GOVERNMENT OF YUKON ENERGY, MINES AND RESOURCES

SPECIFICATIONS FOR CLINTON CREEK CHANNEL STABILIZATION (STAGE 3) AND DEMOLITION WORK AT THE FORMER CLINTON CREEK MINE SITE, YUKON TERRITORY

July, 2004

UMA Job No. 6029 006 00

SPECIFICATIONS

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Labour and Equipment Rate Schedule

The rates for the labour and equipment we intend to use on the Work is as follows:

Labour / Equipment	Hourly Rate (\$ per hour)	Equipment Standby Rate (\$ per day)

Government of Yukon Former Clinton Creek Asbestos Mine SCHEDULE OF PRICES

UNIT PRICES						
ITEM NO.	DESCRIPTION	SPECIFICATION REFERENCE	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
1	Project Mgmt, Administration, and	SP:1	L.S.	1		
	Telecommunications					
	Note: The lump sum price for Item 1. shall not					
	exceed three percent of the Total Bid Price.					
2	Construction Camp	SP:1				
a)	Mob / Demob		L.S.	1		
b)	Camp Operation Cost (no meals)		per week	16		
c)	Meal Cost (per man / day)		man days	1,000		
3	Creek Stabilization	SP:2				
a)	Mob / Demob		L.S.	1		
b)	320 Cat Excavator		per hr.	250		
c)	966 Cat Loader		per hr.	250		
d)	D7 Cat dozer		per hr.	150		
e)	Tandem truck		per hr.	75		
f)	60" vibratory drum roller/compactor		per hr.	75		
g)	misc. equipment and supplies		per month	1		
h)	Riparian Work (seeding etc.)		L.S.	1		
g)	labour (1 person)		per hr.	280		
h)	labour (1 person)		per hr.	280		
I)	labour (1 person)		per hr.	280		
j)	labour (1 person)		per hr.	280		
4	Demolition Work	SP:3 & 4				
a)	Mob / Demob		L.S.	1		
b)	Personal Protection Equipment		L.S.	1		
C)	Asbestos Abatement Training		L.S.	1		
d)	Decontamination Facility		per month	1		
e)	Crusher Building		L.S.	1		
t)	I ram terminus tower		L.S.	1		
<u> </u>	Tram Towers		L.S.	6		
<u>h</u>)	Conveyor Tunnels		L.S.	2		
I)	Utilidor Boxes		L.S.	2		
j)	Former Mechanical Buildings		L.S.	2		
<u>k)</u>	Diesel Fuel Storage Tank		L.S.	1		
<u> </u>	vvater Storage Tank		L.S.	1		
)	Old Mining Equipment (drill & shovel)		L.S.	2		
n)	ANFO storage facility		L.S.	1		
_		0.0.4		50.000		
5	Diesel Fuel Rate	SP:1	per litre	50,000		
I UTAL DID FRIGE (GOT EXITA) (III liguies) >						
(in wor	ds)					
L						

Schedule of Work

FOR: <u>CLINTON CREEK CHANNEL STABILIZATION (Stage 3) and</u> <u>DEMOLITION WORK AT THE FORMER CLINTON CREEK MINE SITE,</u> <u>YUKON TERRITORY</u>

	Percentage of Work Completed				
Items of Work	Start Date				Completion
	0%	25%	50%	75%	100%
1) Mob / Site Preparation					
2) Gabion Drop Structure #3					
3) Gabion Drop Structure #4					
4) DEMOLITION WORK					
4a) Crusher Building					
4b) Tram Terminus Tower					
4c) Tram Towers					
4d) Conveyor Tunnels					
4e) Utilidor Boxes					
4f) Former Mechanical Buildings					
4g) Diesel Storage Tank					
4h) Water Storage Tank					
4i) Old Mining Equipment					
4j) ANFO Storage Facility					
5) Site Cleanup / demob					

CONTRACTOR'S PROPOSED COMMENCEMENT DATE _____ 2004

SP:1 GENERAL

- 1.1 <u>Project Management</u>
- 1.1.1 Project management activities shall include administration and telecommunications costs borne by the General Contractor that are required to manage the job effectively and on time.
- 1.2 <u>Construction Camp</u>
- 1.2.1 The General Contractor shall provide and operate complete construction camp services, including the provision, preparation and serving of food as required for construction personnel, site engineer and any other authorized personnel.
- 1.2.2 Provision of construction camp services consists of the supply, installation, operation and maintenance of a camp including all associated facilities, food, utilities and services required for a camp such as: heating, lighting, propane, potable and domestic water systems, sewage collection and disposal, waste refuse and garbage collection and disposal, camp safety, meals, sleeping and washroom facilities, bedding and bedding laundry service.
- 1.2.3 Demobilize and remove the construction camp from the site upon completion of the Contract.
- 1.2.4 Obtain and pay for, as part of provision of construction camp services any and all licenses, permits and authorizations required to comply fully with all laws, ordinances and regulations of the Federal or Provincial authorities in connection with the performance of work of this section.
- 1.3 Mobilization and Demobilization
- 1.3.1 This specification covers site preparation, mobilization and demobilization of the construction camp, supplies, equipment, fuel storage containers and the preparation of laydown and staging areas.
- 1.3.2 The Work to be done by the Contractor under this specification shall include the furnishing of all superintendence, labour, materials and all things necessary for and incidental to the satisfactory performance and completion of all work.
- 1.4 Fuel Supply for Camp and Equipment
- 1.4.1 This specification covers the provision of diesel fuel and fuel storage facilities for the construction camp power generating plant and heavy equipment. Fuel provided by the General Contractor and stored on-site shall be done so according to the conditions in the Land Use Permit (Permit # YA3E005) taken out by the Government of Yukon – Energy, Mines and Resources (GY-EMR). A spill kit will be kept on hand as per the attached Emergency Response Plan in Appendix A. Upon completion of the project all fuel will be removed from the storage tank and

hauled off site. The storage tank will be removed from the site. The Contractor shall be responsible for any cleanup costs associated with a spill of the fuel or any other petroleum product used to complete the work.

1.5 Method of Measurement and Basis of Payment

- 1.5.2 Method of Measurement
 - a) Project Management in the Schedule of Prices is to cover the General Contractors costs related to administration and telecommunications for the duration of the Contract. The price for Project Management shall be taken as three percent of the value of the work performed to date and will not exceed three percent of the final contract amount.
 - b) All costs associated with the operation of the construction camp will be measured on a per week basis. Meals will be measured on a daily basis for each man requiring meals.
 - c) Mobilization and demobilization is to cover the Contractor's start up costs at the beginning of the construction period, including assembly and transportation of the construction camp and equipment to the work area. The lump sum prices for mobilization and demobilization shall be reflective of the costs involved.
 - d) Supply of diesel fuel will be measured on a per litre basis. The total amount of fuel paid for shall be equal to the volume of fuel used to complete the on-site work. Surplus fuel remaining in the on-site storage tank(s) shall not be measured for payment.

1.5.3 Basis of Payment

- a) Project Management shall be paid for at a rate of three percent of the value of the monthly progress estimates provided to the Government of Yukon – Energy, Mines and Resources (GY-EMR) by the General Contractor and shall be payment for performing all Project Management duties.
- b) The cost of operating the camp shall be paid for at the Contract Unit Price, measured as specified herein, which price shall be payment in full for al operations herein described and all other items incidental to the Work included in this Specification.
- c) The cost of Mobilization and Demobilization shall be paid for at the Contract Unit Price, measured as specified herein, which price shall be payment in full for all operations herein described and all other items incidental to the Work included in this Specification. Fifty percent of the total lump sum price for each Mobilization and Demobilization item shall be paid for once all of the Contractor's work necessary to begin the Work has been completed. The remaining fifty percent of the total lump sum price for each Mobilization and

Demobilization item shall be paid for upon finalization of the Work including all site clean-up.

d) The fuel cost shall be paid for at the Contract Unit Price, measured as specified herein, which price shall be payment in full for providing and setting up a storage tank, delivering the fuel to site, dispensing the fuel into the power generating plant and equipment and all demobilization costs upon completion of the Work.

SP:2 CLINTON CREEK CHANNEL STABILIZATION

This Specification covers all aspects of the channel stabilization work.

2.1 <u>General Information</u>

The purpose of the work is to mitigate the potential for a breach of the outlet from Hudgeon lake which could result in flash flooding in the Clinton Creek Valley downstream of the mine site. The work involves stabilization of the Hudgeon Lake outlet (completed in 2002) and the Clinton Creek channel downstream of the lake outlet.

2.2 <u>Description of Work</u>

The intent of the work is to stabilize up to 350 lineal metres of the Clinton Creek channel downstream of the Hudgeon lake outlet. Downstream of the lake outlet, four gabion drop structures will be constructed (Drop Structures 1 and 2 were built in 2002 and 2003, respectively) to flatten the grade of the channel, which will reduce the erosion potential. The drop structures will serve as grade control points and will be constructed using PVC coated gabion baskets filled with clean rock. The existing channel will be filled and shaped as required to construct the drop structures.

The work in the channel shall be constructed under zero flow conditions. Flow from Hudgeon Lake shall be cofferdammed off and a fish salvage operation (conducted by others) between the cofferdam and Wolverine Creek will be undertaken. The work should proceed in a manner that flow can be temporarily increased or reinstated into the channel to account for increased flows from the lake resulting from precipitation events. It is expected that the water level in Hudgeon Lake can be raised about 1.2 metres above the lake outlet channel invert, or to about elevation of 412.2 metres, without adversely affecting the stability of the lake outlet due to high pore water pressures.

2.3 Laws and Regulations, Health and Safety Plan

All activities shall be conducted in accordance with all applicable Federal, Territorial, and local laws and regulations. The Government of Yukon (GY) – Energy, Mines and Resources - Abandoned Mines Project Office, is identified as the Project Authority, and is conducting this work under the authority of the Water Act. GY authorizes its designated agents, contractors, employees etc. to access the site and implement the described construction works and other activities directly associated with this project. The Contractor shall be responsible for conducting the work in accordance with all labour laws, Workers Compensation and any and all other applicable regulations.

A Health and Safety Plan for the Work has been developed and is included in Appendix A for the Contractors use.

2.4 <u>Materials and Specialty Tools</u>

All materials and specialty tools required were purchased in 2003. If additional materials are required they shall meet the following specifications.

2.4.1 Handling and Storage of Materials

All material shall be handled, stored, and/or stockpiled in a careful and workmanlike manner.

2.4.2 Approval

Materials supplied under this Specification shall be subject to inspection by the Engineer. A representative sample of all granular materials will be submitted to the Engineer prior to placement.

2.4.3 Geotextile

The geotextile shall be a non-woven ARMTEC 350 or an approved equal.

2.4.4 Gabion Baskets

The gabion baskets shall be manufactured by Maccaferri Canada Ltd. and shall be made of PVC coated, galvanized wire. The size of the gabion baskets for the drop structures shall be $0.5m \times 1.0m \times 3.0m$. The size of the gabion baskets used at the transition section at the downstream end of Drop Structure No. 4 shall be $0.3m \times 1.0m \times 3.0m$. Stainless steel SPENAX rings shall be used to assemble the baskets and drop structures.

2.4.5 Culverts

Culverts used for cross-drainage at various locations (approximately 10 locations) along the mine access road shall be 200mm ID and equivalent to the BOSS 2000 HDPE pipe with regular ends manufactured by the Big 'O' Pipe Company, or approved equal.

2.4.6 Sand bags

A minimum of 100 burlap sandbags (approx. 50 pounds when filled) will be on-hand for use as needed.

2.4.7 Channel Fill

Channel fill material shall be unfrozen, well graded with a maximum size of 150mm and free of asbestos and deleterious material (i.e. wood, organics). Locally available materials such as the argillite waste rock and/or a combination of argillite

and colluvium will be acceptable. The undersize material from the production of gabion fill shall be used as select channel fill where directed by the Engineer.

2.4.8 Channel Rip Rap and Gabion Fill

The channel rip-rap and gabion fill materials shall consist of hard, dense, durable rock fragments free from cracks, seams, or other defects that would tend to increase their susceptibility to destruction by water and frost. Argillite and serpentine rock sources are not acceptable.

The gradation of the channel rip rap and gabion fill shall generally conform to the following gradation and is subject to approval by the Engineer.

Equivalent Stone Diameter		Gradation Limits Percent Passing by Weight
Metric Sieve (mm)	U.S. Standard	
200	8 inch	100
150	6 inch	60
100	4 inch	0-10

2.5 <u>Construction Requirements</u>

2.5.1 Construction Sequencing

The work shall be completed in a sequence mutually agreed upon by the Contractor, the Engineer and the GY-EMR, except that the flow from Hudgeon Lake must be halted using a cofferdam before any earth work in the channel is initiated. Immediately following installation of the cofferdam, a fish salvage operation will be conducted in the creek channel between the cofferdam and Wolverine Creek. No work in the channel will be permitted until the fish salvage operation is complete.

The timing for installation of the cofferdam will be determined on-site based on the level of Hudgeon Lake which should be no higher than about 300mm above the invert of the channel (less than elevation 411.3m) between the lake and the first drop structure. The cofferdam shall not be installed unless the Contractor is ready to begin working in the channel immediately following the fish salvage operation.

2.5.2 Preparation of Work Areas

The Contractor shall prepare the work areas as necessary to complete the specified work. Work platforms or benches may be prepared on the south side and north side of the Clinton Creek channel, if required. Spoil material from this operation that meets the specifications for channel fill may be used as channel fill, if approved by the Engineer.

2.5.3 Hudgeon Lake Cofferdam

The Contractor shall be responsible for the design and construction of a cofferdam. The cofferdam shall have a minimum freeboard of 600mm and be suitable to hold back the water in Hudgeon Lake up to a maximum elevation of 412.2m (the elevation of the lake outlet is 411.0m). Sediment generation shall be minimized during installation and removal of the cofferdam.

The level of Hudgeon Lake will be monitored daily. It is expected that a work window of 14 to 21 days can be achieved by allowing the lake level to naturally drain down to about 200 to 300mm above the invert of the lake outlet, (Elevation 411.2m) before installing the cofferdam. The work window available will depend on the number and intensity of precipitation events in the drainage basin upstream of the lake outlet. Should the lake level reach an elevation of 412.2m before the channel stabilization works are completed, it may be necessary to temporarily reinstate flow in the channel to draw the lake down.

2.5.4 Channel Excavation, Backfilling and Grading

Prior to initiating excavation or backfill activities clear the channel of any debris including trees and other deleterious material. Large boulders shall be moved aside for later use as channel armouring.

Within the channel stabilization area, excavate and backfill the channel as directed by the Engineer. Channel side slopes shall be re-graded as shown on the Drawings.

Excavated waste rock material can be used as channel fill provided the material meets the requirements of SP:2.4.9.

The backfill shall be placed in lifts not exceeding 300mm and then compacted using a vibratory drum compactor not less than 1.5m (60 inches) wide. The required level of compactive effort based on the number of passes of the compaction equipment will be determined in the field by the Engineer.

2.5.5 Gabion Drop Structure Construction

The location of the gabion drop structures on the Drawings is approximate. Final locations will be determined in the field based on survey data and constructability issues. In general, the drop structures will be constructed in a rectangular i.e. straight shape however, some of the structures may need to be constructed with a curve. Details for both straight and curved structures are shown on the Drawings.

(1) Preparation of Drop Structure Base

Where the gabions are placed in a cut area, level any ridges left from excavation and fill in the low spots. Compact the surface until the finished surface is smooth, level and conforms to the design grades.

Where the gabions are placed in a fill area, place the channel fill material in lifts not exceeding 300mm. Compact the fill in accordance with SP: 2.5.4. The finished grade shall be smooth, level and conform to the design grades.

Where seepage is encountered from the base or sides of the existing creek channel, construct a granular drainage blanket below the base of the gabions as directed by the Engineer. A detail of a granular drainage blanket is shown on the Drawings.

Place the geotextile on the finished base as shown on the Drawings and in the manner described under SP:2.5.6 Geotextile Placement.

(2) Drop Structure Assembly

Assembly of the gabion baskets shall be done in accordance with the manufacturer's installation instructions (Appendix B). The gabion baskets shall be assembled, connected and closed using stainless steel rings. The stainless steel rings shall be installed at 100 to 150mm spacing. Where the stainless steel rings can not be used the baskets shall be tied together using the PVC coated assembly wire provided with the baskets.

For each tier of the drop structure, start by assembling and placing the gabion baskets on the completed base. Install the lowest row of gabion baskets on the side slopes before starting the placement of gabion fill in the baskets on the base. Complete filling and closing of the gabion baskets on the structure floor before placing the remaining baskets on the side slopes. Fill and close the gabions on the side slopes. Before placing the baskets for the next highest tier, pull the geotextile up so it covers the vertical upstream side of the gabion baskets.

(3) Transition From Stabilized Channel to Existing Channel

A transition from the stabilized channel to the existing channel will be required at the downstream end of Drop Structure No. 6. The channel bottom and part of the side slopes will be lined with 0.3 metre high gabion baskets over a length of 6 metres, as shown on the Drawings.

2.5.6 Geotextile Placement

Geotextile placement shall be as follows:

- (i) Place the geotextile by unrolling onto the prepared surface and retain in position with weights or pins.
- (ii) Place geotextile smooth and free of folds, wrinkles, and creases.

- (iii) Place geotextile perpendicular to the channel alignment (seams perpendicular to flow).
- (iv) Overlap seams a minimum of 1m wide. The geotextile panels shall be placed in an upstream direction so that the upstream panel overlaps the downstream panel at the location of the seam.
- (v) Protect installed geotextile from displacement and damage until, during, and after placement of the overlying gabion baskets or rip-rap.
- (vi) Repair rips or tears with a patch to cover a minimum of 1 metre on each side of the rip or tear.
- (vii) The geotextile shall be anchored at the upstream and downstream ends of the drop structures as shown on the Drawings. The geotextile at the top of the channel slopes shall be laid flat on the side slope for a distance of approximately 1m past the gabions and covered with channel rip rap, as shown on the Drawings.
- 2.5.7 Placement of Channel Rip-Rap

Channel rip-rap material shall be placed at the upstream and downstream ends of each drop structure as shown on the Drawings and in a manner that the underlying geotextile is not disturbed or damaged. Place additional channel rip rap as directed by the Engineer.

2.5.8 Cofferdam Removal

Remove cofferdam to restore natural creek flow once the channel stabilization work has been completed. The cofferdam shall be removed such that the water is released slowly to minimize erosion and sediment load.

2.6 <u>Quality Control</u>

2.6.1 Inspection

Workmanship and materials furnished under this Specification are subject to inspection by the Engineer including all operations from the selection and production of materials through to final acceptance of the specified work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Engineer reserves the right to reject any materials or works which are not in accordance with the requirements of this Specification.

2.6.2 Access

The Engineer shall be afforded full access for the inspection of materials, both at the site of Work and any borrow site used for the supply of materials, to determine whether the material is being supplied in accordance with this Specification.

2.6.3 Materials

Materials supplied under this Specification shall be subject to approval by the Engineer in accordance with SP:1.4.2 – Approval.

2.6.4 Corrective Action

The Contractor shall at his own expense, correct such work or replace such materials found to be defective under this Specification.

2.7 Method of Measurement and Basis of Payment

2.7.1 Method of Measurement

All labour and equipment work shall be measured on an hourly basis. Time shall commence when equipment and/or labour begins working each day and cease when work is stopped for the day. Time taken during this period for lunch and/or supper breaks will not be counted.

Standby time shall only be paid for equipment that is in regular use on the job site. The daily standby rate shall be taken as being equal to 4 times the hourly equipment rate provided in the Schedule of Prices by the Contractor. Where equipment is not required for extended periods of time, the equipment may be demobilized from the site and re-mobilized at a later date. Alternatively, the equipment may be left on site but not receive any standby payment. Payment of standby time shall be approved by the Engineer.

2.7.2 Basis of Payment

All labour and equipment work shall be paid for at the hourly rates provided by the Contractor on the Schedule of Prices, measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

The rates for equipment shall include but not be limited to all costs incurred for operation, maintenance, overhead, wages, Worker's Compensation, lubricants, repairs, insurance, permits and profit. Fuel for equipment operation will be charged separately at the rate provided on the Schedule of Prices

The rates for labour shall include but not be limited to wages, supervision, overhead, Worker's Compensation, insurance, permits and profit.

Where required, material costs shall be paid for at the invoiced cost, including transportation to the work site. Any additional charges added to cover overhead and all other indirect costs shall be pre-approved by the GY-EMR.

SP:3 DEMOLITION

3.1 <u>Description</u>

- 3.1.1 This section specifies the requirements for the demolition and disposal of the former crusher building complex, tram terminus tower, tram towers, conveyor tunnels, utilidor boxes, former mechanical buildings, diesel and water storage tanks, old mining equipment and the ANFO storage facility. Dismantlement and demolition of the above infrastructure is required as part of the on-going hazard mitigation and decommissioning of the mine site. The work is to be carried out by a competent and qualified contractor capable of ensuring that the work is completed in a safe and efficient manner in accordance with a demolition plan and schedule meeting all applicable environmental and occupational health and safety requirements.
- 3.1.2 In general, the demolition will consist of the removal of all elevated elements of the structures, including concrete walls and slabs, structural steel, building, interior steel, platforms, piping, electrical cabling and trays, equipment, conveyor galleries, enclosures, and miscellaneous scrap as may remain at the site in association or in proximity to these facilities.
- 3.1.3 Demolition materials may be either be stockpiled on-site at a location designated by Government of Yukon – Energy, Mines and Resources (GY-EMR) or if approved by GY-EMR, buried in a nearby non-hazardous waste landfill area or cleaned of asbestos and removed from the site for salvage purposes. If a landfill is developed specifications for operation of the landfill will be provided.

3.2 Related Work

- SP:4 Asbestos Abatement
- Appendix A Health and Safety Plan

3.3 <u>Reference Standards</u>

- 3.3.1 National Building Code of Canada, Current Edition.
- 3.3.2 CSA-S350-M1980, Code of Practice of Safety in Demolition of Structures.
- 3.3.3 Where the referenced codes and standards are found to be at variance with these specifications, the most stringent regulations shall apply.
- 3.3.4 Conduct all work in accordance with all appropriate Federal and Territorial legislation, and international conventions including the Transportation of Dangerous Goods

3.4 <u>Qualifications</u>

The Contractor shall be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specifications.

The Contractor's Superintendent responsible for the work of this Specification shall have a minimum of ten years of experience in the areas of building demolition and five years of experience in asbestos removal and abatement.

Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA -Contractors Training Council, 1992.

All activities shall be conducted in accordance with all applicable Federal, Territorial, and local laws and regulations. The Contractor shall be responsible for conducting the work in accordance with all labour laws, Workers Compensation and any and all other applicable regulations.

A general Health and Safety Plan has been developed and is included in Appendix A.

All activities involving the handling of hazardous materials shall be directly supervised by the Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other approved equivalent training courses such as the Canadian Hazardous Waste Workers Program.

Provide workers with protection appropriate to the potential type and level of asbestos exposure, which will be determined by air monitoring during the demolition work. Establish specific safety protocols prior to commencing clean up activities.

Provide suitable personal protection equipment, safety clothing and equipment as required during the course of the work.

Where required, trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) documentation and recording requirements.

3.5 Existing Conditions

The Site Photographs provided on compact disc show the condition of the structures to be demolished. These photographs are intended to provide information on the general condition of the structure to be demolished. The photographs are not intended to depict the total scope of work. Figures 1 to 2 in Appendix C show the locations of the structures scheduled for demolition. Figures 3 to 5 in Appendix C show the general dimensions of the main components of the crusher building and are not to be construed as exact for final demolition

requirements. The GY-EMR cannot guarantee the accuracy of and is not responsible for the interpretation of this information.

3.6 <u>Demolition Drawings</u>

- 3.6.1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details showing sequence of disassembly work or supporting structures and underpinning. Submissions to bear stamp of qualified professional Engineer registered in the Yukon Territory.
- 3.6.2 Do not commence demolition work, including asbestos abatement until:
 - a) Written approval of the Work Methodology Plan has been received from the GY-EMR and the Government of Yukon, Yukon Workers Compensation Health and Safety Board; and
 - b) The Contractor has demonstrated to the GY-EMR that all required permits to be acquired by the Contractor for the work have been obtained including but not limited to:
 - Mobilization Permits for wide loads;
 - WCB and other Heath and Safety Approvals as Necessary (including Supervisory Training)
 - a Schedule 3 Notice of Water Use (to be obtained by GY-EMR);
 - c) Certification for workers and operators is obtained and proof provided to the GY-EMR.

3.7 Environmental Protection

Perform work in an environmentally acceptable manner. Comply with requirements of the Land Use Permit and the Water Use License (if required).

3.8 <u>Fires</u>

Fires and burning of demolition materials on site are not permitted.

3.9 Safety and Personnel Protection

During the removal of asbestos materials, follow the Personnel Protection Requirements specified in the Health and Safety Plan (Appendix A) and in SP: 4 Asbestos Abatement.

When working with asbestos, and other contaminants, workers shall wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-

site personnel including contract employees, subcontractors, the GY-EMR, GY-EMR's staff, and other authorized personnel.

3.10 Execution

- 3.10.1 Inspect site and verify with the GY-EMR items designated for demolition.
- 3.10.2 Implement asbestos abatement techniques (SP: 4) and remove all hazardous materials before commencing demolition activities.

At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling. Demolish concrete walls in small sections. Remove and lower structural framing and other heavy or large objects in a safe manner.

3.11 Protection

- 3.11.1 If worker safety in the vicinity of structure(s) being demolished appears to be endangered, cease operations and notify the GY-EMR.
- 3.11.2 All personnel engaged in demolition activities shall wear and use protective clothing and equipment. The Contractor shall take all reasonable steps to protect the environment from fugitive waste materials resulting from demolition activities.
- 3.11.3 Prevent debris from blocking surface drainage system.

Protect temporary buildings, facilities and utilities in use adjacent to the work area.

- 3.11.4 Ensure safe passage of persons around area of demolition activities.
- 3.11.5 Prevailing weather conditions and weather forecast shall be considered. Do not proceed with demolition work when weather conditions constitute a hazard to the workers and site.
- 3.11.6 Fugitive asbestos dust to be minimized by implementing an asbestos abatement program (SP: 4).

3.12 Salvage of Demolition Material

Contractor is advised that the facilities and structures to be demolished may have salvage value. The Contractor may, where appropriate, propose that certain materials be considered for reuse or recycling where savings to the GY-EMR could be obtained. Should the GY-EMR approve a reuse/recycling proposal from the Contractor, the Contractor will continue to be responsible for the disposal of materials for reuse/recycling. The Contractor shall keep a record of materials removed from the site for salvage.

The GY-EMR shall consider the following criteria when reviewing the Contractor's proposal for reuse/recycling:

- The reuse/recycling of these materials shall not leave the GY-EMR with future liability. (Third party liability waivers will be required for reuse proposals);
- The reuse/recycling can be performed in a manner that results in cost savings to the GY-EMR, which shall be reflected in the bid price for the work;
- Should the GY-EMR accept a reuse/recycling proposal from the Contractor, the Contractor will be required to sign a Waiver Form.

3.13 <u>Stockpiling of Non-Recyclable Demolition Materials</u>

Dispose of asbestos materials in accordance with SP: 4 Asbestos Abatement.

Segregate metal, asbestos and creosote treated materials from other material when stockpiled at the designated area(s). Review with the GY-EMR the proposed location of each of these waste materials. Record the specific location and depth of these materials and provide to the GY-EMR.

3.14 <u>Temporary Storage Area</u>

If required, establish a Temporary Storage Area for the storage of hazardous materials generated during demolition operations at a location approved by the GY-EMR. The Temporary Storage Area shall be located as follows:

- More than 100 m away from any water body or drainage course.
- More than 450 m away from any fish bearing body of water.
- On stable ground not subject to flooding or seasonal saturation.
- In an area not routinely accessed or essential to the Contractor's workforce or site personnel.
- More than 30 m away from flammable materials.
- Establish the location and size of the Temporary Storage Area to minimize the handling of materials, isolate materials from other work operations and to provide for the collection and removal of these materials from the site.
- Provide the GY-EMR with a detailed inventory of the Temporary Storage Area indicating the location and contents of each container, the container and assigned Environment Canada Registration numbers and packaging configuration.
- Store sufficient sorbent materials or an approved spill kit near the Temporary Storage Area for an emergency clean up.

3.15 <u>Site Grading and Restoration</u>

Upon completion of demolition work, remove loose demolition debris and grade the work sites, and other areas affected by the demolition work, to match the natural contour of the land.

Reshape the area surrounding concrete foundations to remain such that the top of the backfill is flush with the top of the foundation. Fill any voids or holes in the surface of the concrete with local borrow material.

Areas excavated to facilitate demolition requirements shall be reshaped and/or backfilled with locally available borrow materials that do not contain asbestos fibres.

Acceptable borrow sources include the argillite waste rock material from either the Clinton Creek or Porcupine Creek waste rock dumps (See Drawing 01 Appendix C) or the sand and gravel pit just off the mill access road near the Mill Site, provided that the material does not contain asbestos fibres. Alternate sources can be identified if required.

3.16 Daily Construction Records

The Contractor shall provide daily construction records that indicate the work completed each day including labour and equipment hours. A sample of a daily Construction record is provided in Appendix D. Digital photographs of all daily site activities shall also be provided by the Contractor.

- 3.17 Work Included
- 3.17.1 Development of a demolition plan and schedule. The demolition work shall proceed in accordance with the plan submitted by the demolition contractor.
- 3.17.2 The structures scheduled for demolition include:
 - 1) the crusher building complex,
 - 2) tram terminus tower,
 - 3) six tram towers,
 - 4) two conveyor tunnels,
 - 5) two utilidor boxes,
 - 6) two former mechanical buildings,
 - 7) one diesel and one water storage tanks,
 - 8) old mining equipment
 - 9) the ANFO storage facility.

In general, the demolition of these structures will consist of the removal of all elevated elements of the structures, including concrete walls and slabs, structural steel, building, interior steel, platforms, piping, electrical cabling and trays, equipment, conveyor galleries, enclosures, and miscellaneous scrap as may remain at the site in association or in proximity to these facilities.

Demolition materials may be either be stockpiled on-site at a location designated by Government of Yukon – Energy, Mines and Resources (GY-EMR) or if approved by GY-EMR, buried in a nearby non-hazardous waste landfill area or cleaned of asbestos and removed from the site for salvage purposes. If a landfill is developed specifications for operation of the landfill will be provided. The cost of operation of a landfill will be paid for at the hourly unit rates provided by the Contractor in the Labour and Equipment Rate Schedule.

3.17.3 Crusher Building Demolition

The Crusher Complex is located between the three open pits at the mine (Figure 1 – Appendix C) and consists of the following facilities and components:

- the Haul Truck Dump and Grizzly,
- the Primary Crushing building and various internal workings,
- Transfer House,
- Conveyors both to and from the Transfer House,
- Ore bucket loading, and maintenance areas,
- Tram Towers 1 and 2 located adjacent to the bucket maintenance area,
- Internal workings generally include, but not limited to, catwalks, ventilation and dust collection systems, ore transport system, cable trays.
- Miscellaneous items such as former power poles and power line and scrap metal within about 50 m of the crusher building.
- The digital photos on the attached CD illustrate the main components of the crusher building complex. The Figures in Appendix C illustrate the approximate dimensions of the crusher building complex.

The work includes removal and disposal or salvage of all components of the crusher building complex. Except for the concrete demolition debris, all unsalvageable components of the crusher building shall be neatly stockpiled in the designated area approximately 150 m north of the crusher building.

All concrete demolition debris shall be disposed of within the original aerial extent of the crusher building. All concrete rubble being disposed of must be reduced to a maximum size of approximately 30 cm prior to disposal and backfilling. All protruding reinforcing steel shall be cut off and salvaged or buried with the concrete debris such that no steel is protruding into the final backfill cover material.

Unless otherwise approved, the foundation walls of the Crusher Building Complex are to be reduced to existing grade and covered with at least 900mm of local borrow material that does not contain asbestos fibres. Where feasible the fill shall be placed in lifts not exceeding 300mm (after compaction). The cover material shall be compacted using moderate compaction effort that can be provided by tracked construction equipment. Each fill layer shall be compacted using a minimum of two passes with the tracked equipment. Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading.

All remaining equipment and scrap materials within about 50m of the crusher building complex, or as directed by the GY-EMR, are to be removed and salvaged or stockpiled/disposed of in the designated area.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. All material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned, such as pipes and conveyor legs, shall be flattened or otherwise made un-useable to others.

3.17.4 Tram Terminus Tower

The Tram Terminus Tower (Figure 2 – Appendix C) is located on the former Mill Site (Figure 1 – Appendix C) and consists of the following components:

- Four 600m diameter structural steel pipe columns,
- Five former steel pipe column support bases,
- One lateral column support consisting of a 300mm (approximate) diameter structural steel pipe,
- Tram way track assembly supported by the steel columns,
- Tram drive house,
- Internal workings of the drive house include the tram drive gear box, tram drive brake wheel, miscellaneous tram drive parts, electrical equipment,
- Concrete foundations for the building and tram drive components,
- The digital photos on the attached CD illustrate the main components of the tram terminus tower.
- The building and surrounding area is covered with asbestos fibres.

The work includes removal and disposal or salvage of all components of the tram terminus tower except the concrete foundations which are to remain in place. All unsalvageable components of the tower shall be neatly stockpiled in an area designated by the GY-EMR. This area is expected to be within 200 m of the tower.

All steel protruding from the foundations shall be cut off flush with the concrete. The void in the tower column bases shall be backfilled with locally available borrow material that does not contain asbestos fibres.

Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. All material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned shall be flattened or otherwise made un-useable to others.

3.17.5 Tram Towers

The Tram Towers (six) are located on and near the former Mill Site (Figures 1 and 2 – Appendix C) and consist of the following components:

- Two 600m diameter structural steel pipe columns,
- Tram way cable guides supported by the steel columns,
- Concrete foundations for the columns,
- The digital photos on the attached CD illustrate the main components of the typical tram tower components.
- The surrounding area is typically covered, to varying degrees, with asbestos fibres.

The work includes removal and disposal or salvage of all components of the tram towers except the concrete foundations which are to remain in place. All unsalvageable components of the tower shall be neatly stockpiled in an area designated by the GY-EMR. This area is expected to be within about 200 m of the towers.

All steel protruding from the foundations shall be cut off flush with the concrete. The void in the tower column bases shall be backfilled with locally available borrow material that does not contain asbestos fibres.

Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. All material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned shall be flattened or otherwise made un-useable to others.

3.17.6 Conveyor Tunnels

The two conveyor tunnels are located at the former Mill Site (Figure 2 – Appendix C) and are constructed of reinforced concrete which is about 150 to 200 mm thick. The tunnels are about 45 m long, 3 m high and 2 m wide. Approximately half of the tunnel length is below grade (i.e. the roof is coincident with ground surface). One tunnel still contains a section of an old conveyor, a catwalk and some ventilation piping. Other miscellaneous items include doors, light fixtures and electrical wiring. The bottom end of the tunnels typically have at least 600mm of water above the floor. In addition to the surrounding area, the tunnels have a coating of asbestos

fibres on all exposed surfaces. The digital photos on the attached CD illustrate the condition of the tunnels.

The work includes removal and disposal of all internal components of the tunnels and demolition and backfilling of the concrete tunnel. The internal components shall be removed before demolishing the concrete structure. The internal components shall be crushed or otherwise made unusable and stockpiled in an area designated by the GY-EMR This area is expected to be within about 100 m of the tunnels.

Unless otherwise approved, the tunnels shall be reduced to 600 mm below existing grade and covered with at least 600 mm of local borrow material that does not contain asbestos fibres. All concrete shall be reduced to a maximum size of approximately 30 cm prior to backfilling. All protruding reinforcing steel shall be cut off and salvaged or buried with the concrete debris such that no steel is protruding into the final backfill cover material. The concrete demolition debris shall be disposed of within the original aerial extent of the tunnels. The backfill shall be placed in lifts not exceeding 300mm (after compaction). The cover material shall be compacted using moderate compaction effort that can be provided by tracked construction equipment. Each fill layer shall be compacted using a minimum of two passes with the tracked equipment.

Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. Any material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned for salvage shall be flattened or otherwise made un-useable to others.

3.17.7 Utilidor Boxes

The two utilidor boxes are located at the former Mill Site (Figure 2 – Appendix C) and are constructed of reinforced concrete which is about 150 to 200 mm thick. The boxes are 3 m x 4 m in plan view and 3m high. Approximately two-thirds of the boxes are below grade. The boxes have a concrete roof with a small manhole (600 mm x 600 mm) in one corner. The boxes contain water and steam lines used during operation of the mine. Other miscellaneous items may include light fixtures and electrical wiring. In addition to the surrounding area, the above grade exterior surfaces and some of the interior surfaces have a coating of asbestos fibres. The steam pipes may be covered with asbestos pipe insulation. The digital photos on the attached CD illustrate the conditions and main components of the utilidor boxes.

The work includes the demolition and backfilling of the utilidor boxes. The internal components, if not of any salvage value, can remain in place provided they do not interfere with proper backfilling of the utilidor box. Any internal components removed from the utilidor boxes that are not salvaged shall be crushed or otherwise made un-useable and stockpiled in an area designated by the GY-EMR. This area is expected to be within about 100 m of the tunnels.

Unless otherwise approved, the utilidor boxes shall be reduced to 600 mm below existing grade and covered with at least 600 mm of local borrow material that does not contain asbestos fibres. All concrete shall be reduced to a maximum size of approximately 30 cm prior to backfilling. All protruding reinforcing steel shall be cut off and salvaged or buried with the concrete debris such that no steel is protruding into the final backfill cover material. The concrete demolition debris shall be disposed of within the aerial extent of the utilidor boxes. The backfill shall be placed in lifts not exceeding 300 mm after compaction. The cover material shall be compacted using moderate compaction effort that can be provided by tracked construction equipment. Each fill layer shall be compacted using a minimum of two passes with tracked equipment or a vibratory plate packer.

Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. Any material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned for salvage shall be flattened or otherwise made un-useable to others.

3.17.8 Former Mechanical Buildings

The two mechanical buildings located at the former Mill Site (Figure 2 – Appendix C) are constructed of reinforced concrete (including the roof) which is about 200 to 250 mm thick. The buildings, which have two levels, are about 3.6 m x 3.6 m in plan view and about 7.5 m high. The lower 1 to 2 m of the buildings are below grade. One of the buildings is connected to the utilidor and contains water and steam lines used during operation of the mine. Other miscellaneous items may include light fixtures and electrical wiring. The steam pipes may be covered with asbestos pipe insulation. The digital photos on the attached CD illustrate the conditions and main components of the mechanical buildings.

The work includes the demolition and backfilling of the mechanical buildings. The internal components shall be removed before demolishing the structure. Any internal components removed from the buildings that are not salvaged shall be crushed or otherwise made un-useable and stockpiled in an area designated by the GY-EMR. This area is expected to be within about 200 m of the buildings.

Unless otherwise approved, the buildings shall be reduced to 600 mm below existing grade and covered with at least 600 mm of local borrow material that does not contain asbestos fibres. All concrete shall be reduced to a maximum size of approximately 30 cm prior to backfilling. All protruding reinforcing steel shall be cut off and salvaged or buried with the concrete debris such that no steel is protruding into the final backfill cover material. The concrete demolition debris shall be disposed of within the general aerial extent of the buildings and covered with local backfill that does not contain any asbestos fibres. The backfill shall be placed in lifts not exceeding 300 mm (after compaction). The cover material shall be compacted using moderate compaction effort that can be provided by tracked construction

equipment. Each fill layer shall be compacted using a minimum of two passes with tracked equipment or a vibratory plate packer. Any areas excavated to facilitate demolition requirements shall be restored by backfilling. The backfill shall be graded smooth with side slopes not exceeding 3 horizontal to 1 vertical.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. Any material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned for salvage shall be flattened or otherwise made un-useable to others.

3.17.9 Diesel and Water Storage Tanks

The two storage tanks located at the former Mill Site (Figure 2 – Appendix C) are constructed of steel plate. The tanks have an estimated capacity of 1.4 million litres and are about 15 m in diameter and 7 m high. A small mechanical building is believed to have existed at the south east face of the water tank which was part of the utilidor system. A pit and/or buried pipes connecting to the utilidor may exist in this area. The roofs of the tanks are rusted and are partly covered with asbestos fibres. Both tanks appear to be well vented although there is a slight hydrocarbon odour in the diesel fuel tank. The diesel fuel tank is surrounded by a small earth containment berm which is about 1 m high. The digital photos on the attached CD illustrate the conditions of the storage tanks.

The work includes removal and disposal or salvage of all components of the tanks, including any underground piping that may exist. Any components of the tanks that are not salvaged shall be crushed or otherwise made unusable and stockpiled in an area designated by the GY-EMR. This area is expected to be within about 200 m of the buildings.

It is expected that the tanks are founded on a granular pad. Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading the area smooth. Any additional backfill required shall be a local borrow material that does not contain asbestos fibres.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. Any material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned for salvage shall be flattened or otherwise made un-useable to others.

3.17.10 Old Mining Equipment

Two pieces of open pit mining equipment, a Northwest electric shovel (1.9 m^3) and a Bucyrus Erie 40-R electric rotary drill, are located near the Crusher Building (Figure 1 – Appendix C). The drill is fitted with a vacuum style filtration system and contains asbestos fibres. The digital photos on the attached CD illustrate the condition of the equipment.

The work includes removal and disposal or salvage of all components of the equipment. All fluids in the equipment gear boxes, final drives, electrical

components shall be recovered, placed in approved containers and transported to an approved hazardous waste disposal site. The Contractor shall be responsible for determining what fluids are contained in the equipment and providing all equipment and containers required to recover the fluids. Any components of the equipment that are not salvaged shall be crushed or otherwise made un-useable and stockpiled in an area designated by the GY-EMR. This area is expected to be within about 150 m of the equipment.

Removal and disposal of asbestos material in accordance with SP: 4 Asbestos Abatement. Any material to be salvaged shall be cleaned of asbestos before removal from the mine site. Material that can not be properly cleaned for salvage shall be flattened or otherwise made un-useable to others.

3.17.11 ANFO Storage Facility

The ANFO Storage facility is located about 500 m south of the Porcupine Open Pit (Figure 1 – Appendix C). The facility consists of a 1.3 million litre steel storage tank that was used for storing ammonium nitrate, a storage tank loading system (hopper and conveyor) and unloading conveyor. One conveyor is supported on wooden poles and the other is supported on steel pipe columns. The tank is in very poor condition due to extensive corrosion and still contains an estimated 150 m³ ammonium nitrate. The inside bottom corners of the tank appear to be filled in with gravel. Miscellaneous features include a wooden staircase and electrical wiring and breaker panels. The digital photos on the attached CD illustrate the conditions of the storage tanks.

The work includes removal and disposal or salvage of all components of the ANFO Storage facility. Any components of the tanks that are not salvaged shall be crushed or otherwise made un-useable and stockpiled in an area designated by the GY-EMR. This area is expected to be near the Crusher Building. The ammonium nitrate and gravel inside the storage building shall be spread out on the ground surface near the storage tank.

Any areas excavated to facilitate demolition requirements shall be restored by backfilling and grading the area smooth. Any additional backfill required shall be a local borrow material that does not contain asbestos fibres.

3.18 Method of Measurement and Basis For Payment

3.18.1 Method of Measurement

Demolition work will be measured and paid for at the Contract Unit Price on a lump sum basis for each structure. The amount to be paid shall be the total lump sum amount for each structure where the demolition work is carried out in accordance with the requirements of this Specification including but not limited to all direct costs for the following items:

• Permitting requirements

- Development of a Demolition Plan and Schedule
- Development of an asbestos abatement plan
- Site supervision
- Removal and disposal of asbestos materials.
- Demolition, removal, and disposal of non-hazardous demolition debris.
- Supply and placement of backfill material in areas excavated to facilitate demolition requirements and to .
- General site grading of areas disturbed by demolition operations.
- Provision of a photographic record.

The Contractor is advised that the GY-EMR reserves the right to remove from the demolition requirements of this Contract, any structure listed to be demolished.

3.18.2 Basis of Payment

The price paid shall be payment in full for performing all operations herein described and all other items incidental to the work included in the Specification.

SP:4 ASBESTOS ABATEMENT

4.1 <u>Related Work</u>

- SP: 3 Demolition.
- Appendix A Health and Safety Plan

4.2 <u>Scope of Work</u>

The intent of the asbestos abatement program to be developed by the Contractor is to protect the workers from exposure to airborne asbestos fibres, minimize the generation of airborne asbestos fibres during the demolition work, minimize the spread of asbestos fibres to non-contaminated areas of the mine site and safe disposal of asbestos removed from buildings during demolition work or found locally at the demolition sites.

4.3 Existing Conditions

Friable asbestos fibres can be found in and around the entire crusher building facility and the majority of the structures at the former Mill Site due to the nature of the operations that took place during operation of the mine. The extent of the asbestos fibres is best determined during the pre-construction site visit.

4.4 Definitions

- 1) Airlock: A system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.
- 2) Amended Water: Water to which a non-ionic surfactant has been added to reduce surface tension to allow thorough wetting of asbestos fibres.
- 3) Asbestos Containing Material: Any material which has been shown by laboratory analysis to contain more than 1% asbestos by weight or volume.
- 4) Asbestos Work Area: Space bounded by containment barricades or enclosures in which asbestos removal is being performed.
- 5) Authorized Visitor: The GY-EMR or his representative and persons representing regulatory agencies.
- 6) Clean Area: An area which has been identified as not having airborne fibrous asbestos contamination which exceeds 0.05 fibres/cc.
- 7) Contaminated Area: An area which has been identified as having an airborne asbestos fibre count greater than 0.05 fibres/cc.

- 8) Curtained doorway: An arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. All free edges of polyethylene shall be reinforced with duct tape and the bottom edge shall be weighted to ensure proper closing. Each polyethylene sheet shall overlap openings not less than 1.5 m on each side.
- 9) Disposable Coveralls: Full-body, one piece poly-laminated type with permanently attached hood having elasticized tight fitting sleeves and leg cuffs. The waist and ankle junctions of the coveralls may be taped if necessary to prevent contamination of skin and underclothing without restricting physical movement.
- 10) Disposable Gloves: Eleven inch latex or rubber disposable gloves.
- 11) Friable Material: Material that is crumbled, pulverized or powdered or that when dry can be crumbled, pulverized or powdered by hand pressure.
- 12) HEPA Vacuum: High Efficiency Particulate Aerosol filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in diameter at 99.97% efficiency.
- 13) Isolate or Enclose: Placing an impermeable barrier between the friable asbestos material and the working area.

4.5 <u>Regulatory Requirements</u>

Comply with the following regulations pertaining to asbestos. If these requirements or specifications conflict, the more stringent requirement shall apply:

- Government of Yukon Occupational Health Regulations
- Transportation of Dangerous Goods Act.

4.6 <u>Submittals</u>

The Contractor's Asbestos Abatement Plan shall include and/or address, but is not necessarily limited to:

- Instruction and training to employees (See details in SP:4)
- Method for handling and disposing of asbestos.
- An asbestos transport plan showing mode of on-site transport.
- A copy of instructions as provided to all workers describing the hazards of asbestos exposure, respirator use, clothing, use of

showers, entry and exit from work areas, and all other aspects of work procedures and protective measures.

- Details of health and safety plans including the experience and qualifications of personnel to carry out the asbestos abatement requirements, and training programs to be implemented prior to commencing the work.
- Record keeping and reporting methods.
- Work schedule.
- Compliance with all regulations.
- Any other items that are pertinent to the Work.

4.7 Instruction and Training

The Contractor's Superintendent and employees directly involved in the demolition work shall have attended a minimum 48 hour asbestos abatement course approved by the GY-EMR and the Superintendent shall have a minimum five years of experience in asbestos abatement / removal techniques.

Instruction and training related to asbestos abatement shall, as a minimum, include:

- 1) Demonstration and instruction in the use of all personal protective equipment, including:
 - The limitations of the equipment.
 - The inspection and maintenance of the equipment.
 - The fitting of the equipment.
 - The decontamination of the equipment.
- 2) Safe handling and proper disposal of asbestos.
- 3) Health education information.

4.8 <u>Worker Protection Requirements</u>

The Contractor shall comply with Government of Yukon Occupational Health Regulations or the Work Practices and Procedures in Section 2.0 of the Health and Safety Plan in Appendix A, which ever is most stringent.

4.9 <u>Environmental Protection</u>

Since the majority of the mine site is contaminated with asbestos fibres the objective of the asbestos abatement work will be to minimize the generation of airborne asbestos fibres and the spread of asbestos fibres to non-contaminated areas on the mill site. Efforts will include burying asbestos fibres found in localized areas (e.g. the piles of asbestos fibres laying around the crusher building).

4.10 <u>Notification</u>

Prior to commencement of asbestos abatement work, meet with Government of Yukon officials (Chief Safety Officer) to discuss asbestos abatement plan.

Provide a written schedule to the Government of Yukon - Chief Safety Officer and the GY-EMR 14 days prior to commencement of asbestos abatement activities associated with the demolition work.

4.11 <u>Signs</u>

Display signs in all work areas where access to a contaminated area is possible. Signs shall comply with the Yukon Workers Compensation Health and Safety Board Occupational Health and Safety Handbook, Section 36 of the Occupational Health Regulations.

4.12 <u>Materials</u>

As a minimum, the following materials are required for asbestos abatement work:

- Personnel Protective Equipment (Basic requirements outlined in Section 2 of the Health and Safety Plan in Appendix A)
- Polyethylene
- Wetting Agents and amended water
- Asbestos Waste Receptors
- HEPA Vacuums

4.13 <u>Work Schedule</u>

Do not commence asbestos abatement work until:

- Arrangements have been made for filtering wastewater through a 5 micrometre filter prior to discharge.
- Work and decontamination areas are effectively segregated.
- Tools, equipment and material waste receptors are readily available.
- Arrangements have been made for inspections by the GY-EMR or Chief Safety Officer.
- All other preparatory steps have been taken.
- All permits have been obtained.
- All warning signs have been mounted at work access locations.
- Air monitoring can be undertaken.

The GY-EMR reserves the right to order an immediate stop to all work if it is considered that practices are violating pertinent regulations or endangering workers.

4.14 <u>Air Monitoring</u>

The Contractors Site Supervisor shall collect and analyze the air samples collected during the course of the demolition work. The GY-EMR will arrange for training of the Contractor's personnel and provide the testing equipment to complete the air sample testing using the Phase Contrast Microscopy (PCM) method.

The air sampling will be undertaken to determine worker exposure levels and will be performed using portable battery-operated sampling pumps, which will be provided by the GY-EMR. Both "area" and "personal" samples should be collected. "Area" samples are collected by locating an air sampling device in one location for the duration of the sampling period. "Personal" samples are collected whereby the sampling pump and filter are worn by a worker during the course of work activities. As a minimum, one area and one personal sample should be collected each day at the work site. In addition, two or three area samples should be collected within a 500m radius of the work site to detect airborne asbestos away from the restricted work area. Baseline readings should be collected before and after the demolition activities. An air monitoring protocol will be developed and provided to the Contractor and shall comply with the requirements of the Yukon Occupational Health Regulations.

The air samples will be analyzed using the Phase Contrast Microscopy or PCM method. PCM analysis can be performed by a qualified laboratory, however, for determination of worker exposures during the demolition activities, it would be preferable to have the air samples analyzed on-site each day to permit quicker turnaround times for the results. The results of the air sampling shall be posted in a location where all workers have access to view the results. The results shall be provided to the GY-EMR once per week and upon request to the Chief Safety Officer of the Yukon Workers Compensation Health and Safety Board.

The results of the air monitoring (concentration of airborne asbestos fibres) will be used to determine if the personal protection equipment being used is adequate to protect the workers from exposure to airborne asbestos fibres.

4.15 <u>Preparation for Asbestos Removal Procedures</u>

Preparation:

- Before beginning work, at each access to work area, install warning signs in accordance with this Specification.
- Before beginning work, remove visible dust from surfaces in the work area. Do not use compressed air to clean up or remove dust from any surface.
- Prevent the spread of dust from the work area using measures appropriate to the work to be done.
- Where application of water is required for wetting asbestoscontaining materials, shut off electrical power, provide ground fault

interrupter circuits on power source for electrical tools and temporary lighting, in accordance with applicable CSA Standards.

Decontamination Facilities:

- Prior to installation of the Personnel Decontamination Facilities, submit a general plan for the facilities to the GY-EMR for review. The submission shall demonstrate compliance with all codes and standards. A sample decontamination enclosure is provided with the Health and Safety Plan in Appendix A.
- Maintain enclosures in tidy condition.
- Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
- Visually inspect enclosures at the beginning of each working period.

4.16 <u>Disposal</u>

All asbestos that is buried on-site shall be segregated from any other demolition materials that are buried on-site (SP:3) and shall be covered with at least 600 mm of compacted backfill obtained from a local borrow source that does not contain asbestos fibres. The location and approximate volumes of buried asbestos wastes shall be recorded by the Contractor and provided to the GY-EMR.

4.17 <u>Final Cleanup and Demobilization</u>

Include work areas and all areas of decontamination facilities in cleanup procedures.

Vacuum and/or wash all asbestos control tools and equipment and decontamination facilities. Equipment and tool clean-up shall be done in an area of the mine that is not readily accessible by the general public to minimize the potential for exposure to occasional users of the site in the future.

All non-reusable materials and contaminated barrier sheeting materials shall be disposed of by burying on-site in an area approved by the GY-EMR alternatively, these materials shall be bagged and disposed of at an approved landfill facility.

4.18 <u>Method of Measurement and Basis For Payment</u>

4.18.1 Method of Measurement

The development of the asbestos abatement plan, removal, separation and disposal of asbestos from the structures to be demolished and/or the surrounding areas will not be measured for payment. Other than the asbestos abatement training, all aspects of this specification shall be considered incidental to the demolition work.
The asbestos abatement training program arranged for by the Contractor shall be measured and paid for at the Contract Unit Price on a lump sum basis for this item. The amount to be paid for shall be the total lump sum amount.

4.18.2 Basis of Payment

The price paid for the asbestos abatement training program shall be payment in full for successfully completing the training.

APPENDIX A

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY AND EMERGENCY RESPONSE PLAN

CLINTON CREEK ABANDONED ASBESTOS MINE

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March 2004

33587

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AT REAR OF REPORT

A Typical Worker Decontamination Facility Layout

1.0 PART 1 – GENERAL

1.1 APPLICATION

This plan applies to any work performed at the Clinton Creek site, with the exception of work where air monitoring has been carried out and the results of air monitoring have indicated that potential exposures to airborne asbestos fibres are below 25% of the Yukon Occupational Exposure Level (OEL) for chrysotile asbestos. The professional judgement of a competent person may also be relied upon to determine whether potential exposures are likely to exceed 25% of the OEL. Such judgement would be based upon knowledge of site conditions and results from previous air sampling programs.

Any area at the Clinton Creek site where demolition or removal of existing structures is carried out will be classified as a "restricted area".

1.2 LOCATION

The Clinton Creek Asbestos Mine is located 100 km northwest of Dawson City in the Yukon Territory. The location is at 64^0 27' 00" N and 140^0 43' 00" W adjacent to Clinton Creek approximately 9 km upstream of its confluence with the Forty Mile River. Porcupine and Wolverine Creeks are local tributaries of Clinton Creek.

1.3 REGULATORY AGENCIES

.1 Territorial requirements pertaining to asbestos are prescribed in the Yukon Occupational Health Regulations (Sections 33 – 41).

1.4 ABBREVIATIONS

The following abbreviations and definitions are used in this document:

- 1. ANSI American National Standards Institute. Publishes consensus standards on a wide variety of subjects, including safety equipment, procedures, etc.
- 2. CEPA Canadian Environmental Protection Act

- 3. CSA Canadian Standards Association, the national consensus standards association for Canada is roughly the Canadian equivalent of ANSI in the US
- 4. DIAND Department of Indian Affairs and Northern Development
- 5. ERP Emergency Response Plan
- 6. GY Government of Yukon
- 7. MSDS Material Safety Data Sheet provided by chemical manufacturers
- 8. MSHA Mine Safety and Health Administration, an agency of the US Department of Labour
- 9. NIOSH National Institute for Occupational Safety & Health. An arm of the US Centres for Disease Control, it does research and suggests guidelines for exposure control, but is not a regulatory agency
- 10. OSHA Occupational Safety & Health Administration, a part of the US Department of Labour, it regulates many job safety issues, including chemical handling and storage; also Occupational Safety & Health Act, the US Federal legislation which created OSHA (the Administration) and NIOSH
- 11. RMO Resource Management Officer
- 12. TDGA Transport of Dangerous Goods Act
- 13. WHMIS Workplace Hazardous Materials Information System. This program is legislated by the Canadian government, which requires, among other things, the creation and availability of material safety data sheets
- 14. OEL Occupational exposure limit
- 15. HEPA High Efficiency Particulate Aerosol

1.5 DEFINITIONS

"Asbestos" means chrysotile, crocidolite, amosite, tremolite, anthophyllite and actinolite when in their fibrous form.

"Asbestos Control Contractor" means an employer certified by an accredited agency as competent in asbestos control.

"HEPA filter" means high efficiency particulate aerosol filter.

"Restricted area" means an area of a work site in which there is a reasonable potential for worker exposure to airborne asbestos in an amount equal to or greater than 25% of the 8-hour Occupational Exposure Limit (OEL). (The 8-hour OEL for chrysotile asbestos is 0.5 fibres per millilitres of air (f/mP).

"HEPA vacuum" means a High Efficiency Particulate Aerosol (HEPA) filtered vacuum equipment acceptable to Health and Welfare Canada and meeting U.S. Military Standard 282. This vacuum equipment shall have a filtering system capable of collecting and retaining asbestos fibres to an efficiency of 99.97% for fibres of 0.3 micrometers or larger.

"Amended water" means water with a non-ionic surfactant added to reduce water tension to allow thorough wetting of asbestos fibres.

"Airlock" means a system for permitting ingress or egress without permitting air movement between a contaminated area and an uncontaminated area typically consisting of two curtained doorways at least 1.5 m apart.

"Curtained doorways" means an arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. All free edges of polyethylene shall be reinforced with duct tape and the bottom edge shall be weighted to ensure proper closing. Each polyethylene sheet shall overlap openings an additional 1/3 of the doorway width.

"Wetting agent" means 50% polyoxethylene ester and 50% polyglycol or polyoxethylene ether, or equivalent approved product, and shall be mixed with water to a concentration to provide adequate penetration and wetting of asbestos-containing material.

"Authorized person" means a representative of the Government of Yukon, the Site Engineer or the Contractor.

1.6 EXISTING CONDITIONS

"Chrysotile" is the type of asbestos present at the Clinton Creek site.

1.7 COMMUNICATIONS

A satellite phone will be available on site for communication and emergency calls.

1.8 HAZARD IDENTIFICATION

- 1. Asbestos Hazards inhalation of asbestos fibres by workers involved in work at the site.
- 2. Chemical Hazards fuels used on site
- 3. Explosion or Fire ignition of explosive or flammable liquids
- 4. Physical Hazards mechanical equipment, sharp objects
 - increased risk of injury to personnel when wearing protective gear (if required) that may impair agility, stamina, hearing, and vision
 - electric shock when using power equipment in wet location or using poorly grounded tools
- 5. Wildlife moderate risk (bears)

1.9 GENERAL HEALTH AND SAFETY MEASURES

- 1. All work will be conducted, as a minimum, in strict compliance to all applicable laws, ordinances, rules, regulations and orders and general practices for the safety of persons or property. The applicable requirements include any general safety rules and regulations of Yukon Workers' Compensation Health and Safety Board, WHMIS and Occupational Health and Safety legislation.
- 2. If deemed necessary, the Contractor shall provide wildlife monitors, acceptable to the Engineer, equipped with firearms to protect the safety of all workers including the Engineer, and Engineer's support staff during site operations.
- 3. Prior to the start of the work, all team members will participate in a mandatory safety briefing session to become familiar with all aspects of the Safety Program and Emergency Response Plan. Specific instructions on actions to be taken in case of safety violations, accidents, personal injury and emergencies will be provided.
- 4. Prior to commencement of specific work activities, all team members will be briefed on the following safety issues:
 - a. safety equipment and use
 - b. work procedures

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- c. contaminants on site
- d. emergency measures in case of an accident or fire
- 5. A "buddy system" will also be used as a protective measure in particularly hazardous situations so that team members can keep watch on one another to provide quick aid if needed.
- 6. Contacts for emergency will include the GY project authority, the RCMP detachment and the nursing station in Dawson City, Yukon, and the Yukon Fuel and Oil Spills Report Line.

Head Protection

Head protection against impact blows will be provided when required in the form of a protective hat with a liner, which will be able to resist penetration and absorb the shock of a blow. The hat will meet CSA standard Z94.1.

Foot Protection

For protection against falling or rolling objects, sharp objects, wet, slippery surfaces workers will use appropriate insulated safety shoes or boots. Safety shoes will be sturdy, have an impact-resistant toe and meet CSA Standard Z195 or ANSI standards. In case of an emergency spill, team members responding will wear protective boot covers.

Eye and Face Protection

When required, protection will be based on the kind and degree of hazard present. Available equipment will include goggles, safety glasses, and face shield. The eye protectors will meet the requirements of CSA Z94.3 or ANSI standards.

Ear Protection

To avoid exposure to high noise levels disposable phone earplugs and/or earmuffs will be made available.

Respiratory Protection

It is anticipated that exposure to harmful concentrations of air contaminants may result from temporary or emergency conditions. In such a scenario, the exposed team members will wear protective respiratory equipment to prevent breathing air contaminated with harmful dusts (including asbestos), fumes, gases and vapours. The selection of protective respirators equipment will be made according to the guidance of NIOSH or MSHA or ANSI Practices for Respiratory Protection.

Arm and Hand Protection

Absorption of chemicals, cuts and burns are examples of hazards associated with arm and hand injuries. Insulated rubber gloves and leather gloves will be provided for protection from these hazards. These gloves will conform to CSA and ANSI standards.

1.10 SITE SAFETY MEETINGS AND INSPECTIONS

To ensure that the Site Safety Plan is being followed, the contractor will conduct a safety meeting prior to initiating each site activity and at the beginning of each workday.

The purpose of the meetings is to:

- X describe assigned tasks and their potential hazards;
- X co-ordinate activities;
- X identify methods and precautions to prevent injuries;
- X plan for emergencies;
- X describe any changes to the Site Safety Plan;
- X get worker feedback on conditions affecting safety and health;
- X get worker feedback on how well the Site Safety Plan is working.

The contractor will also conduct frequent inspections of site conditions, facilities, equipment and activities. The Site Safety Officer and personnel will be responsible for inspecting the condition of their personal protective equipment and ensuring its operational condition.

1.11 FIRST AID

First Aid will be administered on site by a qualified member of the Contractor's work force. The requirements for First Aid made available on site are to be met by an attendant with a Standard First Aid certificate, a # 2 Unit First Aid Kit (St. Johns Standard), a stretcher, and three emergency blankets. In addition to the basic requirements, a spinal board, cervical collars and a Scott Air Pack will also be on site. In case of an accident, a casualty will be transported to the nursing station at Dawson City, Yukon by ground or air transport, depending on weather conditions and the severity of the casualty. The preferred mode of air transport is via rotor wing (i.e. helicopter) although a small fixed wing air craft could likely land at the former mine air strip if required. An ambulance can be dispatched from Dawson City if weather conditions prevent air travel. Emergency phone numbers are provided in the ERP. Every incident requiring First Aid will be recorded in an accident report.

1.12 FIRES

The fire safety program includes fire prevention, fire protection and fire fighting.

- 1. As a preventative measure there will be no fires or burning of rubbish at the work site.
- 2. A person discovering a fire will report the incident to the Project Superintendent.
- 3. Fire extinguishers will be located on site and in each supervisor's vehicle.
- 4. Smoking will not be permitted in restricted areas and care will be exercised in the use of smoking materials in non-restricted areas.
- 5. The current National Fire Code of Canada shall govern the handling, storage and use of flammable liquids such as gasoline. Flammable liquids such as gasoline will be stored in approved safety cans.
- 6. Disposal of flammable liquids will be in accordance with all applicable environmental regulations.

2.0 PART 2 – WORK PRACTICES AND PROCEDURES

2.1 RESTRICTED AREAS – GENERAL REQUIREMENTS

- .1 A competent worker, certified in asbestos control procedures, must remain on site at all times during the work process.
- .2 Amended water shall be used to wet the ground surface or any other surfaces contaminated with asbestos prior to any disturbance of asbestos fibres and on a regular basis during the course of the work to control "dust", as required.
- .3 All tools and equipment shall be thoroughly washed or cleaned with a vacuum equipped with a HEPA filter prior to being removed from a restricted area.
- .4 Access to restricted areas shall be limited to authorized persons.
- .5 No person shall be permitted to eat, drink or smoke in a restricted area.
- .6 Any person entering a restricted area shall be attired with protective clothing and equipment.
- .7 Signs shall be posted at the entrance to, or on the perimeter of a restricted area, indicating that:
 - (a) asbestos is present;
 - (b) access is limited to authorized personnel;
 - (c) asbestos is a carcinogen; and
 - (d) eating, drinking and smoking are prohibited.
- .8 Any person leaving a restricted area shall be free from asbestos contamination.
- .9 Compressed air shall not be used in a restricted area.

2.2 WORKER TRAINING

- .1 Prior to commencing work in a "restricted area", direction and instruction shall be provided to all workers involved in the work outlining:
 - (a) the health hazards associated with exposure to asbestos fibres and the additional risk when combined with cigarette smoking;
 - (b) the requirement to wear the personal protective equipment as outlined by this plan;
 - (c) the use (including fit testing) and limitations of the respiratory protection being provided; and
 - (d) the work to be performed at the site.

2.3 WORKER PROTECTION

- .1 Protective equipment and facilities to be provided in a "restricted area" shall include:
 - (a) a complete change of clothing, including coveralls, caps and rubber boots, for each worker involved in work with asbestos;
 - (b) respiratory protection designed to protect against exposure to asbestos fibre;
 - (c) sanitary facilities within or close to the restricted area;
 - (d) a shower facility to remove all asbestos fibres from the body; and
 - (e) goggles, hard hats or other Personal Protective Equipment as required by the General Safety Regulations for the work being performed.

- .2 Respiratory Protection
 - .1 Provide workers with personally issued and marked respiratory equipment suitable for the asbestos exposure in the work area. Ensure that suitable respiratory protective equipment is worn by every worker who enters the restricted work area. A respirator provided by an employer and used by a worker:
 - (a) shall be fitted so that there is an effective seal between the respirator and the worker's face;
 - (b) shall be assigned to a worker for the worker's exclusive use;
 - (c) shall be used and maintained in accordance with the procedures specified by the equipment manufacturer;
 - (d) shall be cleaned, disinfected and inspected after use on each shift, or more often if necessary;
 - (e) shall have damaged or deteriorated parts replaced prior to being used by a worker; and
 - (f) when not in use, shall be stored in a convenient, clean and sanitary location.
 - .2 Half-face air purifying respirators have a protection factor of 10. The maximum average airborne fibre concentration should, therefore, not exceed 5 f/mP if half-face respirators are to be used. Full-face powered-air purifying respirators (PAPRs) shall be used if the airborne fibre concentration exceeds 5.0 fibres per cubic centimetre of air, as outlined in Section 2.7.4. HEPA filters are the appropriate filter type for asbestos work.

- .3 Protective Clothing
 - .1 Provide workers with protective clothing which shall:
 - (a) be worn by every worker who enters the restricted work area;
 - (b) be made of a material which does not readily retain nor permit penetration of asbestos fibres (e.g. Tyvek);
 - (c) consist of full body covering including head covering with snug fitting cuffs at the wrists, ankles and neck;
 - (d) include suitable footwear; and
 - (e) be repaired or replaced if torn.

2.4 PERSONAL DECONTAMINATION

.1 At least three separate decontamination chambers shall be provided for workers to use to ensure that they and their clothing are free of asbestos contamination when they leave the work site. The decontamination chambers, except for the shower, shall be constructed of sufficient size to hold all the workers, their protective clothing and equipment, and their street clothing. A trailer may be appropriate for housing the decontamination facilities.

The Decontamination System shall comprise a serial arrangement of three separate compartments including a Clean Change Room, a Shower Room and a Transfer Room with an airlock separating each area.

- .1 *Clean Change Room:* Build a clean room between the shower room and clean areas outside of enclosures, with one airlock to the shower room. Install a mirror to permit workers to fit respiratory equipment properly; provide sufficient hangers and hooks; provide a bench or chairs.
- .2 *Shower Room:* Build a shower room with two airlocks: one to the Clean Change Room and one to the Transfer Room.

Provide a constant supply of hot and cold water. The Shower Room shall have individual controls inside the room to regulate water flow and temperature.

Provide piping and connect to water sources and drains. Provide soap and appropriate containers for disposal of used respirator filters. Note that workers may provide their own towels as these are not contaminated and may be removed from the site for cleaning.

- .3 *Transfer Room:* Build a Transfer Room between the Shower Room and the work areas, with one airlock to the Shower Room.
- .2 Every worker shall remove, store and dispose of all clothing and protective equipment, except for the respirator, while in the first chamber (or "Transfer Room").
- .3 Every worker shall enter the shower with the respiratory equipment still in place.
- .4 After each worker has thoroughly washed their head, face and respirator, they may remove their respirators and discard the used filters.
- .5 In the third chamber (or "Clean Change Room"), workers shall dress in street clothing and store their respirators with new filters installed.
- .6 Facilities shall be provided within the Clean Change Room to store street clothing and to ensure that no contamination of street clothing occurs.
- .7 Reusable protective clothing worn in a restricted area shall be laundered, when necessary, and, in any event, not less frequently than every three days of use.
- .8 Protective clothing to be laundered shall be transported from a restricted area in sealed containers that are clearly labelled to indicate the contents and carcinogenic hazard with a warning that dust should not be breathed.

- .9 Used disposable protective clothing and discarded filters shall be treated as asbestos waste.
- .10 Doors between chambers shall be constructed of triple sheets of polyethylene, opening on alternating sides to ensure as good a seal as is reasonably practical between chambers.

A typical worker decontamination facility layout is provided in Appendix A.

2.5 WASTE HANDLING

All of the used disposable personal protective equipment (e.g. HEPA filters, Tyvek suits) and material collected during clean-up of the decontamination chambers shall be secured and sealed in polyethylene bags and transported to the on-site landfill for final disposal.

2.6 MEDICAL EXAMINATIONS

Medical examinations are required for "exposed workers" as specified in Sections 40 and 41 of the Yukon Occupational Health Regulations. "Exposed worker" is defined as "a worker who, for at least 10 days in a 12-month period, will likely be exposed to airborne asbestos in an amount equal to or greater than 25% of the 8-hour Occupational Exposure Limit".

2.7 AIR MONITORING

- 1. Air samples may be taken from commencement of work until completion in asbestos work area(s) with NIOSH 7400 procedures, or with a Fibrous Aerosol Monitor.
- 2. Co-operate in collection of air samples, including requiring workers to wear sampling pumps for up to half shift periods. Workers shall exercise care not to damage air sampling equipment.
- 3. A portable battery-operated sampling pump is used to draw air through a 25 mm, 0.8 um pore size, cellulose ester filter at a constant flow rate for a sufficient period of time to collect a representative sample of air for personnel in the work area. The air sample(s) are then retrieved and analysed by Phase Contrast Microscopy (PCM).
- 4. If air monitoring shows airborne fibre levels exceed 10X the time-weighted average exposure criteria (TWAEC) of 0.5 fibres per cubic centimetre of air (f/cc) for personal

exposure, then workers will be required to use powered air purifying respirators (PAPRs) with full-face piece and HEPA filters.

5. All air sampling test results will be kept on site and made available to workers for their review.

3.0 EMERGENCY RESPONSE PLAN

This Emergency Response Plan (ERP) includes actions to be taken to reduce the impact of any "emergency" situation which arises during the course of work at the site. A list of emergency contacts, including those for medical emergencies and emergency reporting are given below.

Project Management:	
Hugh Copland (GY)	(867) 667-3208
Brett Hartshorne (INAC)	(867) 667-3268
Site Engineer (UMA Engineering)	on-site
Yukon Fuel and oil Spills Report Line:	(867) 667-7244
Dawson City, Community Nursing Station:	(867) 993-4444
Ambulance: Dawson City, Yukon	(867) 993-4444 or 1-800-661-0408
Trans North Helicopters	(867) 993-5494 or 668-2177
Fireweed Helicopters	(867) 993-5700
Resource Management Officer (RMO):	
Todd Pilgrim	(867) 993-5468
RCMP Dawson City, Yukon:	(867) 993-5555 or 667-5555

Incident: Hazardous Material or Nonaqueous Phase Liquid Spill

The response measures include:

- 1. Contain spill source and prevent from spreading.
- 2. Air monitor for explosive or toxic gases. If a hazardous condition is found, the appropriate protective equipment will be used.
- 3. Mobilize spill control kit. The kit will include:
 - X Personal protective equipment
 - X Recovery drum
 - X Absorbent material

- X Hand shovel
- X Small pail for scooping up liquid
- X Plastic sheeting
- 4. Recover spill and contaminated material and place in recovery drum.
- 5. Ensure spill is secure.
- 6. Implement a decontamination procedure before any employee or equipment leaves the area of potential hazardous exposure.
- 7. Transport recovery drum to temporary storage area. A polyethylene drop sheet will be secured to the ground at the temporary storage area
- 8. The sorting, packaging, transportation and disposal of all hazardous materials and waste encountered will be in accordance to all applicable regulations including the TDGA and CEPA.
- 9. Prepare spill report.
- 10. Call the Yukon Fuel and Oil Spill Report Line.

Incident: Serious Injury

- 1. Call for help.
- 2. Assess hazards at the site; if necessary make area safe.
- 3. Initial First Aid.
- 4. Evacuate casualty to the nursing station in Dawson City, Yukon
- 5. Prepare report.

Incident: Fires

- 1. A person discovering a fire will report the incident to the Project Manger.
- 2. Fire suppression equipment will be made available. If a fire is not promptly extinguished, the RMO in Dawson City, Yukon will be notified immediately.

APPENDIX A

TYPICAL WORKER DECONTAMINATION FACILITY LAYOUT

SENES



APPENDIX B

GABION BASKET ASSEMBLY GUIDELINES



MACCAFERRI

ENVIRONMENTAL SOLUTIONS

Maccaferri Canada Ltd. reserves the right to amend product specifications without notice and specifiers are requested to check as to the validity of the specifications they are using.

PRODUCT TECHNICAL DATA SHEET

Gabions – PVC Coating

PVC COATED GABIONS

Gabions are baskets made of 8x10 hexagonal double twisted woven wire mesh, as per ASTM A975-97 (Figures 1 and 2). Gabions are filled with stones at the project site to form flexible, permeable, monolithic structures such as retaining walls, channel linings, and weirs for erosion control projects.

The wire used in the manufacture of the gabion is heavily zinc coated soft temper steel. A PVC coating is then applied to provide added protection for use in polluted environments where soils or water are acidic; in salt or fresh water, or wherever the risk of corrosion is present. The PVC coating has a nominal thickness of 0.50 mm. The standard specifications of mesh-wire are shown in Table 1.

The gabion is divided into cells by means of diaphragms positioned at approximately 1 metre centres (Figure 1). In order to reinforce the structure, all mesh panel edges are selvedged with a wire having a greater diameter.

Dimensions and sizes of PVC coated gabions are shown in Table 2.



WIRE

All tests on wire must be performed prior to manufacturing the mesh. Wire tolerances (shown in Table 3) are in accordance with ASTM A641-97.

- <u>Tensile strength</u>: both the wire used for the manufacture of gabions and the lacing wire shall have a tensile strength of 38-48 kg/mm² according to ASTM A641-97.
- <u>Elongation</u>: shall not be less than 12%, in accordance with ASTM A370-92. The test must be carried out on a sample at least 30 cm long.
- <u>Zinc coating</u>: minimum quantities of zinc shown in Table 3 meet he requirements of ASTM A641-97, Class III soft temper coating.
- 4. <u>Adhesion of zinc</u>: the adhesion of the zinc coating to the wire shall be such that, when the wire is wrapped six turns around a mandrel having four times the diameter of the wire, it does not flake or crack when rubbing it with the bare fingers, in accordance with ASTM A641-97.



TABLE 1—STANDARD MESH-WIRE				
Туре	D (mm)	Tolerance	Internal Wire Diameter (mm)	External Wire Diameter (mm)
8x10/Zn + PVC	83	+/- 10%	2.70	3.70

PVC COATING CHARACTERISTICS

The technical characteristics and the resistance of the PVC to aging meet the relevant standards. The main values for the PVC material are as follows:

<u>Specific gravity</u>: 1.30-1.35 kg/dm³, in accordance with ASTM D792 Table 1;

<u>Hardness</u>: between 50 and 60 Shore D, according to ASTM D 2240;

<u>Tensile strength</u>: not less than 20.6 MPa, according to ASTM D412-92;

<u>Modulus of elasticity</u>: not less than 18.6 MPa, in accordance with ASTM D412-92;

<u>Abrasion resistance</u>: the percentage of the weight loss shall be less than 12%, according to ASTM D1242-92.

PVC COATING CHARACTERISTICS, Continued

<u>Creeping corrosion</u>: maximum penetration of corrosion of the wire from a square cut end shall be 25 mm when the specimen has been immersed for 2,000 hrs in a 5% solution HCl (hydrochloric acid 12 Be).

The accelerated aging tests are:

<u>Salt spray test</u>: test period 3,000 hours, test method ASTM B117-94;

<u>Exposure to UV rays</u>: test period 3,000 hours at 63°C, test method ASTM D1499-92a and ASTM G23-93 apparatus Type E;

<u>Brittleness temperature</u>: no higher than - 9°C, or lower temperature when specified by the purchaser, when tested in accordance with ASTM D746.

The properties after aging tests shall be as follows:

<u>Appearance of coated mesh</u>: no cracking, stripping or air bub-

bles, and no appreciable variation in color;

Specific Gravity: variations shall not exceed 6%;

Hardness: variations shall not exceed 10%;

Tensile strength: variations shall not exceed 25%;

<u>Modulus of elasticity</u>: variations shall not exceed 25%; <u>Abrasion resistance</u>: variations shall not exceed 10%;

Brittleness temperature: shall not exceed +18°C.

TABLE 2—GABION SIZES (8x10 mesh)

Length (m)	Width (m)	Height (m)	Number of Cells	Capacity (m ³)
2	1	1	2	2
3	1	1	3	3
4	1	1	4	4
2	1	0.5	2	1
3	1	0.5	3	1.5
4	1	0.5	4	2
2	1	0.3	2	0.6
3	1	0.3	3	0.9
4	1	0.3	4	1.2

TABLE 3—WIRE		Lacing Wire*	Mesh Wire	Selvedge Wire
PVC Mesh Diameter	Φ (mm)	2.20	2.70	3.40
Wire Tolerance	(+/-) Φ(mm)	0.10	0.10	0.10
Minimum Quantity of Zinc	(g/m²)	213	244	260
* Lacing wire is supplied at a percentage of the gabion weight.				

ASSEMBLY AND INSTALLATION

Gabions are delivered on site unassembled in a collapsed form. Once the units are unfolded, the corners and diaphragms are bound together using either lacing wire (see Figure 3) or stainless steel rings (see Figure 4) that are provided with the units. The lacing must be performed as described in the Product Installation Guide to insure proper strength and function of the gabions. Rings must be closed (see Figure 5) and there must be one ring in every mesh opening, the spacing should not exceed 150 mm as shown in Figure 4.

Upon proper lacing of the gabions, they are filled with stone that is between 100 and 200 mm in diameter. The stones shall be hard, angular to round, durable and of such quality that they shall not disintegrate on exposure to water or weathering during the life of the structure. The placement of stone on all visible faces shall be hand placed for appearance purposes. Before binding the lids down it is important to check the stone filling at the corners to insure proper shape.

For further information on the assembly and installation of gabions, please consult the Products Installation Guide.



APPENDIX C

SITE PLANS AND CRUSHER BUILDING DIMENSIONS



2007 07. 1:1 Սվ Scale: Time: Plot Plot

N-

500



CLINTON CREEK CRUSHER BUILDING

crusher-PLAN

FIGURE 3



EAST ELEVATION

Scale Approximate

<u>,10</u>,

CLINTON CREEK CRUSHER BUILDING

crusher -east

FIGURE 4



CLINTON CREEK CRUSHER BUILDING

FIGURE 5

APPENDIX D

DAILY PROJECT REPORT (SAMPLE)

Daily Project Report

Project:	Former Clinton Creek Asbestos Mine Demolition Work	Report No.		
Client:	Government of Yukon (GY)	Date		
Contractor:	Hän Construction Ltd.	Job No.		
Location:	Former Clinton Creek Mine Site, Yukon Territory	Client Ref.	GY	

WEATHER Hi. Low Precip	WORK FORCE:		
	CREWS:	PERSONS:	
	EQUIPMENT:		
WORK SCHEDULE:			
Days to Date			

1. **PROGRESS**

2. CONSTRUCTION PROBLEMS AND CONCERNS:

3. ACCIDENTS AND PROPERTY DAMAGE:

4. SITE INSTRUCTIONS PROVIDED:

5. INSPECTION AND PHOTOGRAPHS:

6. TESTS PERFORMED:

7. MATERIAL RECEIVED ON SITE:

8. SALVAGE MATERIALS REMOVED FROM SITE:

DISTRIBUTION:

REPORTED BY:

DIGITAL PHOTOGRAPHS

Former Clinton Creek Asbestos Mine 2004 Demolition Work

List of Photos Provided on Compact Disc

Structure	Photos
Anfo Storage Facility	Photo Numbers
	462 to 473
Conveyor Tunnels	Photo Numbers 344 345 346 354
	355 357 358 359 360 613
Crusher Building	Photo Numbers 18 to 26 506 554 to 562 565 to 579 585 594 603 to 605
Mechanical Buildings	Photo Numbers 324 to 327
Mine Equipment	Photo Numbers 575 589 to 595
Storage Tanks	Photo Numbers 351, 352 364, 365 514 616, 617
Tram Terminus Tower	Photo Numbers 396 to 401
Tram Towers	Photo Numbers 521 to 537
Utilidor Boxes	Photo Numbers 334 to 336 347, 348

DRAWINGS

(Creek Stabilization)


18/04 Scale: 1 Plet Plet





1= 5 : 18/04 Scale: arth &

