

CANADIAN FORCES .
1 CONSTRUCTION ENGINEERING UNIT .



INITIATING AGENCY : NDHQ/DCE

AUTHORIZATION : NDHQ 7635-1
NDHQ 1266-3-2 DATED 7 JUL 83

ENGINEERING STUDY 83-CEU-40
NORTHERN QUEBEC MID-CANADA LINE SURVEY
28 SEP 1983

DISTRIBUTION : NDHQ/DCE 2
1 CEU

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SYNOPSIS

Project 83-CEU-40 tasked 1 CEU to determine the extent of POL, PCB and solid waste pollution at seventy-eight abandoned Mid Canada Line (MCL) sites, between Dawson Creek, BC and the Manitoba-Ontario border and across Quebec. The fifty-two sites located west of the Manitoba/Ontario border were investigated and a subsequent 1 CEU project report dated 16 Sep 83 described their conditions. An investigation of a sample of the twenty-six remaining MCL sites in Northern Quebec was conducted between the 12 - 16 Sep 83 in the Shefferville area and the results are discussed in this report.

It was found that the main site, Knob Lake Station, had been thoroughly cleaned while no clean-up operations had taken place at the nine auxiliary sites visited. In addition, at every site, including the three POL caches, 205 L (45 gal) drums were found scattered throughout the area. While a few had some POL remaining, the majority were empty having rusted out through the years. Some POL was also found in 22 730 L (5 000 gal) storage tanks but again the majority were empty. All POL was either diesel fuel or Avgas. No evidence of PCB contamination or equipment containing PCB's such as transformers were found at the sites visited.

The main form of pollution found at the sites and POL caches was solid waste pollution in the form of buildings, equipment, antennae, drums and storage tanks, rusted dozers and various other debris usually confined within a 150 m radius of the Doppler Detection Building. Since all sites were situated in elevated areas, with hardly any soil layer, the possibility of burying debris locally is not feasible.

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A	Maps of Mid Canada Line Site Locations
B	Itinerary
C	Typical Auxillary Site in Northern Quebec (Photo and Building Plan)
D	Construction Specifications of MCL (Under Separate Cover)
E	Detailed Description of Each Site
F	Project Personnel

ENGINEERING STUDY 83-CEU-40

MID CANADA LINE SURVEY PHASE II

INTRODUCTION

1. In accordance with Project Instruction 83-CEU-40, 1 CEU was tasked to investigate the seventy-eight abandoned Mid Canada Line radar sites, located outside of Ontario and Newfoundland, for possible POL, PCB and solid waste pollution. Phase I of the project - an investigation of sites in Manitoba, Saskatchewan and Alberta - was performed from 7 to 11 August 1983 and is covered under a separate report dated 16 Sep 83. Phase II of the project - an investigation of a sample of the twenty-six sites in Northern Quebec - was carried on from 12 to 16 September 1983 and is presented in this report.

2. Nine auxiliary sites and one main site in the Schefferville area were visited using two Kiowa helicopters, one from 1 Regular Support Unit at CFB Montreal and the other from 430 Squadron at CFB Valcartier. At each of the sites visited, notes and photographs were taken to record the site condition.

PROCEDURES

3. Office Analysis. A detailed map recce of the sites was carried out and based on the results, it was realized that the only practical means of visiting the sites in Quebec was by helicopter. The use of civilian and military helicopters was investigated and through negotiation with Air Command and 10 Tactical Air Group Headquarters, 1 Regular Support Unit (1 RSU) from CFB Montreal and 430 Squadron from CFB Valcartier were each tasked to provide one Kiowa to support the task. Since flying hours were limited, it was planned that ground inspections would be carried out at nine auxiliary sites and one main site in the Schefferville area. Due to the isolated nature of all Northern Quebec sites it was assumed that the ten sites visited would reflect the condition of the remaining sixteen sites.

4. Knowing the number and location of the planned landing sites, 1 RSU prepared a detailed flight plan from St. Hubert to Schefferville and the sites. This plan also specified the location of nightly lodging and refuelling stops and the fact that the helicopters would fly together.

5. Field Investigation. Aerial photographs and notes on the condition of each site were taken. In addition close-up photographs of all the facilities and the surrounding area were taken from the ground. An average of 75 minutes was spent at each site. The nine auxiliary sites were located from the Quebec Labrador border to the 79th meridian.

OBSERVATIONS

6. Site Conditions. In summary all auxillary sites visited in Northern Quebec, appear to have been abandoned in July 1965, with no clean-up operations having taken place. Typical sites included one Doppler Detection Building, one four man survival hut, two collapsed antennae, piles of debris (consisting mainly of empty cans and bottles), chain link fencing, POL 205 L (45 gal) drums and up to eighteen 22 730 L (5 000 gal) storage tanks. Most equipment such as generators, furniture and electronic gear was found in the buildings, however some sites were scavenged. Detailed descriptions of each site, including photographs are contained in Annex E.

7. Knob Lake Base Station, the main station of all the auxillary sites visited, had been thoroughly cleaned with little evidence of its location remaining. Some buildings were presently being used at the Schefferville Airport by the Ministry of Transport (MOT) while others had been relocated in the town.

8. Three fuel caches were found on lakeshores in the proximity of the auxiliary sites. A substantial number of 205 L (45 gal) drums along with 22 730 L (5 000 gal) storage tanks were found abandoned. Most were empty with the odd one containing some fuel. Their location along with a detailed description and photographs can be found in Annex E.

9. All sites had one Doppler Detection Building (Steelox building manufactured by ARMCO Drainage and Metal Products) with some sites having a four man survival hut situated nearby. Apart from sites 312, 309 and 306, all buildings had some equipment removed by the local population including diesel generators, kitchen cabinets, toilet fixtures, etc. From discussions with residents of Schefferville, it was learned that scavenging had been done by local outfitters who made use of the equipment in their fishing and hunting camps. A building plan of a typical Doppler Detection Building can be found in Annex C and specifications for the construction of the sites are contained in Annex D.

10. Site Contamination. Evidence of POL spills indicated by darkened moss was found around rusted out 205 L drums and around 22 730 L storage tanks. Some POL, either diesel or Avgas, remained in drums and storage tanks with one site having an estimated 15 900 total. Damage to the environment due to POL spills does not appear extensive since vegetation at the actual sites consisted mainly of moss. Contamination of lakes and rivers in the lower area surrounding each site is possible, but with the passage of approximately eighteen years, there was no evidence of such at the time of the investigation. Water around POL caches was clear with no film or slicks. It appears that POL pollution is limited and that the most serious pollution form would be solid waste pollution, especially the large numbers of drums found at the caches. There was no evidence of PCB contamination and no equipment such as transformers was observed.

11. Soil Conditions. All auxiliary sites were situated on the top of a knoll. Due to the northern location and elevations of the sites, soil conditions consist of a small layer of moss or exposed bedrock. This would therefore exclude the possibility of burying site debris locally.

12. Site Accessibility. There are no roads or trails leading to the auxiliary sites. The only way of reaching them during summer is by helicopter or by float-plane since all nine sites had numerous lakes surrounding them. During the winter time use of ski-dozers would be a possible means of ground transportation to the sites, however the distance to the sites and their isolated locations make this mode of travel difficult. In addition extensive helicopter support would be required.

CONCLUSION

13. Based on the nine sites visited in the Schefferville area it would appear that all auxiliary sites in Northern Quebec were abandoned in July 1965 without any clean-up or salvage taking place. Numerous debris, POL drums and storage tanks along with one Doppler Detection Building and one four man survival hut can be expected at each site.

ANNEX "A"

ANNEX "B"

ITINERARY

12 Sep 83

Project Commander departed CFB Winnipeg to rendezvous with 1 RSU at Dorval International Airport - CFB Val Cartier - Baie-Comeau - Sept Iles.

13 Sep 83

Sept-Iles - Wabush - Schefferville - Site 300 (Knob Lake) - Site 312 - POL Cache - Site 309 - Schefferville.

14 Sep 83

Schefferville - Site 215 - Site 218 - Site 221 - Schefferville.

15 Sep 83

Schefferville - Site 306 - Site 303 - Schefferville Wabush - Sept-Iles.

16 Sep 83

Sept-Iles - Baie-Comeau - CFB Valcartier - CFB Montreal (St. Hubert).

ANNEX "C"

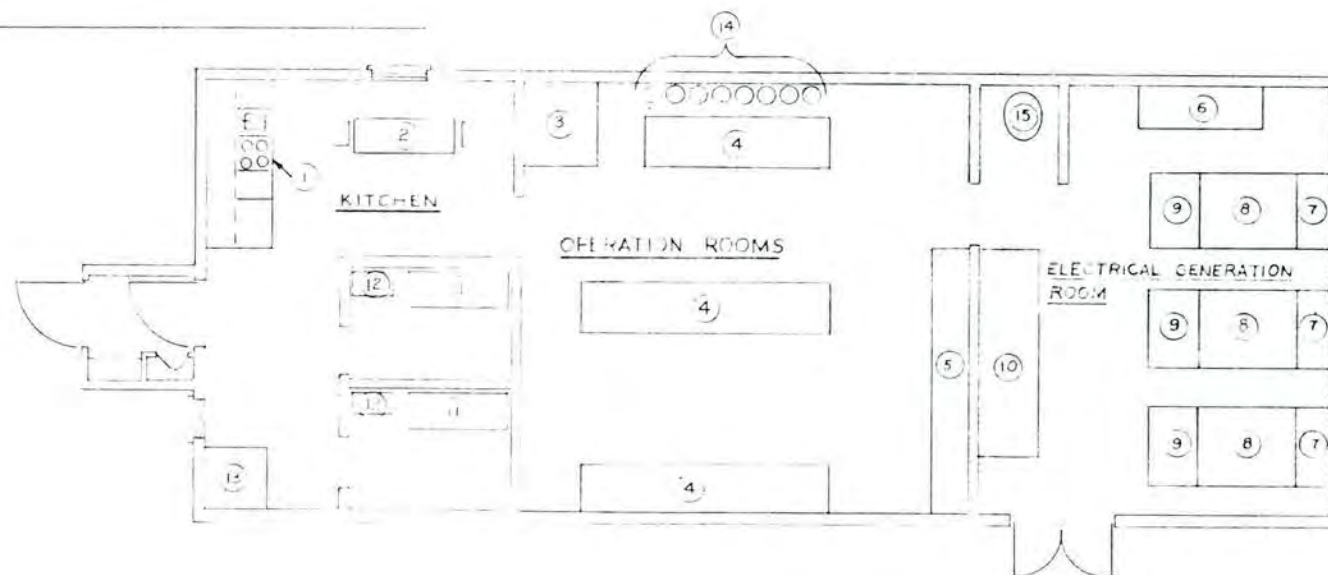
TYPICAL SITE LAYOUT OF AN AUXILIARY MID-CANADA STATION

NORTHERN QUEBEC



- Site 306:
- A - Knocked down antennae (two per antenna)
 - B - Raceway to antennae for de-icing
 - C - Doppler Detection Building (Steelox building manufactured by ARMCO Drainage and Metal Products)
 - D - Four man survival hut
 - E - 22 730 L (5 000 gal) fuel storage tanks and 205 L (45 gal) drums
 - F - Rock or wood helicopter landing pad

- ① KITCHEN SHELVES AND COMBINED STOVE, FRIDGE, SINK & OVEN
- ② KITCHEN TABLE
- ③ WORK BENCH
- ④ ELECTRONIC PANELS
- ⑤ ELECTRONIC EQUIPMENT AND SPARE PARTS SHELVES
- ⑥ DIESEL STORAGE TANK
- ⑦ BATTERY BANKS
- ⑧ DORMAN DIESEL
- ⑨ GENERAL ELECTRICAL ALTERNATOR AND EXCITER
- ⑩ WORK BENCH
- ⑪ BFD
- ⑫ LOCKERS
- ⑬ SHOWERS
- ⑭ CO. CLOUNDERS
- ⑮ TOILET



ALASKA SITE 2 - 6000 CANADA LINE IN NORTHERN QUEBEC
TYPICAL LAYOUT OF DOPPLER DETECTION BUILDING

SCALE 1/2" = 1'-0"

DETAILED SITE DESCRIPTION

1. Site 300 (Knob Lake Main Station)

a. Location. Approximately 3 km west of Schefferville, Quebec.

Latitude: 54° 48' 50"

Longitude: 66° 45' 12"

b. Facilities. All facilities have been removed and disposed of or are presently in use by Ministry of Transport at the Schefferville Airport. No signs of debris was found.

c. Pollution (Solid Waste). No solid waste remains, site has been thoroughly cleaned.



Photo 1: Remaining foundations found at Site 300.

2. Site 312

- a. Location. Approximately 190 km north west of Schefferville, Quebec.

Latitude: 55° 14' 05"
Longitude: 69° 44' 32"

b. Facilities

- (1) The existing buildings consist of the Doppler Detection Building (steelox Building manufactured by ARMCO Drainage and Metal Products approximately 7m x 18m) and one four man survival hut (approximately 6m x 6m). Both buildings appear structurally sound. Signs of break-in such as broken windows and damaged doors are evident.
- (2) Equipment remaining in Doppler Detection Building includes:
 - (a) kitchen facilities, including food
 - (b) washroom facilities;
 - (c) bed in sleeping quarters;
 - (d) various electronic panels and equipment in operation room;
 - (e) three diesel generators with associated equipment and POL in power generation room; and
 - (f) various pieces of furniture.
- (3) Equipment remaining in survival hut:
 - (a) four beds and mattresses; and
 - (b) one oil heater.
- (4) Both 77 m and 30.5 m towers are down and the concrete anchors and main foundation remain.

- (5) The existing POL consist of nine 22 730 L (5 000 gal) fuel storage tanks and approximately fifty 205 L (45 gal) empty rusty drums concentrated near storage tanks and helicopter landing site.

c. Pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) One partially stripped and rusted gas powered dozer.
- (3) Chain link fencing, piles of wood and rubble, empty cable reels and various debris scattered within a 150 m radius of the Doppler Detection Building.

- d. Electronic Equipment. The Operation rooms contained large quantities of electronic equipment, three floor to ceiling panels, spare parts and empty CO₂ cylinders.

- e. Electrical Equipment. Three Dorman diesel engines along with General Electric alternators/excitors were found in the power generation room of the Doppler Detection Building. This equipment is on skids resting on a concrete bed. The description is as follows:

(1) Description of Diesel Engine

Make: Dorman
Serial: #1 63884 (44867 operating hours based on PM log)
 #2 63882 (16193 operating hours based on PM log)
 #3 63890 (24036 operating hours based on PM log)
HP: 42
No of Cylinders: 4
RPM: 1200
Normally aspirated
Automatic start
Wet Sump
Electric Start

Automatic Voltage Regulator

Make: REGOHM
Model: CD 230

(2) Description of Altenator and Exciter

Altenator

Make: General Electric
Serial: #1 672337
 #2 672185
 #3 672213
KW: 20
Volts: 115/230
Amps: 109
Phases: Single
Wires: Three
Cycles: 60
PF: 0.8
RPM: 1200

Exciter

Make: General Electric
Serial: #1 672347
 #2 672482
 #3 672466
Volts: 64
Amps: 7.8
RPM: 1200

Switchboards

Make: Mechron
Serial: X-S77
Automatic Breakers - Air



Photo 2: An aerial view of Site 312.



Photo 3: Doppler Detection Building, note litter in foreground.



Photo 4: Fuel storage tank and drums.

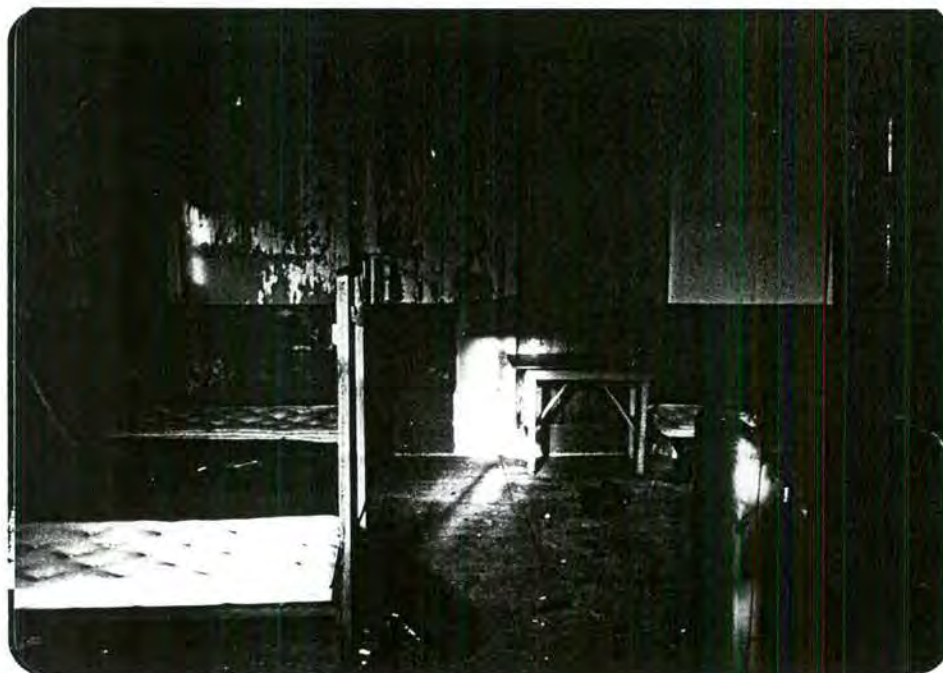


Photo 5: Inside a four man survival hut.

3. POL Cache X

- a. Location. Approximately 180 km north west of Schefferville,
Quebec.

Latitude: 55° 12'
Longitude: 69° 31'

312 A

b. Facilities

- (1) One large four man survival hut (approximately 6m x 9m) that is structurally sound and two small huts (approximately 3m x 3m).
 - (2) One stove, table and oil heater were found in the hut.
 - (3) The existing POL consists of seven empty 22 730 L (5 000 gal) fuel storage tanks and over three hundred empty rusted 205 L (45 gal) containers strewn all over the area.
- c. Pollution (Solid Waste). Consisted of piles of empty 205 L (45 gal) drums and some wood from corduroy foundation.
- d. Water Pollution
- (1) Water is clear with no evidence of POL films or slicks.



Photo 6: An aerial photo of POL cache.



Photo 7: Inside view of survival hut.



Photo 8: Pipeline to lake shore at POL Site X.



Photo 9: Wooden helipad at POL Site X.

4. Site 309

- a. Location. Approximately 150 km north west of Schefferville, Quebec.

Latitude: 55° 11' 33"
Longitude: 69° 01' 20"

b. Facilities

- (1) The existing buildings consist of one Doppler Detection Building and one four man survival hut. Both buildings appeared structurally sound. Signs of break-in such as broken windows and damaged doors were evident.
- (2) Equipment remaining in Doppler Detection Building includes:
 - (a) kitchen facilities, including food, pots and pans and dishes;
 - (b) washroom facilities;
 - (c) beds in sleeping quarters;
 - (d) various electronic panels and equipment in operation room;
 - (e) three diesel generators with associated equipment and POL in power generation room; and
 - (f) various pieces of furniture.
- (3) Equipment remaining in survival hut:
 - (a) four beds and mattresses; and
 - (b) one oil heater.
- (4) Both 77 m and 30.5 m towers are down and the concrete anchors and main foundation remain.
- (5) The existing POL consist of eighteen 22 730 L (5 000 gal) fuel storage tanks and approximately fifty 205 L (45 gal) empty rusty drums concentrated near the helicopter landing site.

c. pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) Chain link fencing, piles of wood and rubble, empty cable reels and various debris scattered within a 150 m radius of the Doppler Detection Building.

d. Electronic Equipment. Included in the Operation rooms were large quantities of electronic equipment, three floor to ceiling panels, spare parts and empty CO₂ cylinders.

e. Electrical Equipment. Three Dorman Diesel engines along with General Electric alternators and exciters were found in the power generation room of the Doppler Detection Building. All equipment is on sleds resting on a concrete bed and are of the same type found at Site 312. Serial numbers of the equipment is as follows:

(1) Dorman diesel engine Serial:

#1 63880 (41 115 operating hours based on PM log)
#2 63871 (21 440 operating hours based on PM log)
#3 63867 (17 880 operating hours based on PM log)

(2) Alternator Serial:

#1 671693
#2 672176
#3 672216

(3) Exciter Serial:

#1 672351
#2 672442
#3 672467



Photo 10: An aerial view of Site 309

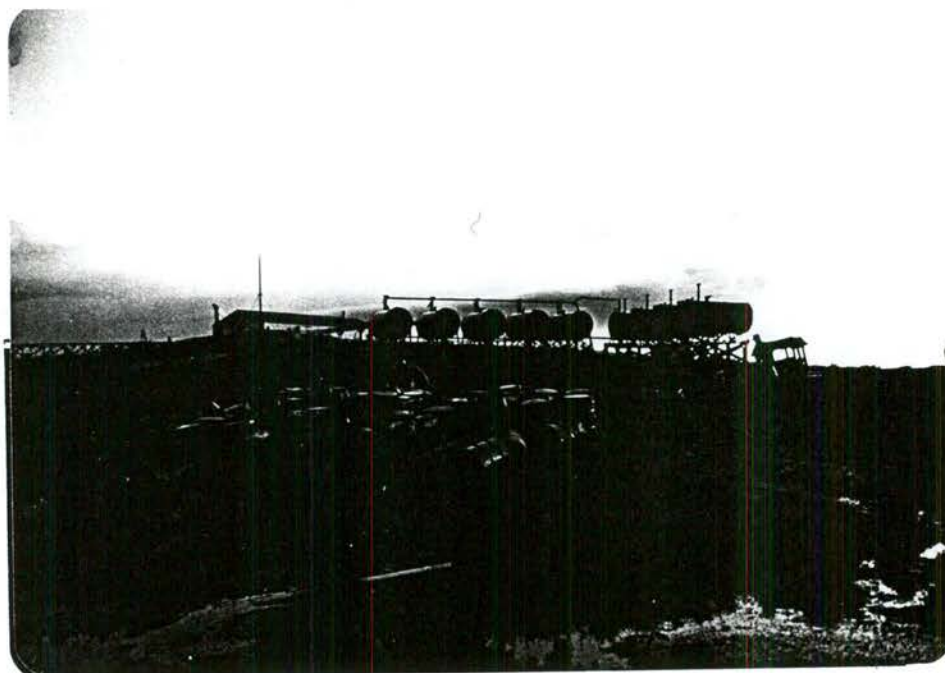


Photo 11: POL storage tanks and drums at Site 309

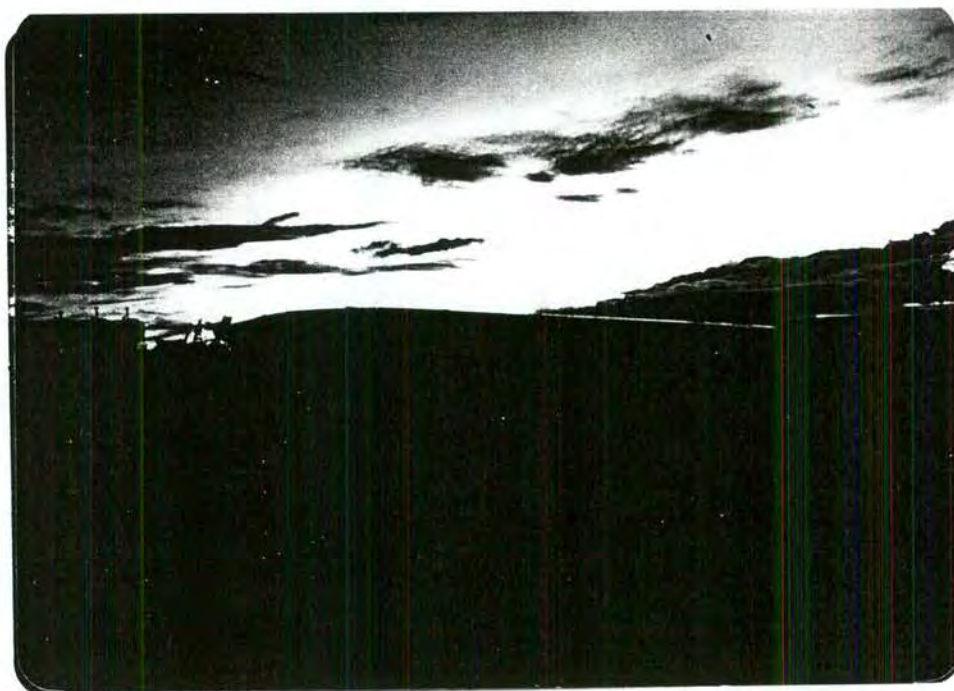


Photo 12: H-21 wreckage at Site 309

5. Site 306

- a. Location. Approximately 110 km north west of Schefferville, Quebec.

Latitude: 55° 16' 00"

Longitude: 68° 20' 30"

b. Facilities

- (1) The existing buildings consist of one Doppler Detection Building and one four man survival hut. Both buildings appeared structurally sound with limited signs of break-ins.

Equipment remaining in Doppler Detection Buildings are:

- (a) kitchen facilities including food, pots and pans and dishes;
- (b) washroom facilities
- (c) beds in sleeping quarters;
- (d) various electronic panels and equipment in operation room;
- (e) three diesel generators with associated equipment and POL in power generation room; and
- (f) various pieces of furniture.

- (3) Equipment remaining in survival hut:

- (a) four beds and mattresses;
- (b) one oil heater; and
- (c) one partially stripped Herman-Nelson heater.

- (4) Both 76.2 m and 15.2 m towers are down and the concrete anchors and main foundation remain.

- (5) The existing POL consist of nine 22 730 L (5 000 gal) fuel storage tanks and approximately thirty 205 L (45 gal) mostly empty rusty drums concentrated near storage tanks and helicopter landing site. An estimated 15 900 L of POL remains in the storage tanks and drums.

c. Pollution (Solid Waste)

- (1) One large pile of garbage consisting mainly of empty cans and bottles.
- (2) One partially stripped swamp-buggy
- (3) chain link fencing, piles of wood and rubble, empty cable reels and various debris scattered within a 150 m radius of the Doppler Detection Building.

d. Electronic Equipment. Included in operation room were large quantities of electronic equipment, three floor to ceiling panels, spare parts and empty CO₂ cylinders.

e. Electrical Equipment. Three Dorman diesel engines along with General Electric alternators and exciters were found in power generation room of the Doppler Detection Building. All equipment is on skids which is located on a concrete bed and are of the same type found at Site 312. Serial numbers of the equipment are as follows:

(1) Dorman diesel engine serial:

#1 63889

#2 63861

#3 63866



Photo 13: An aerial view of Site 306.



Photo 14: Large pile of rubble at Site 306.



Photo 15: Kitchen facilities in Doppler Detection Building at Site 306.



Photo 16: Three Dorman diesel generators in Doppler Detection Building at Site 306.



Photo 17: Interior view of four man survival hut at Site 306.

6. POL Cache Z

- a. Location. On the shore of lac Leber approximately 2 km south east of Site 306.

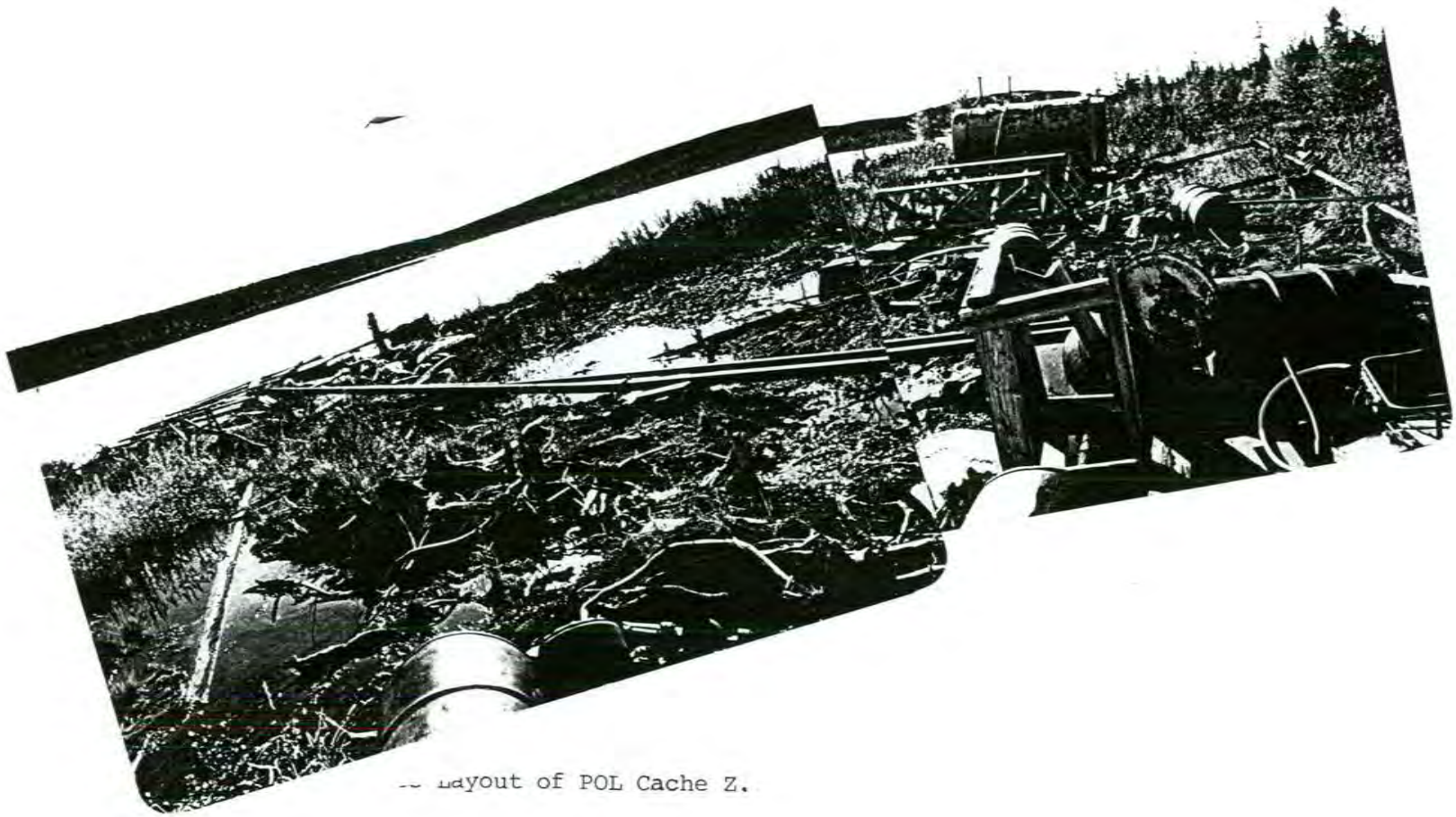
Latitude: 55° 13'

Longitude: 68° 06'

- b. Facilities. One small cabin (2m x 3m) is left with one wooden pad for helicopters and one floating dock made of logs.
- c. Pollution (Solid Waste and POL). Approximately one hundred empty 205 L (45 gal) drums and two empty 22 730 L (5 000 gal) storage tanks remain on the site. Evidence of past spills around the drums and storage tanks can be found in the form of darkened areas. The lake water is clear with no visible signs of pollution.



Photo 18: An aerial view of POL Cache Z.



Layout of POL Cache Z.

7. Site 303

- a. Location. Approximately 65 km north of Schefferville,
Quebec.

Latitude: 55° 10' 52"
Longitude: 67° 35' 25"

b. Facilities

- (1) Only Doppler Detection Building remains. The building appears structurally sound but has been highly scavenged. Doors, windows, furniture and all diesel generators have been removed.
- (2) Apart from various electronic equipment everything has been removed.
- (3) Both 76.2 m and 15.2 m towers are down and the concrete anchors and main foundation remain.
- (4) The existing POL consists of approximately seventy-five 205 L (45 gal) drums. All nine 22 730 L (5 000 gal) storage tanks have been removed with only there foundations remaining.

c. Pollution (Solid Waste)

- (1) Piles of garbage consisting mainly of empty cans and bottles.
- (2) Some drums and reels were rolled down the hill increasing the radius of pollution from the Doppler Detection Building.

- d. Electronic Equipment. Much equipment has been broken or partially stripped by local population. Three floor to ceiling panels remain.

- e. Electrical Equipment. All three Dorman diesel and generator exciters have been removed.



Photo 19: An aerial photo of Site 303.



Photo 20: Drums and reels rolled down knoll of Site 303.



Photo 21: Highly scavenged Doppler Detection Building at Site 303.



Photo 22: Pile of debris at Site 303.

8. Site 227

- a. Location. Approximately 50 km north of Schefferville, Quebec.

Latitude: 55° 18' 48"

Longitude: 66° 42' 21"

b. Facilities

- (1) The only existing building is the Doppler Detection Building. Due to the proximity of Schefferville and the site, everything of value has been scavenged.
- (2) Both the 99 m and 15 m antennae have been knocked down and the concrete anchors and main foundation remain.
- (3) The existing POL consists of two empty 22 730 L (5 000 gal) storage tanks and approximately thirty 205 L (45 gal) empty rusty drums concentrated near the helicopter landing zone.

c. Pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) Chain link fencing posts, piles of wood and rubble scattered within a 150 m radius of the Doppler Detection Building.

- d. Electronic and Electrical Equipment. Many electronic parts are littered throughout the building. All three Dorman diesels and alternators/exciters have been removed.



Photo 23: An aerial view of Site 227.

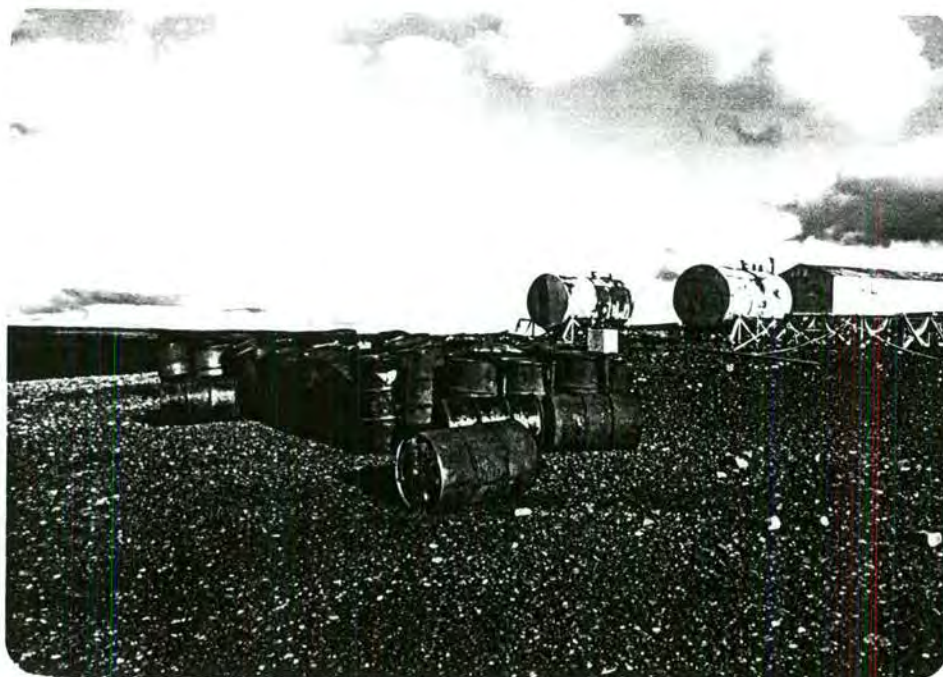


Photo 24: Two remaining storage tanks, seven having been removed.



Photo 25: Extensive vandalism found in the Doppler Detection Building at Site 227.

9. POL Cache Y

- a. Location. Approximately 1 km west of Site 227 on the shore of Lac Meausin.

Latitude: 55° 17'
Longitude: 66° 41'

- b. Facilities. Consist of one broken down log house and one small pump by the lakeshore.
- c. Pollution (Solid Waste and POL). Approximately fifty 205 L (45 gal) drums and two 22 730 L (5 000 gal) storage tanks litter the lakeshore. All are empty. No apparent signs of water pollution was found.

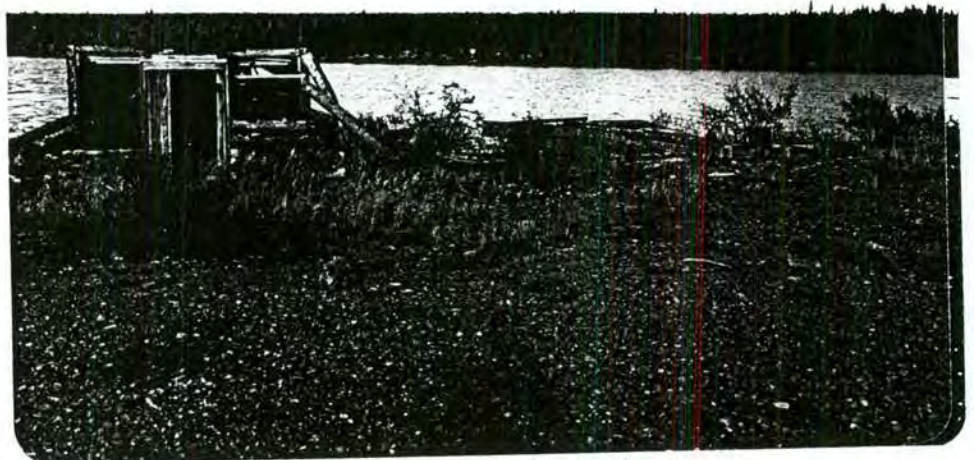


Photo 26: Broken down log cabin at POL Cache Y.



Photo 27: Drums and fuel storage tanks at POL Cache Y.



Photo 28: Pump to lakeshore at POL Cache Y.

10. Site 224

- a. Location. Approximately 60 km north east of Schefferville,
Quebec.

Latitude: 55° 15' 35"

Longitude: 66° 04' 10"

- b. Facilities.

- (1) One Doppler Detection Building remains on site. Although structurally sound it has also been vandalized. All usefull equipment such as kitchen cabinets, toilet fixtures and electrical generators have been removed.
- (2) The existing POL consists of nine empty 22 730 L (5 000 gal) storage tanks and approximately one hundred 205 L (45 gal) drums. Some drums have fuel in them while the majority are empty, having rusted out.

- c. Pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) One partially stripped and rusted dozer.

- d. Electronic Equipment. Apart from the three large panels, most electronic equipment has been stripped, damaged or removed.

- e. Electrical Equipment. All three Dorman diesel and General Electric alternators/excitors have been removed from the power generation room.



Photo 29: An aerial view of Site 224.



Photo 30: Downed antennae at Site 224.



Photo 31: POL storage tanks and drums at Site 224.

11. Site 221

- a. Location. Approximately 100 km north east of Schefferville, Quebec.

Latitude: 55° 18' 22"
Longitude: 65° 23' 59"

b. Facilities.

- (1) Only one Doppler Detection Building remained. The building is structurally sound but again it has been vandalized and consequently much equipment is missing. Kitchen cabinets toilet fixtures, furniture, electronic gear and two generators have been removed.
- (2) Both 91.4 m and 30.5 m towers are down and the concrete anchors and main foundation remain.
- (3) The existing POL consists of eighteen empty 22 730 L (5 000 gal) storage tanks and approximately one hundred and fifty 207 L (45 gal) empty drums. Most of the drums are concentrated by the rock helipad.

c. Pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) Piles of wood and various other debris scattered within a 150 m radius of the Doppler Detection Building.

- d. Electronic Equipment. Many electronic parts are scattered throughout the building. Many parts have been damaged, partially stripped or removed.

- e. Electrical Equipment. Only one Dorman diesel and General Electric alternator/exciter remain. Serial numbers of the equipment follows:

- (1) Dorman Diesel Engine
 - #1 63859
 - #2 63828 (based on PM log book, diesel removed)
 - #3 removed

(2) Altenator Serial

#1 672120

#2 672320 (based on PM log book, altenator has been removed)

#3 removed

(3) Exciter Serial

#1 672409

#2 672344 (based on PM log book, exciter has been removed)

#3 removed.



Photo 32: An aerial view of Site 221.



Photo 33: Pipeline to POL storage tanks at Site 221.

12. Site 218

- a. Location. Approximately 130 km north east of Schefferville, Quebec.

Latitude: 55° 16' 10"

Longitude: 64° 49' 15"

- b. Facilities.

- (1) Only one Doppler Detection Building remains. The building is structually sound but again it has been vandalized and consequently much equipment is missing. Kitchen cabinets toilet fixtures, furniture, electronic gear, two Dorman diesels and all three altenators/ exciters have been removed.
- (2) Both 61 m and 15.2 m towers are down and the concrete anchors and main foundation remain.
- (3) The existing POL consists of seven empty 22 730 L (5 000 gal) storage tanks and approximately seventy five 207 L (45 gal) empty drums. Furthermore an additional fifty drums can be found approximately 500 meters from the site on the lakeshore.

- c. Pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) One partially stripped and rusted dozer.
- (3) Chain link fencing, piles of wood and various debris scattered within a 150 m radius of the Doppler Detection Building.

- d. Electronic Equipment. Many electronic parts are scattered throughout the building. Many parts have been damaged, partially stripped or completely removed.

e. Electrical Equipment. Only one Dorman diesel and General Electric alternator/exciter remain. Serial number of the equipment follows:

- (1) Dorman Diesel Engine Serial: #3 63878 (16722 operating hours based on PM log book)
- (2) Altenator Serial: #3 672121
- (3) Exciter Serial: #3 762394

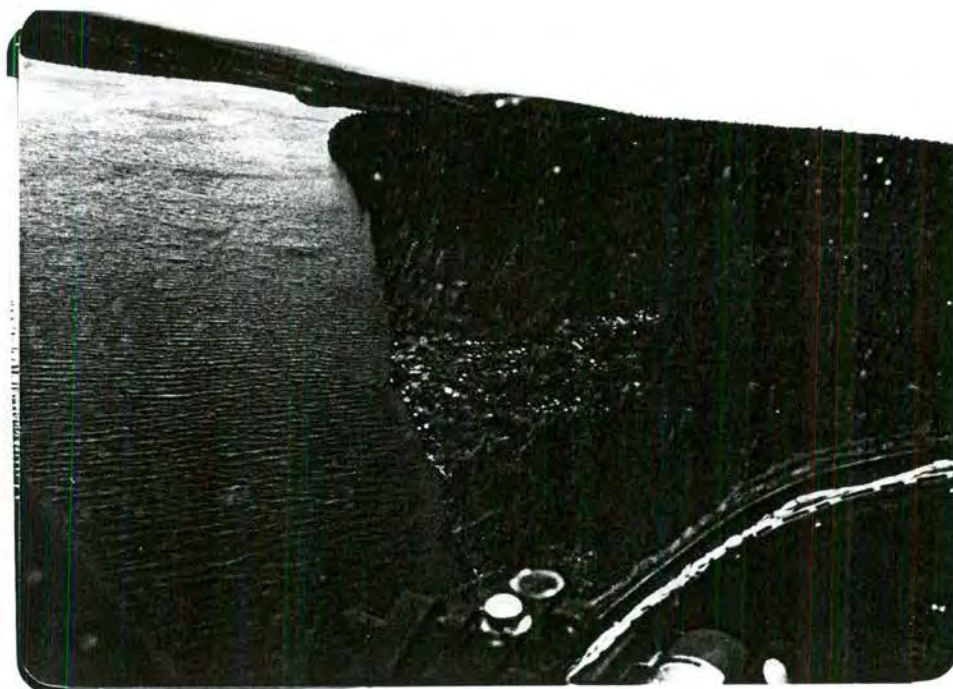


Photo 34: Aerial view of POL cache by lakeshore. Note trail leading to Site 218.



Photo 35: An aerial view of Site 218.



Photo 36: Chain link fencing equipment found at Site 218.



Photo 37: POL storage tanks and drums at Site 218.

13. Site 215

- a. Location. Approximately 180 km north east of Schefferville, Quebec.

Latitude: 55° 21' 39"
Longitude: 64° 01' 39"

b. Facilities.

- (1) The only existing building is the Doppler Detection Building. The building appears structurally sound but again some equipment has been removed such as kitchen cabinets, toilet fixtures, electronic parts and all three Dorman diesels and General Electric alternators/exciter.
- (2) Both 61 m and 15.2 m towers are down and the concrete anchors and main foundation remain.
- (3) The existing POL consists of two empty 22 730 L (5 000 gal) storage tanks and approximately fifty 207 L (45 gal) empty rusty drums.

c. Pollution (Solid Waste)

- (1) One pile of garbage consisting mainly of empty cans and bottles.
- (2) One partially stripped and rusted dozer.
- (3) Chain link fencing posts, piles of wood and rubble scattered within a 150 m radius of the Doppler Detection Building.

- d. Electronic Equipment. Many electronic parts are scattered throughout the building. All three Dorman diesels and General Electric alternator/exciter have been removed.



Photo 38: A distant aerial view of Site 215.

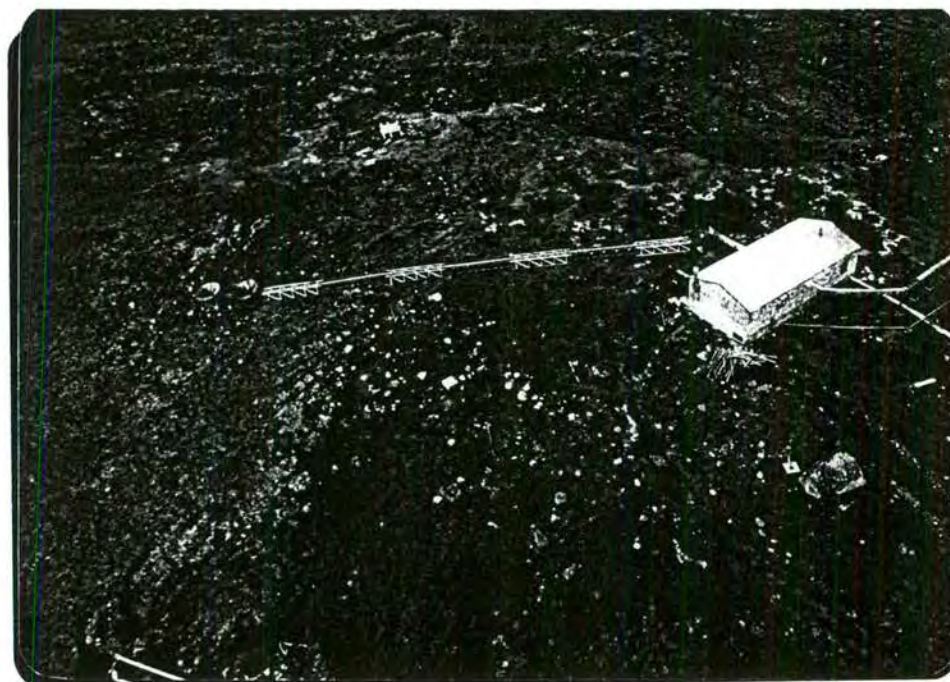


Photo 39: Close-up aerial view of Site 215.



Photo 40: POL storage tanks and drums at Site 215.



Photo 41: Interior view of kitchen at Site 215 with cabinets removed.

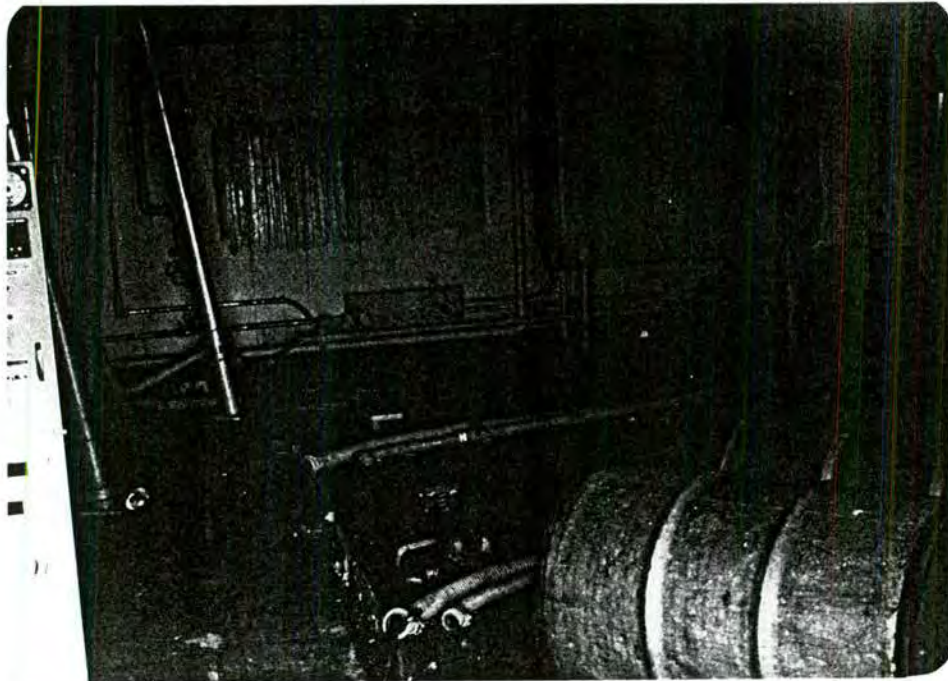


Photo 42: Interior view of power generation room at Site 215 with all three generators having been removed.

ANNEX "F"

PROJECT PERSONNEL

Lt	J.M.B. Laroche (1 CEU)	Project Commander
Maj	J.A.R. Courchesne (1 RSU)	Helicopter Pilot
Maj	J.A. Martel (10 TAG)	Helicopter Pilot
MCpl	J.G. Rochefort (1 RSU)	Helicopter Mechanic