin with the decontamination of any large mobile equipment, supplies or machinery to be removed from the site. A decontamination basin will be established on the concrete pad of the bag house and existing drainage and sumps will be utilized to contain and collect the wash water for treatment in the site system. All equipment leaving site will be given a thorough high-pressure wash prior to demobilization. This equipment includes but is not limited to:

- CAT 345
- GXP 400 shear
- Stanley MP 100 hammer
- CAT 330
- Labounty UP30

The primary method of demobilization for Phase II will be overland via the Mackenzie Highway, returning the Tervita equipment and attachments to Edmonton AB. The Caterpillar 345 excavator will be demobilized on a minimum thirty wheeled combination trailer (depending on seasonal road restrictions to ensure compliance), consisting of a tandem highway tractor pulling tri-axle trailer with a tri-axle booster and tandem jeep. Accompanying this load will be one pilot truck for operations within Alberta and a second pilot truck while in the Northwest Territories in accordance with Territorial regulations. The Cat 330 will be demobilized on tri-axle trailer with an eight wheeled jeep to comply

with provincial regulations. Any attachments will be moved on standard legal loads using tri-axle or step deck low beds.

In addition to the primary deconstruction equipment, we will also be decontaminating and demobilizing the majority of our locally procured support equipment including:

- Volvo AT 30 rock truck
- Cat 9,000 lbs zoom boom
- Cat 262 skid steer
- Cat 305 mini excavator

The off-highway haul truck, zoom boom and support equipment will be moved overland from site to Yellowknife on standard tri-axle or step deck low beds. All personnel supervising, piloting or operating equipment via overland or marine routes will be properly certified.

All of the specialized lift equipment including both Genies and scissor lifts will be decontaminated and demobilized from site. All scaffolding, containment, or negative air/abatement equipment will also be decontaminated and demobilized from site. Wooden components of scaffolding used in the decontamination work will have previously been removed and managed as Arsenic-impacted waste.

All material and equipment will be removed from site and the site left in a safe and tidy manner as per contract requirements.

1.3 Equipment Decontamination Areas

Equipment decontamination areas will be established at predetermined locations as determined by the sequence of work and onsite personnel. These areas will only be used for cleaning of light and heavy equipment used during site activities prior to off-site demobilization. All equipment that requires cleaning will be cleaned in these areas before leaving the facility. Decontamination procedures are discussed further in the Decontamination Plan provided separately.

Water will be captured in the equipment decontamination areas by existing building infrastructure or by additional exterior water trenching and ground cover installed as required around the buildings.

1.4 Site Security

Existing site security fencing will be utilized to prevent unauthorized personnel access to the site. All project and team personnel and visitors will follow sign-in procedures and check in at the main facility control point. The site superintendent will control access to work areas during operating hours through the monitoring of a single ingress/egress location with mandatory sign-in procedures for all personnel. Sensitive work areas will be cordoned off with temporary barricades and/or fencing with appropriate demarcation.

1.5 Abatement Activities

Detailed asbestos abatement and arsenic trioxide removal procedures are provided in the Detailed Decontamination Plan (Appendix A). The plan specifies how abatement and removal procedures will be safely conducted in/at each structure.

1.6 Controls to Prevent Spread of Contamination

Several measures will be taken to prevent contamination of access roads, site roads, equipment and vehicles onsite. These measures include the following:

- All hazardous waste will be pre-packaged within the three-stage waste and equipment transfer facility to prevent exposure of hazardous waste beyond the containment area. Any waste present on the exterior of the containment area will either be packaged or will have already undergone lockdown (application of encapsulant).
- Equipment and tools used for abatement work will either be packaged or decontaminated prior to leaving the containment area to be used in further abatement activities onsite.
- Deconstruction will be conducted in a manner that limits the spread of deconstruction waste to the building footprint where possible.
- Buildings and/or structures being demolished will have already been decontaminated, therefore any deconstruction debris which may be present on the access and site roads should not contain any hazardous materials.
- Use of Worker Decontamination Units (see Section 1.1.2)

1.7 Decommissioning of Facility Utilities

Sewer Lines
Sewer lines associated with demolished buildings will be cut and capped at grade.

Electrical
The team will confirm that all utility disconnects have been performed prior to commencement of any removal operations, which will be overseen by the Mines Inspector under the NWT *Mines Health and Safety Act*. Removal of utilities will not occur unless each line has been checked and clearly demarcated.

2.0 DECONSTRUCTION ACTIVITIES

2.1 Sequence of Work

Mechanical deconstruction methods will be use so that the structures can be taken down in a step-wise, piece-by-piece controlled manner. The first step in deconstruction will be the removal of the ancillary structures and buildings in order to gain 360-degree access to the remaining process buildings. This ancillary work will begin at the north end of the AC Roaster Complex. Generally, the process buildings

will be deconstructed in sequence from the north end of the AC roaster complex to the south. The Cat 345 with a shear attachment will perform the bulk deconstruction; all buildings are within safe working heights of this machine**.** The approximate deconstruction sequence is further described in the following section.

2.2 Order of Deconstruction

After pre-mobilization activities, which include preparation and approval of work plans, Parsons and subs will mobilize and proceed with construction work. Work is not allowed when ambient air temperature is below negative five degrees. Based on seasonal weather conditions, Parsons plans to suspend construction work during winter seasons. No decontamination activities will be carried out after third week of September. Similarly, deconstruction work will cease after the first week of October. As a result, construction activities have been planned for the two construction seasons during 2013 and 2014. The following is an approximate decontamination and deconstruction sequence and anticipated dates of completion.

DECONTAMINATION SCHEDULE

Structure	Estimated Start Date	Estimated Completion Date
Stack	June 1, 2013	September 4, 2013
Exterior Flues	June 1, 2013	October 23, 2013
AC Roaster Building	June 6, 2013	October 3, 2013
Bag House	June 10, 2013	September 28, 2013
Fan House	June 12, 2013	July 10, 2013
Cottrell Precipitators	June 21, 2013	July 12, 2014
Scale House	July 31, 2013	August 24, 2013
Arsenic Silo	August 9, 2013	September 3, 2013
Dorcco Roaster Building	August 24, 2013	August 20, 2014
Calcine Plant	April 1, 2014	August 25, 2014

DECONSTRUCTION SCHEDULE

Structure	Estimated Start Date	Estimated Completion Date
Exterior Flues	August 12, 2013	August 15, 2013
Arsenic Silo	September 4, 2013	September 7, 2013
Scale House	September 4, 2013	September 7, 2013
Roaster Stack Removal	September 5, 2013	October 9, 2013

Bag House	September 30, 2013	October 10, 2013
AC Roaster Building	October 4, 2013	July 9, 2014
Fan House	October 10, 2013	October 11, 2013
Cottrell Precipitators	July 14, 2014	July 30, 2014
Calcine Plant	August 14, 2014	August 30, 2014
Dorco Roaster Building	August 21, 2014	September 13, 2014

2.3 Standard Deconstruction Procedures

The following provides an overview of the general deconstruction procedures that will be used. Specific considerations and procedures for each structure are provided in section 2.4 below.

- Confirmation of utility disconnects.
- The Active deconstruction zone will be 23 m from shearing activities.
- A preliminary visual inspection will be done to identify any potentially unstable components of the structure. If any unsafe conditions are present, these items will be addressed first to mitigate potential for personal injury, impact to environment or damage to equipment and adjacent facilities. Visual inspection will include an area sweep to look for any potential hazardous materials.
- Deconstruction crew to conduct Field Level Risk Assessment to identify such things as impoundments or obstructions that could be hazardous to ground personnel or impede the mobility of the deconstruction machinery.
- Dust suppression will be set up for deconstruction activities. Dust suppression will consist of 3.8 cm distribution hoses equipped with misting nozzles and two Dust Destroyers capable of providing long range water (close proximity to working equipment, inaccessible heights, etc.) to the work area. Water will be supplied by way of pump from water holding tank/reservoir. Water will be managed and collected within the footprint of the building. We will excavate shallow trenches/containment berms in order to further collect and manage any fugitive water during the deconstruction process. See wastewater management plan. Dust suppression will continue to be a very controlled process, executed in complete accordance with the Waste Management Plan.
- During deconstruction and decontamination all waste will be segregated manually and mechanically. Contaminated waste will be bagged in Lift Liners or equivalent ,~~or~~ Super Sacks or directly loaded into lined sealand containers as per TDG for transportation to the intermediate laydown area
- All wood on site will be considered contaminated and steel will be considered clean. Wood will be set aside on the footprints of the structures to be demolished and the further processed by grinding/chipping the wood and bagging it in Lift Liners or equivalent for transportation to the intermediate laydown area via rock truck. Steel will be processed oversize and transported to the intermediate laydown area.

2.4 Building Deconstruction Details

Abatement activity procedures vary with the type, location and amount of hazardous materials present. The risk level was determined based on the descriptions of activities requiring high and moderate risk procedures identified in the Northwest Territories and Nunavut Codes of Practice for Asbestos Abatement. This known or potential risk will define PPE protection and decontamination methods for personnel and the resulting engineered controls for the work locations. According to the definitions outlined in the code of practice and the added risk associated with the presence of arsenic trioxide impacted materials it was determined that decontamination activities where arsenic trioxide is present would be completed at either high-risk or moderate risk (glove bagging) abatement procedures.

Prior to the start of deconstruction, each building will be decontaminated using the procedures set out in the Detailed Decontamination Plan provided in Appendix A. A summary of the risk levels associated with the decontamination and deconstruction activities for each of the structures is provided below:

Structure	Decontamination Procedures Followed
AC Roaster	High Risk Abatement Procedures
Weight Scale Building	Moderate Risk Abatement Procedures
Silo	High Risk Abatement Procedures
Bag House	High Risk Abatement Procedures
Cottrell Precipitator Building	High Risk Abatement Procedures
Dorrco Roaster	High Risk Abatement Procedures
Calcine Building	High Risk Abatement Procedures
Exterior Flues	Moderate Risk Abatement Procedures

Structure	Deconstruction Procedures Followed
AC Roaster	Moderate Risk Procedures
Weight Scale Building	Moderate Risk Procedures
Silo	Moderate Risk Procedures
Bag House	Moderate Risk Procedures
Cottrell Precipitator Building	Moderate Risk Procedures
Dorrco Roaster	Moderate Risk Procedures
Calcine Building	Moderate Risk Procedures
Exterior Flues	Moderate Risk Procedures

Following decontamination, deconstruction will begin. Specific considerations and procedures for each structure are provided below. Flues will be deconstructed using the procedures set out for the structures to which they are attached and the Fan House, which is a small structure, will be removed

following the deconstruction of the Bag House using similar procedures. Further details can be found in the Detailed Decontamination Plan found in Appendix A.

2.4.1 AC Roaster (Interior)

- Work will be performed under High risk protocols (see high risk procedure included in the Detailed Decontamination Plan found in Appendix A).
- Deconstruction crew will assist in the removal of the bulk decontamination including bulk arsenic dust, refractory brick and miscellaneous stored material using the 303 or 303.5 Mini excavator. See AC Roaster decontamination procedure.

2.4.2 AC Roaster (Structural Deconstruction)

Once final clean up and decontamination of the AC Roaster is complete structural deconstruction will be performed as follows:

- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of either PAPR or airline respirators, Tyvek suit, boots, cut resistant gloves, and hard hat.
- Deconstruction of the structure will begin using a Cat 345 with a shear attachment. The Cat 345 has a 12m reach and the AC Roaster has a height of 12 m, therefore the deconstruction of the structure will be well within the safe operating limits of the Cat 345.
- During deconstruction the expected building material to be encountered is a wood timber frame, metal equipment, and electrical equipment. All material will be sorted and segregated mechanically throughout the deconstruction process.
- Structural deconstruction will begin on the north end of the complex and will progress to the south.
- Interior equipment and components that are accessible will be removed first (this will be ongoing as the structural deconstruction progresses).
- The roof trusses and structural members will be cut in a systematic fashion to minimize risk to personnel and equipment, with emphasis given to the west side of the building adjacent to the Calcine and Dorrco Buildings. Assigned safety personnel will assist the operator to monitor the integrity of the Calcine and Dorrco Buildings.
- As deconstruction progresses materials from all levels will be sorted and segregated, including wooden elevated platforms and staircases.
- Any steel will be separated and removed to a lay down area. Wood materials will be further processed by grinding and chipping and will be packaged into Lift Liners or equivalent and transported to the lay down area.

2.4.3 Weigh Scale Building

- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of a powered air purifying respirator (PAPR), Tyvek suit, boots, cut resistant gloves and hard hat.
- Deconstruction work will start post decontamination. It is expected that a skeleton steel frame structure with metal siding will remain.
- Deconstruction of the structure will begin using a Cat 345 with a shear attachment. The Cat 345 has a 12m reach and the Weight Scale Building has a height of 6m, therefore the deconstruction of the structure will be well within the safe operating limits of the Cat 345.
- Prior to deconstruction of the structure the metal siding panels will be striped using the Cat 345 with the shear attachment.
- Deconstruction of the will begin at the south end of the structure work and work will progress towards the north, one column line at time to maintain structural integrity of the building and to allow the structure to be demolished in a controlled fashion. As deconstruction progresses the interior contents of the building will be exposed, including arsenic trioxide impacted wood, electrical components, elevated platforms and staircases.
- During the deconstruction activities the various materials (wood and steel) will be segregated and the wood will remain within the footprint of the building for additional processing and packaging. The wood will then be packaged into bulk bags for transportation to the lay down area.
- The roof will be demolished by first cutting all roof purling then connecting rods and bracing materials leaving structural members and trusses behind. The initial removal of these lightweight connecting materials significantly reduces the potential of an uncontrolled release.
- The roof trussed and structural members will be cut in a systematic fashion to minimize the risk to personnel and equipment. Steel will be cut and processed into oversize lengths and inspected for possible further cleaning and packaging/transportation.
- Material will be transported to intermediate lay down area via Rock Truck.

2.4.4 Silo

- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of a PAPR, Tyvek suit, boots, cut resistant gloves and hard hat.
- Deconstruction work will start post decontamination.
- The Silo will be classified as a sealed vessel and atmospheric tests will be conducted prior to any non-intrinsically safe operations, such as torch cutting or shearing.

- Deconstruction of the structure will begin using a Cat 345 with a shear attachment. Two vertical cuts will be performed from the top to the bottom of the silo on opposing sides while it is still standing in place.
- The Silo will be laid on its side to facilitate shearing the top and bottom of the silo. Upon completion the silo will be in two halves.
- Once the silo is in two halves it will be positioned on the weigh scale pad for additional cleaning of residual contents.
- After final cleaning of the silo is completed, it will be processed into manageable pieces for loading and transportation by shearing the steel into sections no greater than 5m in length with the Cat 345 Excavator equipped with a shear attachment.
- Material will be transported to the intermediate lay down area via Rock Truck.

2.4.5 Bag House (Interior)

- Work will be performed under high-risk protocols (see high risk procedure included in the decontamination plan). Personal Protective Equipment will consist of PAPR or air line respirators, two Tyvek suits, boots, cut resistant gloves and hard hat in accordance with decontamination procedures.
- At the east end of the building, a clean room (preparation room as part of the series of two rooms) enclosure will be set up to allow for the entry of the Cat 345 into the sealed Bag House Structure.
- The Cat 345 with the shear attachment will strip the east wall metal siding to expose the interior equipment and bag house hoppers. It should be noted that the building will still be sealed and under negative air pressure.
- Once the metal siding is removed, equipment will be utilized to gain access to the 2400 filter socks and assist the decontamination crew in removal of the filters. The Cat 345 will continue into the building and gain entry into the hopper and auger systems for bulk arsenic removal (see Bag House Decontamination procedure).
- The Cat 345 machine will then be decontaminated and removed from the enclosure to allow for final cleaning and decontamination of the Bag House.

2.4.6 Bag House (Structural)

- Once final clean-up and decontamination of the Bag House is complete structural deconstruction can begin.
- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of a PAPR, Tyvek suit, boots, cut resistant gloves and hard hat.
- Dust Suppression will be set up for deconstruction activities with special consideration given to the close proximity to Highway #4, Ingraham Trail.

- Deconstruction of the structure will begin using a Cat 345 with a shear attachment. The Cat 345 has a 12m reach and the Bag House Building has a height of 9m, therefore the deconstruction of the structure is well within the safe operating limits of the Cat 345.
- The expected building materials to be encountered during deconstruction include metal siding, structural steel, fiberglass and wood. All material will be sorted and segregated mechanically throughout the deconstruction process.
- Deconstruction will begin by removing the north and west metal cladding. The east metal cladding has been previously removed and south metal cladding is inaccessible, and will be removed during structural deconstruction.
- Structural deconstruction will begin on the east side of the building progressing to the west.
- Interior equipment and components that are accessible will be removed first (this will be ongoing as the structural deconstruction progresses), including the filter system, hoppers and auger assemblies.
- The roof will be demolished by first cutting all roof purling, connecting rods and bracing materials leaving structural members and trusses behind. The initial removal of these lightweight connecting materials will significantly reduce the potential of an uncontrolled release.
- The roof trusses and structural members will be cut in a systematic fashion to minimize risk to personnel and equipment, with emphasis given to the south side of the building adjacent to the Cottrell Building. Safety personnel will assist the operator to ensure the integrity of the Cottrell Building is maintained. The south wall will be demolished in a safe manner as steel will be cut and processed into oversize lengths and inspected for possible further cleaning and packaging/transportation. All steel is expected to be clean for transportation to the intermediate lay down area.

2.4.7 Cottrell Precipitator Building

- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of a PAPR, Tyvek suit, boots, cut resistant gloves and hard hat.
- Deconstruction work will start post decontamination.
- Deconstruction of the structure will begin using a Cat 345 equipped with a shear attachment. The Cat 345 has a 12m reach and the Weight Scale Building has a height of 10m, therefore the deconstruction of the structure is well within the safe operating limits of the Cat 345.
- The building materials expected to be encountered during deconstruction activities include structural steel, interior ducts and flues, electrostatic rods, hoppers, pumps, fans and motors. All materials will be sorted and segregated mechanically throughout the deconstruction process.
- Structural deconstruction will begin on the east side of the building progressing to the west.

- Interior equipment and components that are accessible will be removed first from both levels (this will be ongoing as the structural deconstruction progresses), including the filter system, hoppers and auger assemblies. Note: electrostatic rods will be removed mechanically. Before accessing the rods, tear resistant drop sheets will be laid out on the floor below and in the surrounding the area to contain the scale material from the rods. The rods will be sheared for packaging and transported to the lay down area (rods will be packaged into Lift Liners or equivalent)
- The roof will be demolished by first cutting all roof purling, connecting rods and bracing materials, leaving structural members and trusses behind. The initial removal of these lightweight connecting materials will significantly reduce the potential of an uncontrolled release. Roof purlins will be collected during this phase of work and packaged as asbestos/arsenic waste.
- The roof trusses and structural members will be cut in a systematic fashion to minimize risk to personnel and equipment, with emphasis give to the south side of the building adjacent to the Dorrco Roaster. Safety personnel will assist the operator ensure the integrity of the Dorrco Roaster building is maintained. The south wall will be demolished in a safe manner as steel is cut and processed into oversize lengths and inspected for possible further cleaning and packaging/transportation.
- Material will be transported to intermediate lay down area via Rock Truck.

2.4.8 Dorrco Roaster

- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of a PAPR, Tyvek suit, boots, cut resistant gloves and hard hat.
- Deconstruction of the structure will begin using a Cat 345 equipped with a shear attachment. The Cat 345 has a 12 m reach and the Weight Scale Building has a height of 12 m, the deconstruction of the structure is well within the safe operating limits of the Cat 345.
- Structural deconstruction will begin on the west side of the building progressing to the east.
- The interior equipment and components that are accessible will be removed first from both levels (this will be ongoing as the structural deconstruction progresses), including thickeners, vats, tanks, stairways, floors and catwalks. The Ball Mill and reactors will require torch cutting which will be conducted on the foot print of the existing Dorrco Structure (please see site specific health and safety plan for Torch Cutting Procedure). Torchmen will require leathers as additional PPE. The 345 Cat excavator will clear the surrounding area of debris prior to torch cutting activities. Fire Extinguishers will be used for fire suppression. All combustible materials will be removed from the area prior to conducting any hot work.
- The 345 Cat excavator will be used to loosen the refractory brick inside the steel roaster vessels by impacting the exterior metal surface. The decontamination crew will then remove the refractory contents.

- The roof will be demolished by first cutting all roof purling, connecting rods and bracing materials leaving structural members and trusses behind. The initial removal of these lightweight connecting materials will significantly reduce the potential of an uncontrolled release. The intent is for the lower shed roof purlins to be collected during this phase of work and packaged as asbestos/arsenic waste.
- The roof trusses and structural members will be cut in a systematic fashion to minimize risk to personnel and equipment; with emphasis given to the south side of the building adjacent to the Calcine Building. Safety personnel will assist the operator to ensure that the integrity of the Calcine Building is maintained. The south wall will be demolished in a safe manner as steel will be cut and processed into oversize lengths and inspected for possible further cleaning and packaging/transportation. All steel is expected to be clean for transportation to the lay down area.
- On the roof of the east side of the high structure there is a penthouse (approximately 15m high). This portion exceeds the working height of the Cat 345 excavator. This area will therefore be demolished in a controlled fashion by pulling the support legs of the structure out and bringing it to the ground within the building footprint. Once on the ground, the excavator will continue with the deconstruction.
- During deconstruction activities the Cat 345 excavator will be sorting and segregating the various deconstruction materials. The steel will be transported to the lay down area. The wood will be segregated for further processing by a wood grinder/chipper and loaded into Lift Liners or equivalent .
- Material will be transported to the intermediate laydown area via rock truck.

2.4.9 Calcine Building

- Work will be performed under moderate risk protocols (see moderate risk procedure included in the decontamination plan). Personal Protective Equipment will consist of a PAPR, Tyvek suit, boots, cut resistant gloves and hard hat.
- Deconstruction of the u-shaped structure will begin using a Cat 345 excavator equipped with a shear attachment. The Cat 345 has a 12 m reach and the Calcine Building has a maximum height of 11 m, therefore the deconstruction of the structure is well within the safe operating limits of the Cat 345 excavator.
- Structural deconstruction will begin on the northwest side of the building progressing to the east.
- Interior equipment and components that are accessible will be removed first from both levels (this will be ongoing as the structural deconstruction progresses); including wooden thickeners, steel rotary kiln, second level drum filter, stairways, and fuel tank.
- The steel rotary kiln will require some additional torch cutting. Torch cutting will be conducted on the footprint of the existing Calcine Building (please see site specific health and safety plan

for torch cutting procedure). Torchmen will require leathers as additional PPE. The 345 excavator will clear the surrounding area for torch cutting activities. Fire extinguishers will be used for fire suppression; all combustible materials will be removed from the area prior to conducting any hot work.

- The thickeners will be demolished during the decontamination phase to assist with the bulk removal of the arsenic impacted materials. Wood will be stockpiled and segregated. During structural deconstruction, the wood will be further processed using a wood grinder/chipper and packaged in Lift Liners or equivalent to be transported to the lay down area.
- The roof will be demolished by first cutting all roof purling, connecting rods and bracing materials leaving structural members and trusses behind. The initial removal of these lightweight connecting materials will significantly reduce the potential of an uncontrolled release. The lower shed roof purlins will be collected during this phase of work and packaged as asbestos/arsenic waste.
- The roof trusses and structural members will be cut in a systematic fashion to minimize risk to personnel and equipment.
- During deconstruction activities the Cat 345 excavator will be sorting and segregating the various deconstruction materials. The steel will be transported to the lay down area. The wood will be segregated for further processing by a wood grinder/chipper and loaded into Lift Liners or equivalent .
- Material will be transported to intermediate lay down area via rock truck.

2.4.10 Stack (Chimney)

The metal cap on the stack is possibly loose. To that end, at the onset of the job, International Chimney Corporation will inspect the top of the stack and determine its condition. If necessary, the metal cap will be secured and/or removed so the area at the base of the chimney can be inspected safely.

The stack deconstruction will commence as scheduled after the exterior flues and the existing debris located in the base of the stack is removed. The stack will be demolished down to 9 m above grade by installing a stack cable scaffold at the top of the stack exterior and removing the brick column and full height brick lining in a piecemeal manner, using air hammers with all debris being directed into the stack interior.

A debris opening shall be installed at the stack base. All debris will be removed from the base of the stack interior, as necessary by machine and containerized. Dust will be suppressed by using a water mist directly on the brickwork being removed. All personnel shall use appropriate PPE such as hard hats, eye protection, respiratory protection, etc., as well as maintaining 100% fall protection.

At the 9 m elevation the chimney scaffold shall be removed and the remainder of the stack will be demolished using a hydraulic excavator. All debris will be containerized and transported to the lay-down area.

APPENDIX E

OFF-SITE WASTE RECEIVING FACILITIES - CONFIRMATION LETTERS