ELSA VILLAGE

SITE #78

MINFILE#: Not Applicable

1. LOCATION AND ACCESS

Elsa Village is located on the south side of Hwy #2, roughly 11.5km by road west of Keno City. The village is roughly 2km by 0.5km in size and is situated on a hillside between 790m and 850m elevation. The mill in Elsa is located at UTM coordinates 7 087 000m N, 476 000m E. Entrances off the highway are located at both the east and west ends of the village. Almost all of the roads can be accessed by vehicle; however, the road to the sawmill is blocked by a locked gate.

2. SITE PHYSIOGRAPHY

Elsa village is located on the northwestern toe of Galena Hill. The village was built on several flat terraces (essentially cut/fill areas connected by roadways). The natural slope of the area is to the northwest, towards the Elsa tailings and Husky mine site. The village site is clear of bush/vegetation within its boundaries.

Porcupine Gulch, Brefalt Creek and Flat Creek all flow northwestward through the village. Porcupine Gulch drains into the Elsa tailings, and tailings drainage flows a short distance before joining with Brefalt Creek. Both Porcupine Gulch and Flat Creek enter the eastern end of a large marsh, which drains into a tributary of the McQuesten River, located four kilometers to the west at 200m lower elevation. Porcupine Gulch was dry at the time of the site visit.

A small creek also flows past the Elsa Dump (see Attachment 4, Solid Waste Dump Area #1 (Elsa Dump).

3. SITE HISTORY

The village of Elsa originated in association with the 1929 opening of the Elsa mine (the vein was discovered in 1925). The village expanded in 1935 with the relocation of the Wernecke Mill to Elsa. Since then, the population has fluctuated in response to a variety of events, including the mine closure from 1942 to 1947 (due to World War 2 and the death of mine director Wernecke), the 1949 mill fire, and the current mill closure (which began in 1989 due to world market conditions). Over 400 people lived in Elsa just before the village's recent shutdown.

Today, the village is largely comprised of closed industrial and commercial buildings near the village centre. Several buildings are relatively new and appear to be in good condition, including the addition to the school, a recreation (curling) centre, swimming pool building, and a new bunkhouse at the east end of Elsa.

5. MINE DEVELOPMENT

The Elsa mine, including all openings, waste rock piles and mine water, is discussed in the Elsa Mine (Site #3) report.

6. VILLAGE INFRASTRUCTURE

The village infrastructure section includes information regarding domestic water supply, buildings, fuel storage, electrical equipment and other related information. Village site details are presented in Figure 1; see Attachment 5 (Photographs) for site photos.

6.1 Domestic Water Supply

Elsa's community domestic water supply is provided from the Flat Creek water pump system located on the western side of the community. It includes a secondary stage pump system.

The water for the system is collected from a small lake in the South McQuesten River valley, roughly 4.5km northeast of Elsa. The village's domestic water supply system was not subjected to a detailed inspection; however, no potable water quality issues were reported by any of the remaining residents.

6.2 Onsite Buildings

A total of 57 buildings were inventoried and inspected in the village. Visual inspections found 21 of the buildings to have asbestos siding or floor materials. For details on each building, refer to Figure 1 and to the Attachment 1 (Site Buildings).

6.3 Fuel Storage

Eight areas in Elsa have fuel (product) storage tanks and/or drums (see Attachment 2 (Fuel Storage Areas)), and waste oil storage containers and/or waste oil spills were found in another three areas. Fuel storage and spill locations are shown on Figure 1.

6.4 Milling and Processing Infrastructure

The Elsa floatation mill is described in Attachment 1 (Site Buildings). Permission to enter the mill was not given by site personnel because of safety concerns; therefore, the interior of the mill and associated buildings could not be inspected. Descriptions of interior contents in Attachment 1 are based upon observations from outside the building.

Elsa water treatment plant personnel stated that the mill operated with cyanidation circuit up to 1978; cyanide circuit machinery was removed from the mill in 1980. From 1980 until mine operations shutdown in 1989, the mill operated with a flotation recovery circuit.

6.5 Electrical Equipment

There are five areas of Elsa in which inactive and active electrical equipment are located. Details of these areas are provided in Attachment 3 (Electrical Equipment). Details on each inactive electrical transformer are given in Section 8.1, and analytical results for samples from suspected PCB transformers near the saw mill are provided in Attachment 6.

6.6 Roads and Utiladors

Elsa roads are almost all constructed from gravel; the likely gravel source is waste rock from the main Elsa mill. Some roads, such as the road leading to the Elsa Dump, show signs of oxidation.

Steam heating lines, potable water piping and electrical lines were aligned in aboveground utilidors attached to each home and building. Utiladors throughout the village were abandoned and destroyed or showing signs of disrepair. Some pipelines were wrapped with insulation (possibly asbestos) inside the wooden utilidor housing.

7. SOLID WASTE DUMPS AND SCRAP PILES

Eight waste dump areas were discovered in Elsa. Industrial metal debris and wood debris was found at most sites; residential wastes were found primarily at the Elsa community dump. Bone yards are categorized as solid waste dumps for the purpose of this report. Three samples (Elsa Dump-01-0-30cm, Elsa Dump-02-0-30cm, and Elsa Dump-03-0-30cm) were collected from the Elsa dump; analytical results are provided in Attachment 6. Descriptions of solid waste dumps are given in Attachment 4 (Solid Waste Dumps), and dump locations are shown on Figure 1.

8. POTENTIAL CONTAMINANTS OF CONCERN

8.1 Out-of-Service Transformers

There were two areas where out-of-service transformers were observed: the first was near the new bunkhouse (Building #7) and the second was on the northwest side of the road leading into the saw mill area, west of the carpentry shop (Building #5).

Two transformers were found across the road from the new bunkhouse. The first transformer (serial number 213260) weighs 140.6 kg (310 lbs) and contains 38.6 l (8.5 gals) of oil; the second transformer (serial number 15-219), weighs 225.4 kg (497 lbs) and contains 52 l (11.5 gals) of oil.

There are 32 pole-type transformers placed on pallets a short distance off the road leading to the sawmill. Most of the transformers were manufactured by General Electric, some were manufactured by English Electric, Moloney, Pioneer Electric, Packard Electric and Westinghouse. All were field-tested for PCBs, and oil samples with over 50 ppm of PCBs (according to field screen tests) were submitted for confirmatory lab analyses. Field screening test results are summarized in Attachment 3; lab analytical results are provided in Attachment 6.

8.2 Metals and Hydrocarbons in Soil

Soil contamination was observed at the following fuel and waste oil storage areas. The following lists the suspect areas. Details on spill information are in Attachment 2.

Fuel Storage Area #2: Diesel Service Station
Fuel Storage Area #3: Oil Storage Tank
Fuel Storage Area #4: Oil Storage Tank
Fuel Storage Area #6: Oil Storage Tank, School
Waste Fuel Storage Area #1
Waste Fuel Storage Area #2
Waste Fuel Storage Area #3: Oil Change Dump

More detailed information regarding the stained areas is provided in Attachment 2. No samples were collected from these areas.

8.3 Liquid Hazardous Materials

Liquid hazardous wastes were observed at Waste Fuel Storage Areas #1, #2, and #3. Smaller waste containers were noted in some of the accessible buildings (see Attachments 1 and 2 for more information).

8.4 Solid Hazardous Materials

Solid hazardous materials are described in Attachment 4 (Solid Waste Dumps and Scrap Piles). Specifically, areas #1, #2, #4a, #6 and #7 are most notable. Other specific hazards are mentioned in the building descriptions (Attachment 1).

9. WATER QUALITY

Village site water quality is discussed in Section 6.1. Other relevant mine operation water quality information is discussed in the Elsa Mine report (site #3) and the Elsa tailings (site #79) report.

10. RECLAMATION

Since the 1989 mine operations closure, United Keno Hill Mines (UKHM) has undertaken progressive reclamation of the village, involving removal and re-grading of most housing sites at the southwest end of the village.

11. REFERENCES

United Keno Hill Mines Limited. 1996. *United Keno Hill Mines Limited – Site Characterization.* Report No. UKH/96/01, prepared by Access Mining Consultants Limited.

United Keno Hill Mines Limited. 1996. *United Keno Hill Mines Limited – Site Characterization, Technical Appendices I-VI.* Report No. UKH/96/01, prepared by Access Mining Consultants Limited.

Personal Communications

Bill Dunn, former UKHM mine engineer.
Mike Phillips, former UKHM mine geologist.

Acknowledgement

The inspection of Elsa Village was greatly aided by permission from United Keno Hill Mines Limited to access certain buildings and to access and copy the Village site plan and other map information. PWGSC Environmental Services is grateful for the cooperation and assistance provided by UKHM.

ATTACHMENT 1
SITE BUILDING DETAILS

The following list provides more detailed information about each building inspected during the site visit. Building footprints and locations are shown on Figure 1.

Building # 1: Green Shack (photos 78-1, 78-2)

This single story sheet-wood framed shack measures 6m by 6m and is currently used as a storage shack. The building is open, although vehicular access to the sawmill area is restricted. Building has fiberglass insulation.

Asbestos: No asbestos was observed.

Hazardous Contents: The building currently stores more than 140 45kg pails of calcium hypochlorite.

Building # 2: Shack #2 beside the Sawmill

This shack is of similar construction and size as shack #1 but does not have fiberglass insulation. Building was open and accessible.

Asbestos: The exterior is clad with asbestos wallboard.

Hazardous Contents: No hazardous contents were observed.

Building # 3: Shack #1 beside the Sawmill

This wood-framed 7m by 5m shack is insulated with fiberglass. Building was open and accessible.

Asbestos: The exterior is clad with asbestos wallboard.

Hazardous Contents: No hazardous contents were observed.

Building # 4: Sawmill (photo 78-3)

This one and a half story building measures 40m by 7m. It is constructed with wood framing and corrugated metal exterior siding. Interior contents include typical sawmill machinery. Building was open and accessible.

Asbestos: No asbestos was observed.

Hazardous Contents: No hazardous contents were observed.

Building #5: Carpentry Shop

This 2-story building is irregular in shape and has a maximum length of 23m and a maximum width of 17m. It is constructed with a steel frame and concrete floor foundation. The exterior walls are clad in metal sheeting and there is fiberglass insulation throughout. Building was open and accessible.

Asbestos: No asbestos was observed.

Hazardous Contents: 15 interior fluorescent lights with possible PCB ballasts.

Building # 6: Wood Storage (photo 78-4)

Building measures 11m by 7m. The building is constructed with wood framing and siding and has a corrugated metal roof. Building was locked and not accessible.

Asbestos: The exterior walls are clad in asbestos wallboard.

Hazardous Contents: Unknown.

Building # 7: New Bunkhouse (photo 78-5)

This is a relatively new building, likely built in the 1980's. It is of wood frame construction with painted green metal and wood cladding. The building was not accessible.

Asbestos: No asbestos materials were observed.

Hazardous Contents: Unknown.

Building # 8: Geology and Engineering Office (photo 78-6)

This one story, wood exterior and frame building has a metal roof and measures 46m by 9m. It was likely built in the mid-1970's. The building is in use, and was not entered for inspection.

Asbestos: Given the age, asbestos containing materials are likely. No asbestos materials were observed.

Hazardous Contents: Unknown.

Building # 9: Main Shop (photo 78-7)

Two-story shop measures 73m by 23m. Building features steel frame construction on a concrete foundation and has metal exterior cladding. Machinery maintenance equipment is being used on a limited basis within the building. Access is available during the day.

Asbestos: No asbestos was observed.

Hazardous Contents: No hazardous contents were observed based on a limited site inspection and an interview of water treatment plant personnel.

Building # 10: No. 5 Bunkhouse (photo 78-8)

This two-story bunkhouse was likely built in the 1950's or 60's. It has a wood frame and base with blue metal siding on a concrete foundation. The building was accessible and there is vinyl flooring in most rooms. Many of the rooms contain old appliances, beds and household debris. The building measures 7.6m by 45.7m.

Asbestos: Given the age, asbestos containing materials are likely. No asbestos was observed.

Hazardous Contents: No hazardous contents were observed.

Building #11: Utility Building

Several power lines enter and exit this one and a half story building. The building is relatively recent in age with post and beam construction and metal siding and roofing. The building was locked and inaccessible.

Asbestos: No asbestos was observed.

Hazardous Contents: Unknown.

Building #12: Pink and White Bunkhouse (photo 78-9)

This is a smaller bunkhouse measuring only 24m by 9m. It has two stories, wood framing, corrugated metal roofing and no foundation. The building was locked and could not be accessed.

Asbestos: Exterior walls were clad with asbestos wallboard.

Hazardous Contents: Unknown.

Building # 13: No. 1 Bunkhouse (photo 78-9)

This two-story bunkhouse was likely built in the 1950's or 60's. It has a wood frame and base with green metal siding on a concrete foundation. The building was not accessible. The building measures 44m by 9m.

Asbestos: Given the buildings age, asbestos containing materials are likely. No asbestos was observed.

Hazardous Contents: No hazardous contents were observed.

Building # 14: Union Shop (photo 78-10)

The shop is in poor condition but still intact. It is 15m by 8m and is of wood construction with metal siding and roof. There is no concrete foundation (building is set upon wooden blocks). The building is accessible.

Asbestos: The interior walls have asbestos material.

Hazardous Contents: There are approximately 20 interior fluorescent lights that possibly contain PCB ballasts.

Building # 15: Snack Bar (photo 78-11)

This one story building measures 8m by 30m and is of wood construction with a metal roof. The building is boarded up but access is possible through a back door. Interior contents include old food, discarded equipment, tables, and a pool table.

Asbestos: Exterior cladding containing asbestos was found along the base of the building.

Hazardous Contents: No hazardous contents were observed.

Building # 16: Dining Hall (photo 78-12)

This one story building measures 36m by 24m and was likely built around 1965-70. It has a wood frame with yellow vinyl siding and no visible insulation. The building was unlocked and accessible.

Asbestos: No asbestos inside or outside was observed.

Hazardous Contents: No hazardous contents were observed.

Building # 17: Dry/Change Building (photos 78-12, 78-13)

This is one of the newest buildings in Elsa, likely built in the mid-to-late 1980's. It measures 24m by 32m, and has a wood foundation, a wood and white painted metal clad exterior, and metal roof. There is a small first aid station inside. The building was locked and could not be accessed.

Asbestos: No asbestos material was observed.

Hazardous Contents: Unknown.

Building # 18: Norwest Tel Hut (photo 78-13)

The hut belongs to Norwest Tel and is currently in use. It is a newer building measuring 5m by 5m. The frame is wood and the roof and sides are covered in corrugated metal. The building was locked and could not be accessed.

Asbestos: No asbestos material was observed.

Hazardous Contents: Unknown.

Building #19: Fire Assay Office

Due to time constraints, this building was not inspected.

Building #20: Floatation Mill/Crusher House (photos 78-14, 78-15)

The crusher house/floatation mill building is located near the village centre. The northern half of the mill is 3 stories high and features post and beam construction on a concrete wall and floor foundation. There are 3 bay doors on the west side, 2 of which were open. The interior and exterior of the mill's west side appeared structurally sound.

Water treatment plant personnel did not recommend access to the mill/crusher building due to concerns regarding building stability, unsecured building contents, and the lack of interior lighting.

Within the mill building complex is a room enclosing a 50,000 litre welded steel reagent vessel and two diesel-powered pumps. The concrete floor is heavily stained with spilled oil or fuel. Heavy oil staining is visible outside and immediately north of this room; staining is approximately 6 x 8 m in area and extends onto a vehicle turnaround area (fresh gravel obscured much of the underlying stained soil).

Overhead utilidor supports at westernmost edge of mill appear structurally sound. Timber cribbing supporting a 10 m waste rock embankment in the same area appears sound, although sloughing of waste rock over the cribbing is evident.

A conveyor belt and rock dump area is located on the east side of the mill. Dumped rock does not appear oxidized.

The mill's south side is metal-clad. One transformer is mounted near the top southeast corner of the building. Two doors at the southeast corner were locked. Wooden walkways over a 2 – 3m wide ditch along the south side are in fair to poor condition. A utilidor along the southern side of the building is collapsing, and a retaining wall holding back a waste rock embankment is in fair to poor condition. The southwest corner of the mill is two stories high; the first story is next to a timbered void space between the building wall and an adjacent roadway

to the south (the roadbed lies atop of 4m high timber cribbing filled with waste rock). Two doors to the grizzly bay were partially closed but still allowed access.

Asbestos: The exterior walls of the mill are clad with approximately 1600 m^2 of asbestos shingles.

Hazardous Contents: Inside one of the open bays on the west side were four pallets of lime packed in supersacks, more than 10 pallets of sodium sulphide and more than 10 drums of cresylic acid.

Building # 21: Boiler Plant (photos 78-16, 78-17)

This large (23m by 20m) two-story plant has unpainted metal exterior walls and a metal roof. The building is locked and inaccessible. There are three pressure vessels located on the northeastern wall.

Asbestos: No asbestos materials were observed.

Hazardous Contents: Unknown.

Building #22: No. 1 Garage / Truck Garage

This one and a half story building is wood framed with metal siding and has an open bay door. The building was not entered as it is still in use.

Asbestos: No asbestos was observed.

Hazardous Contents: Unknown.

Building # 23: No. 2 Garage (photo 78-18)

The single story garage with wood frame and siding is in fair to poor condition. Floor is part concrete slab and part compacted dirt. At the time of the site visit, two of the three garage doors were open and a number of pallets of cement bags were stored inside. There is large machinery at the front and sides of the shop.

Asbestos: Three of the exterior walls and the ceiling are covered with an asbestos material.

Hazardous Contents: No hazardous contents were observed.

Building # 24: Machine Shop (photo 78-19)

The shop is two stories high and measures 22m by 12m. The building is steel framed on a concrete floor with turquoise corrugated metal siding. There is fiberglass insulation throughout. The building was accessible; inside there is a water truck, machinery workings and containers of oil. Large machinery is parked around the shop.

Asbestos: No asbestos materials were observed.

Hazardous Contents: The building contains about five to ten 20 litre pails of oil/waste oil. There were a number of small spills on the concrete floors near the doors.

Building # 25: Light Vehicle Shop (photo 78-20)

The shop is one and a half stories high and measures 27m by 10m. The building is wood framed on a concrete floor. Seven green wooden garage doors open into the building. The building was accessible; some of the bays contained parked vehicles.

Asbestos: The exterior walls are clad with an asbestos material.

Hazardous Contents: None observed.

Building # 26: Rescue Building (photo 78-21)

This building, likely over 40 years old, has corrugated steel roofing and siding over a wood frame. It is one story and measures approximately 40m by 7m. The building is unlocked and contains piping and old tires on a dirt floor. The building is not insulated.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Building # 27: Recreation Centre (photo 78-22)

The Recreation Centre is a relatively new building, likely constructed in the early 1980's. It is irregular in shape with maximum dimensions of 54m length and 20m width. The exterior is clad in corrugated steel and the base of the building is concrete. The interior is accessible and contains a curling rink. Sand and gravel has been backfilled around the base of the building.

Asbestos: No asbestos material was observed.

Hazardous Contents: The fluorescent lighting inside possibly contains PCB ballasts.

Building #28: Skating Rink (photo 78-23)

The outdoor rink is next to the recreation centre. There is a covered bench on the south side of the skating rink. The wood boards around the rink are still in place. No fuel stains from the upgradient fuel dispenser were observed within the rink area.

Asbestos: There are no asbestos materials at the skating rink.

Hazardous Contents: No hazardous materials were observed.

Building #29: Swimming Pool Building (photo 78-24)

This is a relatively new building, likely built in the 1980's. It is constructed with a steel frame and metal siding on a concrete foundation. The building is accessible. The interior walls are gyprock and there is fiberglass insulation throughout.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Building # 30: Yellow Exploration Building (photo 78-25)

This 5m by 4m building has wood frame and siding construction and a corrugated metal roof. The exterior walls are clad in asbestos and have been painted yellow. Access into the building was not available.

Asbestos: The exterior walls are clad in asbestos.

Hazardous Contents: Since the interior of the building could not be accessed, the building's contents are unknown.

Building # 31: Medical Building (photo 78-26)

The medical building is two stories and measures 19m by 12m. It was likely built in the 1980's. The framing and siding are constructed of wood and the exterior has metal siding. Access to the building was possible even though the doors are locked: the doors cannot be shut properly due to building settlement. The building contains medical equipment as well as personal medical files.

Asbestos: No asbestos material was observed.

Hazardous Contents: No hazardous contents were observed.

Building # 32: Elsa Market (photo 78-26)

The building is two stories high and measures 35m by 14m. It has a wood frame and base with vinyl siding. The building was accessible through the freezer door. Ceiling tiles appear to be cellulose. The building is currently being used as a storage facility for rock and soil samples.

Asbestos: Asbestos tiles are suspected to be beneath the linoleum flooring .

Hazardous Contents: There are possible PCB ballasts in the fluorescent lighting.

Building # 33: Fire Hall (photo 78-27)

This one and a half story building measures 19m by 12m, and is wood-framed with corrugated metal cladding. The two wooden garage doors could not be opened, and therefore the inside of the building could not be accessed.

Asbestos: Approximately $30m^2$ of asbestos sheet cladding exists beneath the metal siding.

Hazardous Contents: Unknown.

Building # 34 (photo 78-27)

This building is located immediately to the east of the Fire Hall and is of similar size and construction. Fiberglass insulation partially covers the windows. It is likely that the building was used as a dry change for mineworkers.

Asbestos: There is asbestos wallboard underneath the metal siding.

Hazardous Contents: The contents of the building are not known as the inside of the building could not be accessed.

Building #35: Generator Building (photo 78-28)

This two-story, metal-clad building is on a concrete foundation. It measures 30m long, 10m wide and 7m high. All doors into the building were locked. Exhausts from three diesel generators are located on the north side.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Building #36: Vehicle and Heavy Equipment Warehouse (photo 78-28)

This two-story high building measures 40m long, 10m wide and 7m high. It is post and beam construction with yellow aluminum siding on a concrete foundation. There is a pair of large, dark-green, steel doors at one end and a pair of unpainted wooden doors at the other. The building was accessible through an unlocked door on the north side. There were 66 full and partially full drums of milling balls stored immediately east of the building.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Building #37: Assay Laboratory (photo 78-15)

The assay laboratory is a two-story building and is clad in metal siding and roofing. The building measures 10m long, 10m wide and 5m high. All the doors were locked.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Building # 38: Administration Building (photo 78-29)

This building is in very good condition. It is two stories and measures 10m by 15m. It is wood frame construction with a corrugated tin roof. The asbestos wallboard is painted yellow. The building is locked and could not be accessed.

Asbestos: All four exterior walls are clad in asbestos wallboard.

Hazardous Contents: No hazardous contents were observed.

Building #39: Men's Staffhouse (photo 78-30)

This two-story, wood frame building measures 20m by 10m by 8m. Access was available. Inside there are 15 rooms, all carpeted. The foundation is made of concrete and the roof is corrugated tin.

Asbestos: Suspect asbestos tiles were observed on the roof and inside in the kitchen ($25m^3$) and bathroom ($15m^3$). The exterior walls are clad in asbestos.

Hazardous Contents: No hazardous contents were observed.

Building #40: Garage

This wood frame construction garage roughly 3m by 7m, and one-story. It was not examined in detail due to time constraints.

Building #41: Apartment Building (photo 78-31)

This two-story building measures roughly 15m by 10m. It is wood frame construction and is in fair to poor condition. Access was available.

Asbestos: The interior floors, the exterior walls and the tar roof all contain suspect asbestos.

Hazardous Contents: No hazardous materials were observed.

Building # 42: Garage (photo 78-32)

This wooden garage measures 9m by 5m and has a corrugated metal roof. The inside can easily be accessed.

Asbestos: No asbestos was observed.

Hazardous Contents: No hazardous materials were observed.

Building #43: Roman Catholic Church (photo 78-33)

This one story with basement building measures 10m by 10m. It is wood frame construction with a concrete foundation. The building is in poor condition.

Asbestos: The exterior walls are clad in asbestos and the floor is covered in asbestos tile.

Hazardous contents: No hazardous contents were observed.

Aurora Height Residential Area, Buildings #44-51: Occupied Residences (photo 78-34)

There are eight newer residences in Aurora Heights that are currently occupied. They are all two stories high with vinyl siding. The residences were not entered. Aurora Heights is located on the west side of Elsa Village. The area includes the occupied residences, a storage shed and the pump house.

Building #52: Storage Shed (photo 78-35)

Across the street from the occupied residences is a pale pink storage shed. The shed has wood framing and siding and an asphalt-sheeting roof. The shed is built on a concrete pad. It measures 5m in length, 3m wide and 3m high. Access was not available.

Asbestos: No asbestos materials were observed.

Hazardous Contents: Waste oil pails and associated spills were noted. No other hazardous contents were observed.

Building #53: Pump House (photo 78-36)

A wood framed, corrugated steel-sided building contains a water pump which currently supplies water to the occupied uphill residences. The building is on a concrete foundation and measures roughly 7m in length by 5m wide by 6m high. There is a latch for a padlock, however the door was not locked at the time of the site visit.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Building #54: Elsa School (photo 78-37)

The original school building is two stories high, wood frame with stucco exterior on a concrete foundation. The roof is covered in asphalt shingles. On the west side of the original building is a newer addition that contains the gymnasium. The addition is wood frame construction with a wood slat exterior, on a concrete foundation. The roof is corrugated steel. The building could be accessed through an unlocked door. The maximum dimensions of the building are 80m long by 35m wide by 8m high.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Flat Creek Residential Area, Building #55: Flat Creek Pump House (photo 78-38)

This post and beam construction building has metal-clad siding and roofing. It measures 4m long by 3m wide and 3m high. There is a small pump and a 10,000-gallon tank inside. The pump was not operating at the time of the site visit. Access was available to the building.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

Flat Creek Residential Area, Building #56: Flat Creek Residence #1 (photo 78-38)

This one and a half story building is constructed out of wood with a tar roof. The doors on the house are not locked.

Asbestos: The residence has asbestos siding on the exterior walls.

Hazardous Contents: A 5-gallon pail of a solvent was noted inside the residence.

Flat Creek Residential Area, Building #57: Flat Creek Residence #2

This 8m long, 6m wide one-story house has a basement. The building is of wood-frame construction and has roll asphalt siding. The residence is unlocked and appears stable.

Asbestos: No asbestos materials were observed.

Hazardous Contents: No hazardous contents were observed.

ATTACHMENT 2
FUEL AND WASTE OIL STORAGE AREAS

Fuel (Product) Storage Areas

Fuel Storage Area #1 (photo 78-1)

Location: The fuel storage is at the sawmill area, north of Hwy #2 and west of the carpentry shop (Building #5). The drums are in the same area as the green shack (Building #1).

Drum Storage Area(s): One half-full 25 litre kerosene pail was found near the west side of the carpentry shop. There are 17 full drums of lube oil and one empty drum immediately southwest of the green shack. No obvious stains were noted near the drums; no secondary containment berms for spill control were observed.

Fuel Storage Area #2: Diesel Fuel Pump Station (photo 78-23, photo 78-39)

Location: A single diesel fuel dispenser pump is located to the south of the skating rink, at the top of a bank. The pump is on a wooden base under a roofed wood frame.

Underground Storage Tank: The underground storage tank is designed to hold 1000 gallons of diesel fuel. Fuel stains were noted on the down side of the bank and some impact was noted in a shallow test pit immediately downgradient of the dispenser (on bank slope). No spill controls were noted on the dispenser pump. The tank is likely over 20 years old, with single-wall steel and no secondary containment or spill monitoring system.

Fuel Storage Area #3: Oil Storage Tank (photo 78-40)

Location: The large tank is near the rescue building (Building #26) on the northeast side.

Above Ground Storage Tank: The tank is roughly 7m high and 8m in diameter. The steel tank is single-wall steel and over 25 years old. There are small patches of rust on the outside of the tank and a number of dents around an access ladder. There is a small wooden shack used for re-fueling beside the tank. Fuel stains from spills were observed around the shack. A low wooden fence and a shallow (60cm) gravel berm have been built around the tank.

A large fuel spill (unknown volume) apparently occurred from this tank. An investigation by Environment Canada indicated the fuel spill did not impact downgradient areas offsite (on Highway #2). Limited cleanup work was completed.

Fuel Storage Area #4: Diesel and Stove Oil Storage Tanks (photo 78-41)

Location: Two storage tanks are located across from the fire hall (Building #33). There is a small wooden fuel dispensary shed located beside the southwest tank. The shack is clad with asbestos material and was locked.
Above Ground Storage Tanks: The single-wall steel tanks are both 6m in height and 2.4m in diameter (each tank volume estimated at 85,000 litres). No secondary containment was found around either AST.

A slight dent was observed in the diesel tank (marked with a spray-painted numeral "II" on the north side of the tank); otherwise, there are no visible signs of rust or denting on the tank. A small patch of stained soil lies beneath the bottom drain valve of the diesel tank. The bottom drain valve piping goes underground with no readily-apparent point of re-surfacing.

The second AST is marked with a spray-painted numeral "I" and the words "Stove Oil" printed with adhesive tape. A 3" steel fuel line connects the base valve of this tank to the fuel dispensary shed. A large, heavy fuel stain (10m x 3 m) was noted in the gravel/cobble soil beside the shed and between the shed and tank "I". Heavy staining was also evident next to the bottom valve of this tank and beneath pipe joints near the bottom valve. Gravel beneath the bottom valve is saturated with fuel oil.

Fuel Storage Area #5: AST beside Main Shop (photo 78-42)

Location: The tank is near the main doors of the main shop (Building #9) at the south end.
Above Ground Storage Tanks: A wooden crib supports the 5m by 1.5m single-wall steel tank. There is a small pipe and two valves at one end of the tank. Neither the pipe connections nor the valves appeared to be leaking. However, there are some minor spillage noted around the tank. The tank is in good condition and it has some minor rust on the outside. No secondary containment for the tank was observed.

Fuel Storage Area #6: USTs for the School (photo 78-37, photo 78-43)

Location: Two suspect underground tanks were noted based on vent pipes at the school. One tank was near the northeast corner of the east school building; the second was near the north side of the gymnasium building.
Above Ground Storage Tanks: The heating oil tanks were of unknown size. Based on the age of the building (1980s), the tanks are likely single-walled steel and no secondary containment was noted. Some minor stains were observed near the gymnasium building.

Fuel Storage Area #7: Gas and Diesel ASTs (photo 78-44)

Location: The two tanks are located on the north side of the floatation mill (Building #20).
Above Ground Storage Tanks: A wooden crib supports the two 200-gallon tanks. No staining was observed.

Fuel Storage Area #8: Generator AST (photo 78-49)

Location: The one tank is located next to the Norwest Tel Hut (#18).
Above Ground Storage Tanks: The mobile generator supports the 250-gallon tank. No signs of spills were noted near the single-wall steel tank.

Waste Oil Storage Areas

Waste Oil Storage Area #1 (photos 78-45, 78-46)

Location: The storage area is at the bottom of the hill below the flotation mill (Building #20), near the gravel pit. The area is less than 5m south of Hwy #2. The drums are next to solid waste dump #5.

Drum Storage Area: There are about sixty full drums of waste oil and five empty drums. The area has been cleared of vegetation and there is a 40cm gravel base under the drum area. A 25m by 20m area of gravel is saturated with spilled waste oil, likely to a depth of between 0.5m and 1m. Some of the drums were lying on their sides. A test pit in the heavily stained area directly southwest of the drums found significant staining and odor at 0.40m below ground surface. No secondary containment berm for the area is present.

Waste Oil Storage Area #2 (photo 78-35)

Location: Waste oil is stored behind storage shed (Building #52) located across the road from the existing residences on the village sites west side (Aurora Heights).

Drum Storage Area: The seven pails full of waste oil are standing up on a concrete pad, beside the storage shed. One of the pails has overflowed on to the concrete pad. There is no containment berm.

Waste Oil Storage Area #3: Oil Change Ramp (photo 78-61)

Location: The oil change ramp is located across the road from the No. 1 Bunkhouse (Building #13), on the north side of the road.

Drum Storage Area: Vehicle waste oil may have been dumped on the ground underneath the ramp.

ATTACHMENT 3: ELECTRICAL EQUIPMENT

Electrical Equipment Area #1: Transformers near Carpentry Building (photo 78-47)

Location: The out-of-service transformers are in a bushy area southwest of the carpentry shop (#5), about 15m northwest of the access road leading to the shop.

Out-of-Service Transformers: 32 disused transformers, filled with oil, have been seated on wooden palettes. PCB field screening indicated four of the transformers contained PCBs and oil samples were sent for confirmatory laboratory analyses (see Attachment 6 for results). Oil stains were noted around two transformers (#23 and #24) that had fallen over. No signage for PCB storage or restricted access was noted.

Electrical Equipment Area #2: Electrical Substation (photo 78-17)

Location: The electrical substation is to the west of the boiler plant (#21). There is a chain link fence around the transformer area (no access).

In-Service Transformers: All seven of the various sized transformers are active and may contain PCBs. There is a concrete pad under the four larger transformers. The four larger transformers have oil stains on their drain plugs.

Electrical Equipment Area #3: Transformers outside of Bunkhouse #7 (photo 78-5)

Location: Four transformers on an elevated wooden platform are attached to two poles located on the south side of the bunkhouse (Building #7). Two disused transformers are located across the road.

In-Service/Out-Of-Service Transformers: The two transformers beside the bunkhouse on poles are currently in use, and may contain PCBs. No signs of spills were noted. The two transformers across the road were field tested and did not contain PCBs. No signs of leaks were observed.

Electrical Equipment Areas #4a and #4b: Generators (photo 78-48, photo 78-49)

Location: One mobile generator is parked near the west wall behind the Elsa Market (#32) and the second is located beside the Norwest Tel building (#18). No impact/staining was noted near these areas.

Electrical Equipment Area #5: Inactive Transformers (photo 78-50)

Location: The transformers are located roughly 12m east of the Elsa Mine portal.

Out-Of-Service Transformers: These three large transformers appear to contain oil, possibly contaminated with PCBs. Metal scaffolding and signage around the transformers indicated access is restricted.

Table 1: Testing for PCBs in Transformers near the Sawmill

Transformer No.	Capacity (gallons)	Weight (pounds)	Serial No.	Field Screen Test Results, PCBs in Oil (ppm)
1	11	460	504865244MX79	<50
2	11	460	514664244MX79	<50
3	8	326	258342SN	YES
4	8	326	249215SN	<50
5	13	600	150987	<50
6	11	408	A24306	<50
7	22	700	267704	<50
8	11	410	871441	<50
9	11	410	973632	YES
10	11	410	1148124	YES
11	13	455	47510	<50
12	11	445	148631	<50
13	8.5	387	597912	<50
14	11	420	554393	<50
15	8.5	387	597912	<50
16	8.5	397	632101	<50
17	13	?	4134017	<50
18	?	?	?	<50
19	13	660	31458	<50
20	12	125	7232815496/2501A	<50
21	13	600	146284	<50
22	25	?	84649	<50
23	25	?	87648	no oil
24	7.5	340	119301	no oil
25	7.5	315	224174	<50
26	8.5	397	652100	YES
27	20	760	54721	<50
28	186	?	?	<50
29	186	?	1099547	<50
30	120	3320	3183	<50
31	?	?	3320	<50
32	7.5	?	93647	<50

ATTACHMENT 4: SOLID WASTE DUMPS AND SCRAP PILES

Solid Waste Dump Area #1: Elsa Dump (photos 78-51, 78-52, 78-62)

This is the main dump for the municipal waste from Elsa and is still in use. Over the years, wastes have been dumped down an embankment, and the upper level covered with gravel to form a flat surface. Three surface soil samples (Elsa Dump-01-0-30cm, Elsa Dump-02-0-30cm, and Elsa Dump-03-0-30cm) were analyzed; analytical results are provided Attachment 6.

Location & access: The dump is accessed via a short road on the north side of Hwy #2, east of Elsa.

Dimensions (L x W x H): The slope of the dump is 45°; it is approximately 20m high at the open face, is about 66m wide and extends 44m from the dump access road.

Drainage: A small stream flows roughly north to south along the access road and sweeps by the east side of the dump. The stream disappears into gravel located on the east side of the dump and reappears roughly 5m downgradient. A water sample (Elsa Dump-24/09/99) was collected 2m downstream from the point where the stream reappears. Water quality further downstream of the dump was not investigated.

General composition: Visible waste is comprised roughly of 20% municipal waste, 20% vehicles and drums, 30% other metal debris, and 30% dirt and overburden. A ball mill with asbestos lining is located on the east edge of the dump. Anecdotal information suggests hazardous materials may have been dumped in the past.

Impacted vegetation: A 66m by 44m area of has been cleared of trees. At the rim of the dump, some clearing has taken place, but small bushes and grasses have re-established themselves.

% covered: Some of the earlier dump material has been covered by dirt, however, most of the more recently-deposited wastes are still visible.

Solid Waste Dump Area #2: Battery and Drum Dump (photo 78-53, photo 78-54)

Location and Access: The dump is located on the north side of the road leading to the Elsa dump. Area #2 is 117m southeast of the Elsa dump.

Dimensions: The dump measures about 20m by 40m.

Drainage: The site has the same drainage as the Elsa dump.

General Composition: There are roughly 15-25 crushed vehicle batteries and about 150 rusted 45-gallon drums.

Impacted Vegetation: The drums are partially buried and there is large second growth vegetation growing around them. There are signs that battery acid has leaked out. There is very little vegetation growing underneath.

Solid Waste Dump Area #3: Bone Yard (photo 78-55)

Location & access: The bone yard is located to the west of the sawmill (Building #4), just north of Hwy #2, at the end of the road. There is a locked gate across the access road.

Dimensions (L x W x H): The material is widely spread over a 70m by 35m area.

Drainage: No surface water was observed and no water seeps were observed. The nearest drainage is Porcupine Gulch.

General composition: Most of the waste materials are portable buildings, motors, old appliances and vehicles. The yard also contains wood debris, empty fuel drums, 5 gallon pails of HCl, and a battery pile.
Impacted vegetation: The vegetation around the bone yard appears healthy and to be growing back.
% covered: Most of the material is at surface. The fuel drums have been partially buried.

Solid Waste Dump Areas #4a and #4b: Small Dumps near Bunkhouse #7 (photo 78-56, photo 78-57)

Location & access: The dumps are easily accessible by foot. One dump (#3a) is on the slope behind bunkhouse #214, on the south side of Hwy #2. The second dump is on the south side of access road leading into the village site.
Dimensions (L x W x H): Sizes are as follows: 4a – roughly 10m by 15m area; 4b – 5m by 5m area.
Drainage: No surface water was observed and no water seeps were observed. The nearest drainage is Porcupine Gulch.
General composition: The dump next to the building is composed of 60-100 drums and other metal debris. The second dump contains large wooden spools and six drums. Four of the drums were partially filled with unidentified liquids.
Impacted vegetation: The dump areas are overgrown with bush.
% covered: Bush obscures most of the dump materials.

Solid Waste Dump Area #5: Small Bone Yard (photo 78-58)

Location & access: The bone yard is located behind a garage (building #42), in the southeastern end of Elsa. It can be accessed by vehicle.
Dimensions (L x W x H): The bone yard is about 5m by 5m in size.
General composition: The bone yard is composed mostly of kitchen appliances and a small amount of metal and wood debris.
Impacted vegetation: A small area is cleared of vegetation. Healthy bushes grow around the perimeter of the cleared area.
% covered: Small bushes are starting to grow between the appliances.

Solid Waste Dump Area #6: Scrap Metal Dump (photo 78-59, photo 78-45)

Location & access: At the bottom of the hill below the flotation mill, less than 5m from the south of Hwy #2.
Dimensions (L x W x H): 16m x 10m x 1m
Drainage: Site drainage reports to Porcupine Creek, located about 5m to the east. Porcupine Creek flows into Elsa tailings. At the time of the site visit, Porcupine Creek was dry. No surface water or seeps were observed at the site.
General composition: The dump is composed of mainly scrap metal; piping, water tanks, old machinery parts etc.
Impacted vegetation: The area has been cleared of vegetation around the scrap metal pile.
% covered: Grasses and small bushed grow in and around the scrap metal pile.

Solid Waste Dump #7: Storage and Solid Waste Dump (photo 78-35)

Location and Access: The storage and solid waste area dump is located in the village sites west side (Aurora Heights), across the street from the occupied residences, behind the shed.

Dimensions: The dumped material is spread out over a 40m by 20m area.

Drainage: The nearest drainage is Flat Creek, located to the west.

General Composition: There is a large volume of steel piping. The dump also contains empty 45-gallon fuel drums, wood debris, old appliances, shower stalls, rubber tires and sinks.

Impacted Vegetation: The old appliances, shower stalls, rubber tires and sinks are all on a concrete pad beside the storage shed. The piping, drums and wood debris have large second-growth vegetation growing around them.

% covered: All of the material off of the concrete pad has second-growth vegetation growing around it.

Solid Waste Dump #8: Main Shop Dump (photo 78-60)

Location and Access: The dump is locate on the north-east side of the main shop (building #9)

Dimensions: The debris is spread over a 20m by 20m area.

Drainage: The nearest drainage is Porcupine Gulch. No surface water or seeps were observed near the dump.

General Composition: The dump is composed of mainly metal and wood debris.

Impacted Vegetation: There is a large grassy area in the centre of the dump and second growth vegetation grows around the periphery of the dump area.

% covered: Most of the debris is not covered in vegetation.

ATTACHMENT 6: 1999 ELSA VILLAGE SOIL SAMPLES LABORATORY RESULTS					
Sample Number	**Detection Limit**	**Units**	**Elsa Dump-01 - 0-30cm**	**Elsa Dump-02 - 0-30cm**	**Elsa Dump-03 - 0-30cm**
Site Description			On the northwest side of the dump, 20m from the bluff edge	On the north side of the dump, 20m from the bluff edge	On the northeast side of the dump, 20m from the bluff edge
LEPM					
Arsenic	0.2	mg/L	<0.2	<0.2	<0.2
Barium	0.005	mg/L	0.339	0.146	0.128
Boron	0.1	mg/L	<0.1	<0.1	<0.1
Cadmium	0.01	mg/L	0.04	0.02	<0.01
Chromium	0.05	mg/L	<0.05	<0.05	<0.05
Copper	0.05	mg/L	<0.05	0.12	<0.05
Lead	0.1	mg/L	<0.1	<0.1	<0.1
Mercury	0.001	mg/L	<0.001	<0.001	<0.001
Selenium	0.2	mg/L	<0.2	<0.2	<0.2
Silver	0.05	mg/L	<0.05	<0.05	<0.05
Uranium	0.5	mg/L	<0.5	<0.5	<0.5
Zinc	0.01	mg/L	25.2	3.05	1.65

ATTACHMENT 6: 1999 ELSA VILLAGE WATER SAMPLES LABORATORY RESULTS			
Sample Number	**Detection Limit**	**Units**	**Elsa Dump - 24/09/99**
Site Desciption			At the north end of the Elsa dump, just past where the water seeps back out of the ground
Analysis by ICP-USN			
Aluminum	0.0008	mg/L	0.026
Antimony	0.005	mg/L	<0.005
Arsenic	0.01	mg/L	<0.01
Barium	0.00004	mg/L	0.0255
Beryllium	0.00001	mg/L	<0.00001
Bismuth	0.0004	mg/L	<0.0004
Boron	0.002	mg/L	<0.002
Cadmium	0.00006	mg/L	0.00111
Calcium	0.002	mg/L	109
Chromium	0.00006	mg/L	0.00204
Cobalt	0.00003	mg/L	<0.00003
Copper	0.00003	mg/L	0.0065
Iron	0.00001	mg/L	0.027
Lead	0.0003	mg/L	0.0076
Lithium	0.001	mg/L	0.003
Magnesium	0.0005	mg/L	24.7
Manganese	0.00002	mg/L	0.00463
Mercury	0.0001	mg/L	<0.0001
Molybdenum	0.00007	mg/L	<0.00007
Nickel	0.00001	mg/L	0.0024
Phosphorus	0.03	mg/L	<0.03
Potassium	0.4	mg/L	<0.4
Selenium	0.004	mg/L	<0.004
Silicon	0.004	mg/L	2.68
Silver	0.00005	mg/L	<0.00005
Sodium	0.004	mg/L	1.7
Strontium	0.00002	mg/L	0.193
Sulphur	0.008	mg/L	76.7
Thallium	0.001	mg/L	<0.001
Titanium	0.00002	mg/L	<0.00002
Vanadium	0.00003	mg/L	<0.00003
Zinc	0.0002	mg/L	0.0469
Analysis by Hydride AA			
Arsenic	0.0002	mg/L	<0.0002
Selenium	0.0001	mg/L	<0.0001
LEPM			
Arsenic	0.2	mg/L	<0.2
Barium	0.005	mg/L	0.028
Boron	0.1	mg/L	<0.1
Cadmium	0.01	mg/L	<0.01
Chromium	0.05	mg/L	<0.05
Copper	0.05	mg/L	<0.05
Lead	0.1	mg/L	1.9
Mercury	0.001	mg/L	<0.001
Selenium	0.2	mg/L	<0.2
Silver	0.05	mg/L	<0.05
Uranium	0.5	mg/L	<0.5
Zinc	0.01	mg/L	0.08
Dissolved Cyanide			
Cyanide	0.001	mg/L	<0.001
Fluoride in Water			
Fluoride	0.5	mg/L	<0.5
Nitrate + Nitrite Nitrogen			
Nitrate-N (+ Nitrite-N)	0.05	mg/L	0.64

ATTACHMENT 6: 1999 ELSA VILLAGE TRANSFORMER SAMPLES LABORATORY RESULTS										
Sample Number	**Detection Limit**	**Units**	**TSS 1**	**TSS 2**	**T3**	**T9**	**T13**	**T10**	**T26**	**T26A**
Sample Description with Transformer Serial Number			Electrical Equipment Area #1: #87648	Electrical Equipment Area #1: #119361	Electrical Equipment Area #1: #258342SN	Electrical Equipment Area #1: #973632	Electrical Equipment Area #1: #597912	Electrical Equipment Area #1: #1148124	Electrical Equipment Area #1: #652100	Duplicate of T26
PCBs in Oil										
Total PCBs	0.1	ppm	na	na	3.82	<0.1	<0.1	<0.1	3.19	3.18
PCBs in Soil										
Total PCBs	0.1	mg/kg	<0.1	<0.1					na	na

Photo 78-1 : Elsa. Core racks in the sawmill area, with Building #1 (Green shack) in background. Drums with fuel are stored between the core racks to the left of the Green shack area. (Azimuth 360^{o})

Photo 78-2 : Elsa. Building #1 is being used to store pails of calcium hypochlorite. (Azimuth 360°)

Photo 78-3 : Elsa. View of Building #4, the sawmill. (Azimuth 030°)

Photo 78-4 : Elsa. Building #6, building purpose not known, but guessed to be used for construction or storage of large objects. (Azimuth 110°)

Photo 78-5 : Elsa. Building #7 is one of the newer bunkhouses. Note transformers in the foreground. (Azimuth 010°)

Photo 78-6 : Elsa. Building #8 is the geology and engineering offices. (Azimuth 340°)

Photo 78-7 : Elsa. Building #9 is the Main Shop. (Azimuth 040°)

Photo 78-8 : Elsa. Building #10, the No.5 Bunkhouse. (Azimuth 090°)

Photo 78-9 : Elsa. The pink building on the left is a bunkhouse (Building #12), the green building on the right is the No.1 Bunkhouse (Building #13). (Azimuth 075°)

Photo 78-10 : Elsa. Building #14, the Union Shop. (Azimuth 200°)

Photo 78-11 : Elsa. Building #15 is the Snack Bar. (Azimuth 110°)

Photo 78-12 : Elsa. Building #17, the new Dry /Change Building, is on the left; and Building #16, the Dining Hall, is on the right. (Azimuth 275^{o})

Photo 78-13 : Elsa. Building #18, the Norwest Tel Hut, is the corrugated steel building on the left, and the Dry / Change Building is on the right. (Azimuth 350°)

Photo 78-14 : Elsa. View of the western side of the floatation mill (Building #20).
The yellow sided part of the building is the crusherhouse.

Photo 78-15 : Elsa. The yellow building on the left is the crusherhouse, (Building #20);
the light brown building on the right is the assay lab (Building #37).

Photo 78-16 : Elsa. View of the vessels on the north end of the boiler plant (Building #21). (Azimuth 200^{o})

Photo 78-17 : Elsa. The boiler plant with an electrical substation beside it, the mill in the background. (Azimuth 020^{o})

Photo 78-18 : Elsa. Building #23, the No.2 Garage, is in the foreground, the Machine Shop (Building #24) is in the background. (Azimuth 260°)

Photo 78-19 : Elsa. The large aqua-coloured building is the Machine Shop (Building #24), the light machine shop is to the left. (Azimuth 170°)

Photo 78-20 : Elsa. Building #25, Light Vehicle Shop is in the foreground, with Building #51, the crusherhouse, in the background. (Azimuth 060°)

Photo 78-21 : Elsa. Building #26, the rescue building. (Azimuth 270°)

Photo 78-22 : Elsa. Building #27 is the Recreation Centre. (Azimuth 360°)

Photo 78-23 : Elsa. Fuel Storage Area #2, a single Chevron pump, located uphill from the skating rink. (Azimuth 030°)

Photo 78-24 : Elsa. Building #29, the swimming pool building. (Azimuth 085°)

Photo 78-25 : Elsa. The blue building on the right is the old exploration office, the yellow building (Building #30) on the left is the new exploration building. (Azimuth 080°)

Photo 78-26 : Elsa. The Elsa Market (Building #32) is on the right, and the medical building (Building # 31) is on the left. (Azimuth 270°)

Photo 78-27 : Elsa. Building #33, the Fire Hall is on the left of the photo and Building #34, possibly the dry change house, is on the right. (Azimuth 260°)

Photo 78-28 : Elsa. The generator building is on the right, the vehicle & heavy equipment warehouse is in the centre, and the building in the background is the crusher house. The 3 diesel exhaust stacks are visible on the left side of the generator building.

Photo 78-29 : Elsa. The Administration Building (Building #38) is located to the southeast of the floatation mill. (Azimuth 190^{o})

Photo 78-30 : Elsa. Looking west at the Men's Staffhouse (Building #39). (Azimuth ~270^{o})

Photo 78-31 : Elsa. Building #41, a two-story apartment complex. (Azimuth 360^{o})

Photo 78-32 : Elsa. Building #42, a one car gragage. (Azimuth 190^{o})

Photo 78-33 : Elsa. Building #43 is the Roman Catholic church.

Photo 78-34 : Elsa. Occupied mine houses. (Buildings #44 - 51)

Photo 78-35 : Elsa. Storage shed below mine houses. Note pails full of waste oil. (Building # 52)

Photo 78-36 : Elsa. Town water supply pump house. (Building #53)

Photo 78-37 : Elsa. Elsa school. Note white probable underground fuel storage tank stand pipes at nearest corner. (Azimuth 090°)

Photo 78-38 : Elsa. View of buildings in the Flat Creek area, the water pump building (Building #55) is on the left and residence #1 (Building #56) is on the right. (Azimuth 350^{o})

Photo 78-39 : Elsa. View of Fuel Storage Area #2, a single Chevron pump, looking uphill from the skating rink. (Azimuth 210^{o})

Photo 78-40 : Elsa. Fuel Storage Area #3 - an oil storage tank located beside the rescue building. There are numerous oil stains around the tank. (Azimuth 290°)

Photo 78-41 : Elsa. A pair of diesel oil storage tanks at Fuel Storage Area #4, located across from the Fire Hall. (Azimuth 060°)

Photo 78-42 : Elsa. Fuel Storage Area #5. Above-ground storage tank beside the Main Shop. (Azimuth 100°)

Photo 78-43 : Elsa. Elsa school. Note black underground fuel storage tank stand pipe at right side corner. (Azimuth 210°)

Photo 78-44 : Elsa. Fuel Storage Area #7, these two ASTs are located on the north side of the Mill (Building #20).

Photo 78-45 : Elsa. Waste Fuel Storage Area #1 is on the right and the Solid Waste Dump Area #6 is on the left. The gravel area in front of the truck is saturated with oil. Hwy #2 is in the background. (Azimuth 290^{o})

Photo 78-46 : Elsa. At Waste Fuel Storage Area #1 a small test pit revealed that the gravel was saturated with oil to at least 40cm. (Azimuth 350^{o})

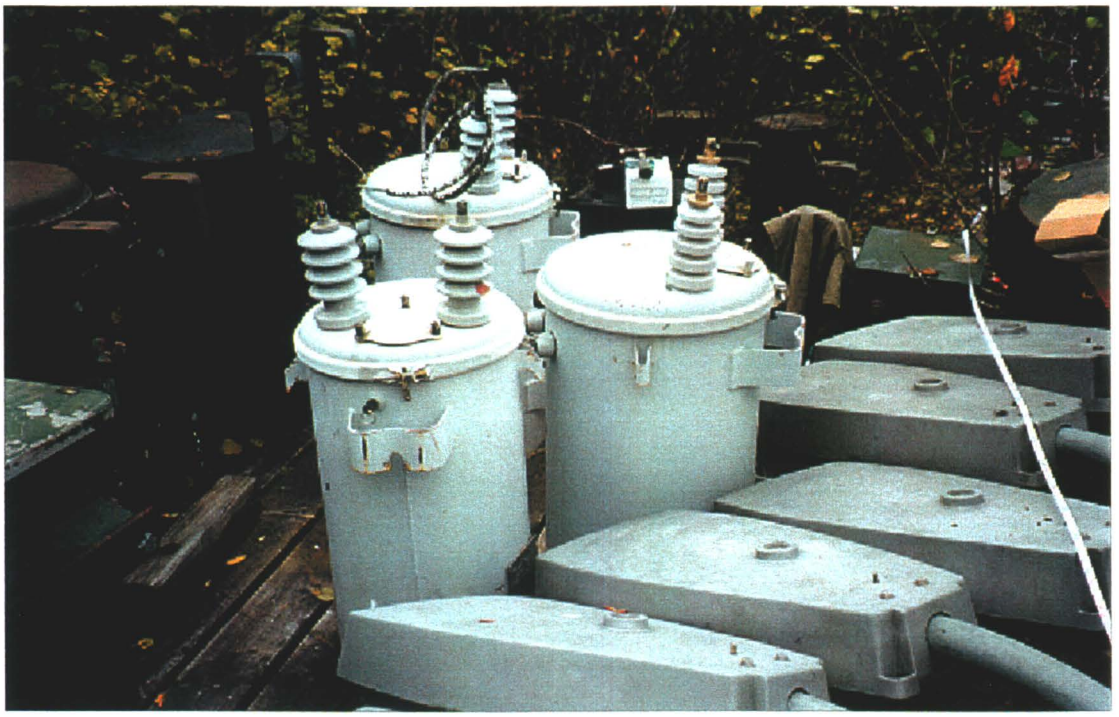

Photo 78-47 : Elsa. Electrical Equipment Area #1 : transformers near Carpentry Building (Building #5).

Photo 78-48 : Elsa. Electrical Equipment Area #4a - a mobile generator parked behind the Elsa Market. (Azimuth 230^{o})

Photo 78-49 : Elsa. Electrical Equipment Area #4b - a mobile generator beside the Norwest Tel Building. (Azimuth 200^{o})

Photo 78-50 : Elsa. Electrical Equipment Area #5, transformers beside the adit portal.

Photo 78-51 : Elsa. Solid Waste Dump Area #1 - Municipal waste from Elsa was dumped at a site just east of Elsa, north of Hwy #2. (Azimuth 275°)

Photo 78-52 : Elsa. Solid Waste Dump Area #1, metal debris pile. (Azimuth 130°)

Photo 78-53 : Elsa. Solid Waste Dump Area #2 : Battery pile. (Azimuth 260°)

Photo 78-54 : Elsa. Solid Waste Dump Area #2 : empty 45-gallon drums and other metal debris. (Azimuth 310°)

Photo 78-55 : Elsa. Solid Waste Dump Area #3, this bone yard is just west of the sawmill, on the north side of Hwy #2. (Azimuth 140^{o})

Photo 78-56 : Elsa. Solid Waste Dump Area #4a. A dump containing mainly 45-gallon drums is located on the slope behind Bunkhouse #7.(Azimuth 270^{o})

Photo 78-57 : Elsa. Solid Waste Dump Area #4b. Large wooden spools and drums are dumped across the road from Building #7. (Azimuth 180^{o})

Photo 78-58 : Elsa. Solid Waste Dump Area #5. This small bone yard is located behind a garage (Building #42), in the southeastern part of Elsa. (Azimuth 170°)

Photo 78-59 : Elsa. Solid Waste Dump Area #6. This dump is mostly scrap metal and Is located just downhill of the Mill, beside Hwy #2. (Azimuth 040°)

Photo 78-60 : Elsa. Solid Waste Dump Area #8 : Metal and wood debris beside the Main Shop (Building #9) (Azimuth 050°)

Photo 78-61 : Elsa. Waste Fuel Storage Area #3 : Oil Change ramp. (Azimuth 340^{o})

Photo 78-62 : Elsa. Ball Mill at the East side of Solid Waste Dump #1. (Azimuth 110°)