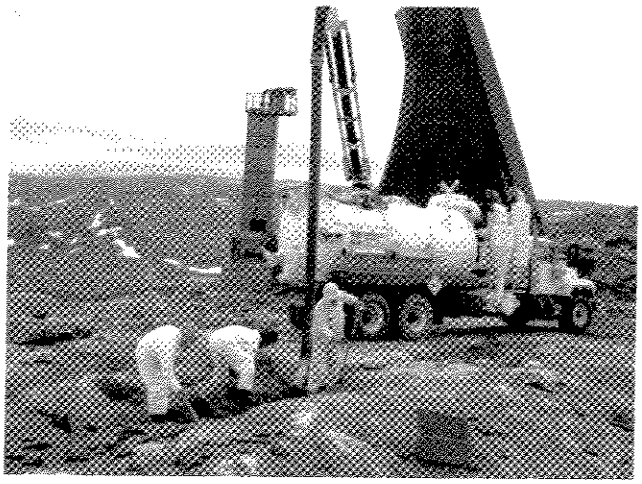


Photograph 3.3: Excavation of CEPA soil - S1/S4 Valley

3.3- PCL dump

The excavation of PCB Tier II soils was initiated on July 23 and completed on July 29. Approximately 120 m^3 of Tier II soil was removed from the PCL dump and hauled to the Tier II Landfill.

3.4- DND Helipad

The excavation of PCB Tier II soils was initiated and completed on July 21. Approximately 70 m^3 of Tier II soil was removed from the PCL dump and hauled to the Tier II Landfill.

Once the contaminated soil was excavated, the excavated areas were backfilled with clean soil (gravel):

- S1/S4 valley: approximately 1,350 m^3;
- DND Helipad, North slope dump and PCL dump: approximately 3,400 m^3;
- Cobalt dump: 60 m^3;

The following table summarizes the quantities of PCB contaminated soil and debris that were excavated and removed from the S1/S4 beach area, the S1/S4 valley area, the Lead dump, the Cobalt dump, the North slope dump, the PCL dump and the DND Helipad during the 2005 season.

Table 3.1: Volumes of PCB materials removed in 2005

Area / Material	Estimate (m^3)	Removed (m^3)	Action
S1/S4 Beach			
CEPA soil	*250*	330	Screened and containerized
Tier II soil	*1,500*	2,200	Hauled to the Tier II landfill
Tier I soil	*1,500*	880	Hauled to the Tier II landfill
S1/S4 Valley			
CEPA soil	*0*	155	Screened and containerized
Tier II soil	*3,000*	3,000	Hauled to the Tier II landfill
Tier I soil	*2,000*	2,200	Hauled to the Tier II landfill
Debris and rejects (Tier II)		474	Hauled to the Tier II landfill
PCL Dump			
Tier II soil	*125*	120	Hauled to the Tier II landfill
Tier I soil	*20*	0	Hauled to the Tier II landfill
DND Helipad			
Tier II soil	*95*	70	Hauled to the Tier II landfill
Tier I soil	*200*	0	Hauled to the Tier II landfill

The total volume of unscreened CEPA soil excavated during the 2005 season is approximately 485 m^3 (*i.e.*, 330 + 155). This volume is slightly higher than the excavation volume objective/estimate of 250 m^3 set in the 2005 work plan.

The total volume of PCB Tier II soil excavated during the 2005 season is approximately 5,390 m^3. This volume is higher than the excavation volume objective/estimate of 4,720 m^3 set in the 2005 work plan.

The total volume of PCB Tier I soil excavated during the 2005 season is approximately 3,080 m^3. This volume is smaller than the excavation volume objective/estimate of 3,720 m^3 set in the 2005 work plan

4- PCB CONTAINERIZATION AND STORAGE

This section describes the PCB waste containerization and storage operations conducted during the 2005 season. Note that all waste storage was temporary since the shipment of all remaining hazardous waste for southern disposal was completed in September 2005.

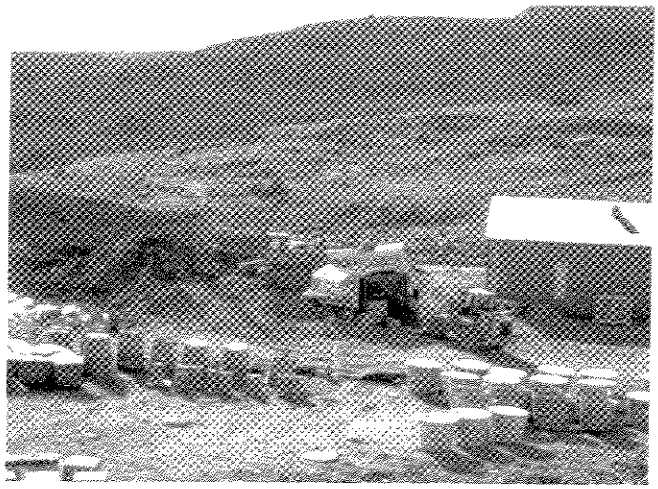
4.1- Soil Containerization

A soil processing pad was setup behind the B2 building in order to receive and screen the excavated CEPA soil from the S1/S4 Beach and S1/S4 Valley areas.

The soil was screened into a lined container, sitting on a containment pad made of HDPE membrane. A loader was used to move the containers (empty and full). Once filled, the containers were brought to the lid and bolting platform.

The screening rejects, consisting of rocks larger than 2 inches (5 cm) in diameter, fell off the screener and onto a pile located beside the screening unit. When a sufficient volume of rejects had accumulated, they were loaded into a dump truck and hauled to the Tier II Landfill (approximately 70 m^3).

At the end of the containerization process, the platform was dismantled (the HDPE membrane was put in a container) and the CEPA soil was scraped down to the bedrock. During the 2005 season, a total of 107 containers were filled with CEPA Soils.



Photograph 4.1: CEPA soil screening and containerization behind B2 building

Since the containers had previously been used for shipping CEPA soil, they were already identified by a tracking number label. Once filled and closed all the containers were checked to make sure that the two (2) numbered labels (RI tags) were still present on the outside surface. Three (3) copies of each numbered label were manufactured, therefore the third copy can be used to replace any missing labels. ASU personnel also placed a registered Environment Canada PCB label on

each container. The registered PCB number was also written on each container using paint markers, in case the PCB label was lost or damaged during transportation. The inventory of all the 3.1 m^3 steel flower pot containers including those filled in 2004 is presented in Appendix 3 - Table 1.

The containers were temporarily stored at the beach staging area located along the access road west of the B2 building. Later, in preparation for the southbound sealift, most of the containers were moved to the beach barging area using wheel loaders. A total of 340 containers were shipped south for disposal (233 from the 2004 season and 107 from the 2005 season) which represents a total volume of 1,812 tons. All of the unused containers (70) were also shipped south.

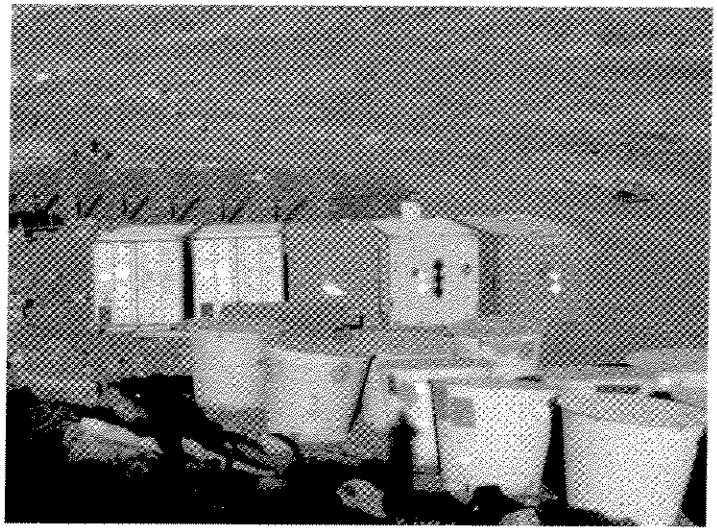
4.2- PCB Waste Containerization

In order to comply with new Transportation of Dangerous Goods (Clear Language) Regulations (TDGR), CEPA PCB contaminated materials stored on site were repackaged during the 2004 season in preparation for the off-site shipment and disposal scheduled at the end of the 2005 season. CEPA PCB contaminated debris (*e.g.*, wood, floor tiles, concrete) were either transferred into 3.1 m^3 steel containers or transferred into salvage drums and then packed into marine containers. The total inventory consists of:

- 31 steel containers with CEPA debris,
- 5 seacans containing 144 oversize drums (PCB transformers; PCB capacitors; concrete, debris, floor tiles and peat moss contaminated with PCB).

The PCB and CEPA debris represent a total weight of 104,122 kg.

The inventory of all PCB waste materials transferred is presented in Appendix 3.



Photograph 4.2: Steel and marine containers containing CEPA PCB debris

As per federal PCB Regulations, a monthly inspection of all the PCB storage facilities on site was conducted and logged during the season. Inspection log sheets are available on demand and were presented in the Health and Safety Officer 2005 season report to QC. The location of the PCB storage facilities are presented on the 2005 As-Built Drawings.

It should be noted that Resolution Island no longer has any PCB storage facilities. As mentioned before all hazardous waste including all PCB waste (other than Tier I/II soils and debris placed in the Tier II landfill) were removed from the site and shipped to registered disposal facilities. A separate report prepared by Stabilis (Resolution Island 2005, Waste and non PCB soil disposal, summary report) and provided to QC summarizes the waste shipment/disposal of all waste excluding CEPA soils. CEPA soils were shipped and disposed as per the terms of QC contract with PWGSC.

5- TIER II LANDFILL

The Tier II landfill construction, filling and capping activities were completed during the 2005 season. This major achievement was mainly made possible due to:

- the excavation of all PCB contaminated soil (Tier I, Tier II),
- the hauling of all contaminated debris (CEPA rejects, Tier I/II debris),
- the production and hauling of sufficient clean soil and rocks.

Before starting the Tier II landfill filling, the bottom membrane was found to be punctured due to damage done by polar bears during the winter time. Once the membrane repaired by a qualified welder, a type 4 fill protective layer was spread.

The filling of the Tier II Landfill with PCB contaminated soil/debris was conducted throughout the month of July and the closing/capping of the landfill was conducted throughout the month of August.

5.1- Clean Fill Production

Sand (type 4 fill) obtained by screening granular fill material, was mainly required as a protective layer between the bottom membrane and the contaminated soils & materials as well as underneath and above the final geotextile and membrane layer.

The final covering layers were built using type 2 and type 1 fill. Type 2 fill was produced by passing fill from borrow pits through a grizzly with a six inch (6") spacing. Type 2 fill was used as an insulating layer in the final cover material. Type 1 fill was large rocks that were from screener and grizzly rejects. There was not enough reject material to meet the needs of the landfill, so additional rocks were excavated from the surface of the airstrip pit after approval of this material by the EBA site representative. Type 1 material was used for erosion control on the landfill final cover.

Three (3) borrow pits were quarried for fill: Radio Hill, Airstrip and Lake Borrow Pit 2. Two (2) other permitted borrow pits were not used during the season: S1/S4 Beach and Lower Lake. The volumes of material quarried from all borrow pits are summarized in Table 5.1.

Radio Hill Borrow Pit

The Radio Hill Pit, quarried since 2001, was used again this year for the production of fill. The general location of the borrow pit is indicated on the 2005 As-Built Drawings. Pit run was excavated and hauled to the screening platform. The excavated material was then processed through screens with two-inch (2") diameter openings. Approximately 7,120 m^3 of fill were quarried from the borrow pit.

Based on the Tier II Landfill Construction Specifications, the screened fill was used as Type 4 fill, pit run was used as Type 2 fill, and screening rejects were used as Type 1 fill. Quarried granular material from the borrow pit was also used for various other activities:

- S1/S4 Valley landscaping;

- cover material for the decontaminated dumps and Beach and Camp non-hazardous waste landfills;
- repair of the sealift barging ramp;
- road maintenance and repairs.

Airstrip Borrow Pit

Quarrying operations at the Airstrip pit continued during the 2005 season. The borrow source is identified on the 2005 As-Built Drawings. Borrow material was mainly quarried from the lower terrace, situated northwest of the area where the screening platform was located.

Unscreened pit run was initially stockpiled. Once sufficient fill was stockpiled, the material was hauled and screened through a grizzly to remove larger boulders. Approximately 10,935 m^3 of fill was quarried from the borrow pit.

In compliance with the Tier II Landfill Construction Specifications, pit run was used as Type 2 material, and screening rejects were used as Type 1 material. Granular material from the borrow pit was also used for road maintenance and repairs, and as cover material for the S4 building slab, S1/S4 Valley landscaping, dump coverings and other remediation activities.

The lower terrace was also quarried for type 1 (final Tier II landfill cover: approximately 2,100 m^3).

Lake Borrow Pit #2

The Lake Borrow Pit #2 (Old Water Lake), identified on the 2005 As-Built Drawings, was also used during the 2005 season. Approximately 6,600 m^3 of fill was quarried from mid August to the very end of the season.

Approximately 1,300 m^3 of fill was hauled to the Radio Hill Borrow Pit screening platform to produce type 4 material for the Tier II Landfill. Pit run was used as type 2 material for the Tier II Landfill or hauled to a screening unit that was temporarily relocated to the platform by the Old Fresh water lake towards the end of the season. Screened material required for the 2006 season was stockpiled on that platform.

Table 5.1: Borrow Pits - Summary of Volumes Quarried

Borrow Pit	Volume Quarried (m^3)
Radio Hill	7,120
Airstrip	13,044
Lake #2	6,570
S1/S4 Beach	0
Lower Lake	0

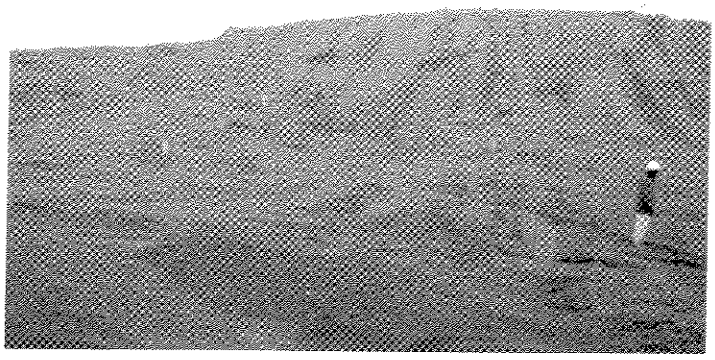
5.2- Landfill Construction and Filling

Protective sand layer

Before resuming construction at the beginning of the season, the water in the landfill was drained using a sump pump and the vacuum truck. The geotextile material was then replaced and all repairs on the geomembrane (due to polar bear damage) were done with extrusion welds by a qualified welder from the company Ztech/Geogard.

In order to allow vehicle and heavy equipment to access to the interior of the landfill from the east side, a ramp was built near the northeast corner; approximately 170 m^3 of fill was used.

Afterwards, construction work resumed. A type 4 access road was built inside the landfill from the Southwest corner. The protective sand (type 4 fill) layer was then laid on the bottom and the interior slopes of the landfill. Soil was placed in a 30 - 40 cm (12 - 16 inch) lift using markers as shown on the picture below. The D6 bulldozer was used to spread the Type 4 material.



Photograph 5.1: Type 4 layer spreading

Unfortunately, some damage was done to the geomembrane during spreading of the type 4 layer, probably due to bulldozer operations. Furthermore, some water blisters were found underneath the membrane. EBA, QC and QE representatives agreed to perforate the membrane to drain the water. These areas were marked and not covered until being repaired by the welding specialist.

A total of 3,700 m^3 of type 4 fill was spread on the bottom membrane prior to the placement of Tier II contaminated soils & materials. As required by EBA Engineering Consultants, a survey was done before the landfilling of the contaminated materials (see the 2005 As-Built Drawings).

Tier II soil/material landfilling

Once the type 4 layer was completed, the filling with PCB contaminated soil started. The landfilling of Tier II soil excavated and hauled from S1/S4 Valley, S1/S4 Beach, Cobalt dump, Lead dump, PCL Dump and DND Helipad was initiated on July 5th and completed on July 29th. Approximately 9,900 m^3 of Tier II soil was landfilled.

As the damaged areas were located on the west side of the landfill, the landfilling started on the east side. An access road with Tier II soil was first built from the Northeast corner to the inside of the landfill to allow trucks to drive within the landfill cell and unload. A first lift of 0.5 m of Tier II soil was spread and compacted with the CAT CS-563D roller-compactor before the landfilling of any PCB contaminated debris. Most of the debris were mixed with Tier II soil as described in the procedure summarized in the Appendix 7.

Approximately 475 m^3 of debris was also landfilled: assorted metal cabinets and furniture that was stockpiled in the S1/S4 Valley after excavation from the Furniture Dump, assorted metal and wooden debris (from building demolition in the S1/S4 Valley), Tier II shredded wood, wooden boxes containing lead and mercury contaminated soil and insulation from the maintenance building demolition. These were systematically mixed with soil to reduce voids and minimize settlement.

Each lift of soil was compacted with the CAT CS-563D roller-compactor. As per the Tier II landfill specifications, a slope of 4 % from North to South had to be respected. A survey was done before the landfilling of PCB Tier I contaminated soil in order to verify the compliance with the expected elevations (see the 2005 As-Built Drawings).

Photograph 5.2: Tier II soil landfilling

Photograph 5.3: Debris landfilling

Tier I soil landfilling

The hauling of Tier I soil excavated from S1/S4 Valley, S1/S4 Beach, and Lead dump was initiated on July 17th and completed on August 1st. Each lift of soil was compacted with the CAT CS-563D roller-compactor. Approximately 4,100 m^3 Tier I soil was landfilled over of the Tier II layer to act as

an initial insulating layer as per the design.

Once the Tier I soil was placed and compacted, a survey was done (see the 2005 As-Built Drawings). Due to heavy rainfalls, the vacuum truck was used to remove mud as well as water in shallow puddles accumulated on the South West corner of the landfill; the pumped water potentially contaminated with PCB was drained in the S1/S4 Valley upstream of the PCB barrier.

Photograph 5.4: Tier I soil landfilling

Covering of the PCB contaminated soil

Before capping the site with the final membrane, clean soil had to be placed over the contaminated soil layers to bring the landfill up to grade.

Approximately 2,100 m^3 of type 2 (from Airstrip borrow pit) was spread and compacted over the Tier I soil layer. The type 2 layer placement was initiated on August 2nd and completed on August 3rd. The specifications did not include type 2 fill below the top membrane. However, due to a much smaller volume of Tier I soil than the estimate that was used for the design, it was decided with the EBA/UMA engineers to bring the Tier II landfill cell up to grade with some type 2 soil so that it would be level with the berms prior to capping. As per the specifications, the Tier II contaminated soil needed to be covered with 2.7 m of clean soil. As such, clean fill (2,100 m^3) and Tier I soil (4,100 m^3) that was placed under the liner were considered as part of the 2.7 m.

Prior to capping, approximately 1,630 m^3 of type 4 (from Radio Hill borrow pit) was spread and compacted over the type 2 layer using a bulldozer. The type 4 layer placement was initiated on August 4th and completed on August 5th. As described in the 5.3 section, the thermistor boreholes were then drilled and a survey was done.

Final membrane layer placement

Prior to capping with the liner, the soil covering the geotextile on the berm was removed using the CAT excavator 315.

Photograph 5.5: Soil removing from the berms

Once all Tier I & II contaminated soils & materials were landfilled, and once the final grade satisfied UMA & EBA, two (2) technicians from the liner contractor Z-Tech / Geogard Inc. installed the capping membrane, as per the specifications. First, a layer of geotextile was laid over the top of the type 4 layer. The geotextile strips were laid with approximately a 60 cm overlap, and heat-welded together. Afterwards, the non-textured geomembrane liner strips were placed over the geotextile, and also heat-welded together. Finally, a second geotextile liner was installed over the geomembrane. An excavator was used to lift and position the liner rolls. An ATV and 6 to 8 labourers were used for unrolling the membrane liner, positioning the layers and securing them in place. Sand bags and large cobbles were used to hold the liner edges down and prevent the wind from lifting them off the ground.

Liner installation was initiated on August 9th and progressed from east to west as Type 4 material placement continued. Periods of bad weather (*i.e.*, strong winds, rain, and thick fog) delayed the installation of the liner. Despite this, the three (3) layers of liner (geotextile-geomembrane-geotextile) were installed over the entire surface of the landfill by August 16th (see Z-Tech QA/QC report in Appendix 4).