



CINNABAR PEAK MINES LTD.

**Report of Field Activities
at the Peace River Coal Canyon
Property - November, 1982**

578



**CGEI GEOLOGICAL ENGINEERS
INCORPORATED**

CONFIDENTIAL

**CGEI GEOLOGICAL ENGINEERS
INCORPORATED**

5909 - 45th Street, P. O. Box - 1048, Leduc, Alberta T9E 2Y6, Canada
Phone: (403) 986-7874 Telex: 04-352820

February 15, 1983

Cinnabar Peak Mines Ltd.
11650 - 156th Street
Edmonton, Alberta

OPEN FILE

ATTENTION: Mr. Earl Lipsett
Vice-President, Technical Projects

Dear Mr. Lipsett:

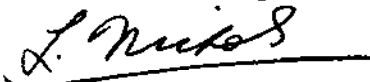
Re: Report of Field Activities at the Peace River Coal Canyon
Property - November, 1982

The attached report summarizes the field program which was completed on Cinnabar's property under CGEI's supervision.

All of the field work was completed on Cinnabar's Lease holdings under Reclamation Permit No. C-59 as issued by the Ministry of Energy, Mines and Petroleum Resources of British Columbia. The field conditions upon completion of the program were inspected and approved by the authorized Reclamation Inspector.

We trust that you will find the report to your satisfaction.

Yours sincerely,



L. Nichols, P. Eng., P. Geol.
Principal

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

LCGN/smc

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CINNABAR PEAK MINES LTD.

**Report of Field Activities
at the Peace River Coal Canyon
Property - November, 1982**



**CGEI GEOLOGICAL ENGINEERS
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1.0 INTRODUCTION

1.1 Scope

The 1982 field programme on the Peace River Canyon Property included pace and compass surveying, utilization of aerial photographs, road construction, drill site clearing, trenching, geological mapping and piezometer installations.

The work was initiated and completed in November, 1982.

The field program was completed under Permit No. C-59 as required by the Coal Mines Regulation Act.

1.2 Purpose

The 1982 field program encompassed surface work, including road access and drill site clearing for 24 proposed drill holes. The drill holes are part of a continuing mine development program to describe and quantify coal reserves for open pit mine development and underground mine development.

One trench line was also cut to locate coal subcrop.

Three piezometers were installed to initiate a groundwater monitoring program.

1.3 Seasonal Conditions

A combination of minimal snowfall, 8 to 15 cm. of snow cover, low runoff conditions, denuded trees and the absence of ground frost allowed the field work to progress on schedule with all work being completed before the end of November, 1982, as planned.

2.0 SURFACE WORK

2.1 Drill Hole Access Roads

Access roads to 24 drill sites were flagged in the field by pace and compass methods with the aid of aerial photographs. Generally, the access road locations were double checked by setting out two traverses to each proposed drill hole site. Actual road construction was completed into each site in a manner which minimized surface disturbance by utilizing the shortest routes, avoiding water courses and route segments with local heavy mature spruce growth, and working on moderate to low slopes. Roads were not constructed on the steeper slopes.

These drill hole access roads and the drill hole sites are shown on the accompanying Plan No. 1 which is found in the back pocket of the report. Road construction totalled 4,100 metres.

All clearing and road work was done with a D-8 caterpillar tractor.

All of the proposed drill sites were cleared with the exception of the site south and west of Moosecall Lake. The access road to this site was completed a distance of approximately 400 metres. The remainder of the road (approximately 300 m. long), crosses a tamarack swamp. This road segment will be completed as part of the drilling program. A proposed drill site location near the mouth of Johnson Creek was not cleared for environmental reasons. However, another drill site adjacent to Coal Bed Creek valley was cleared.

2.2 Drill Sites

Adequate clearings, approximately 15 m. by 25 m., were levelled at each proposed drill site. In some instances, natural clearings already existed and in others previous road clearing allowed sufficient space to operate a drill rig. In all cases, the tree clearing was kept to a minimum.

2.3 Trenches

Approximately 400 metres of trenching along the southwest slope of Johnson Mountain as shown in Plan No. 1 (back pocket) was cut to expose sub-crop of certain coal seams including the Milligan, Castle Point and Mogul seams.

Unfortunately, the sub-crop of the Titan seam, which was expected at the southwest end of the section was not located.

Overburden depth averaged 1.5 metres.

Groundwater outcrops were not expected nor observed in any of these trenches.

The trenching was completed by a D-8 tractor with a ripper.

2.4 Field Clean-Up Activities

All roads, drill sites and trench lines were completed according to the Coal Mine Regulation Act. Trees were slashed and spruce growth buried. Permanent water courses were avoided but in some instances, ephemeral water courses were crossed. At these locations the water course was left at grade to ensure that water impoundment would not take place.

2.5 Reclamation Inspections

A final inspection of the field conditions was completed on December 1st, 1982 by the responsible reclamation officer. He gave his verbal approval of site conditions at that time.

Earlier inspections had been made on November 10, 1982 and November 18, 1982.

3.0 GEOLOGICAL MAPPING

The Johnson Mountain trench line #1 was exposed close to the 792 m. (2600') contour line. A stratigraphic description of the units including the coal seams is given on Figure # 1 in the back pocket. The trench line was measured by chain with coal seams being measured for true thickness to the nearest centimetre.

All of the coal and bedrock was found to be heavily oxidized and in some cases substantially disturbed (distorted) by hill slope creep.

Although these sub-crop exposures of coal are not useful for coal quality sampling they do provide valuable information for elucidating the geological structure and providing correlation points for more accurate drill hole interpretations on the claims to the immediate southwest of the free hold property.

The major coal seams which were exposed appear to be the Milligan, Castle Point and Mogul. This tentative interpretation is based on the seam thickness and relative locations.

4.0 PIEZOMETER INSTALLATIONS

Detailed construction drawings for the three piezometers P80-1, P80-4 and P73-4A are located in the back pocket (Figures 2, 3 and 4).

Schedule 80, plastic pipe 5 cm. (2") in diameter and threaded in 3.3 metre (10') lengths were placed in holes 80-1, 80-4 and 73-4A.

In each case the piezometer tips were placed at the bottom of the pipe string.

Piezometer 80-1 was placed in a sandstone unit, at a depth of 126.0 m., below the Falls seam and sealed with a bentonite plug. The water level in this piezometer was located 8 metres below the surface after installation but this may not be a true equilibrium position.

P80-4 was placed immediately below the Gething Formation at a depth of 131.9 metres below the collar. The tip is located in a siltstone. The water level lies approximately 8.5 metres below the surface. The piezometer tip was set in 10-20 frac-sand and sealed with bentonite pellets.

P73-4A was set at a depth of 112.8 metres below the collar. This piezometer requires additional tubing to complete the installation. At the present time the hole is artesian with a flow rate of several litres per minute. This water is believed to originate in an overburden aquifer.

5.0 GENERAL GROUNDWATER ASSESSMENT

Based on the groundwater information to date, it would appear

that in the general "flat" areas south and southwest of Johnson Mountain the groundwater levels are close to the topographic surface. Given the bedding and generally fractured appearance of the rock units, it is concluded that a moderately active groundwater regime will be found throughout the proposed mine area.

6.0 SURFACE WATER CONDITIONS

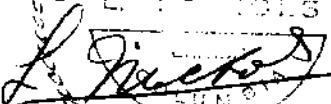
Generally, low flow conditions were observed in the creeks on the property. Early in 1982, a preliminary surface water quality program was carried out by others.

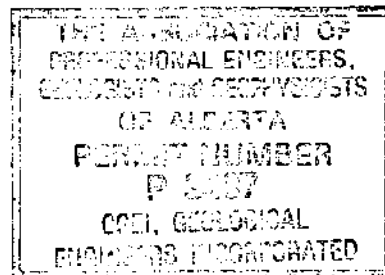
7.0 SUMMARY

A field program encompassing surface work to provide 24 drill sites together with appropriate access has been completed on Cinnabar Peak's Peace River Canyon Property. Approximately 4,100 metres of road construction to access these drill sites was undertaken.

Approximately 600 metres of road to access 400 metres of trenching was completed on Johnson Mountain.

Piezometer installations of the Casagrande type at three open bore holes were completed to varying depths.

Province of Alberta
Respectfully submitted,

L. Nichols, P. Eng. P. Geol.



Expiry Date May 5, 1983

CGEI GEOLOGICAL ENGINEERS INCORPORATED

VANCOUVER

EDMONTON

AUTHOR AFFIDAVIT

I, Lee Nichols, hold a Bachelor of Science degree in Geological Engineering from Queen's University and a Master of Science degree in Geology and Civil Engineering from Syracuse University. I am a member in good standing of the Alberta Association of Professional Engineers, Geologists and Geophysicists of Alberta and I am a registered Professional Engineer and Professional Geologist with the Alberta Association of Professional Engineers, Geologists and Geophysicists of Alberta. I am a licenced Professional Engineer in the Province of British Columbia.

FIGURE NO. 1

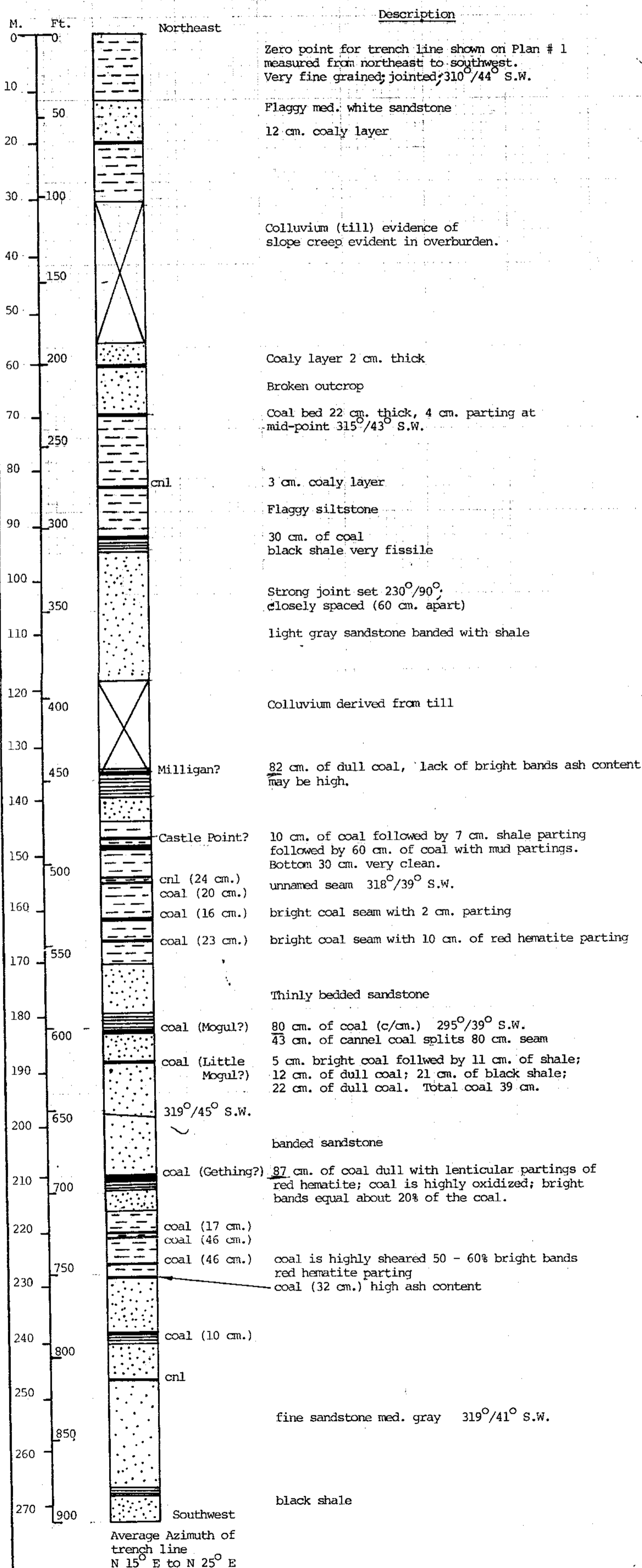
STRATIGRAPHIC SECTION

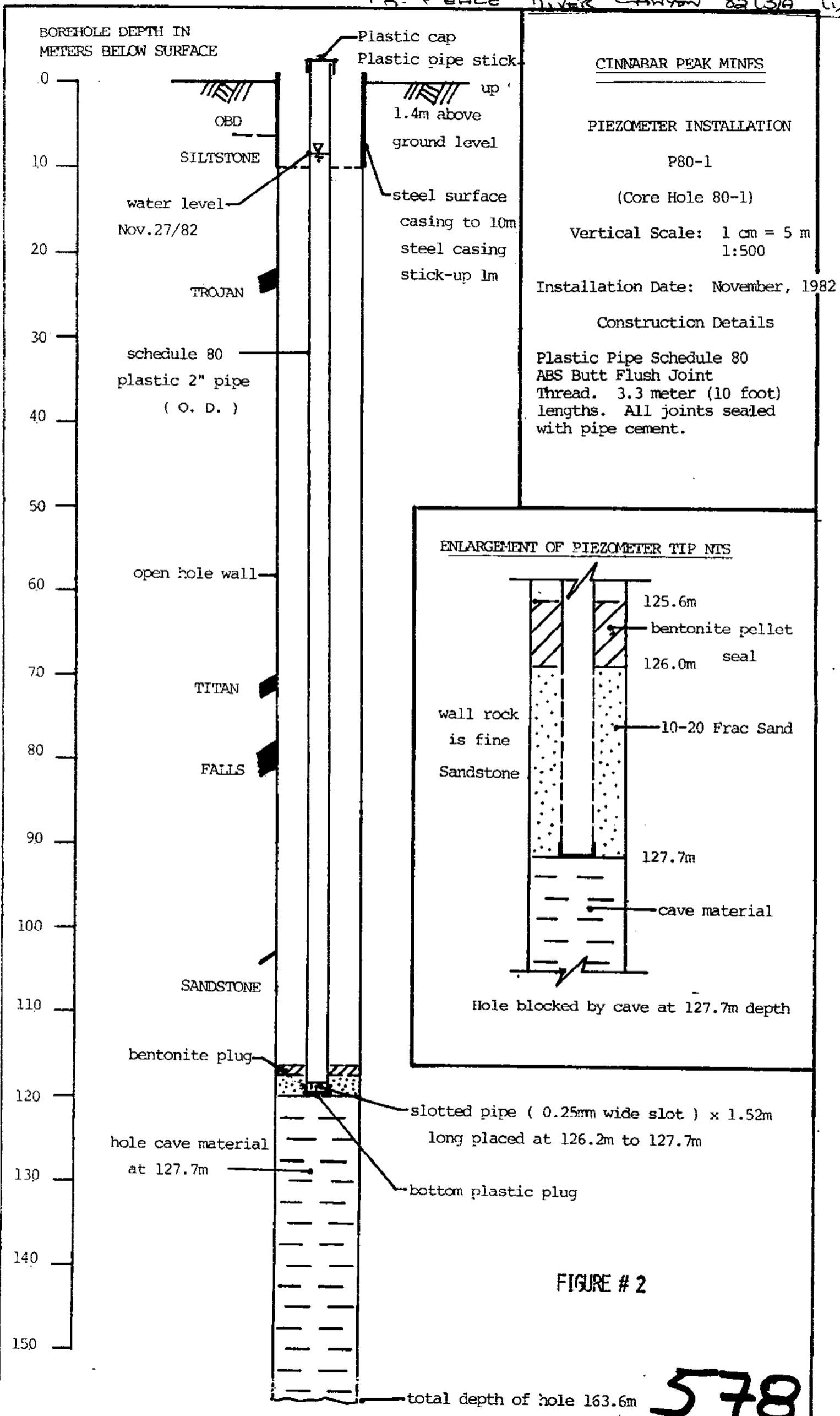
TRENCH # 1 JOHNSON MOUNTAIN

SCALE 1:600

LEGEND

- | | | | |
|--|------------------------------------|--|---------------|
| | COAL SEAMS WITH STRATIGRAPHIC NAME | | PYRITE |
| | SHALE | | FINE CLAY |
| | SILTSTONE | | CARBONACEOUS |
| | SANDSTONE | | CANNEL COAL |
| | BEDROCK NOT EXPOSED | | DIP OF STRATA |





CINNABAR PEAK MINES

PIEZOMETER INSTALLATION

P80-1

(Core Hole 80-1)

Vertical Scale: 1 cm = 5 m
1:500

Installation Date: November, 1982

Construction Details

Plastic Pipe Schedule 80
ABS Butt Flush Joint
Thread. 3.3 meter (10 foot)
lengths. All joints sealed
with pipe cement.

ENLARGEMENT OF PIEZOMETER TIP MTS

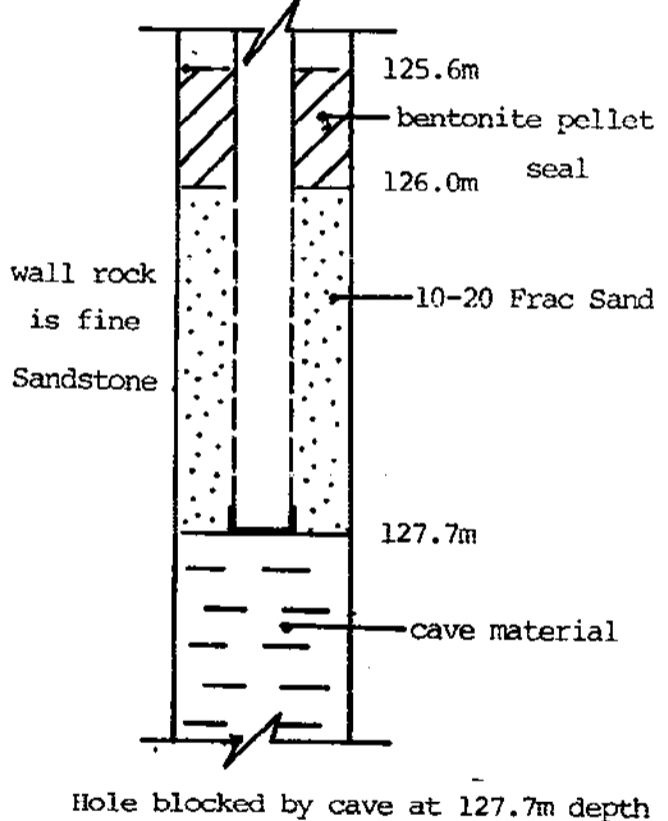


FIGURE # 2

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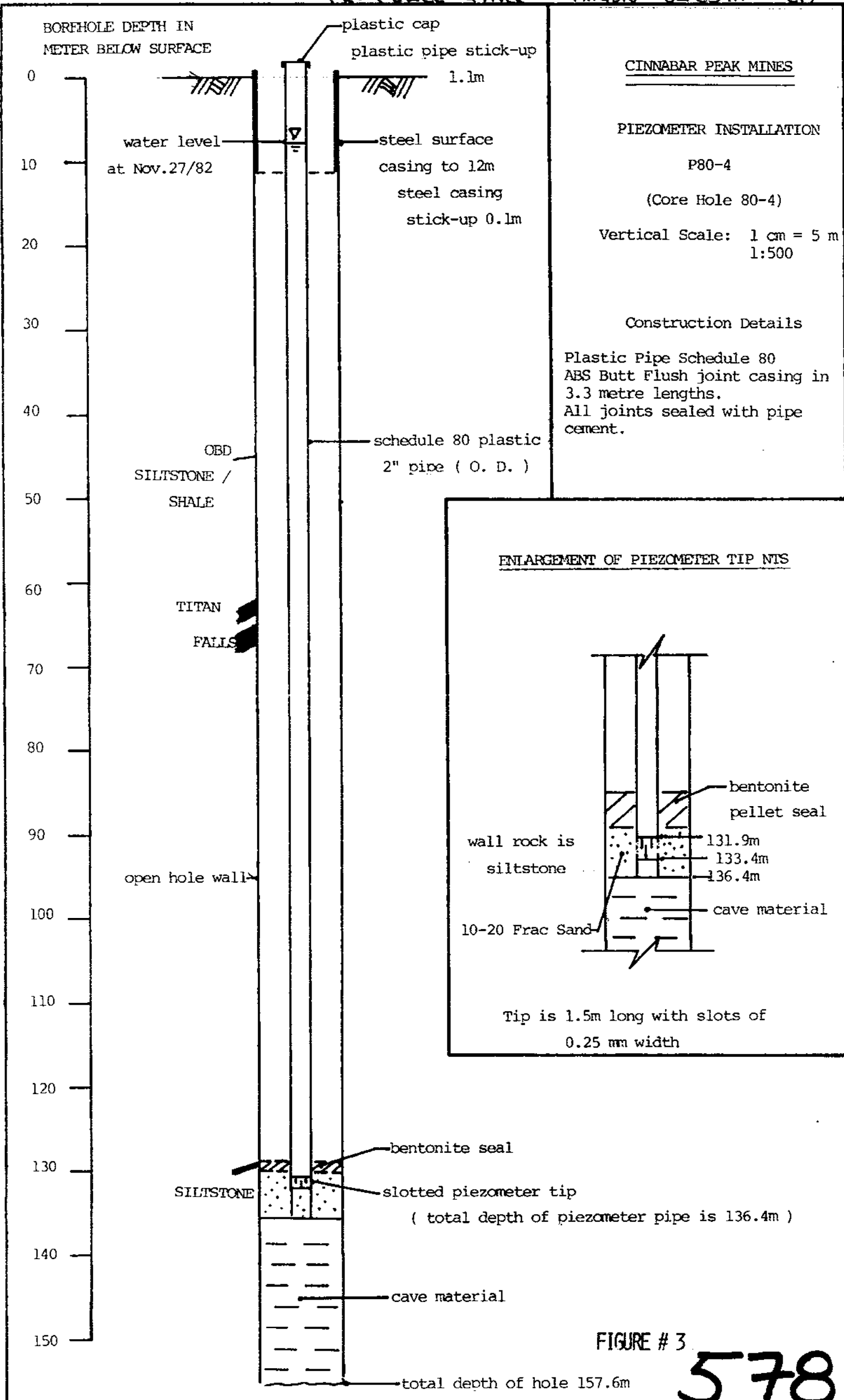


FIGURE # 3

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CINNABAR PEAK MINES

PIEZOMETER INSTALLATION

P73-4A

(Bore Hole 73-4A)

Vertical Scale: 1:500

Installation Date: Nov, 1982

Construction Details

Plastic Pipe Schedule 80 ABS butt flush joint thread; 3.3 meter lengths. All joints sealed with pipe cement.

Piezometer required to be completed to the ultimate hole depth of metres.

Plastic tubing is now hung from steel casing at the surface.

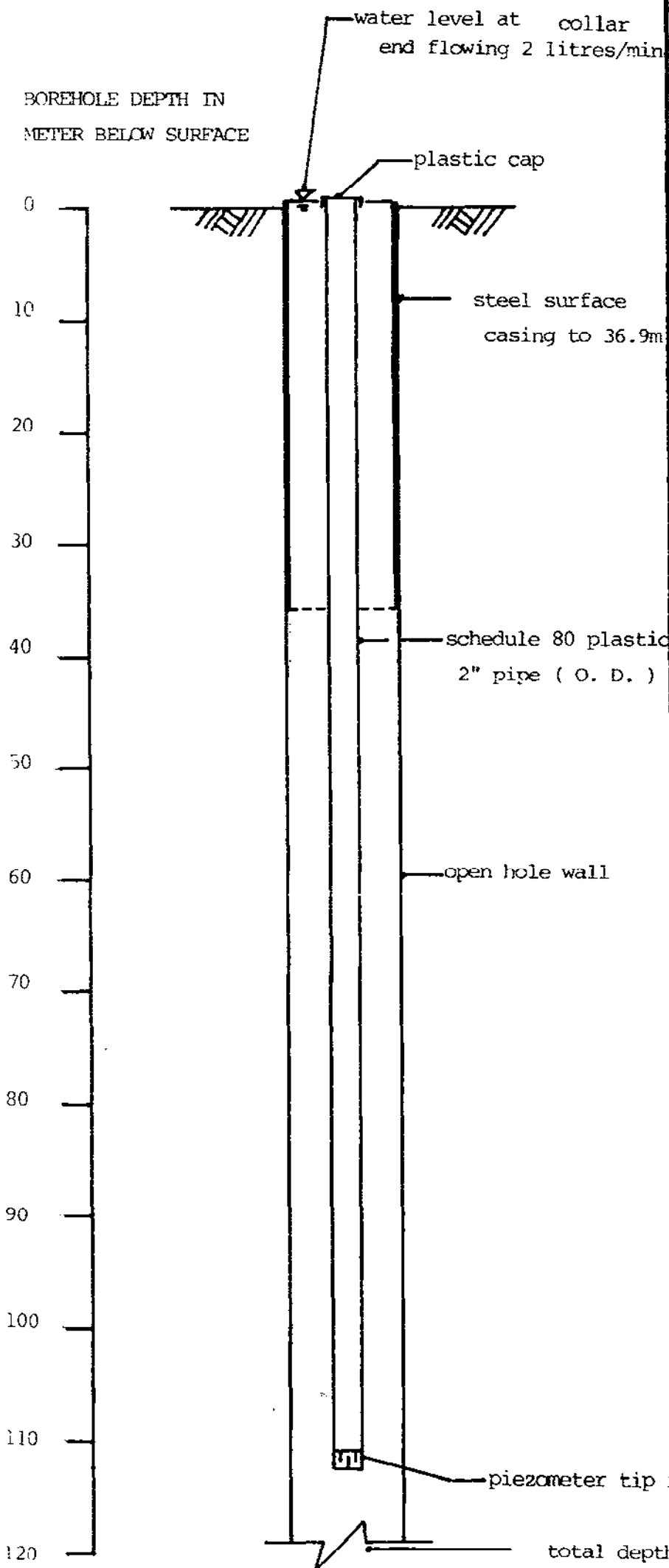
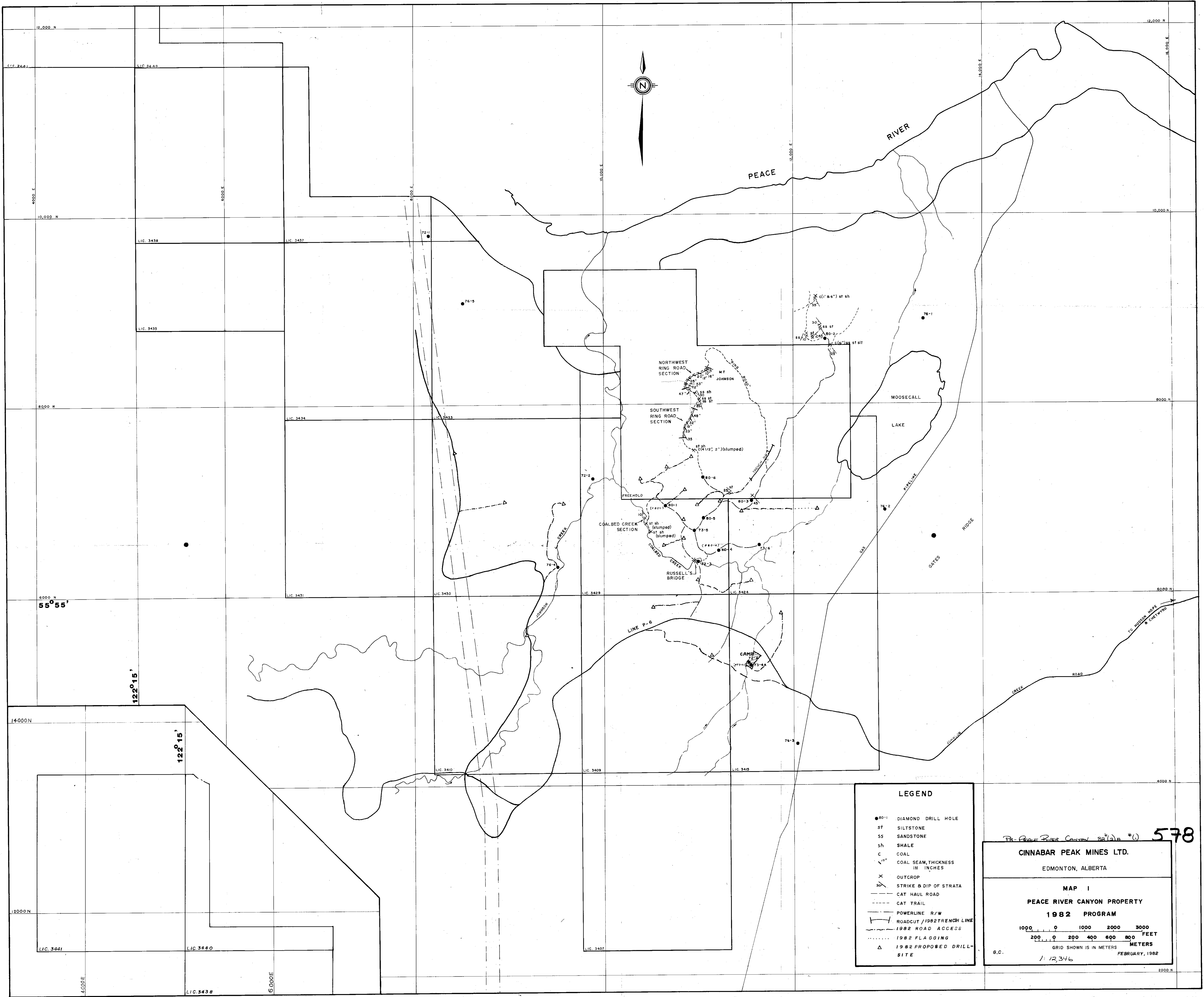


FIGURE # 4

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LEGEND

- 80-1 DIAMOND DRILL HOLE
- SF SILTSTONE
- SS SANDSTONE
- sh SHALE
- C COAL
- 1" COAL SEAM, THICKNESS IN INCHES
- X OUTCROP
- 30° STRIKE & DIP OF STRATA
- CAT HAUL ROAD
- - - CAT TRAIL
- POWERLINE R/W
- ROADCUT / 1982 TRENCH LINE
- 1982 ROAD ACCESS
- 1982 FLAGGING
- △ 1982 PROPOSED DRILL-SITE

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CINNABAR PEAK MINES LTD.
EDMONTON, ALBERTA

MAP I
PEACE RIVER CANYON PROPERTY
1982 PROGRAM

1000 0 1000 2000 3000
200 0 200 400 600 800 FEET
METERS

G.C. GRID SHOWN IS IN METERS
1:12,346 FEBRUARY, 1982

PR Peace River Canyon 82
(WA)



CINNABAR PEAK MINES LTD.

OPEN FILE

Report of Field Activities at the Peace River Coal Canyon Property - November, 1982

Licences: 3407 to 3444

Land District: Peace River (within the Hudson Hope District Municipality)

NST: 93-0/16

Latitude: 55°55'N

Longitude: 122°05'W

Owner/Operator: Cinnabar Peak Mines Ltd.

Consultant: CGEI Geological Engineers Incorporated

Author: L. Nichols, P. Eng., P. Geol.

Date of Field Work: November, 1982

Original Submission Date: February 15, 1983

Amendment Submission Date: January 21, 1984

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

00 578



**CGEI GEOLOGICAL ENGINEERS
INCORPORATED**

CGEI GEOLOGICAL ENGINEERS
INCORPORATED

5909 - 45th Street, P.O. Box - 1048, Leduc, Alberta T9E 2Y6, Canada
Phone: (403) 986-7874 Telex: 04-352820

January 21, 1984

Paul Hagen
Coal Administrator
Ministry of Energy Mines and Petroleum Resources
Parliament Buildings
Victoria, British Columbia
V8V 1X4

ATTENTION: Kim Stone

Dear Sir:

Re: Reply to your letter of January 12, 1984 to Mr. Earl Lipsett, Managing Director of Cinnabar Peak Mines Ltd.

Mr. Lipsett has requested that I respond directly to you regarding the above letter. The report entitled "Report of Field Activities at the Peace River Canyon Property, 1982" has been amended to clarify the points raised in your letter of January 12, 1984.

Specifically, the following information has been included in the enclosed revision.

1. Title page has been amended to include all of the information requested in Section 7 (6) A of the Coal Act Regulations.
2. The introduction has been amended to include a description of locations and access to the property as well as all requirements of Section 7(6) C parts i to iv inclusive, of the Coal Act Regulations.
3. Property definition has been set out as per the requirements of 7 (6) C (ii) of the Coal Act Regulations.
4. An index map at a scale of 1:50,000 has been included as Figure 1 in the report showing the licence area as per Section 8 (1) of the Coal Act Regulations.
5. Map No. 1 has been upgraded. One additional latitude and one additional longitude have been added to provide for four intersection points. A map scale ratio in addition to the bar charts has been added.

Consultants in Geotechnical Engineering and Resource Development

EDMONTON

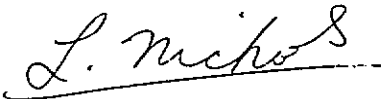
VANCOUVER

A complete geological interpretation showing the geological formations is included. All 1982 activities are recorded on Map No. 1 and all activities are documented on the map legend.

6. The trench line was cut for a distance of approximately 400 metres as stated in the report. However, only 270 metres of bedrock were intersected and mapped as shown and recorded in detail on Figure No. 2. The remainder of the trench was not recorded as only colluvium was intersected.
7. The detailed geology as presented on Figure # 2 shows the lithologies of the coal seams and the attitudes of the beds strike/dip (as well as fracture pattern data). Selected data from Figure 2 have been transferred to Map No. 1.

I trust that the amended report meets with your approval. Should you have any questions, please contact the undersigned directly. Thank you.

Yours sincerely,

A handwritten signature in cursive script that reads "L. Nichols". The signature is written in dark ink and is positioned above a horizontal line.

L. Nichols, P. Eng., P. Geol.
Principal

LCGN/smc
cc E. Lipsett

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MAP

Map 1 Cinnabar Peak Mines Ltd. Peace River Canyon Property 1982 Program	Back Pocket
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1.0 INTRODUCTION

1.1 Scope of the 1982 Program

The 1982 field programme on the Peace River Canyon Property included pace and compass surveying, utilization of aerial photographs, road construction, drill site clearing, trenching, geological mapping and piezometer installations.

The work was initiated and completed in November, 1982.

The field program was completed under Permit No. C-59 as required by the Coal Mines Regulation Act.

1.2 Summary of Field Work Done

The 1982 field program encompassed surface work, including road access and drill site clearing for 24 proposed drill holes. The drill holes are part of a continuing mine development program to describe and quantify coal reserves for open pit mine development and underground mine development.

One trench line was also cut to locate coal subcrop.

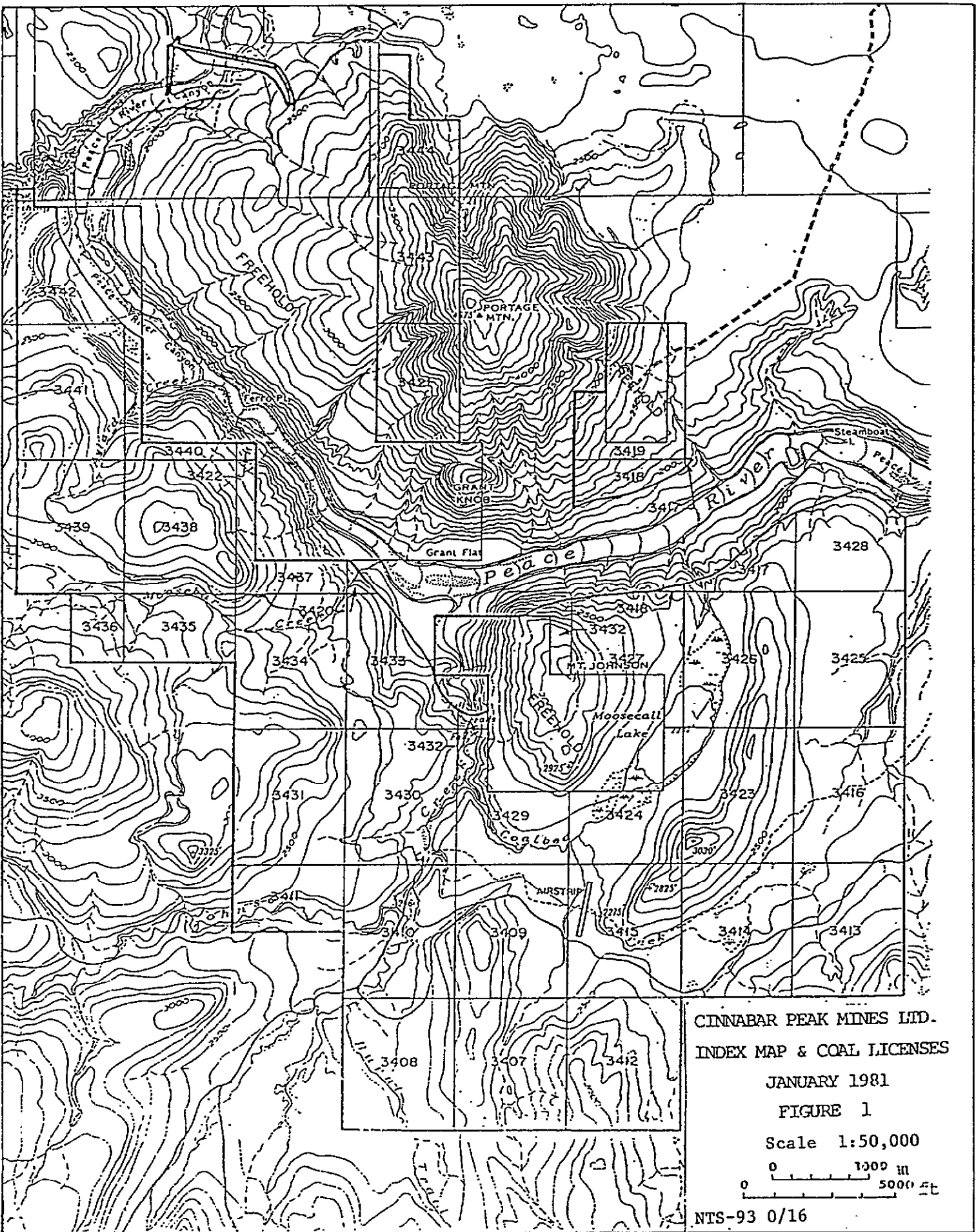
Three piezometers were installed to initiate a groundwater monitoring program.

1.3 Seasonal Conditions

A combination of minimal snowfall, 8 to 15 cm. of snow cover, low runoff conditions, denuded trees and the absence of ground frost allowed the field work to progress on schedule with all work being completed before the end of November, 1982, as planned.

1.4 Location and Access

The license area is located on the eastern edge of the Rocky Mountain Foothills at the Peace River Canyon - ten to eighteen km. WSW of Hudson Hope, see Figure 1, page 2. Licenses on the south side of the Peace



River are located near Aylard, Moosebar, Johnson and Coalbed Creeks (see Figure 1). They are accessible from the Hudson Hope - Chetwynd Highway via Johnson Creek Road. Leases on the north side of Peace River are located on the slopes of Portage Mountain and are accessible from the highway to W.A.C. Bennet Dam.

1.5 Historical Background

1.5.1 The Peace River Canyon Area

The coal along the banks of the Peace River in northeastern British Columbia is believed to have been the first coal discovered in Western Canada. In 1793, during his history-making overland trip to the Pacific Ocean, Sir Alexander MacKenzie noted the presence of exposed coal seams in the Peace River Canyon.

Among those most persistent in their efforts to mine coal from this region was the Gething family of Fraser Lake and Hudson Hope, B.C. and their name has been given to the extensive coal formation. Recent exploration has discovered that the Gething Formation is an enormous block of large coal potential some 56 km (35 mi) wide and running 322 km (200 mi) north from the Sukunka River to the Sikanni Chief River. The center of this block is approximately 145 km (90 mi) southwest of Fort St. John.

Coal mining in the Canyon, which cuts at right angles across the Gething Formation some 80 km (50 mi) away from its southern boundary, dates back to 1923. At one time or another, production came from five mines located on or adjacent to the property now held by Cinnabar. Although this initial mining phase lasted more than 40 years, production was carried out on a small scale. Throughout the entire period, less than 55,000 tonnes (60,000 tons) of coal was produced and half of this production came from the Gething No. 3 Mine.

The Gething family mined coal from the property until 1947, but with railways switching to diesel fuel from coal there was no longer a ready market and the mine was closed.

In 1969, Cinnabar began a coal land acquisition with an option to purchase agreement of Crown granted freehold lands of 648 ha (1600 acres) owned by the Gething-Green estate. (The Land Exchange Act, Chapter 60 R.S.B.C. 1967). This option was exercised in 1979 with the said coal rights of the freehold lands now wholly owned by Cinnabar.

In addition to the freehold lands, Cinnabar applied to the B.C. Government and received coal removal licences covering approximately 8,094 ha (20,000 acres) surrounding the freehold holdings.

Since that time the company has carried out a detailed exploration program on the property including a development drilling program completed in 1980.

1.5.2 Status of Coal Mining Properties

The Peace River Canyon Coal Property consists of 7,874 ha (19,456 acres) of B.C. coal licences in the area on the Coal Titles Reference Map described by the licence numbers 3407 through 3444 inclusive, approximately nineteen road miles southwest of the town of Hudson Hope. The coal property also includes 648 ha (1,600 acres) of freehold lands in the Peace River Land District described as follows:

North West Quarter of District Lot 1039
 South Half of District Log 1050
 Fractional West Half of District Lot 1054
 District Lot 276
 District Lot 1055

The licences and freehold encompass land on both sides of the Peace River Canyon, a few miles downstream from the British Columbia Hydro and Power Authority W.A.C. Bennet Dam Figure 3-4-2A.

2.0 SURFACE WORK

2.1 Drill Hole Access Roads

Access roads to 24 drill sites were flagged in the field by pace and compass methods with the aid of aerial photographs. Generally, the access road locations were double checked by setting out two traverses to each proposed drill hole site. Actual road construction was completed into each site in a manner which minimized surface disturbance by utilizing the shortest routes, avoiding water courses and route segments with local heavy mature spruce growth, and working on moderate to low slopes. Roads were not constructed on the steeper slopes.

These drill hole access roads and the drill hole sites are shown on the accompanying Plan No. 1 which is found in the back pocket of the report. Road construction totalled 4,100 metres.

All clearing and road work was done with a D-8 caterpillar tractor.

All of the proposed drill sites were cleared with the exception of the site south and west of Moosecall Lake. The access road to this site was completed a distance of approximately 400 metres. The remainder of the road (approximately 300 m. long) crosses a tamarack swamp. This road segment will be completed during the winter months as part of the drilling program. A proposed drill site location near the mouth of Johnson Creek was not cleared for environmental reasons.

2.2 Drill Sites

Adequate clearings, approximately 15 m. by 25 m., were levelled at each proposed drill site. In some instances, natural clearings already existed and in others previous road clearing allowed sufficient space to operate a drill rig. In all cases, the tree clearing was kept to a minimum.

2.3 Trenches

Approximately 400 metres of trenching along the southwest slope of Johnson Mountain as shown in Plan No. 1 (back pocket) was cut to expose sub-crop of certain coal seams including the Milligan, Castle Point and Mogul seams.

The sub-crop of the Titan seam, which was expected at the southwest end of the section, was not located.

Overburden depth averaged 1.5 metres.

Groundwater outcrops were not expected nor observed in any of these trenches.

The trenching was completed by a D-8 tractor with a ripper.

2.4 Field Clean-up Activities

All roads, drill sites and trench lines were completed according to the Coal Mine Regulation Act. Trees were slashed and spruce growth buried. Permanent water courses were avoided but in some instances, ephemeral water courses were crossed. At these locations the water course was left at grade to ensure that water impoundment would not take place.

2.5 Reclamation Inspections

A final inspection of the field conditions was completed on December 1st, 1982 by the responsible reclamation officer. He gave his verbal approval of site conditions at that time.

Earlier inspections had been made on November 10, 1982 and November 18, 1982.

3.0 GEOLOGICAL MAPPING

The Johnson Mountain Trench Line # 1 was exposed close to the 792 m. (2600') contour line. A stratigraphic description of the units including the coal seams is given on Figure # 2 in the back pocket. The trench line was measured by chain with coal seams being measured for true thickness to the nearest centimetre. The trench line as well as drill site locations and road access as constructed in 1982 are clearly shown on Map # 1 in the back pocket.

All of the coal and bedrock was found to be heavily oxidized and in some cases substantially disturbed (distorted) by hill slope creep.

Although these sub-crop exposures of coal are not useful for coal quality sampling they do provide valuable information for elucidating the geological structure and providing stratigraphic correlation points for more accurate drill hole interpretations on the claims to the immediate southwest of the freehold property.

The major coal seams which were exposed appear to be the Milligan, Castle Point and Mogul. This tentative interpretation is based on the seam thicknesses and relative locations.

The observed structure in the trench is that of a fold limb dipping at approximately 40° to the southwest. As is typical of the Gething Formation in this area, the interseam lithologies are predominantly fine sandstones, flaggy siltstones and minor amounts of shales. In many places, the shales are quite carbonaceous (see Figure 2 in back pocket of the report for the detailed description of structural data, stratigraphy and lithology).

4.0 PIEZOMETER INSTALLATIONS

Detailed construction drawings for the three piezometers P80-1, P80-4 and P73-4A are located in the back pocket (Figures 3, 4 and 5).

Schedule 80, plastic pipe 5 cm. (2") in diameter and threaded in 3.3 metre (10') lengths were placed in holes 80-1, 80-4 and 73-4A.

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7.0 SUMMARY

A field program encompassing surface work to provide 24 drill sites together with appropriate access has been completed on Cinnabar Peak's Peace River Canyon Property. Approximately 4,100 metres of road construction to access these drill sites was undertaken.

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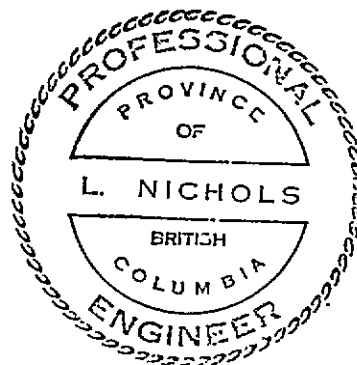
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Respectfully submitted,



L. Nichols, P. Eng., P. Geol.

Principal



Expiry Date May 5, 1984

STATEMENT OF AUTHOR'S QUALIFICATIONS

I, Lee Nichols, hold a Bachelor of Science degree in Geological Engineering from Queen's University and a Master of Science degree in Geology and Civil Engineering from Syracuse University. I am a member in good standing of the Alberta Association of Professional Engineers, Geologists and Geophysicists of Alberta and I am a registered Professional Engineer and Professional Geologist with the Alberta Association of Professional Engineers, Geologists and Geophysicists of Alberta. I am a licenced Professional Engineer in the Province of British Columbia.

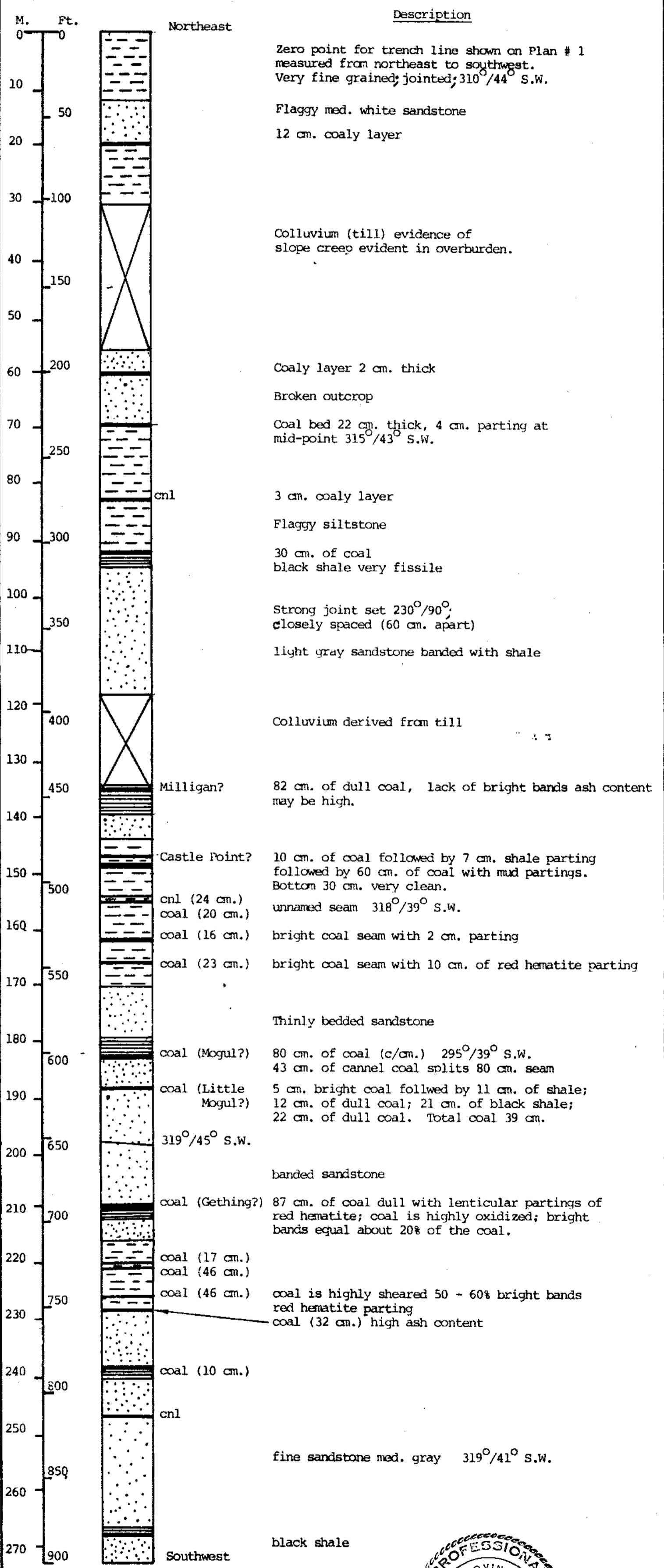
FIGURE NO. 2

STRATIGRAPHIC SECTION

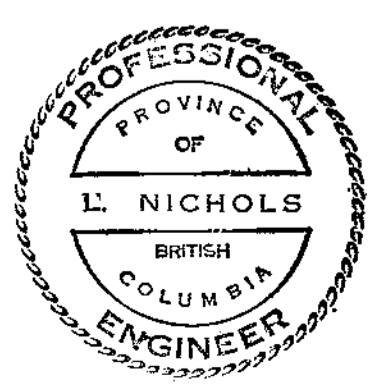
TRENCH # 1 JOHNSON MOUNTAIN

SCALE 1:600

LEGEND	
	COAL SEAMS WITH STRATIGRAPHIC NAME
	SHALE
	SILTSTONE
	SANDSTONE
	BEDROCK NOT EXPOSED
	PYRITE
	FINE CLAY
	CARBONACEOUS
	CANNEL COAL
	DIP OF STRATA



Average Azimuth of trench line N 15° E to N 25° E



Expiry Date May 5, 1984

BOREHOLE DEPTH IN METERS BELOW SURFACE

CINNABAR PEAK MINES

PIEZOMETER INSTALLATION

P80-1

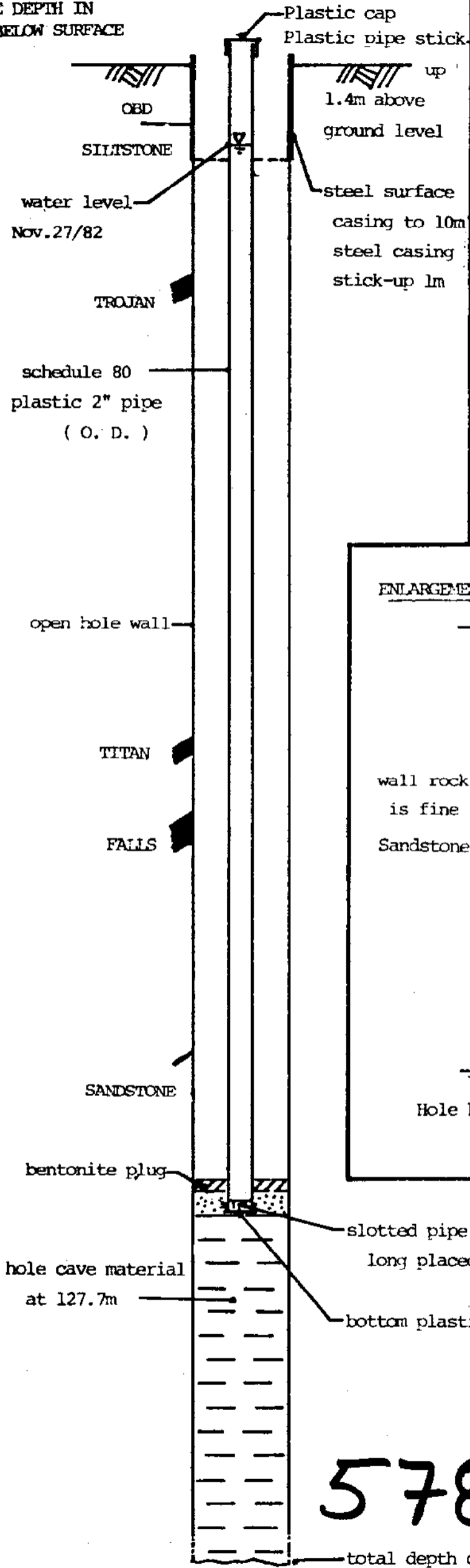
(Core Hole 80-1)

Vertical Scale: 1 cm = 5 m
1:500

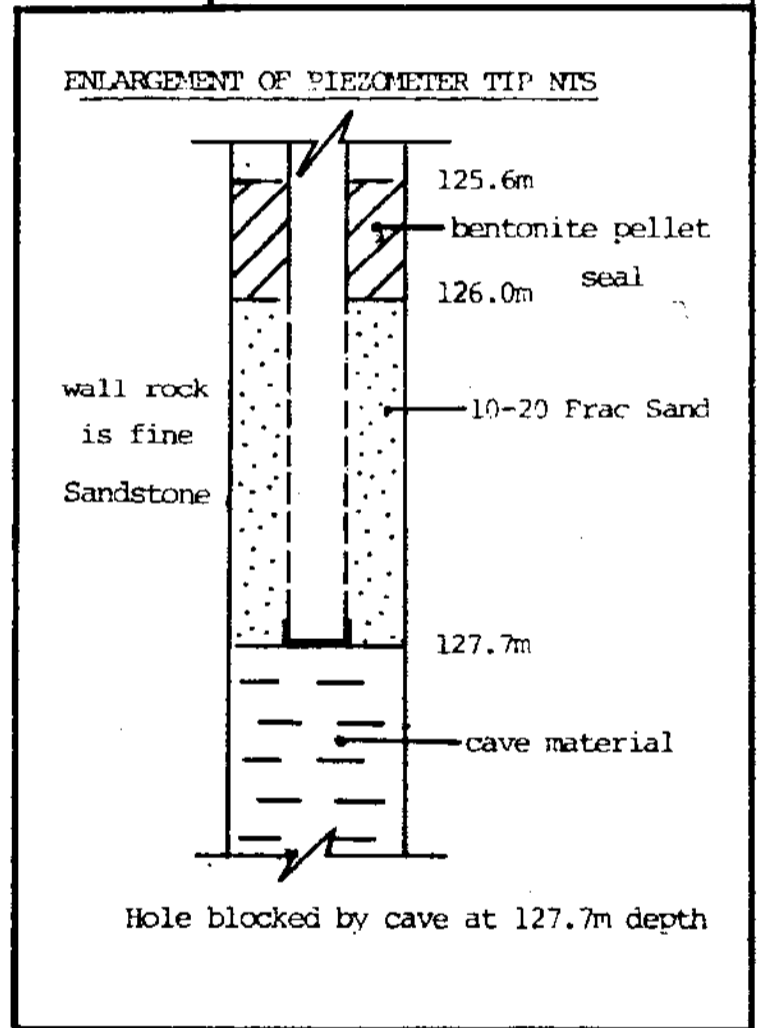
Installation Date: November, 1982

Construction Details

Plastic Pipe Schedule 80
ABS Butt Flush Joint
Thread. 3.3 meter (10 foot)
lengths. All joints sealed
with pipe cement.



ENLARGEMENT OF PIEZOMETER TIP NIS



578

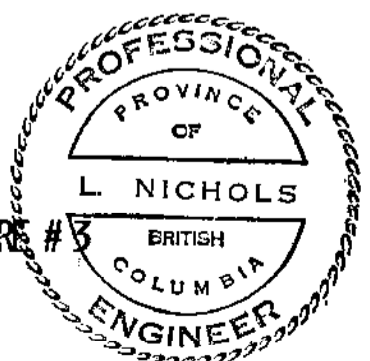


FIGURE # 3

Expiry Date May 5, 1984

total depth of hole 163.6m

BOREHOLE DEPTH IN
METER BELOW SURFACE

0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150

water level
at Nov. 27/82

OBD
SILTSTONE /
SHALES

TITAN
FALLS

open hole wall

SILTSTONE

plastic cap
plastic pipe stick-up

1.1m

steel surface
casing to 12m
steel casing
stick-up 0.1m

schedule 80 plastic
2" pipe (O. D.)

bentonite seal

slotted piezometer tip

(total depth of piezometer pipe is 136.4m)

cave material

total depth of hole 157.6m

CINNABAR PEAK MINES

PIEZOMETER INSTALLATION

P80-4

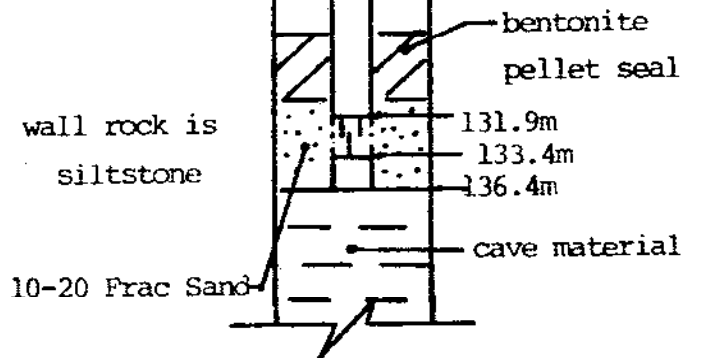
(Core Hole 80-4)

Vertical Scale: 1 cm = 5 m
1:500

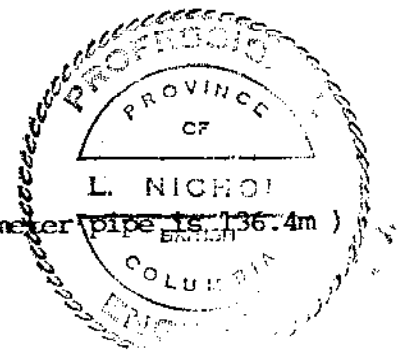
Construction Details

Plastic Pipe Schedule 80
ABS Butt Flush joint casing in
3.3 metre lengths.
All joints sealed with pipe
cement.

ENLARGEMENT OF PIEZOMETER TIP NIS



Tip is 1.5m long with slots of
0.25 mm width



Expiry Date: 12/31/81

FIGURE # 4

578

CINNABAR PEAK MINES

PIEZOMETER INSTALLATION

P73-4A

(Bore Hole 73-4A)

Vertical Scale: 1:500

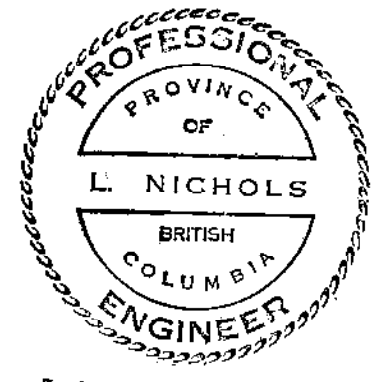
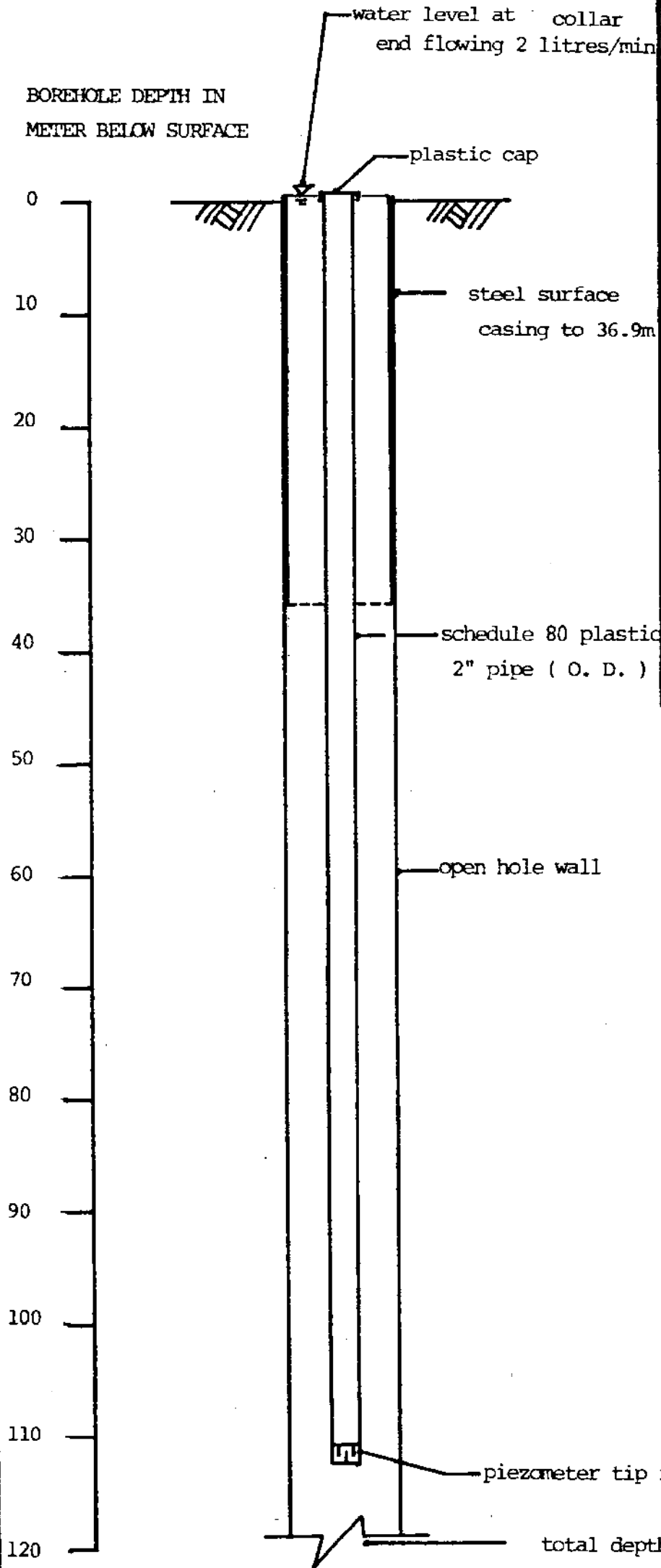
Installation Date: Nov, 1982

Construction Details

Plastic Pipe Schedule
80 ABS butt flush joint thread;
3.3 meter lengths. All joints
sealed with pipe cement.

Piezometer required to be
completed to the ultimate hole
depth of metres.

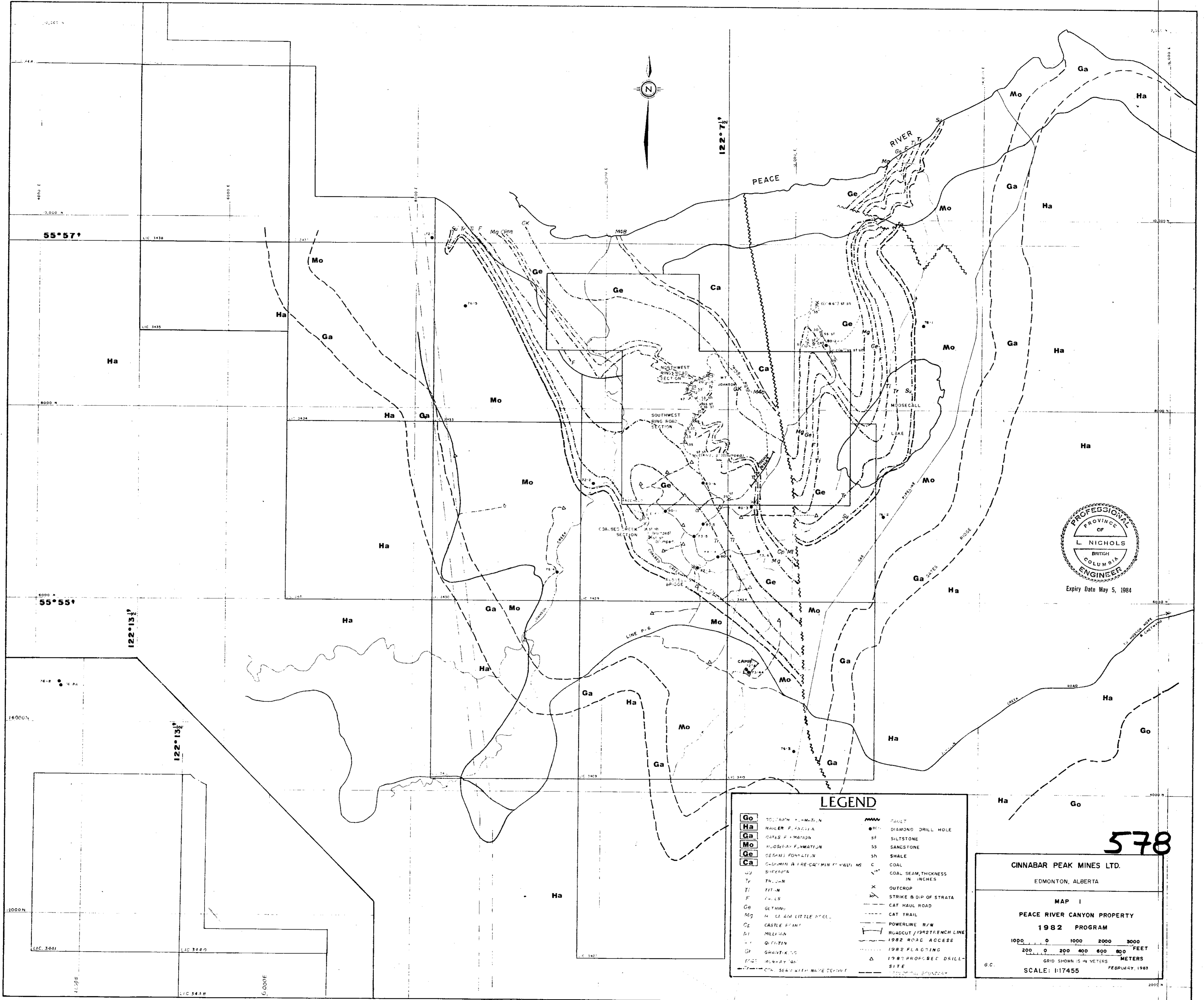
Plastic tubing is now hung from
steel casing at the surface.



Expiry Date May 5, 1984

FIGURE # 5

578



LEGEND

Go	GOVERNMENT FORMATION		FAULT
Ha	HARLER FORMATION		DIAMOND DRILL HOLE
Ga	GATES FORMATION		SILTSTONE
Mo	MOOSEHEAD FORMATION		SANDSTONE
Ge	GEHNS FORMATION		SHALE
Ca	COLUMBIAN RE-CRYSTALLIN FORMATIONS		COAL
	SUPERCRASTAL		COAL SEAM THICKNESS IN INCHES
Tr	TRILIN		OUTCROP
Ti	TITLIN		STRIKE & D.P. OF STRATA
F	FELLS		CAT HAUL ROAD
Gg	GETHING		CAT TRAIL
Mg	MILLIKIN & LITTLE RIVER		POWERLINE R/W
Ce	CASTLE POINT		ROADCUT/1982 TRENCH LINE
Mi	MILLIKIN		1982 ROAD ACCESS
Q	QUATTIN		1982 FLAGGING
Gr	GRAVEYAKS		1982 PROSPECT DRILL SITE
St	STANLEY		COAL SEAM WITH NAME SYMBOL

CINNABAR PEAK MINES LTD.
EDMONTON, ALBERTA

MAP I
PEACE RIVER CANYON PROPERTY
1982 PROGRAM

1000 0 1000 2000 3000
200 0 200 400 600 800 FEET
METERS

SCALE: 1:17455
FEBRUARY, 1983

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