ARIS SUMMARY SHEET

District Geologist, Smithers
Off Confidential: 92.03.27

ASSESSMENT REPORT 21180
MINING DIVISION: Liard

PROPERTY: Ball Creek
LOCATION: LAT 57 16 00 LONG 130 25 00
UTM 09 6347747 414557
NTS 104G08W
CLAIM(S): Tara,Rog
OPERATOR(S): Placer Dome
AUTHOR(S): Baril, J.
REPORT YEAR: 1990, 114 Pages
COMMODITIES SEARCHED FOR: Copper,Gold
KEYWORDS: Triassic,Volcanics,Dykes,Monzonites,Alteration,Faults,Fractures
Gossans,Malachite,Chalcopyrite,Molybdenite,Galena,Sphalerite
Magnetite,Quartz
WORK DONE: Drilling,Geochemical
DIAD 330.0 m 4 hole(s);NQ
Map(s) - 8; Scale(s) - 1:5000,1:500
SAMP 147 sample(s) ;AU,CU
RELATED REPORTS: 04651,19316
MINFILE: 104G 018,104G 042

LOG NO: April 4/91 RD.
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FILE NO:

LOG NO: SEP 30 1991 RD.
ACTION: [illegible]
FILE NO:

Diamond Drilling
REPORT
on the
Ball Creek Project

Liard Mining Division

N.T.S. 104G/8W

Latitude 57° 16' North Longitude 130° 25' West

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,180

Owner of claims: Chevron Minerals Ltd.
Operator: Placer Dome Inc.

Author: John Baril
Date: December, 1990

SUMMARY

The Ball Creek property has been explored on and off since 1929. Between 1972 and 1975, Great Plains Development Company of Canada Ltd. performed an extensive exploration and diamond drilling program. The property is presently owned by Chevron Minerals Ltd. and is being optioned to Placer Dome Exploration Ltd.

During the summer of 1989, Placer Dome conducted an intensive exploration program which included the following: soil and rock sampling, geophysics (magnetometer, VLF-EM and induced polarization surveys) and geological mapping. The drill core from 1973 and 1975 was also re-logged and re-sampled. The geological mapping, soil sampling, magnetometer and I.P. surveys all defined an area of mineralization which appears to be a porphyry Cu-Au deposit. The geology and alteration patterns, plus the geochemical metal zonation, all fit the general Lowell and Guilbert model for porphyry Cu deposits.

> "All previous drilling was performed in the central potassic alteration zone except for three holes, which were drilled on the boundary between the potassic and phyllic zones. Much of the drill core was anomalous in gold, with several drill holes intersecting zones averaging greater than 0.1 grams/tonne gold. A 137 metre section of drill hole 73-2 averaged 0.37 grams/tonne gold. The potassic alteration zone is not the optimum zonation for potential gold concentration in a porphyry system. Better gold values are commonly enhanced either on the inner flanks of the phyllic zone or in the propylitic zone. The high gold values for core in the potassic zone are a favourable sign that the other parts of the porphyry deposit could carry economic levels of gold mineralization." (J. Kowalchuk and R. Turna, 1990).

The alteration-mineralization relationships described in the above paragraph, were the basis for planning the 1990 diamond drilling program. In August and September of 1990, diamond drilling was performed on select targets in the phyllic and propylitic alteration zones. These drill holes failed to intersect any significant values in copper or gold. There is, however, still a large area of the deposit which has not been tested by diamond drilling.

Additional drilling is recommended to test in greater detail, the area between the potassic alteration core and the phyllic alteration zone. This area has the potential to contain a very large tonnage of economic mineralization.

Additional geological mapping and sampling are recommended in the Cliff Zone. This area returned some very promising Au, Ag, Cu, Pb, Zn and As signatures from the 1989 soil sampling survey.

Geological mapping, rock sampling and soil sampling are recommended for the area between the Trachyte Knob and the Ball Creek valley.

Geological mapping, rock and soil sampling are also suggested for the Goat Zone.

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FIGURES

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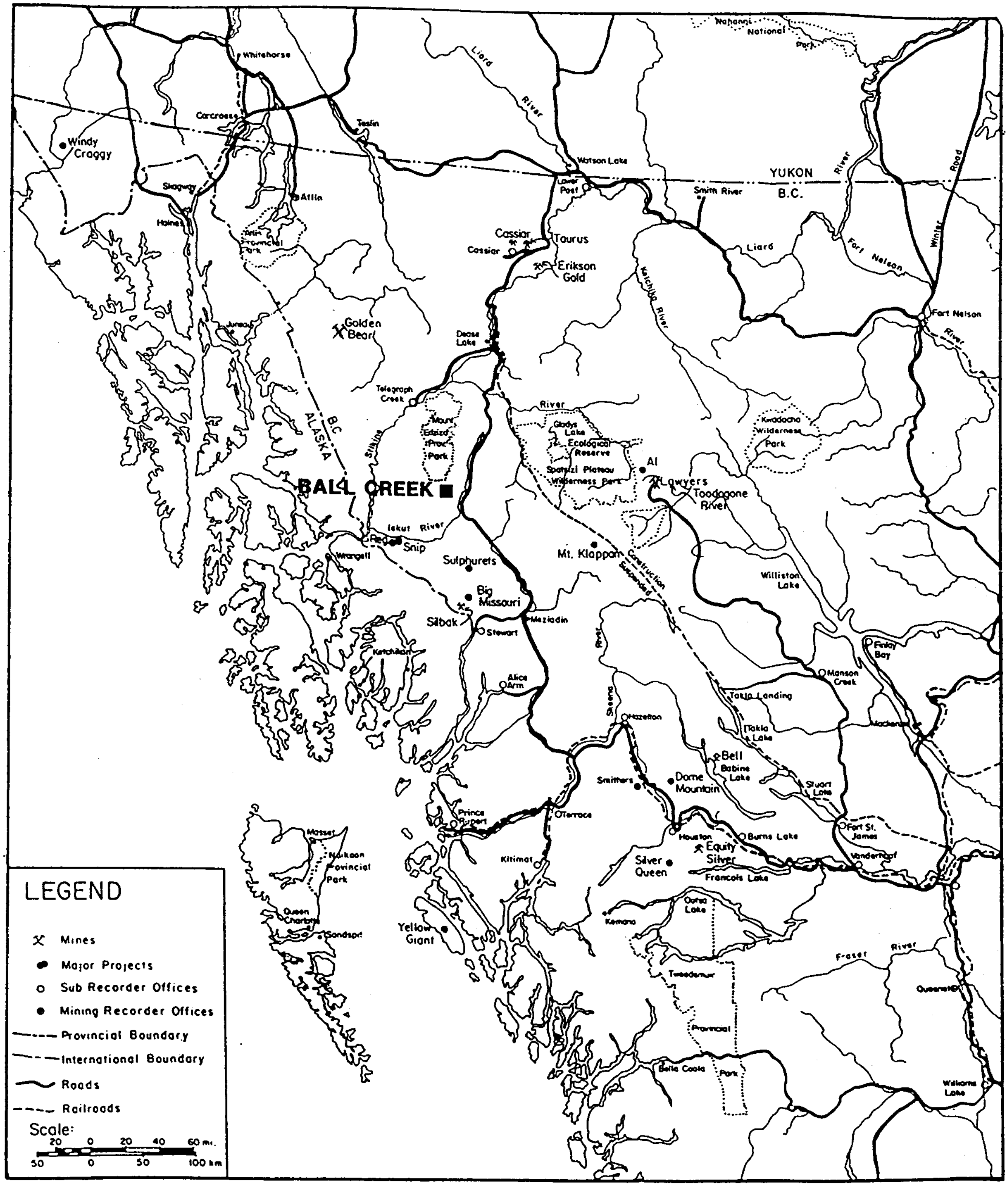


FIGURE 1

BALL CREEK

PROPERTY LOCATION MAP

1.0 INTRODUCTION

The following introduction is taken from the Geological, Geochemical and Geophysical Report on the Ball Creek Project, March 30, 1990 (J. Kowalchuk and R. Turna, 1990).

1.1 Location and Access

The Ball Creek property lies along the western edge of the Bowser Basin about 150 km north of Stewart B.C. and 140 km south of Dease Lake. The claims are plotted on NTS map sheet 104G/8W, at coordinates 57^{o} 16' north latitude and 130^{o} 25' west longitude (Figure 1).

Access to the property is by helicopter from Tatogga Lake, 55 km to the northeast. Helicopters based at Dease Lake and helicopters stationed in the Iskut and Sulphurets camps, 80 km to the southwest and south, can also be used for access. The exploration camp can be mobilized and demobilized by helicopter from the Burrage Creek airstrip on Highway No. 37, 10 km to the east.

Road access from the Stewart Cassiar Highway, 10 kilometres to the east would be easy to construct along the Ball Creek Valley. A bridge would be required to cross the Iskut River.

1.2 Topography and Vegetation

The property lies along the western edge of the Intermontane Belt. The topography is rugged with elevations ranging from 700 metres to 1990 metres. Some areas are extremely rugged, with cliffs of 200 to 500 metres common. The Camp Zone and most of the areas above treeline (about 1300 metre elevation) are quite gentle and are easily traversed by foot.

The lower parts of the property are covered with fir and spruce. Timber is generally small and of no economic importance.

1.3 Property Description

The property consists of mineral claims with the names BARE, BR,ME, MENT, MOM, ROG, TARA, DON. There are a total of 92 full units plus one fractional unit. The claims encompass a land area of 3250 hectares (8031 acres). Refer to Table No. 1 for a complete list of the claims. The claim locations are plotted on Figure 2.

Table 1: Claim Status

BALL CREEK PROPERTY
Liard M.D.

Claim	Record #	Units	Record date	Expiry date	Owner	File #
1 BARE 1	69895	1	July 18 1973	July 18 1995	CML	32323
1 BARE 2	69896	1	July 18 1973	July 18 1995	CML	32324
1 BR 1	69897	1	July 18 1973	July 18 1995	CML	32334
1 BR 2	69898	1	July 18 1973	July 18 1995	CML	32335
1 BR 3	69899	1	July 18 1973	July 18 1995	CML	32336
1 ME 1	46259	1	Aug 19 1970	Aug 19 1995	CML	30048
1 ME 2	46260	1	Aug 19 1970	Aug 19 1995	CML	30049
1 ME 3	46261	1	Aug 19 1970	Aug 19 1995	CML	30050
1 ME 4	46262	1	Aug 19 1970	Aug 19 1995	CML	30051
1 ME 5	46263	1	Aug 19 1970	Aug 19 1995	CML	30052
1 ME 6	46264	1	Aug 19 1970	Aug 19 1995	CML	30053
1 ME 7	46265	1	Aug 19 1970	Aug 19 1995	CML	30054
1 ME 8	46266	1	Aug 19 1970	Aug 19 1995	CML	30055
1 ME 9	46267	1	Aug 19 1970	Aug 19 1995	CML	30056
1 ME 10	46268	1	Aug 19 1970	Aug 19 1995	CML	30057
1 ME 11	46269	1	Aug 19 1970	Aug 19 1995	CML	30058
1 ME 12	46270	1	Aug 19 1970	Aug 19 1995	CML	30059
1 ME 13	46271	1	Aug 19 1970	Aug 19 1995	CML	30060
1 ME 14	46272	1	Aug 19 1970	Aug 19 1995	CML	30061
1 ME 15	46273	1	Aug 19 1970	Aug 19 1995	CML	30062
1 ME 16	46274	1	Aug 19 1970	Aug 19 1995	CML	30063
1 ME 17	46275	1	Aug 19 1970	Aug 19 1995	CML	30064
1 ME 18	46276	1	Aug 19 1970	Aug 19 1995	CML	30065
1 MENT 7FR	55085	1	Aug 18 1971	Aug 18 1995	CML	30897
1 MOM 4	68388	1	Sept 21 1971	Sept 21 1995	CML	32315
1 MOM 5	68389	1	Sept 21 1971	Sept 21 1995	CML	32316
1 MOM 6	68390	1	Sept 21 1971	Sept 21 1995	CML	32317
1 MOM 7	68391	1	Sept 21 1971	Sept 21 1995	CML	32318
1 MOM 8	68392	1	Sept 21 1971	Sept 21 1995	CML	32319
1 MOM 9	68393	1	Sept 21 1971	Sept 21 1995	CML	32320
1 MOM 10	68394	1	Sept 21 1971	Sept 21 1995	CML	32321
1 MOM 11	68395	1	Sept 21 1971	Sept 21 1995	CML	32322
1 ROG 1	48091	1	Aug 25 1970	Aug 25 1995	CML	30066
1 ROG 2	48092	1	Aug 25 1970	Aug 25 1995	CML	30067
1 ROG 3	48093	1	Aug 25 1970	Aug 25 1995	CML	30068
1 ROG 4	48094	1	Aug 25 1970	Aug 25 1995	CML	30069
1 ROG 5	48095	1	Aug 25 1970	Aug 25 1995	CML	30070
1 ROG 6	48096	1	Aug 25 1970	Aug 25 1995	CML	30071
1 ROG 7	48097	1	Aug 25 1970	Aug 25 1995	CML	30072
1 ROG 8	48098	1	Aug 25 1970	Aug 25 1995	CML	30073
1 ROG 9	48099	1	Aug 25 1970	Aug 25 1995	CML	30074
1 ROG 10	48100	1	Aug 25 1970	Aug 25 1995	CML	30075
1 ROG 11	48101	1	Aug 25 1970	Aug 25 1995	CML	30076
1 ROG 12	48102	1	Aug 25 1970	Aug 25 1995	CML	30077
1 ROG 13	48103	1	Aug 25 1970	Aug 25 1995	CML	30078

Table 1 continued: Claim Status

1 ROG 14	48104	1	Aug 25 1970	Aug 25 1995	CML	30079
1 ROG 15	48105	1	Aug 25 1970	Aug 25 1995	CML	30080
1 ROG 16	48106	1	Aug 25 1970	Aug 25 1995	CML	30081
1 ROG 17	48107	1	Aug 25 1970	Aug 25 1995	CML	30082
1 ROG 18	48108	1	Aug 25 1970	Aug 25 1995	CML	30083
1 ROG 19	48109	1	Aug 25 1970	Aug 25 1995	CML	30084
1 ROG 20	48110	1	Aug 25 1970	Aug 25 1995	CML	30085
1 ROG 22	48111	1	Aug 25 1970	Aug 25 1995	CML	30086
1 ROG 23	48112	1	Aug 25 1970	Aug 25 1995	CML	30087
1 ROG 24	48113	1	Aug 25 1970	Aug 25 1995	CML	30088
1 ROG 25	48114	1	Aug 25 1970	Aug 25 1995	CML	30089
1 ROG 26	48115	1	Aug 25 1970	Aug 25 1995	CML	30090
1 ROG 27	48116	1	Aug 25 1970	Aug 25 1995	CML	30091
1 ROG 29	48117	1	Aug 25 1970	Aug 25 1995	CML	30092
1 ROG 31	48118	1	Aug 25 1970	Aug 25 1995	CML	30093
1 ROG 33	48119	1	Aug 25 1970	Aug 25 1995	CML	30094
1 ROG 34	48120	1	Aug 25 1970	Aug 25 1995	CML	30095
1 TARA 1	55799	1	Sept 28 1971	Sept 28 1995	CML	30812
1 TARA 2	55800	1	Sept 28 1971	Sept 28 1995	CML	30813
1 TARA 3	55801	1	Sept 28 1971	Sept 28 1995	CML	30814
1 TARA 4	55802	1	Sept 28 1971	Sept 28 1995	CML	30815
1 TARA 5	55803	1	Sept 28 1971	Sept 28 1995	CML	30816
1 TARA 6	55804	1	Sept 28 1971	Sept 28 1995	CML	30817
1 TARA 7	55805	1	Sept 28 1971	Sept 28 1995	CML	30818
1 TARA 8	55806	1	Sept 28 1971	Sept 28 1995	CML	30819
1 TARA 9	55807	1	Sept 28 1971	Sept 28 1995	CML	30820
1 TARA 10	55808	1	Sept 28 1971	Sept 28 1995	CML	30821
1 TARA 11	55809	1	Sept 28 1971	Sept 28 1995	CML	30822
1 TARA 12	55810	1	Sept 28 1971	Sept 28 1995	CML	30823
1 TARA 13	55811	1	Sept 28 1971	Sept 28 1995	CML	30824
1 TARA 14	55812	1	Sept 28 1971	Sept 28 1995	CML	30825
1 TARA 15	55813	1	Sept 28 1971	Sept 28 1995	CML	30826
1 TARA 16	55814	1	Sept 28 1971	Sept 28 1995	CML	30827
1 TARA 17	55815	1	Sept 28 1971	Sept 28 1995	CML	30828
1 TARA 18	55816	1	Sept 28 1971	Sept 28 1995	CML	30829
1 TARA 19	55817	1	Sept 28 1971	Sept 28 1995	CML	30830
1 TARA 20	55818	1	Sept 28 1971	Sept 28 1995	CML	30831
1 TARA 21	55819	1	Sept 28 1971	Sept 28 1995	CML	30832
1 TARA 22	55820	1	Sept 28 1971	Sept 28 1995	CML	30833
1 TARA 23	55821	1	Sept 28 1971	Sept 28 1995	CML	30834
1 TARA 24	55822	1	Sept 28 1971	Sept 28 1995	CML	30835
1 TARA 25	55823	1	Sept 28 1971	Sept 28 1995	CML	30836
1 TARA 26	55824	1	Sept 28 1971	Sept 28 1995	CML	30837
1 TARA 27	55825	1	Sept 28 1971	Sept 28 1995	CML	30838
1 DON 1	1136	9	Nov 9 1979	Nov 9 1995	CML	36286
1 DON 2	1137	15	Nov 9 1979	Nov 9 1995	CML	36286
1 DON 3	1138	9	Nov 9 1979	Nov 9 1995	CML	36286
1 DON 4	1139	8	Nov 9 1979	Nov 9 1995	CML	36286
93		130				

TOTAL ACRES= 8031

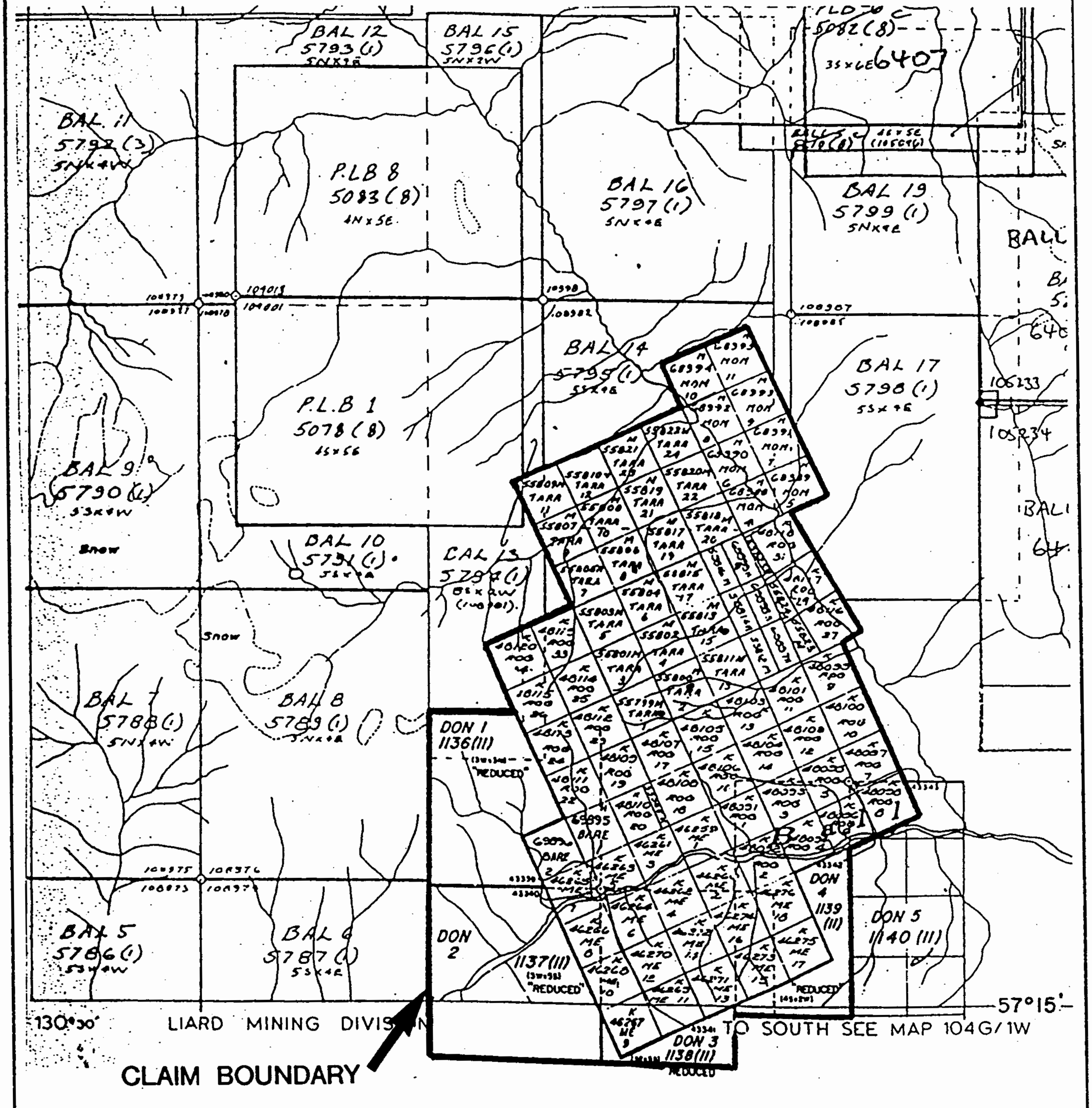


FIGURE 2

0 1 2 3 4 5
KILOMETRES

PLACER DOME EXPLORATION LTD.

BALL CREEK PROJECT

DRAWN BY: R.TURNA	**CLAIM MAP**
DATE: NOV. 1989	
SCALE **1:50,000**	
REVISED: **J. Baril**	FILE Nº. **V 243** 104G/8W

CHONG

1.4 History

The historical descriptions from 1929 to 1989 are taken from the Geological, Geochemical and Geophysical Report on the Ball Creek Project, March 30, 1990 (J. Kowalchuk and R. Turna, 1990).

1929: Five claims were staked for A.B. Trites.

1963: The Mary claim group was staked for Southwest Potash Corp.

Six shallow, bore holes were drilled totalling 60 metres (199 feet). Geological mapping and soil sampling were also performed. The work was concentrated on a molybdenite showing in the Cliff Zone.

1966: Stikine Exploration restaked the area but did no work.

1970: The Greg claim group was staked by Newmont Exploration of Canada Ltd. Geological mapping, geochemistry and ground magnetometer work was performed.

Great Plains Development Company of Canada Ltd. and Chevron Standard Limited staked the ME and ROG claims.

1971: Great Plains staked the TARA claims over the lapsed Greg claims of Newmont. The MENT and MOM claims were also staked.

Geological mapping, and geochemical sampling were performed in the Cliff and Goat Zones. Reference: Assessment Report 3186.

1972: Great Plains performed geological mapping, soil sampling and an induced polarization survey over an area centred on the Camp Zone. References: Assessment Reports 3978, 3979.

1973: The BR and BARE claims were staked. Great Plains performed further geological mapping and induced polarization surveys over the Cliff Zone and the Goat Zone and also drilled 571 metres (1874 feet) in three holes in the Camp Zone. Reference: Assessment Report 4651.

1974: Great Plains performed 649 metres (2132 feet) of diamond drilling in three holes in the Camp Zone. The core is now lost. Rock sampling was also performed in the Cliff, Goat and DM (Camp Creek and Border Creek) Zones. Reference: Assessment Report 5168.

1975: Great Plains performed 792 metres (2600 feet) of diamond drilling in five holes in the Camp Zone. Induced polarization was done over the Camp Zone. The geological history was reinterpreted and a model was formulated. Reference: Assessment Report 5709

1979: G.R.C. Exploration Company Ltd. negotiated an option on the Ball Creek property from the owners, Norcen Energy Resources Ltd. (formerly Great Plains) and Chevron Standard Ltd.

1980: J.R. Woodcock Consultants Ltd. supervised the drilling of two diamond drill holes totalling 953 metres (3127 feet). This program was performed on the South Zone, south of Ball Creek. Geological mapping and geochemical sampling were also performed, both on the South Zone and to the north of Ball Creek, on the Goat Zone and the upper Knob Creek area. The BALL claims were staked, seven kilometres southwest of the DON claims. The BALL claims were examined cursorily in 1980 and allowed to lapse. Reference: Assessment Report 8546.

1989: Chevron Minerals Ltd. optioned the property to Placer Dome Inc. The work program completed by Placer Dome Inc. consisted of geological mapping, geochemical sampling, induced polarization, magnetometer and VLF-EM surveys. The grid location is shown in Figure 3. Drill core from 1973 and 1975, found at the campsite, was relogged and segments of the core were assayed for gold. The core from the 1974 drilling was not found.

1990: Placer Dome Exploration Ltd. drilled 4 holes totalling 330 metres (1083 feet) of NQ core. The drilling was done peripheral to the central Camp Zone.

1.5 1990 FIELD PROGRAM

Diamond drilling took place between August 16, 1990 and September 12, 1990. In total, 114 core samples were collected from the four drill holes. As well, 33 sludge samples were collected of which 20 were analyzed. The core and sludge samples were analyzed for Au and Cu.

The total cost of the 1990 field program was $215,698.98. See the itemized cost statement at the end of the text.

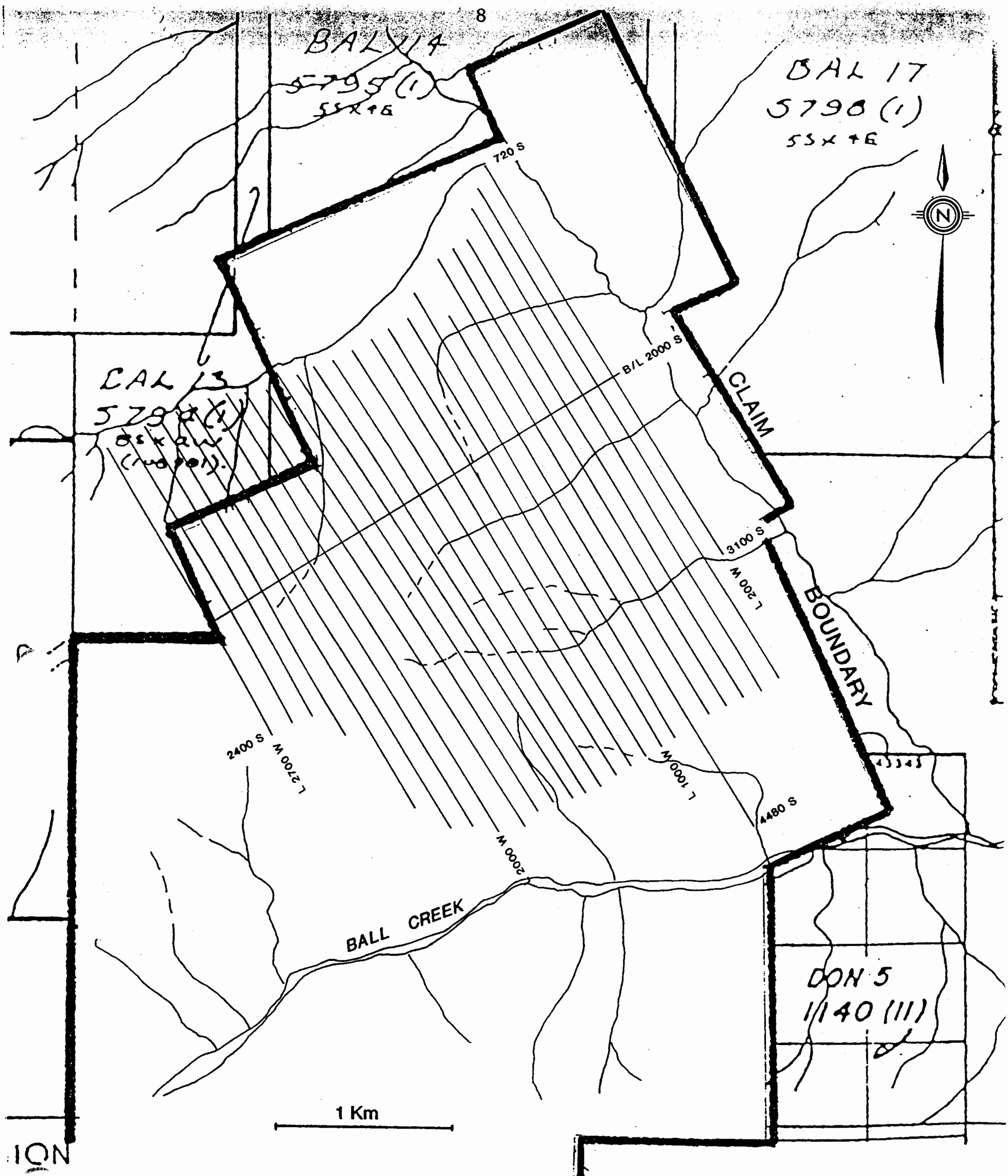


FIGURE 3
BALL CREEK
GRID LOCATION MAP

243 104G/8

2.0 GEOLOGY AND MINERALIZATION

The following descriptions of geology, alteration and mineralization are taken from the Geological, Geochemical and Geophysical Report on the Ball Creek Project, March 30, 1990 (J. Kowalchuck and R. Turna, 1990).

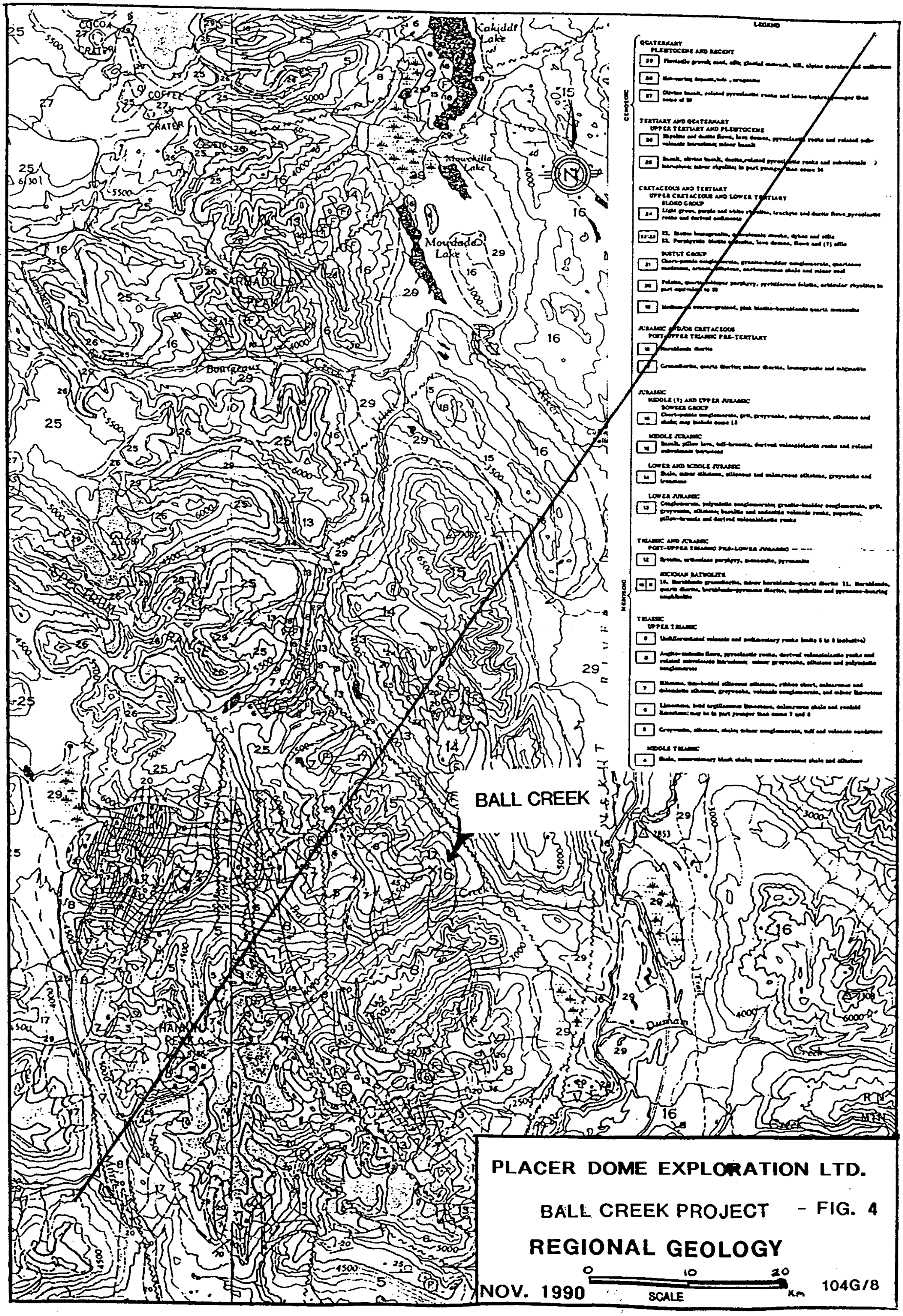
2.1 REGIONAL GEOLOGY

The Ball Creek area lies within Stikinia, a tectonic terrane comprised of Mississippian to Jurassic marine and non marine volcanic and sedimentary rocks and subvolcanic intrusions.

The Stikine Arch lies to the north of the property. This terrane, tectonically active during most of Mesozoic time consists primarily of Triassic and Jurassic eugeosynclinal igneous and metamorphic rocks. Immediately north of the property, the Stikine Arch is overlain by the Mount Edziza volcanic complex, an upper Tertiary to Recent assemblage of basic to acid volcanic rocks produced by a combined shield and stratovolcano.

The Bowser Basin tectonic unit lies ten kilometres east of the property. This unit consists mainly of upper Jurassic to Early Cretaceous marine and non marine sediments. Rocks of the Bowser Group unconformably overlie the older volcanic rocks of the Stikine Arch. Seventy kilometres west of the property, Mesozoic and Tertiary intrusives of the Coast Plutonic Complex occur.

The Ball Creek property is underlain by upper Triassic andesites and sediments which are intruded by a Late Triassic monzonite stock. The regional geology is shown as Figure No. 4.



PLACER DOME EXPLORATION LTD.

BALL CREEK PROJECT - FIG. 4

REGIONAL GEOLOGY

NOV. 1990

0 10 20 Km

SCALE

104G/8

2.2 PROPERTY GEOLOGY

2.2.1 INTRODUCTION

Most of the property is underlain by Upper Triassic andesitic pyroclastics, flows and sediments which are intruded by Upper Triassic monzonites. The monzonites appear on the surface as dykes. The two largest dykes trend north-south underlying the zone. Monzonite dykes outside of the Camp Zone trend roughly east-west and parallel to the Cliff-Knob Creek fault zone. The rocks described above are shown as Units 1 to 5 on Figure No. 5 (Property Geology) and are referred to as the Volcanic Sequence.

The Volcanic Sequence is unconformably overlain by an Epiclastic Sequence (Units 6 to 12). This suite of rocks was derived from the older andesites and from basalt flows located at the base of the sequence. This sequence is overlain by sediments containing a lower Jurassic pelecypod (Weyla).

Structurally, the property is divided into two domains. Between Barren Fault and Ball Creek, the geology is dominated by a major east-west fault zone, called the Cliff-Knob Creek fault zone. This fault zone is believed to continue to the southwest along Ball Creek. The area between Barren Fault and Border Creek is underlain by the south-dipping limb of an anticline whose axis trends along Border Creek. The larger faults in the Camp Zone trend either east-west or north-south. The major dykes in the Camp Zone trend north-south.

2.2.2 LITHOLOGY

VOLCANIC SEQUENCE: from oldest

1. **Sedimentary rocks**

These rocks occur along the northern boundary of the property, in the lower parts of Border Creek and Fossil Creek. The low topographic position of the unit plus the occurrence of this unit in the core of the Border Creek anticline suggests that they are the oldest rocks on the property. Pelecypods and gastropods collected by the Ministry of Mines in 1975 provide a Norian (upper Triassic) age to these rocks.

At the northern end of Line 400W, in Border Creek,black siliceous argillites predominate. These rocks are massive and very fine grained. The rocks carry no recognizable pyrite, however carbonate veinlets in some outcrops were slightly pyritic. The rocks are hard and resistant to weathering.

Along the lower sections of Fossil Creek, calcareous siltstones and sandstones form large outcrops. The sandstones weather light brown in colour and show good sorting and bedding. The beds, which are one to two centimetres thick, are contorted. They are quite sheared and weather easily. Minor amounts of pyrite are found along fractures. Some of the sandstone outcrops have been stained to a rusty colour by groundwater draining the Camp Zone gossan. Pelecypods were found in one of the Fossil Creek outcrops.

2. Andesite

The andesitic rocks are divided into the following classifications: undifferentiated(2), pyroclastics(2a), flows(2b), and dykes(2c). Pyroclastics are the most common rock type in the unit, followed by flows which are difficult to identify due to the destruction of their original flow textures by alteration. Andesite dykes are not common.

Unaltered outcrops weather a grey colour. Pyrite rich outcrops are coated with a rusty stain.

Unit 2 andesites are the thickest unit on the property. In the Camp Zone the andesites are quite shattered and hydrothermally altered. The fracturing and alteration was caused by the influx of fluids accompanying the intrusion of the Upper and Lower Dykes.

(2a) Pyroclastics

Pyroclastic rocks can be separated into two specific types; lithic tuffs, observed in outcrops in Middle Creek and the lower part of Camp Creek, and lapilli tuffs, observed in the higher parts of the property, generally above the 1400 metre elevation.

The lithic tuffs are green, poorly sorted and medium grained. Most of the clasts are angular or subrounded argillite fragments. The larger clasts are black and up to half a centimetre in size. Other clasts appear andesitic. They are supported by a matrix consisting of finer grains of the same rock types as the clasts. Type examples of the lithic tuffs are found in Middle Creek at 1140 and 1280 metres elevation.

At Middle Creek, the lithic tuffs are not mineralized. Outcrops adjacent to faults or fractures are pyritic and rusty weathering. The weakly gossanous cliff between Lines 700W and 800W on the northwest side of the baseline carries anomalously amounts of pyrite, probably related to the pyrite halo about the Camp Zone.

The lapilli tuffs typically occur as relatively unaltered outcrops southeast of Big Red Hill. They are greenish grey in colour; coarse grained and poorly sorted. Clasts, composed of porphyritic andesite are subrounded to rounded in shape. Clasts in the lapilli tuffs range from 2.0 to 5.0 centimetre size, and are supported by an andesitic matrix.

The outcrops southeast of Big Red Hill are unaltered and unmineralized. Some outcrops between Big Red Hill and Little Red Hill carry up to 3% pyrite. These rocks show strong propylitic alteration, with epidotized clasts and extensive chlorite alteration of the matrix. Lapilli tuff, outcropping within the Cliff-Knob Creek fault zone is often brecciated and pyritized.

(2b) Flows

Very few flows have been mapped as outcrop. Either the flows are limited in extent, or they are hard to recognize due to the destruction of primary structures by intense hydrothermal alteration. The presence of flows is indicated by massive relict bedding in the intensely altered cliffs in Fossil Creek and in the north arm of Knob Creek. The great thickness of the bedded cliffs in these creeks suggest that the flows may be a significant part of the andesite package. Flow textures have also been recognized in thin sections of altered andesitic core from drill holes DDH73-1, DDH73-2, DDH73-3.

The flows occur between the lithic tuffs and the lapilli tuffs.

(2c) Dykes

Andesite dykes are observed in Camp Creek and in the upper parts of Border Creek and East Cliff Creek. The exact stratigraphic position for the dykes is not clear since they appear to intrude both Unit 3 and Unit 5 rocks. They are included with the Unit 2 andesites because of their composition. This whole volcanic package is thought to have been deposited over a very short period of time.

The dykes are chloritic and dark green in colour. Along Border Creek and East Cliff Creek, they are porphyritic with plagioclase phenocrysts up to 0.5 centimetres in size. One dyke along Camp Creek is about one metre thick and stands out in dark and prominent relief against the highly altered, pyritic surrounding rocks.

3. Monzonite

The monzonites of Unit 3 are only observed as dykes. The larger dykes have been named: Lower Dyke(3a), Upper Dyke(3b) and Ridge Dyke(3c). Smaller unnamed dykes were located along Fossil Creek and in the Cliff-Knob Creek fault zone.

In outcrop, the monzonites are easily recognized by their prominent potash feldspar phenocrysts, smaller plagioclase phenocrysts, and a crystalline texture. Upper and Lower Dykes, where they are removed from the zone of porphyry mineralization have significantly less pyrite than do the surrounding rocks. They are also harder and more resistant to weathering than the surrounding rocks. Upper Dyke forms a recognizable resistant ridge along the middle third of its exposure.

In 1975, the Ministry of Mines calculated a potassium argon age date of 218 +/- 24 million years which would place the monzonite as Upper Triassic in age.

(3a) Lower Dyke

The Lower Dyke is a porphyritic rock consisting of potash feldspar crystals in a fine grained matrix. Up to 75% of the rock is made up of phenocrysts ranging from 1.0 to 10 millimetres in size. The light grey matrix is essentially plagioclase with lesser potassic feldspar, minor quartz, mafics and pyrite. Lower Dyke is finer grained than the other monzonite dykes. It is also referred to as a latite porphyry.

(3b) Upper Dyke

The Upper Dyke monzonite is a medium grained porphyritic rock. Plagioclase and minor orthoclase phenocrysts ranging from 1.0 to 4.0 millimetres in size constitute 50% of the rock. Large 10.0 millimetre potash feldspar phenocrysts occasionally occur. Potash feldspar, along with smaller amphibole and biotite make up about 30% of the coarse fraction of the rock. The composition of the matrix is similar to that of the phenocrysts. Quartz and pyrite are minor constituents. Mafics and magnetite, although not abundant, are more common in Upper Dyke rocks than in the other monzonites. Upper Dyke rocks are usually grey in colour, however epidote and pyrite occasionally produce a darker colour in some specimens. Weathered surfaces are usually stained rusty by iron rich waters draining surrounding pyritic rocks.

The Upper and Lower Dykes have not been altered by the porphyry event as were the surrounding andesitic rocks. Although the intrusion of the monzonite is thought to be the cause of the hydrothermal event which produced the regional alteration and porphyry mineralization, the dykes themselves were not altered. They may have been emplaced late in the overall intrusive event.

(3c) Ridge Dyke

The composition and texture of the Ridge Dyke are similar to those of the Upper Dyke. Pink potash feldspar phenocrysts up to 1.0 centimetre size occur within a medium grained matrix of plagioclase and potash feldspar, minor quartz, biotite and pyrite. The hand specimens and outcrops are light grey.

Ridge Dyke appears to be the faulted and rotated extension of Upper Dyke. The Ridge Dyke, if rotated to the south, would align and connect with Upper Dyke at Big Red Hill. The two dykes have the same composition and texture. Although no fault has been mapped in this location, the VLF EM and magnetic survey signatures suggest a fault exists that has shifted and rotated the dyke to produce the two diverging dykes.

OTHER DYKES

Several small monzonite outcrops lie within the shattered zone between Barren and Cliff Faults. They all have a similar composition and texture, which is the same as the composition of Lower Dyke. They may be the disrupted fragments of a large dyke which is the rotated extension of Lower Dyke, similar in structural relationship to that of Upper and Ridge Dykes. The many smaller monzonite dykes show the same lack of hydrothermal alteration as the larger monzonite dykes.

Two dykes from East Cliff Creek which contains 11% quartz, and the dyke from south of Big Red Hill which contains 58% potash feldspar are not part of this family of small monzonite outcrops.

4. Trachyandesite

This porphyritic rock has a pronounced trachytic flow texture, large potash feldspar phenocrysts and a dark colour. It is observed in several different modes: plug(4a) at Trachyte Knob, flows(4b) atop East Cliff Creek and a small dyke(4c) in the Cliff Zone.

The rock is porphyritic with 60 % of the rock consisting of plagioclase phenocrysts. A further 10% of the rock is made up of large (up to 2.0 centimetres long) potash feldspar phenocrysts. The plagioclase crystals show a strong flow lineation and appear to flow around the larger potash feldspar crystals. Both the orthoclase and the plagioclase crystals are well formed.

Trachyandesites are very fresh looking and show none of the alteration observed in the surrounding rocks. They are quite magnetic and contain up to 5% magnetite. This resistant rock forms prominent hills such as Trachyte Knob.

5. Lahar

The lahar consists of porphyritic andesite clasts supported by an andesite matrix. The rock is poorly sorted both at the hand specimen level and at the outcrop level. Clasts range in size from 2.0 centimetres to greater than 10.0 centimetres. Some clasts are greater than 30.0 centimetres. The matrix usually comprises less than 50% of the rock. The clasts range from maroon to grey and green and outcrops are green overall. Outcrops occasionally carry carbonate veins containing pyrite.

The lahar is very friable and produces outcrops surrounded by thick talus. Sedimentary structures are difficult to recognize because of the friable nature of the rock. Boulders of coarsely bedded lahar were found near the headwaters of Fossil Creek.

UNCONFORMITY

CLASTIC SEQUENCE: from oldest

6. Basalt Flows

This porphyritic and amygdaloidal basalt unit, interbedded with pillow basalts is thin and limited in extent. The porphyritic basalts consist of 25% plagioclase phenocrysts in a black aphanitic matrix. The phenocrysts are 0.5 to 1.0 centimetres in size and often show a flow foliation. Locally the rock is quite vesicular with calcite filled amygdules. The rocks are finely crystalline in texture. Black aphanitic pillow basalts occur across lateral facies boundaries with the above porphyritic basalts. The pillow basalts are locally highly vesicular and are quite friable.

The basalts are non pyritic and strongly magnetic. Jasper veinlets occur occasionally throughout these basalts.

7. Basaltic Mudstone

This mudstone unit is derived from erosion of Unit 6 basalts. The mudstones are fine grained and well sorted. The mudstone also shows fine silty lamination structures. The outcrops are dark brown and maroon and are strongly magnetic. They are very friable and recessive weathering. The basaltic mudstone is a thin unit, localized to the outcrop area of the parent basalts. Lighter coloured, andesites form thin beds within this unit.

8. Andesitic Greywacke - Conglomerate

This greywacke is contemporaneous with and interfingers with the basaltic mudstone. Subangular to rounded clasts occur in a fine grained and occasionally crumbly matrix. The clasts consist of fine grained andesite, porphyritic andesites and lapilli tuff. The clasts in the conglomerate vary from a few millimetres to several centimetres in size. The clasts in the greywacke are usually less than one millimetre in size. Weathered surfaces are medium to dark grey in colour.

9. Limestone

Only one small dark grey outcrop of impure limestone was found.

10. Conglomerate

This conglomerate has a grey to greenish grey colour in outcrop. The clasts range up to 5.0 centimetres in size. They are rounded and consist mainly of feldspar porphyritic andesite. Impure limestone clasts sometimes are found sometimes. On cliffs this unit displays very coarse bedding and interfingers with the underlying greywacke.

11. Greywacke

This grey weathering unit has a coarse sandy texture. It is a well sorted rock. The clasts consist of subangular to subrounded andesite rock fragments and subhedral feldspar grains. This sandstone unit interfingers with the overlying conglomerate.

12. Andesitic tuff

Although fresh surfaces of this andesitic rock are dark green in colour, weathered outcrop surfaces have a rusty brown, greyish green and brownish grey colour. The tuff has small clasts of crystal and lithic tuff and occasional black mudstone. The clasts vary from 0.5 to 5.0 millimetres in size. The rocks are locally magnetic.

2.2.3 ALTERATION

A central potassic alteration zone is surrounded by concentric zones of argillic, phyllic and propylitic alteration.

Propylitic Alteration

Most of the andesites on the property are dark green in colour due to extensive chlorite alteration. The strongest chlorite mineralization lies just outside the area of phyllic alteration, but it is also noticeable across the entire property as an early phase within the argillic and potassic zones. Some of the chlorite alteration outside of the area of intense hydrothermal alteration may be due to a regional lower greenschist metamorphism of the surrounding rocks.

The most intense chlorite alteration was observed in outcrops lying between Big Red Hill and Little Red Hill, just peripheral to the extensive phyllic altered zone. Within the propylitic alteration zone, the main alteration minerals are chlorite, epidote and pyrite. Petrographic descriptions of rocks from this zone have identified up to 10% chlorite, 1% epidote and 4% pyrite.

Phyllic Alteration

Phyllic alteration, distinguished by extensive sericite, pyrite and silica mineralization forms distinctive gossanous outcrops on the property. Outcrops have a bleached and rusty appearance. Sericite mineralization averages 10% although one sample (89T208) contained 25% sericite. The pyrite content ranges up to 5%, mainly as disseminations but also as fracture fillings. Certain outcrops show extensive, pervasive silicification.

Phyllic alteration south of the Camp Zone is best observed at Big Red Hill and Little Red Hill,where the rocks are bleached and gossannous. These rocks were often mapped incorrectly as their original lithology is difficult to recognize as the volcanic and sedimentary textures were completely destroyed by the alteration. Previous mappers called these rocks "felsite". The Red Hills are quite resistant to erosion due to the prevalence of quartz veinlets in the rocks.

West of the Camp Zone, the phyllic zone is observed in cliffs between Fossil Creek and Upper Dyke. At this location, Unit 2 rocks are strongly silicified and pyritized.

North of the Camp Zone, the phyllic alteration is seen in the two northernmost outcrops of Upper Dyke and on outcrops in Camp Creek.

East of the Camp Zone, the phyllic alteration occurs in an outcrop 300 metres northeast of camp. The bleached and gossanous cliffs at the 1100 metre elevation in Middle Creek and the north arm of Knob Creek may also be as a result of phyllic alteration.

Argillic Alteration

Argillic (clay) alteration was only recognized in drill core (holes DDH73-3 and DDH75-3), not in outcrop. It consisted of pervasive alteration of the original plagioclase to a soft earthy white clay material, probably kaolin. At Ball Creek, the argillic alteration occurs within and immediately surrounding the zone of intense potassic alteration.

Potassic Alteration

Potassic alteration in the form of pink potash feldspar envelopes around fractures and quartz veins was noted in drill core from holes DDH73-2, DDH73-3, DDH75-3 and DDH75-5. In some of the drill holes, sections originally logged as being intensely silicified, were actually showing pervasive potash feldspar alteration. These rocks contain up to 70% potash feldspar primarily as introduced material. Potassic alteration is accompanied by a significant increase in magnetite content.

Several outcrops within the area of previous drilling also showed extensive pink potash feldspar envelopes. Outcrops are too strongly weathered to recognize the potash feldspar flooding of rocks. The areas of potassic alteration have been noted on the geology map.

2.2.4 MINERALIZATION

Sulphide mineralization on the property occurs in a similar pattern to that associated with porphyry copper-gold deposits described in the literature. A pyrite halo surrounds Camp Zone chalcopyrite-molybdenite mineralization. Peripheral to the annular pyritic zone, galena and sphalerite mineralization occur in carbonate veins. Chalcopyrite mineralization is widespread on the property, primarily located within the Camp Zone but also found peripheral to the pyrite zone. Molybdenite was observed within the Camp Zone and in the Cliff Zone.

Pyrite

The most intense pyrite mineralization occurs within the phyllic alteration zone surrounding the Camp Zone stock. The type locations for this quartz-sericite-pyrite mineralization are Big and Little Red Hills. The outer periphery of the gossans about the Camp Zone can be considered to be the outer periphery of the pyrite halo. The pyrite halo shows as a chargeability anomaly around and within the Camp Zone. Though the most intense pyrite coincides with the phyllic alteration zone, pyrite mineralization as expressed by gossans, appears to extend somewhat farther outward from the Camp Zone.

Within the Camp Zone and in the phyllic zone, pyrite occurs most abundantly in fractures and quartz veinlets in andesites. Lesser amounts of pyrite occur as blebs and disseminations in andesites and monzonites, usually near intrusive contacts or faults. Unaltered andesites and monzonites normally contain less than 1% disseminated pyrite.Outside of the Camp Zone, pyrite mineralization is confined to fractures and quartz veinlets in the fault zones.

Pyrite mineralization at the Goat Zone is only found along the cliff faces formed by the Ball Creek Fault. The sulphide mineralization is restricted to the fault trace and is not as extensive as it appears on surface. Pyrite, galena and sphalerite occur within quartz carbonate veins in the Goat Zone Fault.

Sheared rocks exposed along the Cliff Zone Fault in East Cliff Creek are very pyritic. One brecciated section of fault carries 30% pyrite as its matrix.

Copper Minerals

Chalcopyrite occurs in quartz veinlets and as blebs in fault breccias in the Goat Zone and Cliff Zone. Small specks of chalcopyrite can be seen in andesitic float in the Camp Zone near DDH75-5. Minor amounts of chalcopyrite were also observed in quartz veinlets in drill core.

Malachite is a common occurrence on the rusty outcrops along Camp Creek. Occasional pieces of andesite float from the Camp Zone and Cliff-Knob Creek fault zone contain specks of malachite on weathered surfaces.

Molybdenite

Molybdenite occurs in quartz veinlets and fractures in fault breccias along the Cliff Zone. Small specks of disseminated molybdenite were observed in monzonite drill core.

Lead and Zinc Minerals

Galena and sphalerite occur within narrow carbonate veins in the Goat Zone and at Border Creek. Some of the quartz veinlets in the Goat Zone also carry small amounts of galena.

Magnetite

Magnetite is a common alteration mineral in the potassic alteration zone. Accompanying the potash feldspar selvages around quartz veins over the Camp Zone, magnetite forms up to 5% of the rock. The ground magnetic survey defines the potassic zone as distinct circular magnetic high surrounded by an annular ring of low magnetism. Magnetite is also common in many of the younger volcanic rocks on the property, primarily the trachyandesite and the basalt.

Gossans

A distinct rusty gossan overlies the Camp Zone mineralization and the surrounding area of phyllic alteration. This gossan extends north to Border Creek, west to the cliffs along Fossil Creek, east to the 1080 metre elevation and south to Big and Little Red Hills.

A spectacular gossan is seen along the cliffs of the Goat Zone. The Cliff Zone gossan is bounded on the west by West Cliff Creek and on the south by the Cliff Zone Fault. A 150 metre wide zone of rusty talus marks the trace of this fault into Knob Creek.

Rocks in the upper parts of Knob Creek, Middle Creek, Camp Creek and Fossil Creek are very rusty due to concentrations of pyrite within the faults crossing the creeks.

Quartz and Carbonate Veins

Quartz stockworks were observed at two localities in the central Camp Zone. Quartz veins up to 1.5 centimetres wide give the stockwork zone a quartz content of 20 to 50 percent. Drill core from the Camp Zone showed that the quartz veinlets occur mainly in andesites. Veinlets are less common in the more massive monzonites. The veinlets are usually smaller than 1.0 centimetre wide and carry very few sulphides. Quartz and carbonate veins up to about 3.0 centimetres wide occurs in fault breccias in the Goat Zone and the Cliff Zone. The quartz veins occasionally contain minor amounts of sulphides. Carbonate veins occur mainly in the Goat Zone. The Border Creek showing and other fault zones over the property also contained some carbonate veins.

2.2.5 STRUCTURAL GEOLOGY

Two main structural patterns occur as faults on the property; east-west and north-south. The east-west structural direction has a bearing of 060^{o} and is seen in the following faults: Ball Creek fault, Cliff Zone Fault, Barren Fault, North Arm Fault and Middle Creek Fault. The north-south structural direction bears 330^{o} and is seen in the following faults: Devil's Creek fault, South Zone Fault, Goat Zone Fault, Camp Fault and Fossil Creek fault.

The north-south faults cause a right lateral displacement of some of the east-west structures. The apparent bending of Barren Fault, North Arm Fault and Middle Creek Fault at their intersections with Camp Fault may be caused by right lateral movement along this and other north-south structures.

3.0 SURVEY CONTROL

All 1990 drill collar locations were tied into the grid which was installed during the 1989 field season. A hip chain and compass was used to locate each drill collar to the nearest grid picket. Foresight and backsight pickets were installed at each drill site utilizing a Brunton compass and tripod. These pickets were used to line up the drill at the correct azimuth.

4.0 DIAMOND DRILLING

4.1 Sample Collection, Preparation and Analysis

The drill core was systematically sampled every three meters except where a lithology break was encountered. At lithology breaks, sample intervals would reflect the change. In total, 114 core samples were collected from the four drill holes.

Sludge samples were taken where recovery was poor or where core was sheared and fractured. Generally, the sludge samples were collected over a 10 foot run. These samples were sometimes collected over a shorter run, when drilling conditions prohibited collection over a full 10 foot run. In total, 33 sludge samples were collected from holes DDS-12, DDS-13 and DDS-15, of which 20 were analyzed. The remaining 13 sludge samples were not analyzed because they were collected in zones of good core recovery. Within these zones, the drill core assays were considered to be adequate.

The core and sludge samples were sent to the Placer Dome Laboratory in Vancouver for analysis. The core samples were crushed and pulverized, and then a sub-sample was weighed and digested. The sludge samples were oven dried and sieved to produce a -80 mesh fraction, from which a subsample was weighed for analysis. Both the core and sludge samples were analyzed by atomic absorption for Au and Cu. The digestion and detection techniques used are presented in Appendix # 4.

4.2. Treatment and Presentation of Results

All drill core was logged using the Placer Dome Inc. modified Geolog system. The logs were later entered into a computer using the Qedit program. This program then facilitated the plotting of true drill cross sections for each drill hole, using a pen plotter (Figs. 9, 10, 11 & 12). The surface projections of these drill holes were plotted on the Geology and Diamond Drilling Plan (Fig. 5).

The analytical results for the core and sludge samples are listed in tabular form, with the corresponding drill core intervals in Appendix # 2.
A table containing 1990 diamond drilling information (table 2), is included on the next page.

4.3 Drilling Logistics

The four drill pads were prepared in advance by using various combinations of blasting, digging, brush or tree clearing and cribbing. A modified JKS 300 diamond drill was used to produce NQ sized core. The drill was flown to and from the property, and between drilling sites with a Bell 206 helicopter.

The drilling conditions this year were generally very poor, due to highly fractured and faulted ground. Cave-ins were common and large amounts of drilling mud was required for hole stabilization. Generally, water return was lost very early in any hole. Drill hole DDS-13, which was the most difficult to drill, required 60 feet of casing to stabilize the hole.

TABLE 2: 1990 DIAMOND DRILLING INFORMATION

DRILL HOLE	LOCATION	BEARING (degrees)	DIP (degrees)	FINAL DEPTH
DDS-12	18+30W 30+20S	325	-46	97.23m (319')
DDS-13	11+90W 26+40S	325	-46	65.68m (215.5')
DDS-14	08+06W 21+57S		-90	92.50m (303.5')
DDS-15	11+92W 13+13S	090	-60	74.67m (245')

4.4 Strategy for Selecting Drill Targets

All previous diamond drilling on this property (except for drill holes 73-1, 75-1 and 75-2) was targeted in the central potassic core of the deposit. Holes 73-1, 75-1 and 75-2 were drilled on the boundary of the phyllic and potassic zones. As well, hole 73-1 was drilled almost entirely within a monzonite dyke (later in this report, it will be demonstrated that andesite is a better drill target than monzonite). This drilling, which was performed in 1973,74 and 75, consisted of 11 holes totalling 2012 m (6606 ft.). The assay results from this drilling illustrated that the potassic core was mineralized with copper and gold, however, the grade was sub-economic.

The most recent models on porphyry deposits illustrate that the optimum gold concentration is not found in the potassic alteration core. Better gold values are commonly located on the boundary of the phyllic and potassic zones or out in the propylitic zone. Of these two locations, the phyllic/potassic boundary is the more likely place to find economic mineralization.

The basic strategy for this years drilling was to step out into the phyllic and potassic alteration shells in an effort to locate an economically viable ore zone. In order to optimize drill target locations, a system of stacked profiles was used. The methodology of this system can be described as follows: first of all, sections: 800W, 1000W, 1100W, 1200W, 1300W, 1400W, 1600W, 1800W and 2000W were chosen to be worked with. For each of these lines, a series of 1:5000 scale stacked profile cross sections (looking SW) were derived. The parameters utilized in each profile were: (a) the induced polarization survey; (b) the magnetometer survey; (c) Gold geochemistry; (d) Copper geochemistry; and (e) geology. On each stacked profile, the five cross sectional parameters were lined up with respect to grid coordinates and then stacked on top of one another. Once this was accomplished, it was possible to visually scan each profile to see if optimal conditions were present for all five parameters at any point along the grid. In other words, it was possible to select the optimum conditions of geophysics, geochemistry and geology and thereby choose the best drill locations. Optimal conditions for each parameter were considered to be as follows: (i) high chargeability and low resistivity from the I.P. survey; (ii) low magnetic readings from the magnetometer survey (because of magnetite destruction in the phyllic alteration halo); (iii) peaks in gold and copper geochemistry values; and (iv) location in the Upper Triassic andesitic country rocks (map unit 2). The stacked profiles on lines 800W, 1200W, and 1800W (figures 6,7 and 8 respectively) were used to locate the 1990 drill holes. These figures are included at the end of this report.

4.5 Discussion of Results

(a) Sludge Samples

The sludge sample assay returns correlated very well with drill core assay data, however, the values were usually slightly higher. Gold values from sludge samples were 25 ppb higher, on average, than corresponding values from drill core. Copper values from sludge samples were 120 ppm higher, on average, than the corresponding drill core values.

(b) Alteration Descriptions

Phyllic alteration:

Phyllic alteration is always represented by the appearance of sericite. This sericite occurs in essentially three different ways: (i) as an alteration product of feldspar (apple green coloured); (ii) as local pervasive patches (apple green coloured); and (iii) as isolated bright green spots.

Propylitic alteration:

Propylitic alteration is represented by chlorite, calcite and another carbonate mineral (possible ankerite). The chlorite occurs in two forms: (i) as an alteration product of mafic minerals; or (ii) occasionally as coatings on fractures. Calcite occurs in five different ways: (i) as fracture fillings; (ii) as an alteration product of feldspar phenocrysts; (iii) as an alteration product of chloritized mafic phenocrysts; (iv) as an alteration product of the isolated bright green sericite spots; and (v) pervasively in the rock matrix. The other carbonate mineral (ankerite ?) was always found pervasively in the rock matrix.

Clay (argillic) alteration:

The type of clay which is present in the clay alteration zones is unknown, but it is likely kaolinite. Clay alteration was observed in two forms: (i) as an alteration product of feldspars; and (ii) as pervasive alteration of the entire rock.

Silicification

Silicification, or quartz flooding, was only observed in the upper andesite lapilli tuff unit of hole DDS-15. This silicification occurs as pervasively altered patches.

(c) General Observations

Lithology:

Gold and copper values are higher in the andesite than in the monzonite. Mineralization is usually better in the volcanic because it appears to be more fractured than the monzonite, and is better prepared for mineralizing fluids. The monzonite was probably the mechanism that caused the movement of hydrothermal fluids and mineralizing fluids and was still warm and plastic during the emplacement of the copper-gold mineralization. Because of its plastic nature, it did not undergo brittle fracture and thus did not contain the many small quartz sulphide veinlets observed in the andesite. The andesite was quite brittle during the intrusive and hydrothermal event and became quite fractured, well preparing it for the influx of mineralizing fluids.

MINERALIZATION

Pyrite:

In hole DDS-12, intense pyrite mineralization occurs within the andesitic rocks. This pyrite carries anomalous gold values. In DDS-13 and DDS-14, the pyrite is not as common. Other than these observations, no correlations can be made between pyrite and rock types, alteration, other mineralization or assay values.

Chalcopyrite:

Chalcopyrite was not observed in any of the 1990 drill core.

Sphalerite, galena and molybdenite:

These three minerals occur in minor amounts, in the upper portion of the andesite breccia unit of hole DDS-12 (5.29-42.94 m). Galena is present only as blebs in calcite veins (up to 3% thin, cross-cutting calcite veins occur in the andesite breccia). Molybdenite occurs only as disseminated blebs in the rock matrix. Sphalerite can be found as either blebs in calcite veins, or as disseminated blebs in the rock matrix. This mineralized interval is correlative with anomalous gold values (50-170 ppb).

Magnetite:

Magnetite occurs locally in holes DDS-12 and DDS-15 wherever the rock is relatively fresh. Except for areas of potassic alteration where secondary magnetite has been formed, non of the hydrothermally altered areas contain any magnetite. The hydrothermal alteration destroyed all of the primary magnetite mineralization.

ALTERATION

Phyllic alteration:

In drill hole DDS-12, phyllic alteration is more intense in the andesitic rock. Sericite alteration also is found around most of the fault zones. No other observations were noted for this alteration suite.

Propylitic alteration:

Propylitic alteration can occur extensively in both the monzonite and andesite, however, it tends to be more intense in the andesite. In DDS-13, propylitic alteration is much less intense in the fault zones. In general the fault zones all have undergone more intense alteration, say phyllic and argillic.

Clay (argillic) alteration:

In hole DDS-15, intense clay alteration occurs in the upper andesite lapilli tuff and monzonite units. This clay alteration is spacially associated with anomalous copper values (116-260 ppm). Silicification also occurs locally with this clay. In DDS-13, the presence of clay is directly associated with intense shearing and fracturing. Most of this clay is fault gouge. Some of the clay, however, is a result of hydrothermal alteration (likely caused from hydrothermal fluids travelling up the fault).

Silicification:

Silicification occurs only in the upper andesite lapilli tuff unit of hole DDS-15, between 8.27-14.04 m. This silicification is intense and patchy. It is spacially associated with moderate clay alteration and anomalous copper values (116-240 ppm).

(d) Individual drill hole observations

The following generalizations have been noted for each of the 1990 drill holes:

DDS-12:

- Phyllic alteration: intense to weak.
- Propylitic alteration: intense.
- Clay alteration: occurs locally and is weak to moderate.
- Pyrite mineralization: intense (5-10%) to moderate (trace-3%).
- Magnetite mineralization: occurs locally and is moderate.
- Galena, sphalerite and molybdenite mineralization: occurs locally and is weak.
- Structure: the major fault which occurs in the andesite breccia between 44.76-56.94 m, is possibly the down dip extension of the Cliff Zone Fault.

DDS-13:

- Phyllic alteration: weak.
- Propylitic alteration: moderate.
- Clay alteration: intense to moderate.
- Pyrite mineralization: intense (5-10%) to moderate (1-4%).
- Structure: major fault zones occur between 4.57-20.68 m, 24.29-28.85 m and 54.41-58.02 m. These faults are likely down dip expressions of the Barren Fault and/or North Arm Fault Zones.

DDS-14:

- Phyllic alteration: weak.
- Propylitic alteration: moderate.
- Pyrite mineralization: intense (5-6%).
- Structure: major faults occur between 19.79-35.20 m and 83.65-88.09 m.

DDS-15:

- Phyllic alteration: intense to moderate.
- Propylitic alteration: intense to moderate.
- Clay alteration: occurs locally and is intense to moderate.

- Silicification: occurs locally and is intense.
- Pyrite mineralization: moderate (1-3%) to weak (trace to 0.4%).
- Magnetic mineralization: occurs locally and is moderate to weak.
- Structure: major faults occur between 36.66-38.66 m, 51.51-55.32 m and 59.21-61.87 m.

4.6 Recommendations for Future Diamond Drilling

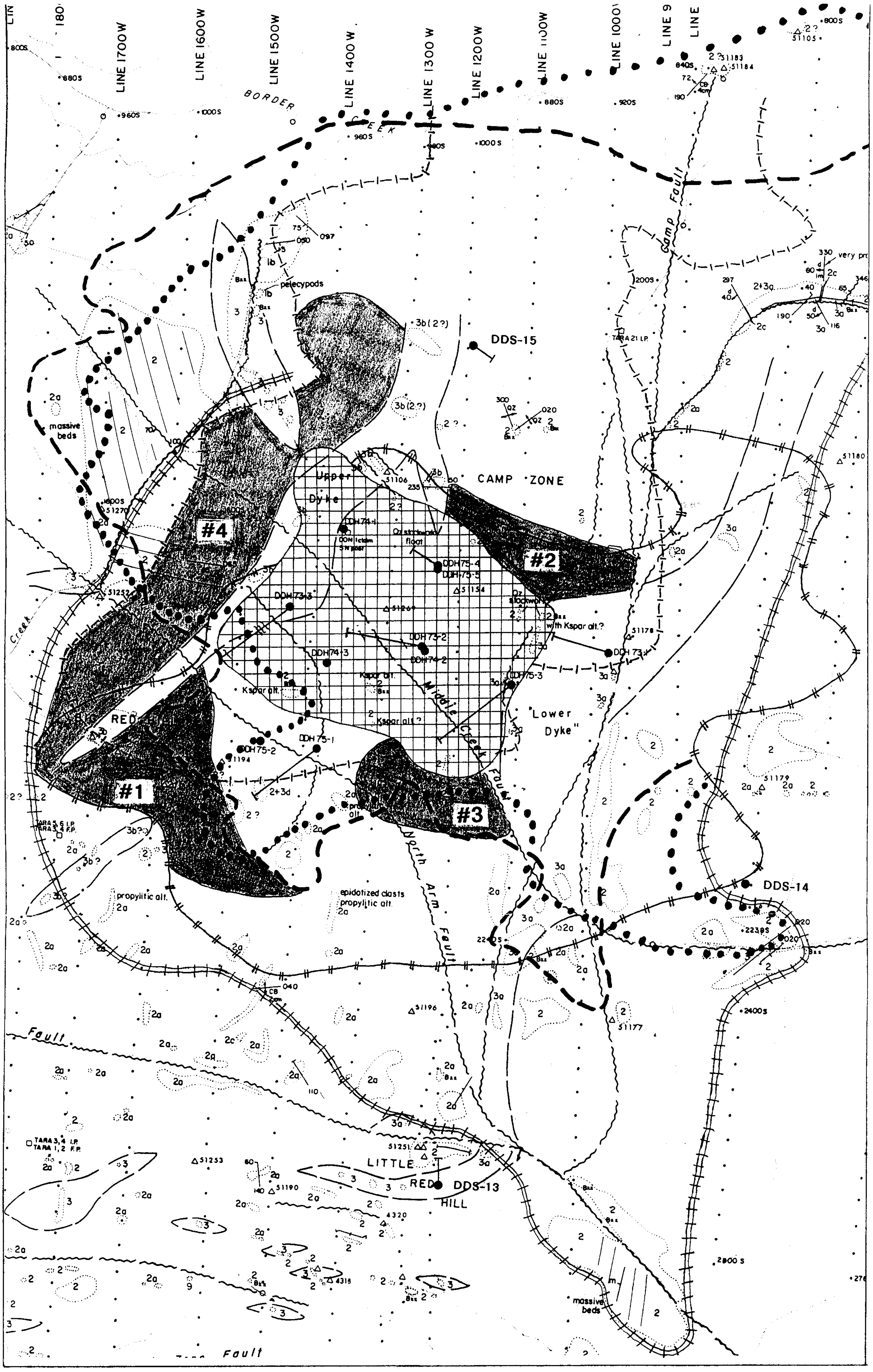
Figure 13 on page 30 forms the basis for the following discussion. This figure was taken from a section of figure 5 centered around the Camp Zone, and it has been photo-reduced to 75% of its original size. The purpose of this diagram was to further interpret the alteration within and surrounding the Camp Zone, and thereby select the best areas for future drilling.

The potassic alteration sone is outlined on Figure 13 by a square grid pattern. This zone was delineated by two methods. First, the zone was outlined by a strong magnetic high because it contains alot of magnetite. Secondly, the zone was delineated based on visual observations of secondary potassium feldspar in drill core, and surface outcrops.

Two induced polarization zones have been outlined on Figure 13. The first zone is represented by a line which shows the outer limits of high chargeability. This line is based on a cutoff of -14 millivolts/volt at the fourth separation level (120 meters maximum depth). The zone of high chargeability represents a high sulphide content (most likely disseminated in nature). The sulphides likely consist of pyrite, with lesser chalcopyrite and molybdenite. The second zone is depicted by a line which outlines the outer limits of high resistivity. This line is based on a cutoff of 1000 ohm-meters at the fourth separation level (120 meters maximum depth). This zone of high resistivity likely indicates a broad zone of silicification (due to the addition of quartz from either the phyllic alteration, or from the emplacement of quartz stockwork). The high chargeability readings associated with low resistivities immediately west of the potassic alteration zone (proposed drilling area #4), is probably due to increased sulphide mineralization (P. Walcott, 1989). This zone has been assigned the lowest priority of all four drilling areas, because the increase in sulphides is believed to be indicating a pyrite shell.

The outer limits of high gold and copper geochemistry, have been outlined by two lines on Figure 13. These lines are based on cutoffs of 80 ppb gold and 130 ppm copper. In theory, these outer limits should correspond to the outer boundary of the phyllic alteration zone. If down slope soil creep is accounted for, the anomalous gold and copper geochemistry boundaries correlate well with the outer phyllic zone boundaries. The phyllic zone is actually very patchy, so the outer boundary which has been drawn on Figure 13 based on geological mapping, should only be considered approximate.

Four areas of proposed drilling have been outlined on Figure 13. These areas have been listed in order of priority, with area #1 being the highest, and area #4 being the lowest. Basically, these areas are concentrated around selected parts of the inner phyllic zone, within andesitic rocks (map unit 2). According to porphyry copper deposit models, an ore shell or zone of higher grade mineralization should be located on the inner flanks of the phyllic zone. An attempt was also made to place the proposed drilling areas where chargeability, resistivity and gold and copper geochemistry are all high. Proposed area #1 extends outside of the anomalous gold and copper geochemistry boundary, to account for downslope soil creep. A gap has been left between areas #1 and #3, because this portion has already been tested by drill holes 75-1 and 75-2. Area #3 has been assigned a lower priority , as it is located outside of the chargeability high. As mentioned above, proposed area #4 has been given the lowest priority, because the high chargeability and low resistivity responses are thought to be indicative of a pyrite shell.



LEGEND

▦ Potassic alteration zone

Outer limit of high gold geochemistry

Outer limit of high copper geochemistry

#2 Proposed drilling areas

Outer limit of phyllic alteration as defined by geological mapping

Outer limit of high chargeability

Outer limit of high resistivity

Scale:

100 50 0 100 200 300 400 METERS

PLACER DOME EXPLORATION LTD.

BALL CREEK PROJECT

Drawn by: J. Baril
Date: Dec. 1990
Revised:
File #: V 243

PROPOSED DIAMOND DRILLING AREAS

Figure: 13

5.0 CONCLUSIONS AND RECOMMENDATIONS

"The various exploration techniques utilized in 1989 supported each other in describing a classical porphyry copper hydrothermal event. The geological mapping outlined a roughly concentric set of alteration assemblages, starting with a central potassic zone, then a patchy phyllic zone and finally an extensive propylitic zone. Soil geochemistry located a molybdenum anomaly over the central potassic zone, anomalous gold and copper covering the area within the potassic and phyllic zones and anomalous lead-zinc-silver in the outlying propylitic zone. Magnetics mapped the high magnetite content of the potassic zone and the accompanying magnetite depletion over the phyllic zone. Induced polarization mapped the high chargeability over the potassic and phyllic zones. The sericitic alteration of the phyllic zone was shown by the low resistivity." (J. Kowalchuk and R. Turna, 1990)

"The 1989 program also confirmed the conceptual idea that the Ball Creek deposit could be a gold bearing copper porphyry. The potential deposit has dimensions of 1500 by 1000 meters. Gold geochemistry in both soils and drill core from 1989 showed the anomalous precious metal content of this deposit." (J. Kowalchuk and R. Turna, 1990)

The 1990 drilling program was designed to test optimum targets in the phyllic and propylitic alteration halos. This drilling unfortunately failed to produce any significant results. The four drill holes were essentially drilled through weakly mineralized faults and/or dykes. The target area of this deposit, however, is extremely large. The four short holes drilled in 1990 were not sufficient to test the true potential of this deposit. A moderate sized drill program is recommended for 1991 in an effort to locate a large zone of economic mineralization. Most of this drilling should be concentrated along the boundary between the potassic and phyllic alteration zones as outlined in Figure 13, since this is commonly where the highest grade mineralization is found in porphyry copper-gold deposits.

The Cliff Zone was only partially mapped and sampled in 1989. The soil sampling returned some very promising Au, Ag, Cu, Pb, Zn and As signatures. Follow up mapping and sampling of this zone is recommended for 1991.

In 1989, soil line 800 W extended along the northeast end of the Trachyte Knob, and from there, continued southeast down into the Ball Creek Valley. The portion of this line between Trachyte Knob and Ball Creek returned anomalous values in Au, Ag, Cu, Pb, Zn and As. This area has not been previously mapped or rock sampled. Geological mapping, rock sampling and more soil sampling are recommended in this area for 1991.

The Goat Zone was not mapped or sampled in 1989. Geological mapping and rock and soil sampling are suggested for 1991. Since this area is fairly inaccessible due to steep cliffs, it should be considered a lower priority area.

SUBMITTED BY:

John Baril.

John F. Baril

ITEMIZED COST STATEMENT
BALL CREEK PROJECT

Personnel:

John Kowalchuk (District Geologist - overall supervision)
Glenn Shevchenko (Senior Geologist - overall supervision)
John Baril (Project Geologist - on site supervision)
Coral Knight (Camp Cook)
Cynthia McNabb (Core Splitter, Field Helper)
Jean-Pierre Jutras (Field Helper)
Dave Hayward (Field Helper)
Blake Rear (Field Helper and Computer Technician)

Contractors:

Asmith Diamond Drilling Ltd.
M. J. Moreau Enterprises Ltd. (drill pad preparation)
Jaycox Industries Ltd. (expediter)
Canadian Helicopters (Pilot: Brian McCarthy)

Breakdown of Expenditures:	Cost $
Site preparation	6,702.35
Equipment maintenance	118.22
Camp operations	23,649.54
Equipment purchases	9.640.06
Telephone and teletype	646.88
Vehicle expense	8,103.73
Freight	1,361.31
Travel - general	4,773.60
Helicopter	43,859.60
Fixed Wing transport	1,717.43
Geological field activities	8,938.60
Geochemical field activities	4,279.53
Geological studies	18,950.25
Geophysical studies	6,584.00
Geochemical studies	574.00
Assaying	799.50
Expediting	2,078.86
Drill pad preparation	10,246.39
Diamond drilling	49,466.32
Report preparation	13,208.81
TOTAL	$ 215,698.98

STATEMENT OF COSTS

PERSONNEL

John Baril - Project Geologist 60 days @ #300 p/d	18,000
Coral Knight - Cook 30 days @ $250 p/d	7,500
Cynthia McNab - Field Assistant 30 days @ $200 p/d	6,000
J.P. Jutras - Field Technician 4 days @ $200 p/d	800
Dave Hayward - Field Technician 4 days @ $200 p/d	800
Blake Rear - Computer Technician 8 days @ $250 p/d	2,000
John Kowalchuk - Supervisor 5 days @ 400 p/d	2,000
Glenn Shevchenko - Supervisor 4 days @ $350 p/d	1,400
TOTAL LABOUR COSTS	$38,500

CONTRACT AND INVOICE COSTS

Diamond Drilling - 330 metres	$ 50,198
Drill Site Preparation	10,246
Helicopter - 65 hours	43,860
Fixed Wing - 1 trip	789
Freight	1,361
Travel	3,000
Vehicle Expense	8,103
Camp Operation	15,000
Equipment Purchases	9,640
Communications	646
Expediting	2,078
Assaying - 114 core samples and 33 sludge samples	2,500
Report Preparation	5,000
TOTAL CONTRACT COSTS	152,421
TOTAL COST CONTRACT AND LABOUR	$ 190,921

LIST OF REFERENCES

Cochrane D.R. 1972: Geophysical Report on the Induced Polarization Survey of the Tara Claims, on behalf of Great Plains Development Co. Ltd.

Durfeld R., McInnis M.D. 1975: Great Plains Development Company of Canada Ltd. British Columbia Project Year End Report Ball Creek Property

Kowalchuck J.M., Turna R. March 30, 1990: Placer Dome Inc. Geological, Geochemical and Geophysical Report on the Ball Creek Project, British Columbia, Liard Mining Division NTS: 104G/8W

McInnis M.D., Visagie R. 1973: Great Plains Development Company of Canada Ltd. Geology and Geophysical Report on Ball Group 1 and Ball Group 2, British Columbia, Liard Mining Division 104G/8

McInnis M.D. 1972: Great Plains Development Company of Canada Ltd. Geochemical Report on the Tara Group, Ball Creek - Iskut River Area Liard Mining Division NTS: 104G/8

Panteleyev, A., Mary, Me, Rog, Tara, Ment (Ball Creek), (104G/8W). from MMAR GEM 1975 (Geology), pp G81-G85 and Figure G-36

Souther, J.G., Cordilleran Volcanic Study, 1969; Telegraph Creek, British Columbia (104G). from GSC Paper 1970-1A, pp 50-54

Souther, J.G., Telegraph Creek Map Area, British Columbia, GSC Paper 71-44. Map 11-1971, 1:250,000

Visagie R. 1973: Great Plains Development Company of Canada Ltd. Year End Report Ball Creek Property, British Columbia, NTS: 104G/8

Visagie H.M. 1974: Great Plains Development Company of Canada Ltd. Ball Creek Year End Report, British Columbia, NTS: 104G/8

Walcott P.E. 1989: A Geophysical Report on an Induced Polarization Survey for Placer Dome Inc. - Iskut Area, British Columbia, NTS: 104G/8

Woodcock J.R. 1980: Ball Creek Prospect for GRC Exploration Company.

Woodcock J.R. 1981: Ball Creek Project for GRC Exploration Company

Statement of Qualifications:

I, John Baril, state that:

1. I graduated from the University of British Columbia, Vancouver, B.C. in 1988 with a Batchelor of Science degree in Geology.
2. Since 1987, I have been engaged in mineral exploration in British Columbia and the Yukon Territory.
3. I was personally engaged in fieldwork on the Ball Creek Project and am responsible for the interpretation of data, and the writing of this report.
4. My business address is:

   Placer Dome Exploration Limited
   103 Platinum Road,
   Whitehorse, Yukon
   Y1A 5M3

5. My home address is:

   #4 - 100 Lewes Boulevard
   Whitehorse, Yukon
   Y1A 3V5

John Baril.

John F. Baril

APPENDIX # 1

DRILL CORE LOGS

PLACER DOME INC. GEOLOG DRILLHOLE HEADER FORM

DRILLHOLE HEADER CARDS FILL OUT ONCE PER HOLE

KEY FLAG	FORMAT VERSION	SPEC	UNIQUE ID OF PROJECT OR SUB-PROJECT	DRILL HOLE/TRAVERSE PRE-FIX TYPE NUMBER	SIZE OF CORE OR HOLE	GEOLOGGED MONTH YR	BY	ASST'D BY	DRILLER(S)	DRILLED MONTH YR	RIG TYPE	DRILLING TIME HRS	SURVEYED BY	CO-ORD SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN	6B02	01	BALL	DDS-12	NQWL	AUG90	JFB	CLM	D H	AU690	300		JFB		0.00	0[illegible]	15

	COMPANY NAME	PROPERTY or PROJECT or SUB-PROJECT NAME
IPRJ	PLACER DOME EXPLORATION LTD.	BALL CREEK PROJECT

	TURN'G PT. 000=Collar	FROM	TO	MT or FT	TOTAL DEPTH/LENGTH	AZM CLOCKWS FR. TRUE N.	V-ANG. NEG. IF DOWN	NORTHING NEG. IF SOUTH	EASTING NEG. IF WEST	ELEVATION NEG. IF SUB-SEA
S	000	000	9723	MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.00

MT or FT ← Drillhole coordinate system units.

See Note 4 → TO DEFINE HOW AND AMOUNT FIELDS OF ALTERATION AND MINERAL SUITES — Fill out OPEN FIELD if desired

	RECOVERY	T-MOD	% MIX	ROCK	TM 1	TM 2	QM 1	TX 1	TX 2	F #	GRAIN Cc %C MXP	R i	B1	STRUC ID	STRIKE AZM	DIP TO RT OR PLUNGE	ALTERATION AND MINERAL SUITES	OPEN FIELD
/NAM																	KF SE CL EP __ PI CI P* MI QZ	XXYY

	RQD	AGE FORM'N	ENVIR	LC TM COLOUR	QM 2	TX 3	TX 4	F R	R N	S N	O C	FRACTURES S I M T tot	R1	B2	STRU 2 ID	AZM	DIP TO RT	FILL IN COLUMN HEADINGS USED	OPEN FIELD
LNAM																	CB LI SI CY __ PY CP P0 M0 CA	XXYY

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

	UNIT OF LENGTH	UNIT OF RECOVERY
/SCL	MT.2	PC.0

	UNIT OF RQD	LCTM or LB Hu
LSCL	PC.0	LCTM

EXTRA DOWNHOLE SURVEY CARDS CROSS OUT IF NOT REQ'D.

FILL OUT IF REQUIRED CROSS OUT IF NOT REQUIRED

	TURN'G PT 000=Collar	FROM	TO	TOTAL DEPTH/LENGTH	AZM CLOCKWISE FR. TRUE N.	V-ANG. NEG. IF DOWN
S	001	9723	9723	97.23	325.00	-42.40
S	002			.	.	.
S	003			.	.	.
S	004			.	.	.
S	005			.	.	.
S	006			.	.	.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

EXAMPLE OF ASSAY FILE DEFINITION CROSS OUT IF NOT REQ'D.

A00 1 ← Assay File No. (Typically 1.)

AUMM ← ASSAY FIELD NAMES SEE NOTE 2 → CU AU

ALAB

ATYP

AMTH

ASSAY FILE DESCRIPTION CARDS ARE OPTIONAL CROSS OUT IF NOT REQUIRED OR REPLACED BY REMARKS

SAMPLE ASSAY RECORDS

	FROM	TO	17-20 RECOVERY	21-26 SS=Spade Serial No:	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8	A 9
A002					CU	AU							
A00													
A00													
A00													

Assay File Definition Number, Typically A001.

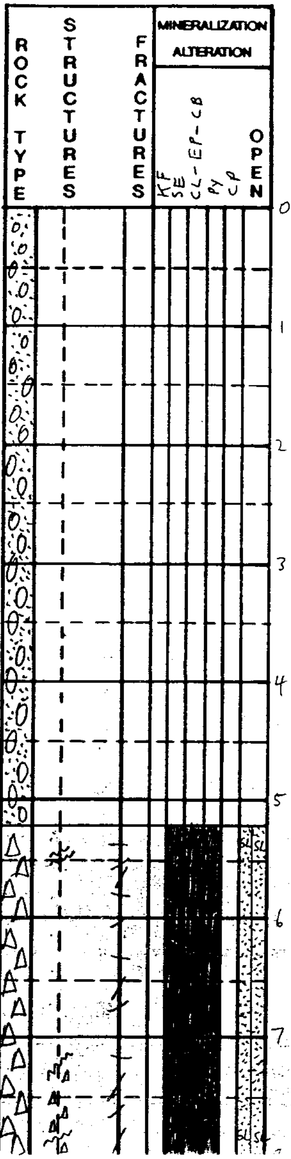
Notes:

1. - Do not change /NAM, LNAM, /SCL, LSCL, or AUMM card definitions durin a project. Blanks may be changed hower.
2. - On AUMM card, right adjust names so that R H 4 letters make sense. They will be "stats" header names.
3. - Units of distance on S000 card are for survey coordinates, those on /SCL card are for downhole distances.
4. - To define XX type field put XX in upper tier, lower tier then becomes corresponding How and amount field.
5. - If additional "S" or "A" cards are required use another header form and cross out unwanted portions or enter "S" or "A" cards on keypunched portion on Form 2.

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN 6B0201	BALL	DDS-12	WQWL	AV690	JFB		AUG	90	300		JFB			2	15

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	97·23	325·00	-46·00	-3020·00	-1830·00	1380·00

GRAPHIC LOG



	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57–76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	XXYY
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PO MO CA	XXYY

DESCRIPTIVE REMARKS

1	2 3 4	5–10	11–16	RECOV (18–20)	SAMPLE No. (21–26)
A	00				

P 0.00 5.29 Overburden is missing. 0 X0VBD

L

P 5.29 42.94 98BXXANDS1011 Q3Q3 B1 B· GLSL

L 53R2 1234P2<(<* <+<·<·

R 5.29 42.94 Colour is mottled light to dark green. 1-5% feldspar phenocrysts are visible (2-

R 5 mm). Ground mass is fine grained to aphanitic. Breccia fragments are sub-rounded to

R sub-angular.

N 5.29 5.55 835HXANDS0000 Q3Q3 B1

L 0R2 2056P2<+ <*

R 5.29 42.94 Fracture sets are at ≃ 90°, 50° and 30° to C/A. Calcite gashes are present

R (≃ 2%.) as well as the calcite microveins. Calcite veins were observed at 80°, 55°, 50°,

R 45°, 40°, 30°, 5° & 0° to C/A and are ½ to 15 mm wide. They are either barren or

R contain sulphides. Carbonate altⁿ occurs on fractures (CA), on feldspar & mafic phenocrysts (CA)

and pervasively in the matrix

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF				
680201	BALL	DDS-12	NQWL	AU690	JFB		AUG	90	300		JFB			3	15				

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
	MT	97.23	325.00	-46.00	-3020.00	-1830.00	380.00

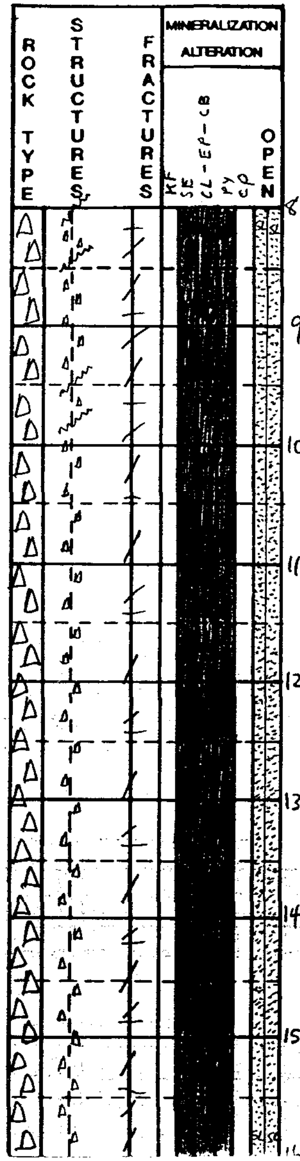
PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57–76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	X X Y Y

GRAPHIC LOG



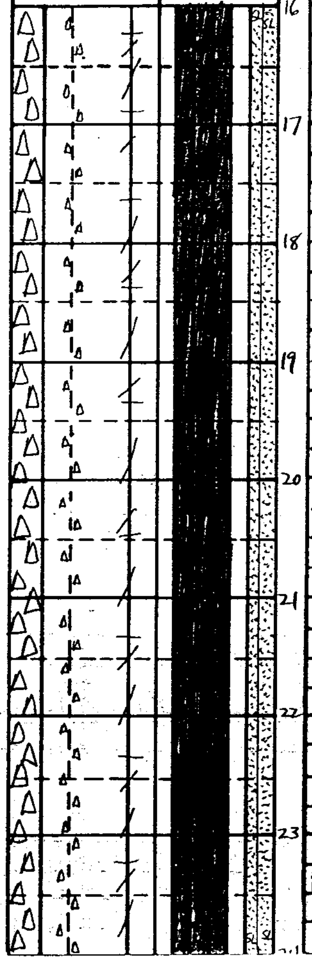
1	FROM	TO	DESCRIPTIVE REMARKS	RECOV	SAMPLE No.
A00					
R	7.28		7.28m : 7mm wide intense shear @ 35° to c/A.		
R	8.00		8.00m : 1 cm wide intense shear @ 10° to c/A.		
R	8.49		8.49m : 1½ cm wide intense shear @ 40° to c/A.		
D	5.29	8.29		83	X
L				33	R2
D	8.29	11.29		89	X
L				46	R2
R	10.46		10.46 m : 2 mm wide blebs of SL occur in a calcite vein.		
D	11.29	14.29		98	X
L				51	R2
R	11.57		11.57m : One 2mm spec of GL present in a calcite vein.		
R	11.74		11.74m : 2 disseminated blebs of MØ present.		
D	14.29	17.29		95	X
L				49	R2

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN 6B0201	BALL	DDS-12	NQWL	AU690	JFB		AU6	90	300		JFB			4	15

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.00

GRAPHIC LOG

ROCK TYPE	STRUCTURES	FRACTURES	MINERALIZATION ALTERATION: KF SE CL-EP-CB PY CP	OPEN



PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

.	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/							0.00								
	ZONE FLAG														
L															

RECOV			T-MOD		% MIX	ROCK				VEINS S M L tot				DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S M L tot																											
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	Y

1-16	FROM	TO	DESCRIPTIVE REMARKS	RECOV	SAMPLE No.
A00					
D	17.29	20.29		100	X
L				50	R2
D	20.29	23.29		100	X
L				71	R2
R	23.50		23.50 m : 1-2 mm wide specs of GL along the selvage of a calcite vein.		

IDEN 6B0201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DOS-12 | SIZE OF CORE: NQWL | LOGGED: AU690 | BY: JFB | DRILLER (S): | MONTH: AU6 | YEAR: 90 | TYPE: 300 | TIME-HRS: | SURVEYED: JFB | SYSTEM: | GRID AZIMUTH: | PAGE 5 OF 15

S | DRILL COORD SYSTEM UNITS → | M/F: MT | TOTAL DEPTH/LENGTH: 97.23 | AZM: 325.00 | V ANG: -46.00 | NORTHING: -3020.00 | EASTING: -1830.00 | ELEVATION: 1380.00

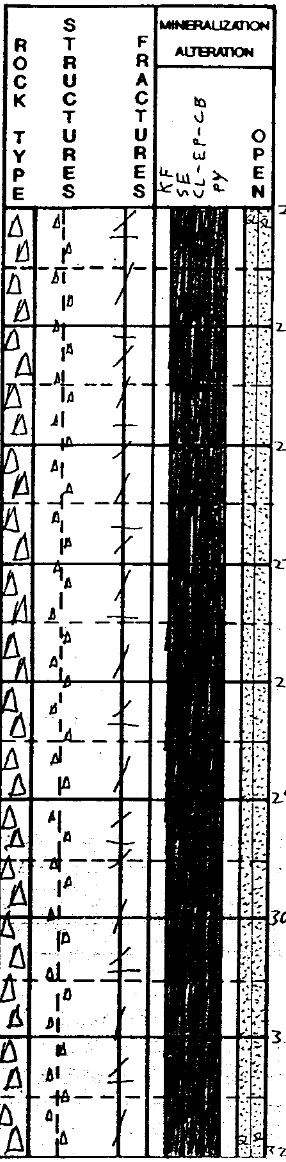
PLACER DOME INC.

DRILL LOG FORM 4

MBG – JULY 90

1	HORIZON FLAG 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/		0.00	
ZONE FLAG			
L			

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79 80
					KF SE CL EP PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PO MO CA	X X Y Y



1	2	3	4–6	7–10	11–12	13–16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21 22	23
A	0	0								
R				2411			24.11 m : 1mm specs of GL in a calcite gash.			
R				2461		2480	24.61 – 24.80 m : Zone of intense brecciation and calcite injection.			
R				2461		2468	24.61 – 24.68 m : 2-4 mm blebs of SL (3% overall) occur in calcite veins.			
D				2329		2629		100		X
L								76	R2	
D				2629		2929		100		X
L								73	R2	
R				2728			27.28 m : 2-3 mm blebs of SL in a calcite gash.			
R				2921		2942	29.21 – 29.42 m : 1-2 mm specs of MO present.			
D				2929		3229		99		X
L								67	R2	
R				3029		3038	30.29 – 30.38 m : Several SL blebs present.			
R				3206		3334	32.06 – 33.34 : Core is weakly sheared & [illegible] blocked.			

PAGE 6 OF 15

IDEN 6B0201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DDS-12 | SIZE OF CORE: MQWL | LOGGED: AU690 | BY: JFB | DRILLER (S): | MONTH: AU6 | YEAR: 90 | TYPE: 300 | TIME-HRS: | SURVEYED: JFB | SYSTEM: | GRID AZIMUTH:

S | DRILL COORD SYSTEM UNITS → M/F: MT | TOTAL DEPTH/LENGTH: 97.23 | AZM: 325.00 | V ANG: -46.00 | NORTHING: -3020.00 | EASTING: -1830.00 | ELEVATION: 1380.00

PLACER DOME INC.
DRILL LOG FORM 4

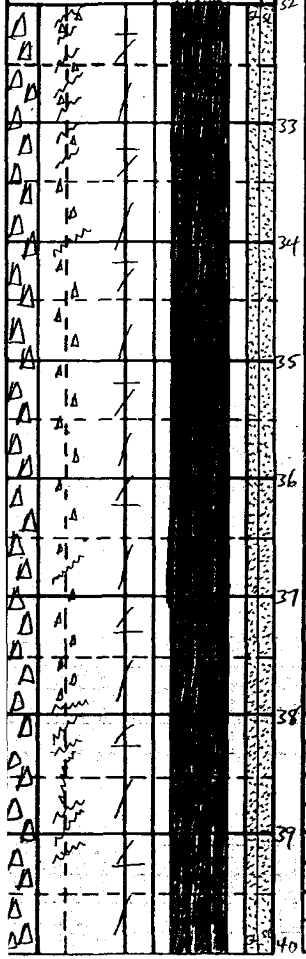
MBG – JULY 90

1	HORIZON FLAG 2	3	4	FROM 5–10	TO 11–16
/				0.00	
	ZONE FLAG				
L					

RECOV 18–20	T-MOD 21–22	% MIX 23	ROCK 24–27	VEINS S M L tot 43–46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77–80
					KF SE CLEP PI CI P* MI QZ	XXYY
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	XXYY

GRAPHIC LOG

ROCK TYPES | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION: KF SE CL-EP-CB PY CP | OPEN



DESCRIPTIVE REMARKS

1–4	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18–20	SAMPLE No. 21–26	
A00						
D	3229	3529		98	X	
L				59	R2	
R	3405		34.05 m : weak shear @ 45° to c/A.			
R			34.88, 35.17, 35.68, 36.85 & 36.65 m : Blebs of SL occur here.			
D	3529	3829		100	X	
L				39	R2	
R	3686		36.86 m : weak shear @ 50° to c/A.			
N	3795	3929		100	5HXAND	S2224 Q3Q3 B1
L				0	R2	32335P2 <* <+
R	3795	3929	37.95 - 39.29 m : Shearing is moderate & localized. Shear orientations were measured at 5°, 40°, 50° & 60° to c/A.			
D	3829	4129		91	X	
L				29	R2	

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-12	NQWL	AUG90	JFB		AUG	90	300		JFB			7	15

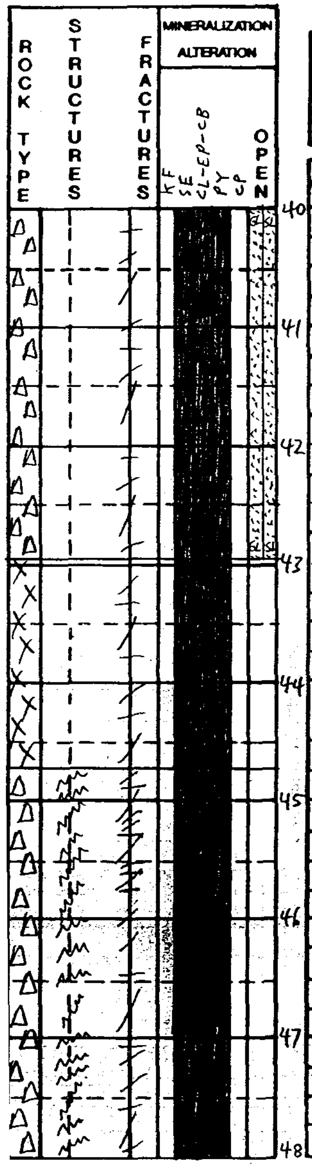
	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.00

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57–76	77 78 79 80
					K F S E C L E P _ _ P I C I P * M I Q Z	X X Y Y
RQD	C S			FRACTURES S M L tot		
					C B L I S I C Y _ _ P Y C P P Ø M Ø C A	X X Y Y

GRAPHIC LOG



A00

DESCRIPTIVE REMARKS

HORIZON FLAG	FROM	TO	DESCRIPTIVE REMARKS	RECOV	SAMPLE No.	
D	4129	4294		93	X	
L				46	R2	
R	4228		42.28 m: Small blebs of MØ & SL present.			
R	4241		42.41 m: 1 mm blebs of SL present.			
P	4294	4476	Colour is light greenish - grey.	83	PP X MONZ	1113 Q10) D1
L			Feldspar phenocrysts occur along w̄ a	17	R2	1234 P1 <* <+
R			fine grained groundmass. About 5 % spots of a soft, bright green altn mika (SE ?) are present.			
D	4294	4476		83	X	
L				17	R2	
P	4476	5694		81	SH X ANDS	1001 Q3Q) D= B·
L			shear orientations of 20°,	27	R1	1212 P2 <(<)
R	4476	5694	30°, 40°, 45°, 50°, 55° & 60° to c/A were measured. About 4% CA gashes are present in			
R			addition to the microveins. Colour is generally light greenish-grey.			
R	4476	5213	44.76 - 52.13 m: Shearing is moderate & patchy; 52.13 - 56.94 m: Shearing is intense.			
R			The texture is still porphyritic. Carbonate alt' occurs on fractures (CA), on feldspar & ma			
R			phenocrysts (CA) and pervasively in the matrix (ankerite ?). Fracture sets vary			
R			from shallow to 90°.			
D	4476	4872		85	X	
L				29	R1	

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-12	NQWL	AU690	JFB		AU6	90	300		JF8			8	15

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.00

1	HORIZON FLAG 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/			
	ZONE FLAG		
L			

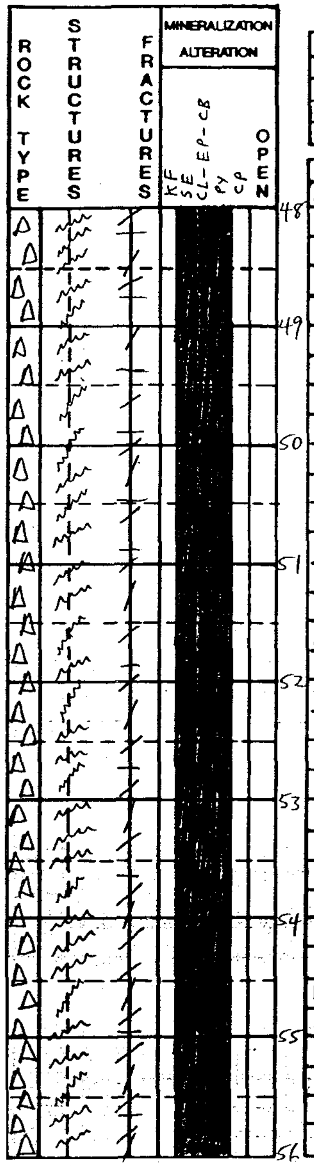
PLACER DOME INC.

DRILL LOG FORM 4

MBG - JULY 90

RECOV. 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79 80
					KF SE CL EP PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot	CB LI SI CY PY CP PØ MØ CA	X X Y Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	RECOV 18	19	20	SAMPLE No. 21	22	23	24	25	26
A	0	0																							
D						4	8	7	2		5	1	7	2				9	7			X			
L																		5	8	R	1				
D						5	1	7	2		5	4	7	2				6	5			X			
L																			0	R	1				
D						5	4	7	2		5	6	9	4				7	4			X			
L																		1	5	R	1				

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

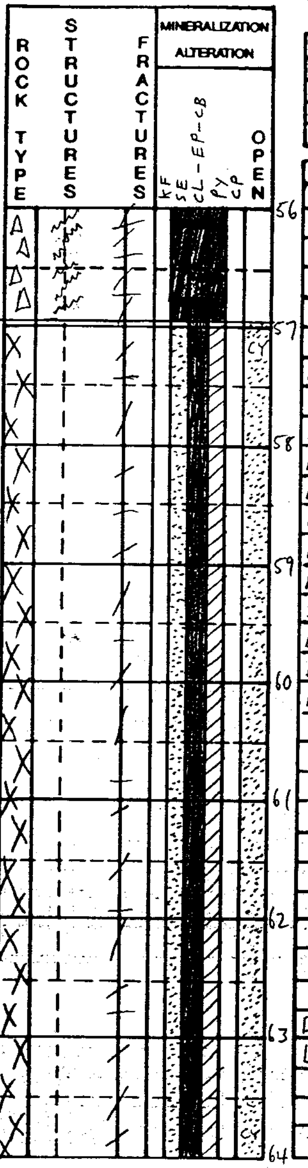
IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-12	NQWL	AU690	JFB		AUG	90	300		JFB			9	15

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.00

RECOV	T-MOD	%MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS										OPEN FIELDS	
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77 78	79 80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	XX	YY
RQD	CS			FRACTURES S M L tot												
					CR	LI	SI	CY		PY	CP	PØ	MØ	CA	XX	YY

1	HORIZON FLAG 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/			
	ZONE FLAG		
L			

GRAPHIC LOG



1 2 3	FROM	TO	DESCRIPTIVE REMARKS	RECOV / SAMPLE No. (18–26) and fields
A00				
P	5694	7049	Feldspars are starting to turn	98 PP9 MONZ 1112 0)0= D+
L			to a medium brown clay.	71 R2 1123 P2 0) <· <+
R			Colour is mottled greenish-grey to pink (pink is due to k-spar phenocrysts).	
R			Fracture sets were measured at 0°, 20°, 25°, 30°, 35°, 40°, 60°, 65°, 70°, 85° & 90° to c/A.	
R			Calcite veins have the same orientation as described in principle interval 5.22-	
R			42.94 m. Carbonate alt^{h} occurs as described in principle interval 5.29-42.94m. 3-4% CA gashes are present.	
N	6959	7036		100 BXX MONZ 1313 Q10= D+
L				94 R2 2023 P2 <2 <+
R	6959	7036	69.59-70.36 m: Breccia fragments are quite angular. The matrix between these fragments	
R			is dark grey & may be a result of ground up PY; 69.63m: Moderate shear @ 20° to c/	
D	5694	5994		100 X
L				70 R2
D	5994	6294		100 X
L				87 R2
D	6294	6594		100 X
L				85 R2

IDEN 6B0201	UNIQUE ID OF PROJECT: BALL	DRILL HOLE/TRAVERSE: DOS-12	SIZE OF CORE: NQWL	LOGGED: AUG90	BY: JFB	DRILLER (S):	MONTH: AUG	YEAR: 90	TYPE: 300	TIME-HRS:	SURVEYED: JFB	SYSTEM:	GRID AZIMUTH:		PAGE: 10	OF: 15
S	DRILL COORD SYSTEM UNITS →	M/F: MT	TOTAL DEPTH/LENGTH: 97.23	AZM: 325.00	V ANG: -46.00				NORTHING: -3020.00		EASTING: -1830.00		ELEVATION: 1380.00			

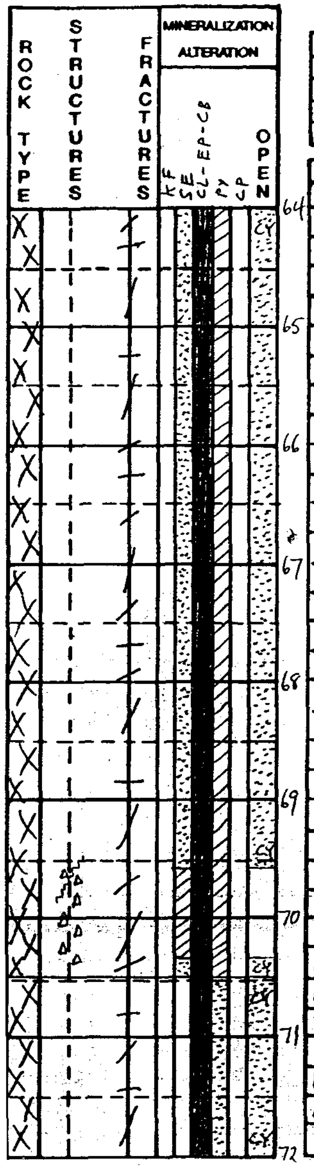
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV	T-MOD	%MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 80
					KF SE CL EP _ _ PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY _ _ PY CP PØ MØ CA	X X Y Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.	
A00						
D	6594	6894		100	X	
L				83	R2	
D	6894	7049		100	X	
L				39	R2	
P	7049	7412	Remarks are the same as that	100	PPXM0NZ	2112 0= DC
L			for principle interval: 56.94 - 70.49 m.	96	R2	0122 P2 0) <. <+
D	7049	7231		100	X	
L				92	R2	

UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201BALL	PDS-12	NQWL	AUG90	JFB		AUG	90	300		JFB			11	15

DRILL COORD SYSTEM UNITS	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.0

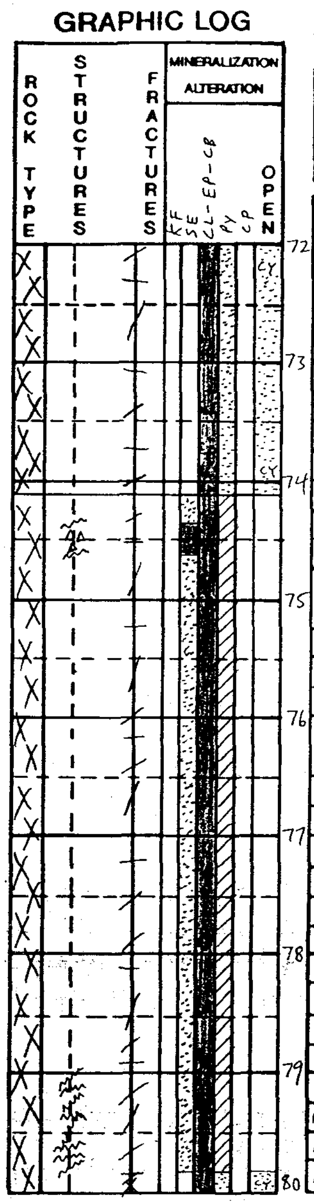
HORIZON FLAG				FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

RECOV.			T-MOD		% MIX	ROCK				VEINS S M L tot				DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S M L tot																											
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	Y

DESCRIPTIVE REMARKS



1 2 3 4	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18–20	SAMPLE No. 21–22	23	24–27	43–46	57–58	59–62	63–64	67–68	75–76
A00													
D	7231	7412		100		X							
L				100	R2								
D	7412	7712		99		X							
L				80	R2								
P	7412	8538	Remarks are the same as that for	97	PP	6	MONZ	2112		Q10=		D+	
L			principle interval: 56.94 – 70.49 m.	51	R2			2123	P2			<·	<+
N	7437	7466		100	BX	X	MONZ	2023		Q30=		D+	
L				97	R2			0234	P2			<3	<+
R	7437	7466	74.37–74.66 m: Breccia fragments are angular or wispy. The matrix between the fragments										
R			is a fine grained, dark grey material which could be ground up py.										
N	7900	7981		90	SH	X	MONZ	1102		Q10=		D+	
L				0	R1			3124	P2			<4	<)
R	7900	7981	79.00–79.81 m: Shearing is very intense (much gouge) & shear bands contain fine grained,										
R			dark grey material (ground up py?). Shear orientations of 5°, 18° & 60° to C/A										
R			were measured.										
D	7712	8012		95		X							
L				48	R2								
N	7981	8340	79.81–83.40 m: Core is highly fractured	94	FR	X	MONZ	1112		0=		D*	
L			in many orientations between 0°–90°	11	R2			3235	P2		0)	<·	<+
R			to C/A.										

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-12	NQWL	AUG90	JFB		AUG	90	300		JFB			12	15

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	97.23	325.00	-46.00	-3020.00	-1830.00	1380.00

1	HORIZON FLAG 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/			
	ZONE FLAG		
L			

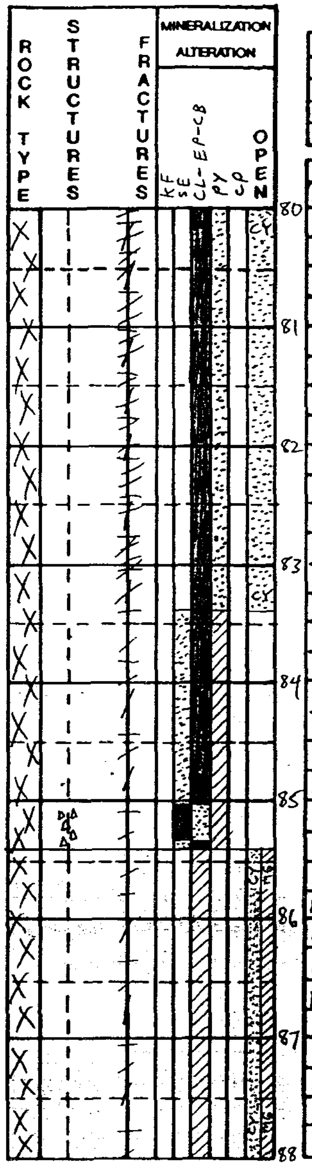
PLACER DOME INC.

DRILL LOG FORM 4

MBG - JULY 90

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	OPEN FIELDS 77 78	79 80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	XX	YY
RQD	CS			FRACTURES S M L tot												
					CB	LI	SI	CY		PY	CP	PØ	MØ	CA	XX	YY

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3 4	FROM 5-10	TO 11-16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21	22	23	24-27	43-46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77 78
A00																				
D	8012	8312		95			X													
L				15	R	2														
D	8312	8538		100			X													
L				40	R	2														
M	8502	8534		100	B	X	X	MONZ			Q4				D+					
L				69	R	2				P1					<.				<+	
P	8538	9723	Colour is greyish-pink. 10% pink	99	P	P	X	MONZ	1001			0=			D.					MG
L			K-spar phenocrysts (1-8 mm) exist w̄	63	R	3			1223	P=			0)						<(	D+
R			a fine grained groundmass. 10% chloritized mafics (1 mm) are present. About 0.1% CA gashe																	
R			exist as well as the microveins. Fracture sets vary from 0° to 80° to C/A. Carbonate altn																	
R			occurs on fractures (CA), on mafic phenocrysts (CA) and pervasively in the																	
R			matrix (ankerite ?). Feldspars are not altd to CA. Core is magnetic.																	
D	8538	8838		100			X													
L				78	R	3														

	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH			PAGE	OF
IDEN6B0201	BALL	DDS-12	NQWL	AU690	JFB		AU6	90	300		JFB					13	15
DRILL COORD SYSTEM UNITS →		M/F	TOTAL DEPTH/LENGTH	AZM	V ANG				NORTHING			EASTING		ELEVATION			
S		MT	97.23	325.00	-46.00				-3020.00			-1830.00		1380.00			

PLACER DOME INC.
DRILL LOG FORM 4

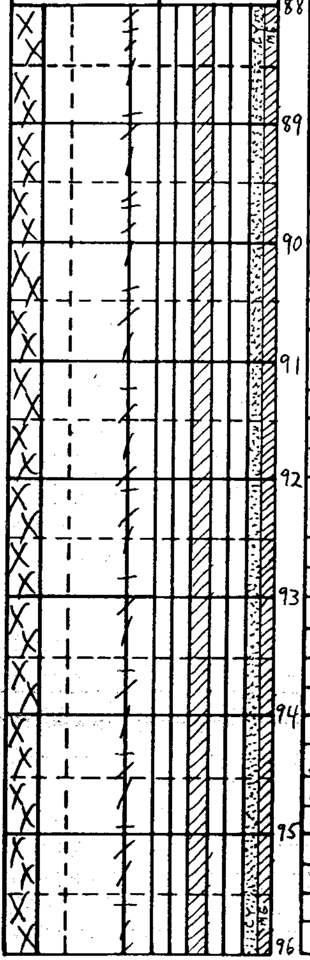
MBG – JULY 90

	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

RECOV	T-MOD	%MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS										OPEN FIELDS			
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77	78	79	80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	X	X	Y	Y
RQD	CS			FRACTURES S M L tot														
					CB	LI	SI	CY		PY	CP	PØ	MØ	CA	X	X	Y	Y

GRAPHIC LOG

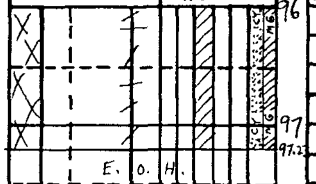
ROCK TYPE	STRUCTURES	FRACTURES	MINERALIZATION ALTERATION					
			KF	SE	CL-EP-CB	PY	CP	OPEN



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	18	19	20	21	22	23	24	25	26
A	0	0															RECOV			SAMPLE No.					
D						8	8	3	8			9	1	3	8		1	0	0			X			
L																		6	9	R	3				
D						9	1	3	8			9	4	3	8		1	0	0			X			
L																		5	1	R	3				
D						9	4	3	8			9	7	2	3			9	7			X			
L																		4	8	R	3				

GRAPHIC LOG

ROCK TYPE | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION: KF, SE, CL - EP - CB, PY, CP | OPEN



IDEN 6B0201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DDS-12 | SIZE OF CORE: NQWL | LOGGED: AUG90 | BY: JFB | DRILLER (S): | MONTH: AV | YEAR: 690 | TYPE: 700 | TIME-HRS: | SURVEYED: JFB | SYSTEM: | GRID AZIMUTH: | PAGE 14 OF 1

S | DRILL COORD SYSTEM UNITS → | M/F: MT | TOTAL DEPTH/LENGTH: 97.23 | AZM: 325.00 | V ANG: -46.00 | NORTHING: -3020.00 | EASTING: -1830.00 | ELEVATION: 1380.0

	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV			T-MOD		%MIX	ROCK				VEINS S M L tot				DEFINED MINERAL FIELDS																				OPEN FIELDS		
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y
RQD			CS							FRACTURES S M L tot																										
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y

DESCRIPTIVE REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.
A	0	0															
A	0	0	1				5	2	9				8	2	9		B1051
A	0	0	1				8	2	9			1	1	2	9		B1052
A	0	0	1			1	1	2	9			1	4	2	9		B1053
A	0	0	1			1	4	2	9			1	7	2	9		B1054
A	0	0	1			1	7	2	9			2	0	2	9		B1055
A	0	0	1			2	0	2	9			2	3	2	9		B1056
A	0	0	1			2	3	2	9			2	6	2	9		B1057
A	0	0	1			2	6	2	9			2	9	2	9		B1058
A	0	0	1			2	9	2	9			3	2	2	9		B1059
A	0	0	1			3	2	2	9			3	5	2	9		B1060
A	0	0	1			3	5	2	9			3	8	2	9		B1061
A	0	0	1			3	8	2	9			4	1	2	9		B1062
A	0	0	1			4	1	2	9			4	2	9	4		B1063
A	0	0	1			4	2	9	4			4	5	7	2		B1064
A	0	0	1			4	5	7	2			4	8	7	2		B1065
A	0	0	1			4	8	7	2			5	1	7	2		B1066
A	0	0	1			5	1	7	2			5	4	7	2		B1067
A	0	0	1			5	4	7	2			5	6	9	4		B1068
A	0	0	1			5	6	9	4			5	9	9	4		B1069
A	0	0	1			5	9	9	4			6	2	9	4		B1070
A	0	0	1			6	2	9	4			6	5	9	4		B1071
A	0	0	1			6	5	9	4			6	8	9	4		B1072
A	0	0	1			6	8	9	4			7	0	4	9		B1073
A	0	0	1			7	0	4	9			7	2	3	1		B1074
A	0	0	1			7	2	3	1			7	4	1	2		B1075

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-12	MQWL	AUG90	JFB		AUG	90	300		JFB			15	1

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	97·23	325·00	-46·00	-3020·00	-1830·00	1380·0

	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

RECOV			T-MOD		%MIX	ROCK				VEINS S	M	L	tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 8
															X X Y Y
RQD			CS							FRACTURES S	M	L	tot		
															X X Y Y

GRAPHIC LOG

ROCK TYPE	STRUCTURES	FRACTURES	MINERALIZATION ALTERATION	OPEN

DESCRIPTIVE REMARKS

1 2 3 4	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26
A00					
A001	7412	7712			B1076
A001	7712	8012			B1077
A001	8012	8312			B1078
A001	8312	8538			B1079
A001	8538	8838			B1080
A001	8838	9138			B1081
A001	9138	9438			B1082
A001	9438	9723			B1083
A002	1890	2194			B801
A002	2194	2469			B802
A002	2469	2758			B803
A002	2758	3063			B804
A002	3109	3414			B805
A002	3414	3688			B806
A002	3688	3962			B807
A002	3962	4176			B808
A002	4176	4328			B809
A002	4328	4572			B810
A002	4572	4877			B811
A002	4877	5181			B812
A002	5181	5486			B813
A002	5486	5791			B814
/END					

PLACER DOME INC. GEOLOG DRILLHOLE HEADER FORM

DRILLHOLE HEADER CARDS FILL OUT ONCE PER HOLE

KEY FLAG	FORMAT VERSION	SPEC	UNIQUE ID OF PROJECT OR SUB-PROJECT	DRILL HOLE / TRAVERSE PRE-FIX TYPE NUMBER	SIZE OF CORE OR HOLE	GEOLOGGED MONTH	YR.	BY	ASS'T'D BY	DRILLED DRILLER(S)	MONTH	YR.	RIG TYPE	DRILLING TIME HRS.	SURVEYED BY	CO-ORD. SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN	6B02	01	BALL	DDS-13	NQWL	AU6	90	JFB	CLM	DH	AU6	90	300		JFB		0·00	03	

	COMPANY NAME	PROPERTY or PROJECT or SUB-PROJECT NAME
IPRJ	PLACER DOME EXPLORATION LTD.	BALL CREEK PROJECT

	TURN'G PT. 000=Collar	FROM	TO	MT or FT	TOTAL DEPTH/LENGTH	AZM CLOCKWS FR. TRUE N.	V-ANG. NEG. IF DOWN	NORTHING NEG. IF SOUTH	EASTING NEG. IF WEST	ELEVATION NEG. IF SUB-SEA
5	000	000	6568	MT	65·68	325·00	-46·00	-2640·00	-1190·00	1345·00

MT or FT ← Drillhole coordinate system units

See Note 4 → TO DEFINE HOW AND AMOUNT FIELDS OF ALTERATION AND MINERAL SUITES; Fill out OPEN FIELD if desired

	RECOVERY	T-MOD	% MIX	ROCK	TM 1	TM 2	QM 1	TX 1	TX 2	F F	GRAIN CC %C MXP		R↓	B1	STRUC ID	STRIKE AZM	DIP TO RT OR PLUNGE	ALTERATION AND MINERAL SUITES	OPEN FIELD
/NAM																		KF SE CL EP | PI CI P* MI QZ	XX YY

	RQD	AGE FORM'N	ENVIR		LC COLOUR	TM 3	QM 2	TX 3	TX 4	S R	R N	S N	O C	FRACTURES S I M I L 1tot	R I	B2	STRU. 2 ID.	AZM	DIP TO RT	FILL IN COLUMN HEADINGS USED	OPEN FIELD
LNAM																				CB LI SI CY | PY CP PØ MØ CA	XX YY

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

	UNIT OF LENGTH	UNIT OF RECOVERY	LCTM or LB Hu
/SCL	MT·2	PC·0	

	UNIT OF RQD	LCTM or LB Hu
LSCL	PC·0	LCTM

EXTRA DOWNHOLE SURVEY CARDS CROSS OUT IF NOT REQ'D.

FILL OUT IF REQUIRED CROSS OUT IF NOT REQUIRED

TURN'G PT 000=Collar	FROM	TO		TOTAL DEPTH / LENGTH	AZM CLOCKWISE FR. TRUE N.	V-ANG NEG. IF DOWN
S001				.	.	.
S002				.	.	.
S003				.	.	.
S004				.	.	.
S005				.	.	.
S006				.	.	.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

EXAMPLE OF ASSAY FILE DEFINITION CROSS OUT IF NOT REQ'D.

A001 ← Assay File No. (Typically 1.)

ASSAY FIELD NAMES SEE NOTE 2

AUMM	CU	AU

ALAB
ATYP
AMTH

ASSAY FILE DESCRIPTION CARDS ARE OPTIONAL CROSS OUT IF NOT REQUIRED OR REPLACED BY REMARKS

SAMPLE ASSAY RECORDS

	FROM	TO	17 18 19 20 RECOVERY	21–26 SS=Sample Serial No.	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8
A002					CU	AU						
A00												
A00												
A00												

Assay File Definition Number, Typically A001.

Notes:

1. - Do not change /NAM, LNAM, /SCL, LSCL, or AUMM card definitions durin a project. Blanks may be changed hower.
2. - On AUMM card, right adjust names so that R H 4 letters make sense. They will be "stats" header names.
3. - Units of distance on 5000 card are for survey coordinates, those on /SCL card are for downhole distances.
4. - To define X X type field put X X in upper tier, lower tier then becomes corresponding How and amount field
5. - If additional "S" or "A" cards are required use another header form and cross out unwanted portions. or enter "S" or "A" cards on keypunched portion on Form 2.

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

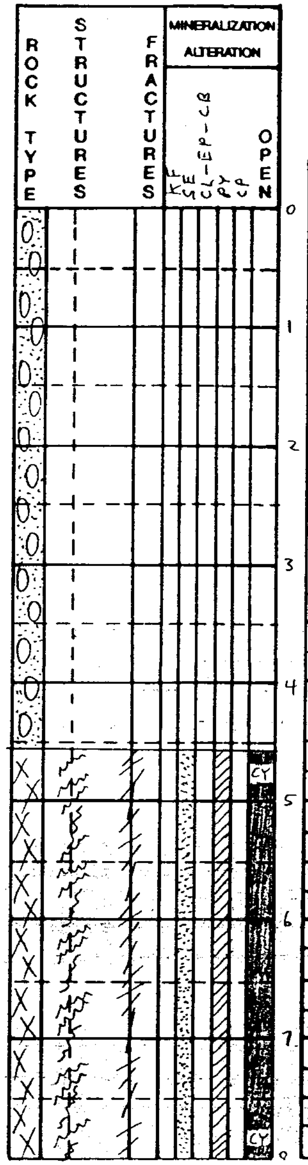
IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-13	NQWL	AU690	JFB		AU6	90	300		JFB			2	

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.0

1	HORIZON FLAG 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79
					KF SE CL EP PI CI Ø* MI QZ	XXY
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	XXY

GRAPHIC LOG



1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26	
A00						
P	0.00	4.57	Overburden is missing.	0	XØVBD	
L						
P	4.57	20.68	Colour is light (bleached) whiteish-	25	SHXMONZ	0000 Q(B)
L			grey w̄ much rusty staining. 10%		2R1	1123 <2 P7 <(
R			white fsp phenocrysts (½ - 2 mm) exist in a fine grained matrix. Texture is very bleach			
R			& locally is completely washed out. Locally, fsp^s are alt^d weakly to SE. Non-magnetic.			
R			shears were measured at 0°, 20°, 35°, 45°, 55° & 60° to C/A. Fracture sets were measured			
R			at 0°, 5°, 25°, 30°, 35°, 45°, 55°, 60° & 70° to C/A. Texture is porphyritic. Core is crackle fractur...			
R			20.14 - 20.68 m: Fault breccia accompanies the shearing.			
R			Shearing is very intense.			
D	4.57	7.57		67	X	
L					4R1	
P	7.57	10.57		22	X	
L					3R1	

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE OF
680201	BALL	DDS-13	NQWL	AU690	JFB		AUG	90	300		JFB			3 11

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.00

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

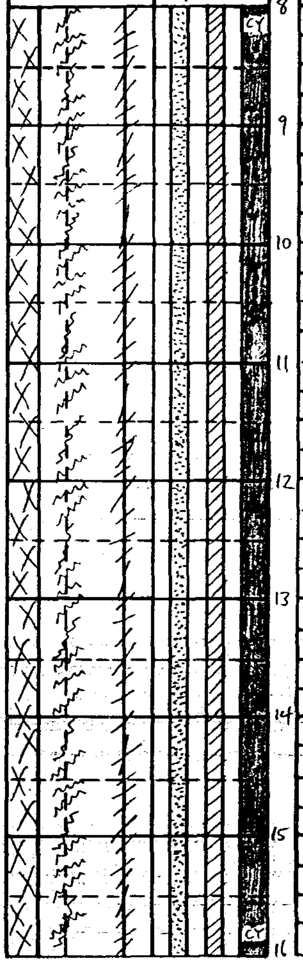
	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

RECOV			T-MOD		%MIX	ROCK				VEINS S	M	L	tot	DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	Y

GRAPHIC LOG

ROCK TYPE | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION | OPEN

KF SE CL-EP-CB PY CP



DESCRIPTIVE REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	18	19	20	21	22	23	24	25	26
																	RECOV			SAMPLE No.					
A	0	0																							
D						1	0	5	7			1	3	5	7			1	9			X			
L																			0	R	1				
D						1	3	5	7			1	6	5	7			5	1			X			
L																			0	R	1				

UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN680201 BALL	DDS-13	NQWL	AU690	JFB		AU	690	300		JFB			4	

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.0

HORIZON FLAG	FROM	TO
1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/		
ZONE FLAG		
L		

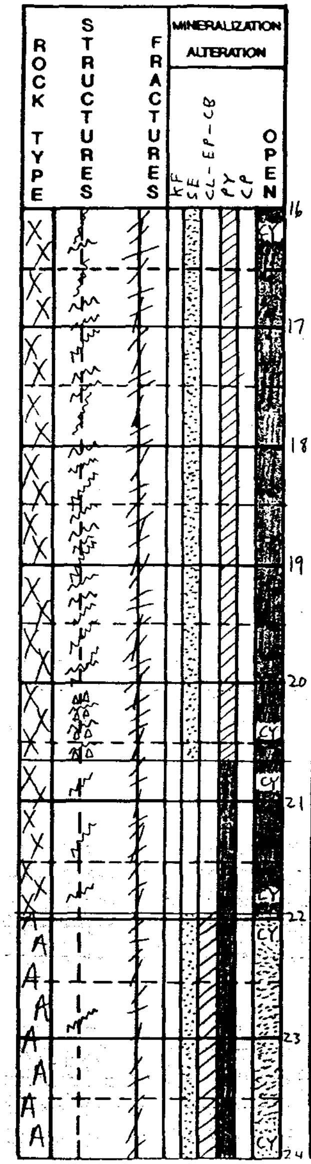
PLACER DOME INC.

DRILL LOG FORM 4

MBG - JULY 90

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	XX YY
RQD	CS			FRACTURES S M L tot		
					CB LT SI CY PY CP PØ MØ CA	XX YY

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.		
A00							
D	1657	1957		10	X		
L				0	R1		
D	1957	2068		58	X		
L				21	R1		
P	2068	2197	Essentially the same as principle	96	KRXMONZ	0000	B=
L			interval 4.57-20.68 m except that	27	R2	3245	<2 PS <=
R			only a small amount of shearing	occurs.			
D	2068	2197		96	X		
L				27	R2		
P	2197	2429	Colour is light to medium greyish-	93	KRXANDS	0000	0)0= B=
L			green. 2-3 % white fsp phenocrysts	32	R2	2245	<= P2 <)
R			exist w̄ an aphanitic matrix. The	texture is bleached. Lower contact is @ 45°			
R			to C/A.				
R			22.85 m: Moderate shear @ 55°	to C/A.			
D	2197	2429		93	X		
L				32	R2		

C LOG

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN680201	BALL	DDS-13	NQWL	AU690	JFB		AU6	90	300		JFB			5	

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	65.68	325.00	-46.00	-2640.00	-11190.00	1345.0

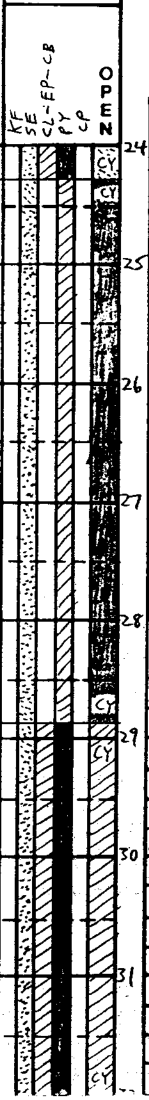
PLACER DOME INC.

DRILL LOG FORM 4

MBG - JULY 90

	HORIZON FLAG			FROM	TO
1	2	3	4	5 6 7 8 9 10	11 12 13 14 15 16
/					
	ZONE FLAG				
L					

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	OPEN FIELDS 77 78 79 80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	XXYY
RQD	CS			FRACTURES S M L tot											
					CB	LI	SI	CY		PY	CP	P0	M0	CA	XXYY



1	2	3	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26							
A	0	0												
P			2429	2885	This interval is basically the same	76	SHXMONZ	0000		Q)	0(		B+	
L					as principle interval: 4.57 – 20.68 m.	25	R2	3246		<2		P5	<)	
R					24.29 – 25.32 m: Non sheared portion.									
R					25.56 – 25.86 m: Non sheared portion.									
R					26.64 – 27.07 m: " " " .									
D			2429	2657		94	X							
L						40	R2							
D			2657	2885		71	X							
L						11	R2							
P			2885	4026	Colour is mottled white to medium	84	FRXMONZ	1001		Q)	0)		B=	
L					greenish-grey. 10 % white fsp phenocrysts	11	R3	2245	<)	<+		Q1	<(	<.
R					(1-11 mm) exist in a fine grained matrix (∴ porphyritic). occasional chloritized mafics up									
R					to 2 mm are present. occasional CA gashes are present in addition to the microveins. Fracture									
R					sets occur in all orientations between 0° - 80° to C/A. *Shear orientations were measured at									
R					50°, 60° & 70° to C/A. CA alt^{n} occurs in fractures, & locally on mafic phenocrysts.									
R					Core is non-magnetic. * Shearing is minor & moderate where it occurs.									
R					0.1 % spots of a soft, bright green alt^{n} mica (SE ?) are present.									
D			2885	3185		62	X							
L						7	R3							
D			3185	3485		81	X							
L						10	R3							

I	D	E	N	6	B	0	2	0	1	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
										BALL	DDS-13	NQWL	AU690	JFB		AU6	90	300		JFB			6	11

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	65.68	325.00	-46.00	-2640.00	-11190.00	1345.00

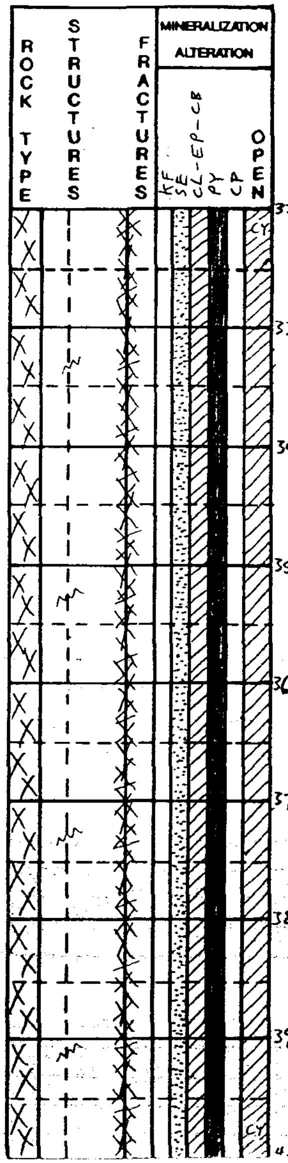
1	HORIZON FLAG 2	3	4	FROM 5	6	7	8	9	10	TO 11	12	13	14	15	16
/	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

RECOV 18	19	20	T-MOD 21	22	% MIX 23	ROCK 24	25	26	27	VEINS S 43	M 44	L 45	tot 46	DEFINED MINERAL FIELDS 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	OPEN FIELDS 77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	RECOV 18	19	20	SAMPLE No. 21	22	23	24	25	26
A	0	0																							
D						3	4	8	5			3	7	8	5			8	4			X			
L																		2	2	R	3				
D						3	7	8	5			4	0	2	6			9	3			X			
L																		2	5	R	3				

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

I D E N	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-13	NQWL	AU690	JFB		AU6	90	300		JFB			7	

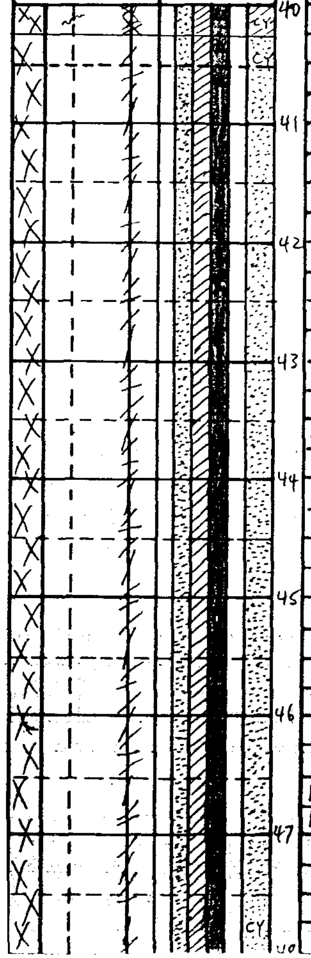
S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
	MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.0

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/	ZONE FLAG		
L			

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79 80
					KF SE CL EP	PI CI P* MI QZ	XXYY
RQD	CS			FRACTURES S M L tot	CB LI SI CY	PY CP PØ MØ CA	XXYY

GRAPHIC LOG

ROCK TYPE | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION (KF SE CL-EP-CP PY CP) | OPEN



1 2 3 4	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26	
A00						
P	4026	5441	Essentially the same as principle	93	KRXMON	Z 1112 0)0) B=
L			interval : 28.85 - 40.26 m except that	56	R3	22560+<+ Q= <) <(
R			shearing is very minor & very weak	where it occurs. 0.1% spots of a soft, bright green		
R			alt^n mica (SE ?) are present.			
D	4026	4385		94	X	
L				65	R3	
D	4385	4685		99	X	
L				73	R3	
D	4685	4985		99	X	
L				67	R3	

PLACER DOME INC.
DRILL LOG FORM 4

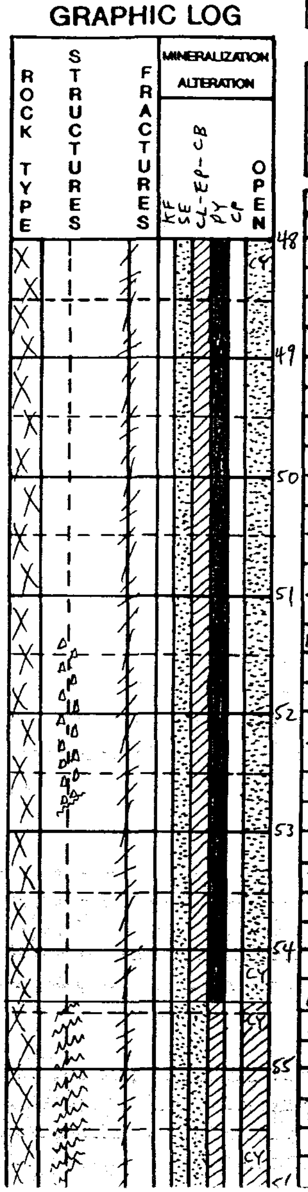
MBG – JULY 90

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-13	NQWL	AU690	JFB		AU6	90	300		JFB			8	11

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
	MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.00

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/	ZONE FLAG		
L			

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	X X Y Y



DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.	
A O O						
D	4985	5285		87	X	
L				48	R3	
N	5147	5277	The breccia fragments are rounded	89	BXXMONZ	0000 0) 0) B=
L			and weak to moderate shearing is	44	R2	23450+<+ Q= <)
R			present in the matrix between the fragments.			
D	5285	5441	52.78m: weak shear @ 40° to c/A.	90	X	
L				25	R3	
P	5441	5802	Where shearing occurs, there is	54	5HXMOWZ	0000 0+ B+
L			80-90 % gouge. There are interstitial	0	R1	1123Q=<4 Q2 <·
R			solid pieces of core within the fault and this core is the same as that described in			
R			principle interval: 28.85-40.26 m. Lower contact is @ 50° to c/A. Shear orientations			
R			within the fault are impossible to obtain due to the intensity of shearing (which is very			
R			intense).			
R			55.28-55.86 m: Interstitial solid core.			

IDEN 6B0201	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
	BALL	DDS-13	WQWL	AU690	JFB		AU6	90	300		JFB			9	

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.0

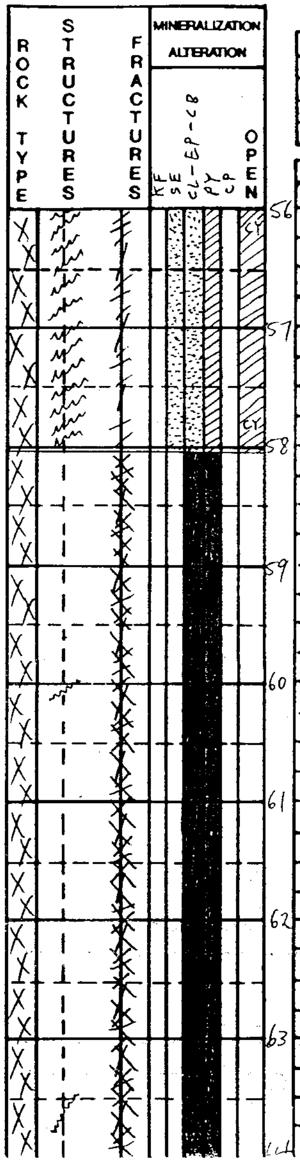
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	XXYY
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	XXYY

GRAPHIC LOG



1 2 3	7 8 9 10	13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.	
A00						
R			56.31 - 56.42 m: Interstitial solid core.			
R			56.67 - 56.91 m: " " "			
R			57.60 - 57.89 m: " " "			
D	5441	5802		54	X	
L				0	R1	
P	5802	6568	Essentially the same as principle	75	FRX MONZ	1123 O(Q) B= QC
L			interval: 28.85 - 40.26 m except	13	R4	2245 P2 <) <) <(<·
R			that carbonate altn occurs as follows: occasionally on fsp phenocrysts (CA), on chloritize			
R			mafics where they exist (CA), in fractures (CA), and pervasively in the matrix (ankerite			
R			60.08 m: Moderate shear @ 50° to C/A.			
R			63.63m: Weak shear @ 20° to C/A.			
R			0.1% spots of a soft, bright green altn mica (SE?) are present.			
D	5802	6041		69	X	
L				21	R4	
D	6041	6341		69	X	
L				13	R4	
D	6341	6568		89	X	
L				14	R4	

PLACER DOME INC.

DRILL LOG FORM 4

MBG - JULY 90

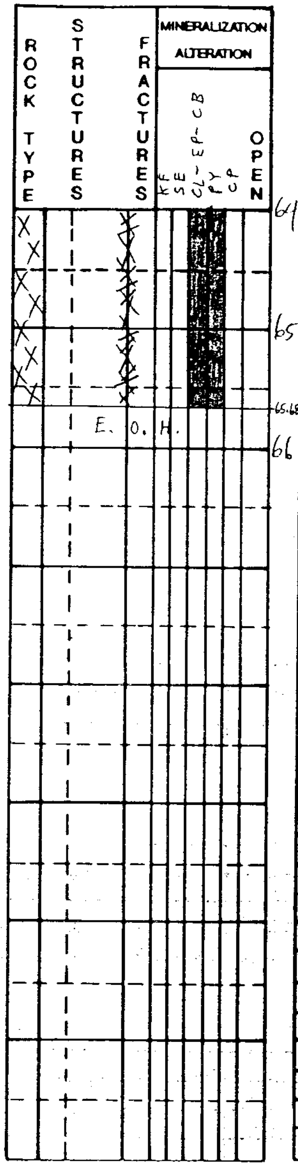
IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	ODS-13	NQWL	AU690	JFB		AU6	90	300		JFB			10	11

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	65.68	325.00	-46.00	-2640.00	-1190.00	1345.00

	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS										OPEN FIELDS			
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77	78	79	80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	X	X	Y	Y
RQD	CS			FRACTURES S M L tot														
					CB	LI	SI	CY		PY	CP	PØ	MØ	CA	X	X	Y	Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1	2	3	4	5–10 FROM	11–16 TO	DESCRIPTIVE REMARKS	18 19 20 RECOV	21–26 SAMPLE No.
A	0	0						
A	0	0	1	457	757			B1084
A	0	0	1	757	1057			B1085
A	0	0	1	1057	1357			B1086
A	0	0	1	1357	1657			B1087
A	0	0	1	1657	1957			B1088
A	0	0	1	1957	2068			B1089
A	0	0	1	2068	2197			B1090
A	0	0	1	2197	2429			B1091
A	0	0	1	2429	2657			B1092
A	0	0	1	2657	2885			B1093
A	0	0	1	2885	3185			B1094
A	0	0	1	3185	3485			B1095
A	0	0	1	3485	3785			B1096
A	0	0	1	3785	4085			B1097
A	0	0	1	4085	4385			B1098
A	0	0	1	4385	4685			B1099
A	0	0	1	4685	4985			B1100
A	0	0	1	4985	5285			B1101
A	0	0	1	5285	5441			B1102
A	0	0	1	5441	5741			B1103
A	0	0	1	5741	6041			B1104

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

I D E N	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	0DS-13	NQWL	AU690	JFB		AU6	90	300		JFB			1	1

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	65.68	325.00	-46.00	-2640.00	-1190.00	345.00

1	HORIZON FLAG 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79
						X X Y
RQD	C S			FRACTURES S M L tot		X X Y

GRAPHIC LOG

ROCK TYPE	STRUCTURES	FRACTURES	MINERALIZATION ALTERATION	OPEN

DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21 22 23 24 25 26
A00					
A001	6041	6341			B1105
A001	6341	6568			B1106
A002	914	1219			B828
A002	1219	1524			B829
A002	1829	2103			B830
A002	2133	2365			B831
A002	2408	2713			B832
/END					

PLACER DOME INC. GEOLOG DRILLHOLE HEADER FORM

DRILLHOLE HEADER CARDS FILL OUT ONCE PER HOLE

KEY FLAG	FORMAT VERSION	SPEC	UNIQUE ID OF PROJECT OR SUB-PROJECT	DRILL HOLE / TRAVERSE: PRE-FIX TYPE NUMBER	SIZE OF CORE OR HOLE	GEOLOGGED MONTH	BY	ASST'D BY	DRILLED DRILLER(S)	MONTH YR	RIG TYPE	DRILLING TIME HRS.	SURVEYED BY	CO-ORD SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN	6802	01	BALL	DDS-14	NQWL	SEPT90	JFB	CLM	DH	SEP90	300		JFB		0.00	01	14

	COMPANY NAME	PROPERTY or PROJECT or SUB-PROJECT NAME
IPRJ	PLACER DOME EXPLORATION LTD.	BALL CREEK PROJECT

	TURN'G PT. 000=Collar	FROM	TO	MT or FT	TOTAL DEPTH/LENGTH	AZM	CLOCKWS FR. TRUE N.	V-ANG.	NEG. IF DOWN	NORTHING	NEG. IF SOUTH	EASTING	NEG. IF WEST	ELEVATION	NEG. IF SUB-SEA
S	000	0.00	2133	MT	92.50		.	-90.00		-2157.00		-806.00		1142.00	

MT or FT ← Drillhole coordinate system units.

See Note 4 → TO DEFINE HOW AND AMOUNT FIELDS OF ALTERATION AND MINERAL SUITES — Fill out OPEN FIELD if desired

	RECOVERY	T-MOD	% MIX	ROCK	TM 1	TM 2	QM 1	TX 1	TX 2	F_F	GRAIN CC %C MXP		R_i	B1	STRUC ID	STRIKE AZM	DIP TO RT OR PLUNGE	ALTERATION AND MINERAL SUITES	OPEN FIELD
/NAM																		KFSECLEP PICIP*MIQZ	XXYY

	RQD	AGE FORM'N	ENVIR		LC COLOUR	TM 3	QM 2	TX 3	TX 4	S_R	R_N	S_N	O/C	FRACTURES S I M L tot	Ri	B2	STRU 2 ID.	AZM	DIP TO RT	FILL IN COLUMN HEADINGS USED	OPEN FIELD
LNAM																				CBLISICY PYCPPØMØCA	XXYY

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

	UNIT OF LENGTH	UNIT OF RECOVERY	LCTM or LB Hu
/SCL	MT.2	PC.0	

	UNIT OF RQD	LCTM or LB Hu
LSCL	PC.0	LCTM

EXTRA DOWNHOLE SURVEY CARDS CROSS OUT IF NOT REQ'D.

FILL OUT IF REQUIRED — CROSS OUT IF NOT REQUIRED

	TURN'G PT 000=Collar	FROM	TO		TOTAL DEPTH /LENGTH	AZM	CLOCKWISE FR. TRUE N.	V-ANG	NEG. IF DOWN
S	001	2133	9250		92.50		.	-89.10	
S	002				.		.	.	
S	003				.		.	.	
S	004				.		.	.	
S	005				.		.	.	
S	006				.		.	.	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

EXAMPLE OF ASSAY FILE DEFINITION CROSS OUT IF NOT REQ'D.

A00 1 ← Assay File No. (Typically 1.)

ASSAY FIELD NAMES SEE NOTE 2

AUMM CU AU

ALAB

ATYP

AMTH

ASSAY FILE DESCRIPTION CARDS ARE OPTIONAL — CROSS OUT IF NOT REQUIRED OR REPLACED BY REMARKS

SAMPLE ASSAY RECORDS

	FROM	TO	17–20 RECOVERY	21–26 SS=Sample Serial No.	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8	A 9
A002					CU	AU							
A00													
A00													
A00													

Assay File Definition Number, Typically A001..

Notes

1. - Do not change /NAM, LNAM, /SCL, LSCL, or AUMM card definitions durin a project. Blanks may be changed hower
2. - On AUMM card, right adjust names so that R H 4 letters make sense. They will be "stats" header names.
3. - Units of distance on S000 card are for survey coordinates, those on /SCL card are for downhole distances.
4. - [illegible]
5. - If additional "S" or "A" cards are required use another header form and cross out unwanted portions or enter "S" or "A" cards on keypunched portion on Form 2.

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-14	MQWL	SEPT90	JFB		SEP	90	300		JFB			2	1

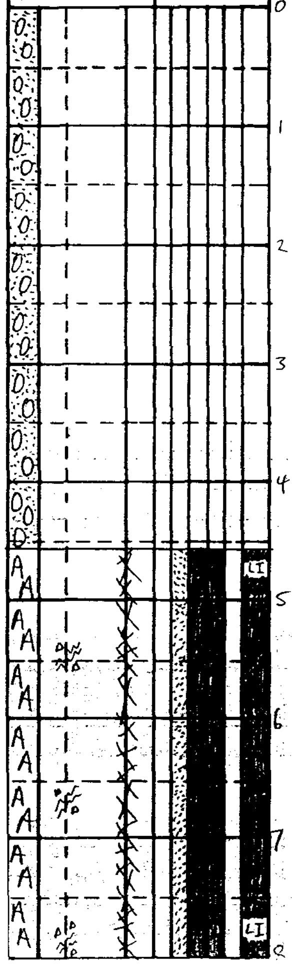
	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S		MT	92.50	.	-90.00	-2157.00	-806.00	1142.0

	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

RECOV			T-MOD		%MIX	ROCK				VEINS S	M	L	tot	DEFINED MINERAL FIELDS										OPEN FIELDS	
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77 78	79
														KF	SE	CL	EP		PI	CI	P*	MI	QZ	XX	Y
RQD			CS							FRACTURES S	M	L	tot												
														CB	LI	SI	CY		PY	CP	P0	M0	CA	XX	Y

GRAPHIC LOG

ROCK TYPE | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION (KF SE CL-EP-CB PY CP) | OPEN



0 1 2 3 4 5 6 7 8

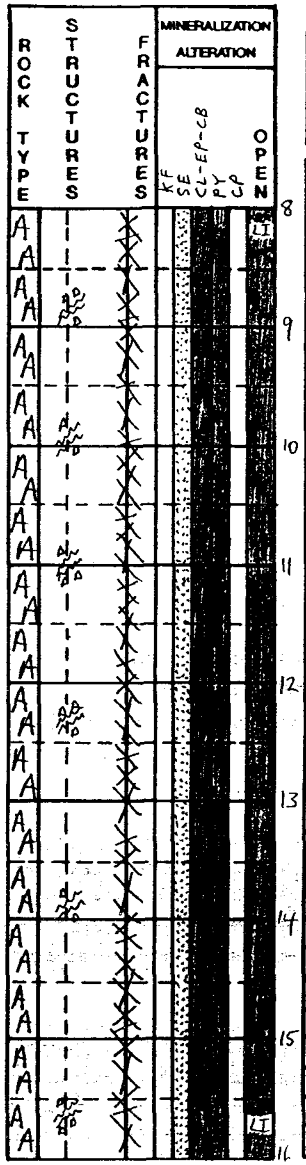
DESCRIPTIVE REMARKS

1	2-4	FROM 5-10	TO 11-16	DESCRIPTIVE REMARKS	RECOV 18-20	SAMPLE No. 21-26	
A00							
P		000	457	Overburden is missing.	0	X0VB	D
L							
P		457	1979	Colour is generally dark green,	76	FRXAND	S0000 Q)Q2 B=
L				however, it is locally bleached to a	29	R2	2335 <3 <.
R				light greyish-green. ≈ 20% fine grained chloritized mafics exist ∓ 10% (visible fine graine			
R				white fsp^s and an otherwise aphanitic matrix. About 5% of this interval is moderately			
R				sheared with accompanying gouge & breccia. Shear orientations are impossible to obtain.			
R				Rock is highly fractured and any solid pieces of core are crackle fractured. Fracture			
R				sets were measured @ 0°, 5°, 20°, 25°, 30°, 35°, 40°, 45°, 50°, 55°, 60°, 65° & 80° to C/A. Core is non-magnet			
R		482	496	90% clay alt^d & bleached greyish-white portion (probably overburden).			
D		457	757		69	X	
L					37	R2	
D		757	1057		86	X	
L					45	R2	

	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	ODS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			3	14

	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG		NORTHING	EASTING	ELEVATION
S		MT	92.50	.	-90.00		-2157.00	-806.00	1142.0

GRAPHIC LOG



	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV			T-MOD		% MIX	ROCK				VEINS S M L tot				DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S M L tot																											
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	Y

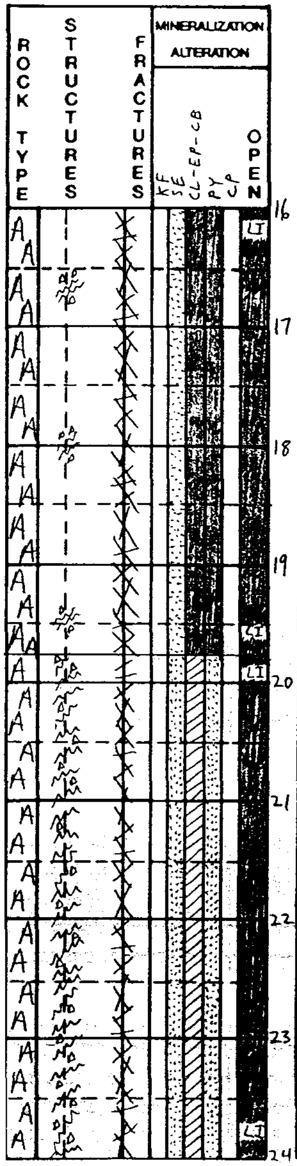
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	18	19	20	21	22	23	24	25	26
A	0	0															RECOV			SAMPLE No.					
D						1	0	5	7			1	3	5	7		9	2			X				
L																	4	8	R	2					
D						1	3	5	7			1	6	5	7		6	9			X				
L																	1	3	R	2					

IDEN 6B0201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DDS-14 | SIZE OF CORE: MQWL | LOGGED: SEPT90 | BY: JFB | DRILLER (S): | MONTH: SEP | YEAR: 90 | TYPE: 300 | TIME-HRS: | SURVEYED: JFB | SYSTEM: | GRID AZIMUTH: | PAGE 4 OF 14

S | DRILL COORD SYSTEM UNITS → | M/F: MT | TOTAL DEPTH/LENGTH: 92.50 | AZM: . | V ANG: -90.00 | NORTHING: -2157.00 | EASTING: -806.00 | ELEVATION: 1142.00

GRAPHIC LOG

ROCK TYPE | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION: KF SE CL-EP-CB PY CP | OPEN



HORIZON FLAG 1	2	3	4	FROM 5	6	7	8	9	10	TO 11	12	13	14	15	16
/															
ZONE FLAG															
L															

PLACER DOME INC.

DRILL LOG FORM 4

MBG - JULY 90

RECOV. 18	19	20	T-MOD 21	22	% MIX 23	ROCK 24	25	26	27	VEINS S 43	M 44	L 45	tot 46	DEFINED MINERAL FIELDS 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	OPEN FIELDS 77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	Ø	M	Ø	C	A	X	X	Y	Y

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	RECOV 18	19	20	SAMPLE No. 21	22	23	24	25	26													
A	0	0																																				
D						1	6	5	7			1	9	7	9		6	6				X																
L																		8	R	2																		
P						1	9	7	9			2	7	4	3	This is essentially a sheared &	4	7	S	H	X	A	N	D	S	0	0	0	0		Q	)	Q	=			D	(
L																clay alt^d equivalent of principle		7	R	1						2	2	3	4		<	3		Q	3		<	·
R																interval: 4.57-19.79 m. Locally, core is bleached to a greyish white (where clay alt^n is																						
R																most intense). Shearing is very intense. Shear orientations are generally impossible to obtain,																						
																however, 1 measurement of 40° to C/A (@ 23.53 m) was taken.																						
D						1	9	7	9			2	2	5	7		7	0				X																
L																		8	R	1																		
D						2	2	5	7			2	5	5	7		4	9				X																
L																	1	1	R	1																		

	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			5	1

	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S		MT	92.50	.	-90.00	-2157.00	-806.00	1142.0

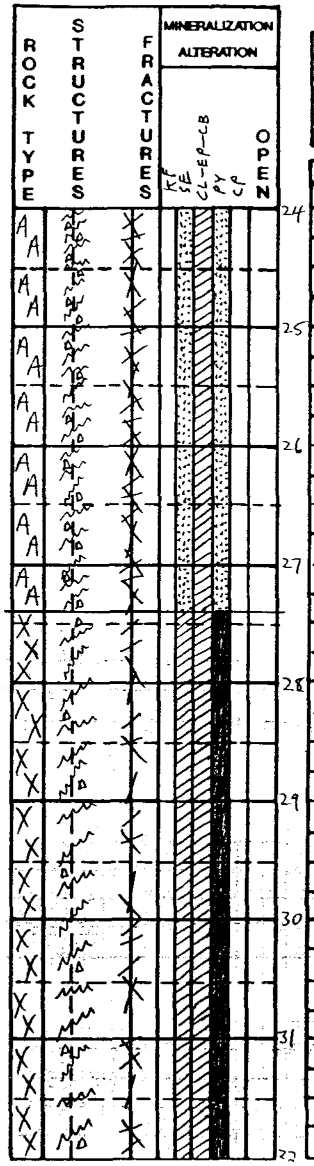
	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	OPEN FIELDS 77	78	79
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	X	X	Y
RQD	CS			FRACTURES S M L tot	CB	LI	SI	CY		PY	CP	P0	M0	CA	X	X	Y

GRAPHIC LOG



1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.	24 25 26 27	43 44 45 46	57 58 59 60	67 68	77 78
A00										
D	2557	2743		10	X					
L				0R1						
P	2743	3520	This is a very intensely sheared &	53	5HX	MONZ	0112	Q+	B=	QC
L			bleached version of principle	12R1			1123	<1<)	<(	<*
R			interval: 35.20 m to 83.65 m (ahead). Shear orientations are generally impossible to obtain;							
R			however, measurements of 0°, 25°, 40° & 50° to CA were taken. Approximately 50% of this							
R			core is sheared. Carbonate alt^n occurs in fractures & stringers & locally on fsp phenocrysts							
R			(all CA). Locally, minor specs of bright green alt^n mica (SE?) occur. About ½% CA gashes are							
R			present as well as the CA microveins.							
R	2743	2966	Core is bleached so that texture is hard to see.							
D	2743	3043		60	X					
L				22R1						
D	3043	3343		48	X					
L				7R1						

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			6	14

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
	MT	92.50	.	-90.00	-2157.00	-806.00	1142.00

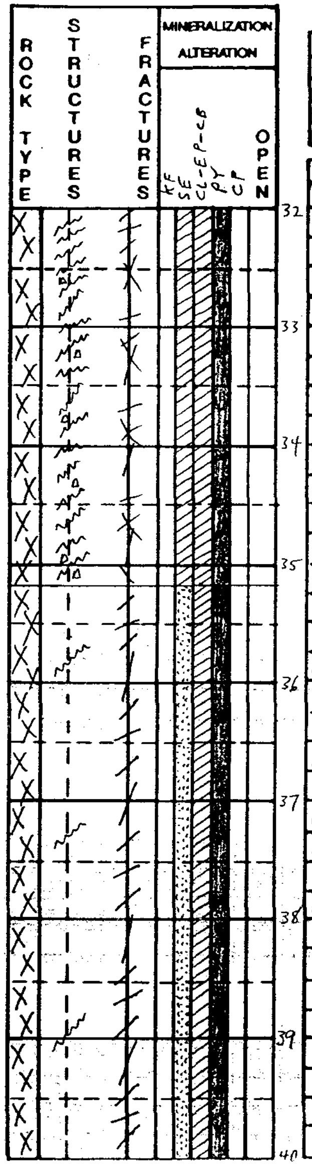
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV.	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	X X Y Y

HORIZON FLAG 1 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/		
ZONE FLAG		
L		

GRAPHIC LOG



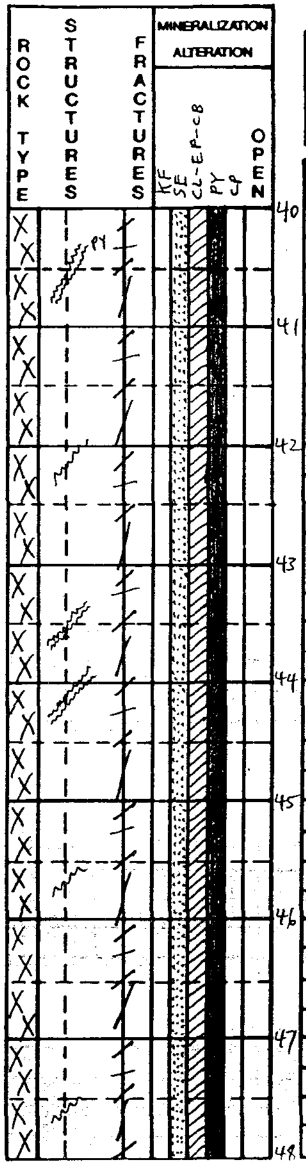
DESCRIPTIVE REMARKS

1 2 3 4	FROM	TO	DESCRIPTIVE REMARKS	RECOV	SAMPLE No.	
A00						
D	3343	3520		51	X	
L				12	R1	
P	3520	8365	Colour is mottled white to light	90	PPXMONZ	2223 0*0* B= <·QC
L			greyish-green. Texture is porphyritic.	46	R4	2234<1<* <) <*
R			10-20% white fsp phenocrysts (¼-27mm) & up to 3% chloritized mafic phenocrysts (½-4 mm)			
R			exist in a fine grained matrix. Minor qtz/carbonate gashes are present in addition to the			
R			microveins. Carbonate alt^{n} occurs in fractures, microveins, & locally on fsp & mafic phenocrysts.			
R			Locally, spots of bright green alt^{n} mica (SE?) exist. This mica is also carbonate altered.			
R			Core is non-magnetic. Core is moderately to highly fractured. Fracture angles were measured			
R			at 0°, 5°, 20°, 25°, 40°, 45°, 50°, 60°, 65°, 75° & 80° to C/A. About 2% of the core is weakly to			
R			intensely sheared. The more prominent shears are listed below. Occasional fine grained			
R			andesitic xenoliths occur.			
R	3626	3629	4 cm wide, fine grained, medium greyish-green dykelet (DACT-ANDS ?) @ 60° to C/A.			
D	3520	3820		99	X	
L				17	R4	
D	3820	4120		96	X	
L				42	R4	

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			7	14

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
	MT	92•50	•	-90•00	-2157•00	-806•00	1142•00

GRAPHIC LOG



HORIZON FLAG 1	2	3	4	FROM 5	6	7	8	9	10	TO 11	12	13	14	15	16
/															
ZONE FLAG															
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV 18	19	20	T-MOD 21	22	%MIX 23	ROCK 24	25	26	27	VEINS S 43	M 44	L 45	tot 46	DEFINED MINERAL FIELDS 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	OPEN FIELDS 77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	Y

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.
A00					
R	4062		moderate pyritic shear @ 15° to C/A.		
D	4120	4420		92	X
L				61	R4
R	4267	4270	2½ cm wide, fine grained, medium greyish-green dykelet (DACT - ANDS ?) @ ≃ 40° to C/A.		
R	4356		Intense shear @ 30° to C/A.		
R	4427		Intense shear @ 30° to C/A.		
D	4420	4720		62	X
L				44	R4
D	4720	5020		92	X
L				67	R4

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-14	MQWL	SEPT90	JFB		SEP	90	300		JFB			8	14

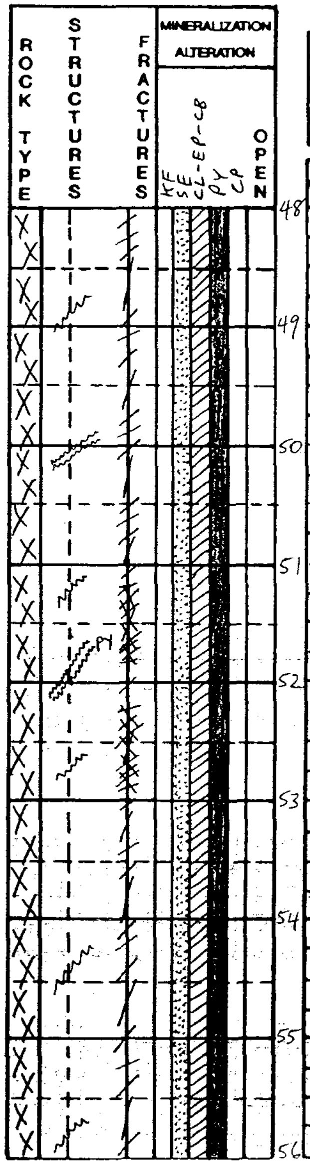
S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S		MT	92.50	.	-90.00	-2157.00	-806.00	1142.00

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57–76	77 78 79 80
					KF SE CL EP PI CI P* MI QZ	XXYY
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP P0 M0 CA	XXYY

GRAPHIC LOG

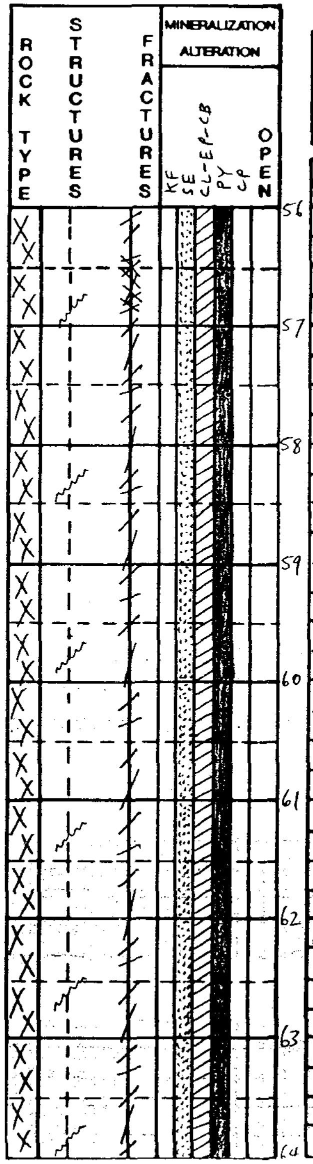


HORIZON FLAG / ZONE FLAG (1–4)	FROM (5–10)	TO (11–16)	DESCRIPTIVE REMARKS	RECOV (18–20)	SAMPLE No. (21–26)
A00					
D	5020	5320		88	X
L				22	R4
R	5082		Intense shear @ 40° to C/A.		
R	5112	5181	Highly fractured core.		
R	5191		Intense pyritic shear @ 20° to C/A.		
R	5226	5297	Highly fractured core.		
D	5320	5620		94	X
L				51	R4
R	5475	5479	2½ cm wide, fine grained, dark greyish-green dykelet (ANDS) @ 65° to C/A.		

	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DOS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			9	14

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	92•50	•	-90•00	-2157•00	-806•00	1142•00

GRAPHIC LOG



	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV. 18	19	20	T-MOD 21	22	%MIX 23	ROCK 24	25	26	27	VEINS S 43	M 44	L 45	tot 46	DEFINED MINERAL FIELDS 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	OPEN FIELDS 77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	Ø	M	Ø	C	A	X	X	Y	Y

1-4	FROM 5-10	TO 11-16	DESCRIPTIVE REMARKS	RECOV 18-20	SAMPLE No. 21-22	23
A00						
R	56.45	56.87	Highly fractured core.			
D	56.20	59.20		95		X
L				45	R4	
D	59.20	62.20		82		X
L				19	R4	
D	62.20	65.20		93		X
L				68	R4	

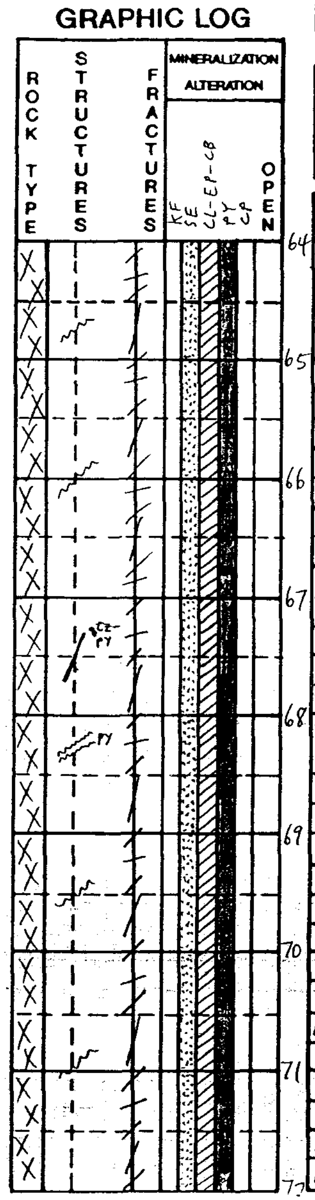
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

IDEN	6B0201	UNIQUE ID OF PROJECT	BALL	DRILL HOLE/TRAVERSE	DDS-14	SIZE OF CORE	MQWL	LOGGED	SEPT90	BY	JFB	DRILLER (S)
MONTH	SEP	YEAR	90	TYPE	300	TIME-HRS		SURVEYED	JFB	SYSTEM		GRID AZIMUTH
S		DRILL COORD SYSTEM UNITS → M/F	MT	TOTAL DEPTH/LENGTH	92•50	AZM	•	V ANG	-90•00			
NORTHING	-2157•00	EASTING	-806•00	ELEVATION	1142•00	PAGE	10	OF	14			

1	HORIZON FLAG 2	3	4	FROM 5	6	7	8	9	10	TO 11	12	13	14	15	16
/	ZONE FLAG														
L															

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L TOT 43 44 45 46	DEFINED MINERAL FIELDS 57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	OPEN FIELDS 77	78	79	80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	X	X	Y	Y
RQD	CS			FRACTURES S M L TOT	CB	LI	SI	CY		PY	CP	PØ	MØ	CA	X	X	Y	Y



1	2-4	FROM 5-10	TO 11-16	DESCRIPTIVE REMARKS	RECOV 18-20	SAMPLE No. 21-26
A	00					
D		6520	6820		94	X
L					56	R4
R		6754		1 cm wide qtz/py vein @ 20° to C/A.		
D		6820	7120		80	X
L					37	R4
R		6832		Intense pyritic shear. Unable to obtain orientation.		
R		7071	7090	Broken core. (cave).		
D		7120	7420		83	X
L					40	R4
R		7162	7179	Broken core (cave).		
R		7193	7206	Broken core (cave).		

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN 6B0201	BALL	00S-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			11	14

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	92.50	.	-90.00	-2157.00	-806.00	1142.00

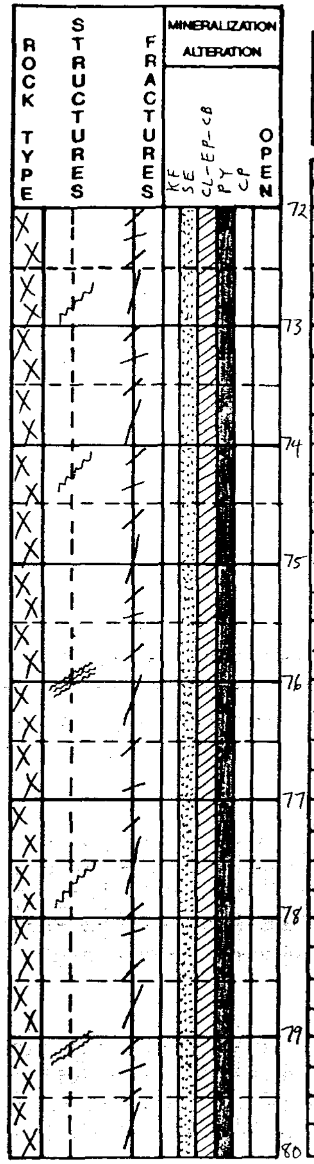
	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

RECOV	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS										OPEN FIELDS			
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77	78	79	80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	X	X	Y	Y
RQD	CS			FRACTURES S M L tot														
					CB	LI	SI	CY		PY	CP	PØ	MØ	CA	X	X	Y	Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21 22 23 24 25 26 SAMPLE No.
A00					
R	7315	7320	Broken core (cave).		
D	7420	7720		96	X
L				75	R4
R	7435	7553	Lightly bleached core. Texture has been washed out.		
R	7590	7602	Moderate shearing. Unable to obtain orientations.		
R	7707	7771	Texture has been washed out of the core.		
D	7720	8020		93	X
L				62	R4
R	7905	7918	weak shearing. Unable to obtain orientations.		

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN 680201	BALL	DDS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			12	14

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	92.50	.	-90.00	-2157.00	-806.00	1142.00

GRAPHIC LOG

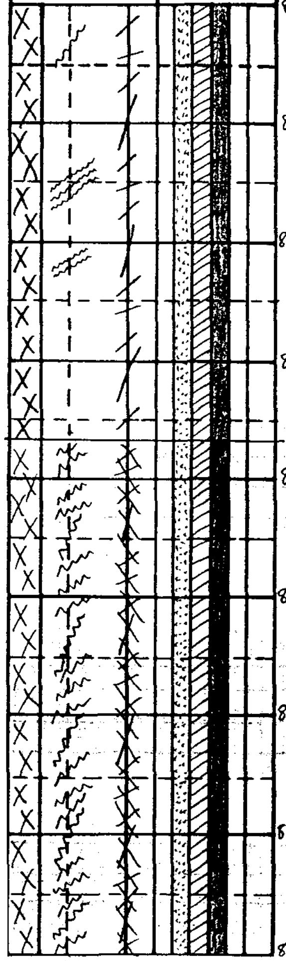
PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

HORIZON FLAG 1 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/		
ZONE FLAG		
L		

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79 80
					KF SE CL EP PI CI P* MI QZ	XXYY
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	XXYY

ROCK TYPE | STRUCTURES | FRACTURES | MINERALIZATION ALTERATION: KF SE CL-EP-CB PY CP | OPEN



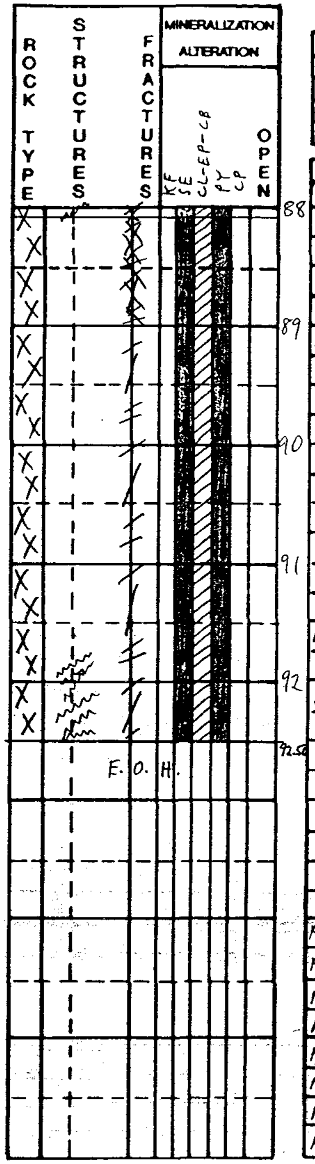
DESCRIPTIVE REMARKS

1 2 3 4	5–10	11–16	DESCRIPTIVE REMARKS	18 19 20 RECOV	21–26 SAMPLE No.	
A00						
D	8020	8365		96	X	
L				60	R4	
R	8147	8165	Weak shearing. Unable to obtain orientations.			
R	8222	8229	Moderate shearing. Unable to obtain orientations.			
P	8365	8809	This is simply a sheared & highly	95	SHXMONZ	1134 .0)Q) B= QC
L			fractured version of principle	32	R2	3235<1<. <) <*
R			interval : 35.20 – 83.65m. Shear orientations are very hard to obtain, however, orientations			
R			of 0°, 15°, 25° & 60° to c/A were measured.			
D	8365	8620		95	X	
L				48	R2	
D	8620	8809		97	X	
L				24	R2	

IDEN 6B0201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DDS-14 | SIZE OF CORE: NQWL | LOGGED: SEPT90 | BY: JFB | DRILLER (S): | MONTH: SEP | YEAR: 90 | TYPE: 300 | TIME-HRS: | SURVEYED: JFB | SYSTEM: | GRID AZIMUTH: | PAGE 13 OF 1

S | DRILL COORD SYSTEM UNITS → M/F: MT | TOTAL DEPTH/LENGTH: 92•50 | AZM: • | V ANG: -90•00 | NORTHING: -2157•00 | EASTING: -806•00 | ELEVATION: 1142•0

GRAPHIC LOG



	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV			T-MOD		%MIX	ROCK				VEINS S M L tot				DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	
RQD			CS							FRACTURES S M L tot																											
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	0	M	0	C	A	X	X	Y	

DESCRIPTIVE REMARKS

1	2	3	FROM (7–10)	TO (13–16)	DESCRIPTIVE REMARKS	RECOV (18–20)	SAMPLE No. (21–27)	43–46	57–58	59–62	67–68	77–78
A	0	0										
P			8809	9250	This is basically the same as principle interval: 35.20 m - 83.65 m except that fsp phenocrysts up to 31mm may be found, SE occurs as bright green spots.	92	PP6MONZ	1244		0=0*	B=	QC
L						34	R3	2234	<1		<)	<)
R												
N			8809	8896	This is just a highly fractured version of principle interval: 88.09m - 92.50 m.	98	FRXMCNZ	1255		0=0*	B=	QC
L						28	R3	3346	<1		<)	<)
R												
D			8809	9250		92	X					
L						43	R3					
N			9177	9250	Upper contact @ 50° to c/A. About 30% of this nested interval is intensely sheared. Due to the intensity of shearing, the only obtainable orientation is the upper contact.	64	SHXMONZ	1123		0=0*	B=	QC
L						0	R1	2214	<1		<)	<)
R												
R												

1–3	4	FROM	TO	SAMPLE No.
A00	1	457	757	B1107
A00	1	757	1057	B1108
A00	1	1057	1357	B1109
A00	1	1357	1657	B1110
A00	1	1657	1957	B1111
A00	1	1957	2257	B1112
A00	1	2257	2557	B1113
A00	1	2557	2743	B1114

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-14	NQWL	SEPT90	JFB		SEP	90	300		JFB			14	14

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	92.50	.	-90.00	-2157.00	-806.00	1142.00

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

HORIZON FLAG 1 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/		
ZONE FLAG		
L		

RECOV 18 19 20	T-MOD 21 22	%MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79 80
						X X Y Y
RQD	CS			FRACTURES S M L tot		X X Y Y

GRAPHIC LOG

ROCK TYPE	STRUCTURES	FRACTURES	MINERALIZATION ALTERATION	OPEN

DESCRIPTIVE REMARKS

1 2 3 4	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26
A00					
A00 1	2743	3043			B1115
A00 1	3043	3343			B1116
A00 1	3343	3520			B1117
A00 1	3520	3820			B1118
A00 1	3820	4120			B1119
A00 1	4120	4420			B1120
A00 1	4420	4720			B1121
A00 1	4720	5020			B1122
A00 1	5020	5320			B1123
A00 1	5320	5620			B1124
A00 1	5620	5920			B1125
A00 1	5920	6220			B1126
A00 1	6220	6520			B1127
A00 1	6520	6820			B1128
A00 1	6820	7120			B1129
A00 1	7120	7420			B1130
A00 1	7420	7720			B1131
A00 1	7720	8020			B1132
A00 1	8020	8320			B1133
A00 1	8320	8620			B1134
A00 1	8620	8920			B1135
A00 1	8920	9250			B1136
/END					

PLACER DOME INC.   GEOLOG DRILLHOLE HEADER FORM

DRILLHOLE HEADER CARDS FILL OUT ONCE PER HOLE

KEY	FLAG	FORMAT VERSION	SPEC	UNIQUE ID OF PROJECT OR SUB-PROJECT	DRILL HOLE / TRAVERSE PRE-FIX TYPE NUMBER	SIZE OF CORE OR HOLE	GEOLOGGED MONTH YR.	BY	ASST'D BY	DRILLED DRILLER(S)	MONTH	YR.	RIG TYPE	DRILLING TIME HRS	SURVEYED BY	CO-ORD SYSTEM	GRID AZIMUTH		PAGE	OF
I	DEN	6B0	201	BALL	0DS-15	MQWL	SEPT90	JFB	CLM	DH	SEP	90	300		JFB		0.00		01	12

	COMPANY NAME	PROPERTY or PROJECT or SUB-PROJECT NAME
IPRJ	PLACER DOME EXPLORATION LTD.	BALL CREEK PROJECT

	TURN'G PT. 000=Collar	FROM	TO	MT or FT		TOTAL DEPTH / LENGTH	AZM	CLOCKWS FR. TRUE N.	V-ANG.	NEG. IF DOWN		NORTHING	NEG. IF SOUTH	EASTING	NEG. IF WEST	ELEVATION	NEG. IF SUB-SEA
S	000	0.00	74.67	MT		74.67	090.00		-60.00			-1313.00		-1192.00		1278.00	

←Drillhole coordinate system units

See Note 4 → TO DEFINE HOW AND AMOUNT FIELDS OF ALTERATION AND MINERAL SUITES

	RECOVERY	T-MOD	% MIX	ROCK	TM 1	TM 2	QM 1	TX 1	TX 2	F F	GRAIN Cc %C MXP		R1	B1	STRUC ID	STRIKE AZM	DIP TO RT OR PLUNGE	ALTERATION AND MINERAL SUITES	OPEN FIELD
/NAM																		KF SE CL EP · PI CI P* MI QZ	XX YY

	RQD	AGE FORM'N	ENVIR		LC COLOUR	TM 3	QM 2	TX 3	TX 4	S R	R N	S N	O/C	FRACTURES S I M I L (tot)	R1	B2	STRU 2 ID	AZM	DIP TORT	ALTERATION AND MINERAL SUITES	OPEN FIELD
LNAM																				CB LI SI CY · PY CP PØ MØ CA	XX YY

FILL IN COLUMN HEADINGS USED   Fill out if desired

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

	UNIT OF LENGTH	UNIT OF RECOVERY
/SCL	MT.2	PC.0

	UNIT OF RQD	LCTM or LB Hu
LSCL	PC.0	LCTM

EXTRA DOWNHOLE SURVEY CARDS CROSS OUT IF NOT REQ'D.

FILL OUT IF REQUIRED   CROSS OUT IF NOT REQUIRED

	TURN'G PT 000=Collar	FROM	TO		TOTAL DEPTH / LENGTH	AZM	CLOCKWISE FR. TRUE N.	V-ANG	NEG. IF DOWN
S	001	74.67	74.67		74.67	090.00		-59.60	
S	002				.		.	.	
S	003				.		.	.	
S	004				.		.	.	
S	005				.		.	.	
S	006				.		.	.	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

EXAMPLE OF ASSAY FILE DEFINITION CROSS OUT IF NOT REQ'D.

A001 ← Assay File No. (Typically 1.)

AUMM ← ASSAY FIELD NAMES SEE NOTE 2: CU   AU

ALAB

ATYP

AMTH

ASSAY FILE DESCRIPTION CARDS ARE OPTIONAL   CROSS OUT IF NOT REQUIRED OR REPLACED BY REMARKS

SAMPLE ASSAY RECORDS

	FROM	TO	17 18 19 20 RECOVERY	21 22 23 24 25 26 SS: Sample Serial No.	A 1	A 2	A 3	A 4	A 5	A 6	A 7	A 8	A 9
A002					CU	AU							
A00													
A00													
A00													

Assay File Definition Number, Typically A001.

Notes:

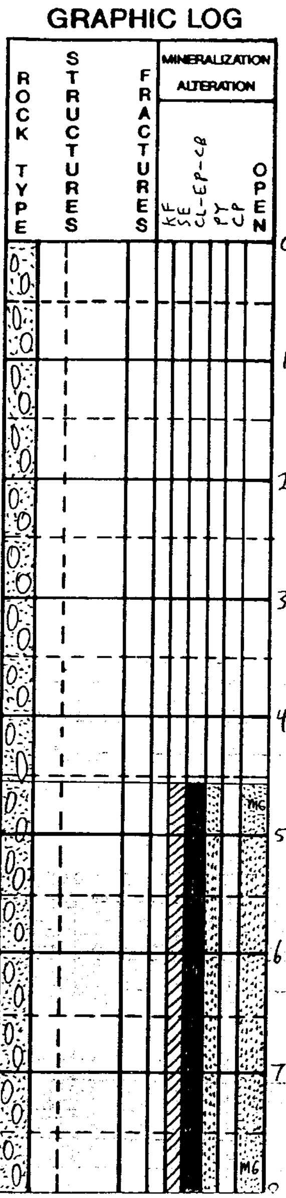
1. - Do not change /NAM, LNAM, /SCL, LSCL, or AUMM card definitions durin a project. Blanks may be changed hower
2. - On AUMM card, right adjust names so that R.H. 4 letters make sense. They will be "stats" header names.
3. - Units of distance on S000 card are for survey coordinates, those on /SCL card are for downhole distances.
4. - To define X X type field put X X in upper tier, lower tier then becomes corresponding How and amount field
5. - If additional "S" or "A" cards are required use another header form and cross out unwanted portions or enter "S" or "A" cards on keypunched portion on Form 2.

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-15	NQWL	SEPT90	JFB		SEP	90	300		JFB			2	1

S	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	74.67	090.00	-60.00	-1313.00	-1192.00	1278.0

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90



	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/	ZONE FLAG		
L			

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	OPEN FIELDS 77 78	79 8
					KF	SE	CL	EP		PI	Cl	P*	MI	QZ	XX	Y
RQD	CS			FRACTURES S M L tot	CB	LI	SI	CY		PY	CP	PO	MO	CA	XX	Y

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	RECOV 18 19 20	21 22 23 24 25 26 SAMPLE No.	
A00						
P	000	457	Overburden is missing here.	0	XLOST	
L						
P	457	827	Colour is mottled dark green to	13	BKXOVB	D0000 Q+Q10* D. MG
L			white. Fragments are made up of	0	R2	2123Q) Q+ D(
R			MONZ (≃ 80 %) & ANDS – fine grained (≃ 20 %). The MONZ is porphyritic & contains 10-40 %			
R			fsp phenocrysts (½ - 5 mm). Both ANDS & MONZ are locally magnetic.			
D	457	642		43	X	
L				0	R2	
D	642	827		14	X	
L				0	R2	

0
1
2
3
4
5
6
7

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
6B0201	BALL	DDS-15	NQWL	SEPT 90	JFB		SEP	90	300		JFB			3	12

S	DRILL COORD SYSTEM UNITS	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	74•67	090•00	-60•00	-1313•00	-1192•00	1278•00

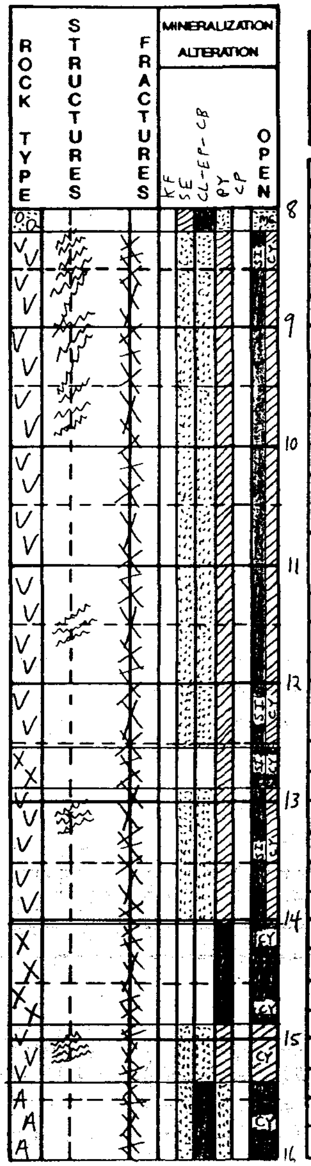
PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

HORIZON FLAG 1–4	FROM 5–10	TO 11–16
/		
ZONE FLAG		
L		

RECOV 18–20	T-MOD 21–22	% MIX 23	ROCK 24–27	VEINS S M L tot 43–46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77–80
					K F S E C L E P _ _ P I C I P * M I Q Z	X X Y Y
RQD	C S			FRACTURES S M L tot	C B L I S I C Y _ _ P Y C P P Ø M Ø C A	X X Y Y

GRAPHIC LOG



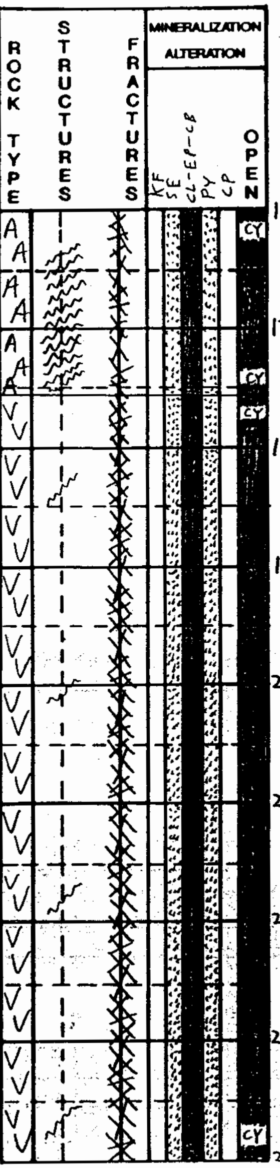
DESCRIPTIVE REMARKS

1–4	FROM	TO	DESCRIPTIVE REMARKS	RECOV 18–20	SAMPLE No. 21–26	27	43–46	57–58	59–60	61–62	63–64	67–68
A00												
P	827	1404	Most of this rock is hard to identify	57	FRXANL	T	0000		0(	0(		B+
L			because it is silicified & the texture	9	R2		2224		<2	Q3	Q1	<*
R			is generally completely washed out. The only section where the rock texture can be easily seen									
R			is @ 11.14m to 11.30 m. Small lithic fragments occur in a fine grained, dark green matrix.									
R			Most of this interval is a light grey, bleached colour. The bleached portions have a completely									
R			aphanitic appearance. Core is non-magnetic. Rock is highly fractured & any solid pieces of core									
R			are crackle fractured. Fracture angles of 15°, 30°, 35°, 40°, 50°, 65°, 80° & 90° to C/A were measured.									
R	827	978	Intense shearing. Unable to obtain orientations.									
D	827	1115		53	X							
L				13	R2							
R	1083	1150	High concentration of py (10% overall, occurring in large blebs).									
R	1147	1158	Moderate shearing. Unable to obtain orientations.									
D	1115	1404		61	X							
L				6	R2							
D	1404	1488		80	X							
L				33	R1							
N	1256	1280	Again, rock is hard to identify due	65	EQXMON	Z	0000					B+
L			to texture being washed out. A ghost	0	R2		5448		<2	Q2	Q2	<*
R			texture of equigranular monzonite is apparent. The rock colour is white. Core is highly fractured.									
R	1311	1326	Moderate shearing. Unable to obtain orientations.									
P	1404	1488	Same as nested interval: 12.56 m –	80	EQXMON	Z	0000					D|
L			12.80 m except that colour is more	33	R1		3436		<2		P4	<·
R			of a whiteish-grey. Non-magnetic.									
P	1488	1537	Same as principle interval: 8.27m –	86	FRXANL	T	0000		Q)	0)		D)
L			14.04 m except that the texture	10	R2		4336	Q+	<1		Q+	
R			has not been bleached away. Upper contact @ 35° to C/A. Non-magnetic.									
R	1499	1524	Weak shear & rubble zone. Unable to obtain orientations.									
D	1488	1537		86	X							
L				10	R2							

UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN680201 BALL	DDS-15	MQWL	SEPT90	JFB		SEP	90	300		JFB			4	12

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	74.67	090.00	-60.00	-1313.00	-11192.00	1278.00

GRAPHIC LOG



	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

RECOV			T-MOD		% MIX	ROCK				VEINS S	M	L	tot	DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	Ø	M	Ø	C	A	X	X	Y	Y

1	2	3	FROM (7–10)	TO (13–16)	DESCRIPTIVE REMARKS	RECOV (18–20)	SAMPLE No. (21–26)	
A	0	0						
P			1537	1757	Colour varies from dark green to light	67	FBSAND	S0000 0(Q1 D*
L					grey (where core has been bleached). Texture	20	R2	3325 <2 Q3 <(
R					varies from aphanitic to fine grained to slightly porphyritic bands. Flow bands are @ 20°–25° to			
R					C/A. Non-magnetic.			
M			1633	1752	Intense shear & breccia zone. Generally,	70	SHXAND	S0000 Q+ D(
L					shear orientations are impossible to	17	R1	2324 <3 Q5 <·
R					obtain, however, one was measured @ 45° to C/A.			
P			1757	2874	Colour varies from dark green to	63	FRXANL	T0000 Q)Q= B(
L					medium greenish-grey. Subrounded to	2	R2	33350+<2 Q1
R					angular fragments (2-16 mm) exist in a fine grained matrix. About ½ of the fragments are			
R					ANDS (some are aphanitic & some are mafic-porphyritic). About ½ of the fragments are			
R					felsic (RHYL or bleached MONZ?) of which some are aphanitic & some are fsp-porphyritic. Non magnetic.			
R					Fsp crystals (1-2 mm) exist as part of the matrix. Carbonate altn occurs on fsp			
R					phenocrysts (CA) & in microfractures (CA). Core is very intensely fractured & any solid			
R					pieces are crackle fractured. About 10% of the core is moderately sheared, however orientation			
R					are impossible to obtain. The following fracture orientations were measured: 10°, 20°, 35°, 40°, 45°,			
R					50°, 60°, 70° & 80° to C/A.			
D			1537	1757		67	X	
L						20	R2	
D			1757	2057		68	X	
L						0	R2	
D			2057	2357		77	X	
L						8	R2	
D			2357	2657		69	X	
L						0	R2	

IDEN 680201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DDS-15 | SIZE OF CORE: NQWL | LOGGED: SEPT90 | BY: JFB | DRILLER (S): | MONTH: SEP | YEAR: 90 | TYPE: 300 | TIME-HRS: | SURVEYED: JF8 | SYSTEM: | GRID AZIMUTH: | PAGE 5 OF 1

S | DRILL COORD SYSTEM UNITS → M/F: MT | TOTAL DEPTH/LENGTH: 74.67 | AZM: 090.00 | V ANG: -60.00 | NORTHING: -1313.00 | EASTING: -1192.00 | ELEVATION: 1278.0

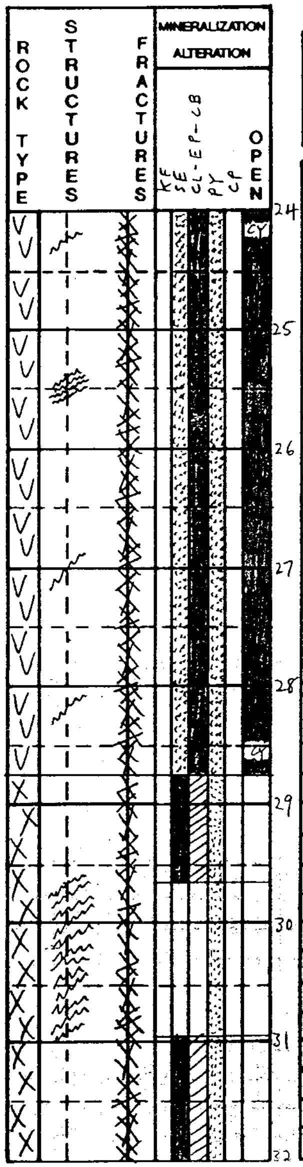
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

HORIZON FLAG 1 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16
/		
ZONE FLAG		
L		

RECOV. 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79
					KF SE CL EP PI CI P* MI QZ	X X Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	X X Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3 4	FROM 5 6 7 8 9 10	TO 11 12 13 14 15 16	DESCRIPTIVE REMARKS	RECOV 18 19 20 / SAMPLE No. 21–26 and fields
A00				
R	2537	2552	Very intense shear (100% gouge) @ 50° to C/A.	
D	2657	2874		72 X
L				OR2
P	2874	3666	Colour is mottled dark green to	49 FR8 MONZ 0123 020+ B*
L			medium green to white. Texture is	14 R4 2224 0=<1 <· <*
R			sub-porphyritic. 10% fsp phenocrysts ($\frac{1}{2}$-10mm) exist in a medium grained matrix of SE alt^{d}	
R			fsp^{s}. Also present are chloritized mafic phenocrysts ($\frac{1}{2}$-3mm) which include hbld & pxn.	
R			Minor CA gashes are present in addition to the microveins. Non-magnetic. Carbonate alt^{n} occu	
R			on chloritized mafics (CA), in fractures (CA) & locally on fsp phenocrysts (CA). Core is highly	
R			fractured & any solid pieces are crackle fractured.	
N	2965	3094	This is an intensely sheared (50%	58 SHX MONZ 0000 D·
L			gouge) version of principle interval:	OR1 2223 <3
R			28.74 m - 36.66 m. Orientations are impossible to obtain.	
D	2874	3174		44 X
L				OR3

UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN 6B0201 BALL	DDS-15	NQWL	SEPT 90	JFB		SEP	90	300		JFB			6	12

DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	74.67	090.00	-60.00	-1313.00	-1192.00	1278.00

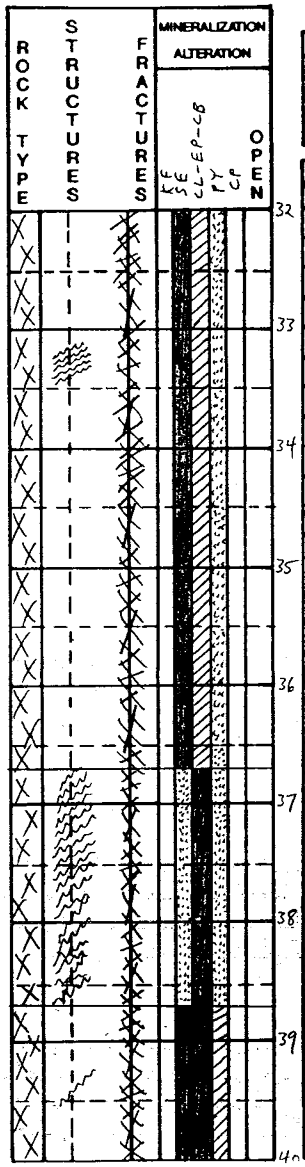
	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

PLACER DOME INC.
DRILL LOG FORM 4

MBG – JULY 90

RECOV	T-MOD	%MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS	OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76	77 78 79 80
					K F S E C L E P _ _ P I C I P * M I Q Z	X X Y Y
RQD	CS			FRACTURES S M L tot		
					C B L I S I C Y _ _ P Y C P P 0 M 0 C A	X X Y Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3	FROM	TO	DESCRIPTIVE REMARKS	RECOV	SAMPLE No.
A00					
D	3174	3474		43	X
L				8	R4
R	3326	3341	Intense shear (95% gouge). Unable to obtain orientation.		
D	3474	3666		67	X
L				39	R4
P	3666	3866	This is an intensely sheared version	61	5H X MoN Z 0123 _ _ Q) _ _ _ _ _ _ D(
L			(60% gouge) of principle interval:	7	R1 _ _ _ _ 1223P2<3 _ _ _ _ _ _ _ _ _ _ <(
R			28.74 m – 36.66 m. In general, shear orientations are impossible to obtain, however,		
R			measurements of 30°, 35° & 60° to C/A were made. Core is non-magnetic.		
D	3666	3866		61	X
L				7	R1
P	3866	5151	Basically the same as principle	81	FR X MoN Z 1122 _ _ 030* _ _ _ _ _ B+
L			interval: 28.74m – 36.66 m. Carbonate	6	R4 _ _ _ _ 3336P2<+ _ _ _ _ _ _ <(_ _ _ _ _ _ <*
R			altⁿ (CA) is now pervasive. About 5% of the core is weakly sheared. The following fractur		
R			orientations were measured: 0°, 5°, 10°, 20°, 25°, 30°, 40°, 45°, 50°, 55°, 10°, 75°, 80° & 85° to C/A.		
D	3866	4166		75	X
L				11	R4

	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
IDEN6B0201	BALL	DDS-15	NQWL	SEPT90	JFB		SEP	90	300		JFB			7	1

	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	74.67	090.00	-60.00	-1313.00	-1192.00	1278.0

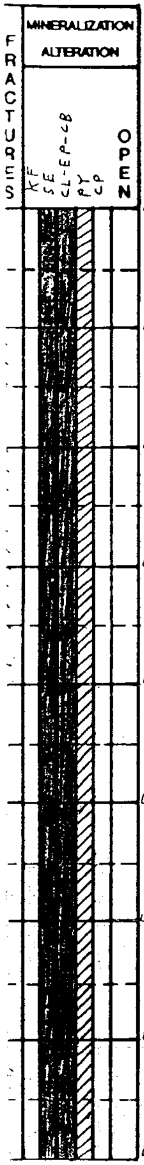
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

1	HORIZON FLAG 2	3	4	FROM 5	6	7	8	9	10	TO 11	12	13	14	15	16
/															
	ZONE FLAG														
L															

RECOV 18	19	20	T-MOD 21	22	%MIX 23	ROCK 24	25	26	27	VEINS S 43	M 44	L 45	tot 46	DEFINED MINERAL FIELDS 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	OPEN FIELDS 77	78	79	80
														K	F	S	E	C	L	E	P			P	I	C	I	P	*	M	I	Q	Z	X	X	Y	
RQD			CS							FRACTURES S	M	L	tot																								
														C	B	L	I	S	I	C	Y			P	Y	C	P	P	Ø	M	Ø	C	A	X	X	Y	

HIC LOG



DESCRIPTIVE REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	RECOV 18	19	20	SAMPLE No. 21	22	23	24	25	26
A	0	0																							
D						4	1	6	6			4	4	6	6			6	3			X			
L																			5	R	4				
R						4	4	7	8			4	7	1	5	Core is lightly bleached.									
D						4	4	6	6			4	7	6	6			8	4			X			
L																			6	R	4				
R						4	5	4	7			4	5	6	7	Intensely sheared (75% gouge). Unable to obtain orientations.									
D						4	7	6	6			5	1	5	1			9	8			X			
L																			4	R	4				

IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE OF
IDEN	6B0201BALL	DDS-15	NQWL	SEPT90	JFB		SEP	90	300		JFB			8 12

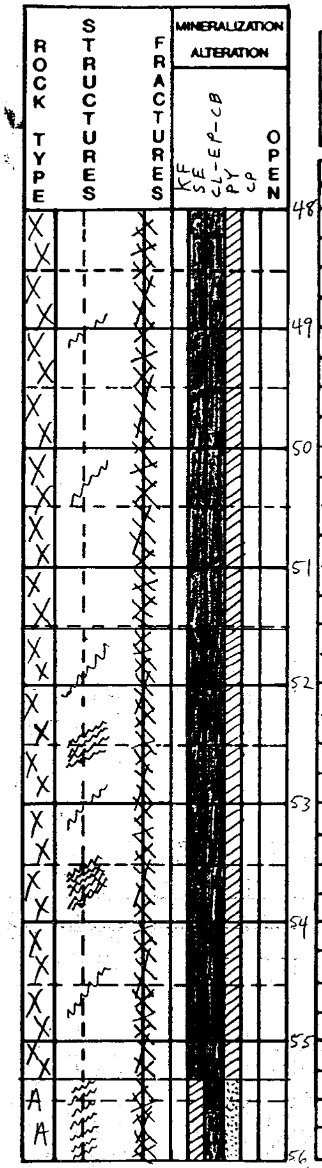
	DRILL COORD SYSTEM UNITS → M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S	MT	74.67	090.00	-60.00	-1313.00	-1192.00	1278.00

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79
					K F S E C L E P P I C I P * M I Q Z	X X Y
RQD	CS			FRACTURES S M L tot	C B L I S I C Y P Y C P P Ø M Ø C A	X X Y

GRAPHIC LOG



DESCRIPTIVE REMARKS

HORIZON FLAG	FROM	TO	DESCRIPTIVE REMARKS	RECOV / SAMPLE No. / CODED FIELDS
A00				
P	5151	5532	This is simply a more sheared	94 SHX MONZ 2113 020) B+
L			version of principle interval: 38.66-	9R2 3335P2<) <· <*
R			51.51m. About 20% of the core is moderately to intensely sheared. The following shear	
R			orientations were measured: 0°, 5°, 20°, 35° & 40° to C/A.	
R	5240	5269	Intense shear (90% gouge). Unable to obtain orientation.	
D	5151	5366		100 X
L				6R2
R	5351	5382	Intense shear (90% gouge). Unable to obtain orientation.	
D	5366	5532		86 X
L				10R2
P	5532	5921	Colour is mottled dark green to light	82 PP8 ANDS 2234 010) D·
L			green to white. 20% fsp phenocrysts	22R4 2335P2<) <*
R			(½-12 mm) exist in an aphanitic, dark green matrix. ½ of these fsp's are white & alt^{d} to	
R			CA. The other ½ are apple green (SE) alt^{d}. Minor fine grained chloritized mafics are present.	

IDEN 6B0201 | UNIQUE ID OF PROJECT: BALL | DRILL HOLE/TRAVERSE: DDS-15 | SIZE OF CORE: NQWL | LOGGED: SEPT90 | BY: JFB | DRILLER (S): | MONTH: SEP | YEAR: 90 | TYPE: 300 | TIME-HRS: | SURVEYED: JFB | SYSTEM: | GRID AZIMUTH: | PAGE 91 OF 12

S | DRILL COORD SYSTEM UNITS → M/F: MT | TOTAL DEPTH/LENGTH: 74.67 | AZM: 090.00 | V ANG: -60.00 | NORTHING: -1313.00 | EASTING: -1192.00 | ELEVATION: 1278.0

PLACER DOME INC.

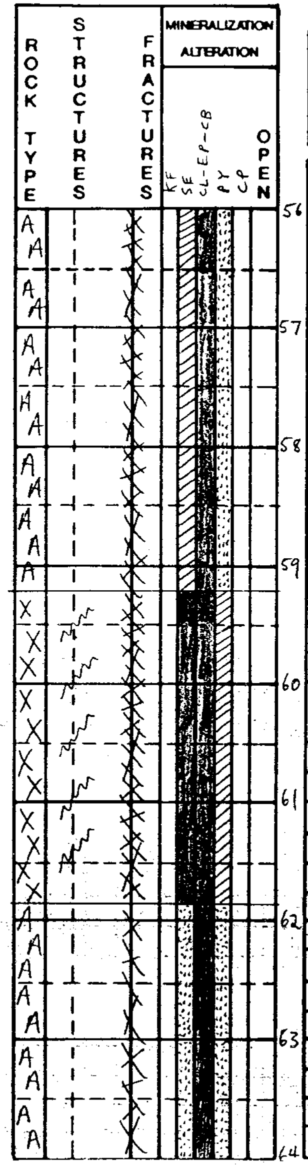
DRILL LOG FORM 4

MBG - JULY 90

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV.	T-MOD	% MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS										OPEN FIELDS			
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77	78	79	80
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	X	X	Y	Y
RQD	CS			FRACTURES S M L tot														
					CB	LI	SI	CY		PY	CP	PØ	MØ	CA	X	X	Y	Y

GRAPHIC LOG



1	2 3 4	FROM 5–10	TO 11–16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26	
A	00						
R				Minor CA gashes are present in addition to the microveins. Non-magnetic. Core is highly			
R				fractured.			
N		5532	5593	Shearing is quite weak.	88	SH X AND	S 2223 010) D·
L					54	R2	3436 P2<) <*
D		5532	5726		85	X	
L					26	R3	
D		5726	5921		79	X	
L					14	R4	
P		5921	6187	Same as principle interval: 51.51m–	69	SH X MON	Z 1133 020(B+
L				55.32 m.	8	R2	2235 P2<) <· <*
D		5921	6187		69	X	
L					8	R2	
P		6187	6522	Essentially the same rock as	87	PP X AND	S 2223 0(0= D*
L				principle interval: 55.32 – 59.21 m.	48	R4	3224 P1<) <*
R				Non-magnetic. Core is highly fractured, but not as highly fractured as the rock			
R				higher up in this hole.			
D		6187	6522		87	X	
L					44	R4	

IDEN 6 8 0 2 0 1 BALL

UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE	OF
BALL	DDS-15	MQWL	SEPT90	JFB		SEP	90	300		JFB			10	12

S DRILL COORD SYSTEM UNITS →

M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
MT	74.67	090.00	-60.00	-1313.00	-1192.00	1278.00

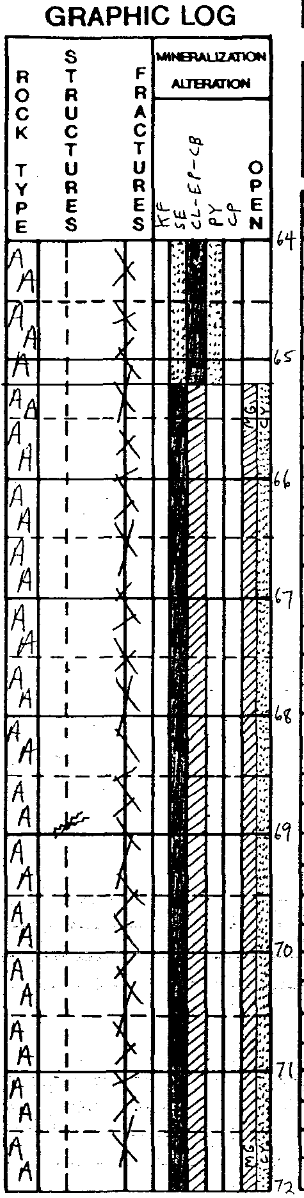
PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

HORIZON FLAG	FROM	TO
1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16

ZONE FLAG

RECOV 18 19 20	T-MOD 21 22	% MIX 23	ROCK 24 25 26 27	VEINS S M L tot 43 44 45 46	DEFINED MINERAL FIELDS 57–76	OPEN FIELDS 77 78 79 80
					KF SE CL EP PI CI P* MI QZ	X X Y Y
RQD	CS			FRACTURES S M L tot		
					CB LI SI CY PY CP PØ MØ CA	X X Y Y



DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	DESCRIPTIVE REMARKS	RECOV 18 19 20	SAMPLE No. 21–26
A00					

64

65

P 65.22 74.67 Same rock type as principle interval: 61.87 – 65.22 m. Matrix is a darker colour, however, & this matrix has a brownish tinge to it. About ½ of the fsp^s are aquiring a medium brown clay coating. CA altn occurs on chloritized mafics, locally on fsp phenocrysts & in fractures. This rock is highly fractured & is the same fracture intensity as principle interval: 61.87m – 65.22 m. The following fracture angles were measured: 0°, 5°, 20°, 25°, 40°, 45°, 50°, 55°, 60°, 65°, 75° & 85° to C/A. Core is locally magnetic.

P: 97 P P X A N 0 S 2 2 1 3 0 1 0 = D · MG

L: 37 R4 2 3 3 5 0 = < 1 0) < · < * D)

R

R

66

R

R

R

R

67

	FROM	TO	RECOV	SAMPLE No.
D	65.22	67.87	97	X
L			42	R4
D	67.87	70.87	94	X
L			52	R4

68

R 68.89 68.92 Intense shear @ 60° to C/A.

69

70

	FROM	TO	RECOV	SAMPLE No.
D	70.87	72.77	99	X
L			31	R4

71

72

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

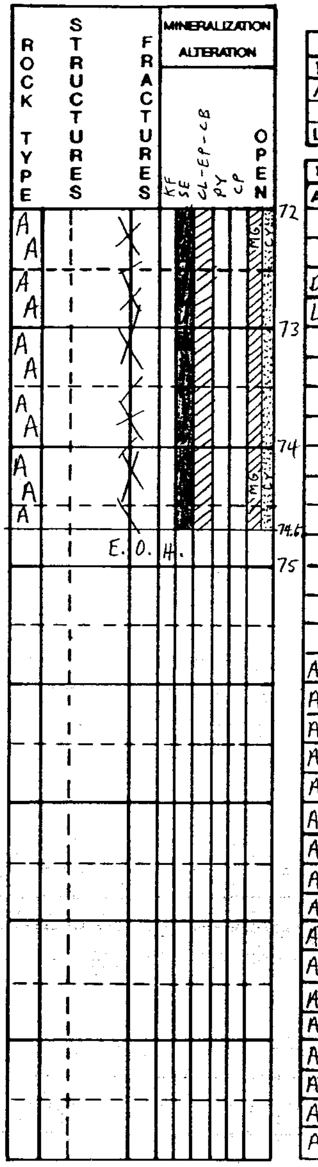
IDEN	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED	SYSTEM	GRID AZIMUTH	PAGE OF
IDEN 6B0201	BALL	DDS-15	NQWL	SEPT 90	JFB		SEP	90	300		JFB			11/1

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
S		MT	74.67	090.00	-60.00	-1313.00	-1192.00	1278.00

	HORIZON FLAG	FROM	TO
1	2 3 4	5 6 7 8 9 10	11 12 13 14 15 16
/			
	ZONE FLAG		
L			

RECOV	T-MOD	%MIX	ROCK	VEINS S M L tot	DEFINED MINERAL FIELDS										OPEN FIELDS
18 19 20	21 22	23	24 25 26 27	43 44 45 46	57 58	59 60	61 62	63 64	65 66	67 68	69 70	71 72	73 74	75 76	77 78 79
					KF	SE	CL	EP		PI	CI	P*	MI	QZ	XXY
RQD	CS			FRACTURES S M L tot											
					CB	LI	SI	CY		PY	CP	PØ	MØ	CA	XXY

GRAPHIC LOG



DESCRIPTIVE REMARKS

1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	RECOV 18 19 20	SAMPLE No. 21 22 23 24 25 26
A00				
D	7277	7467	100	X
L			38	R4
A001	457	642		B1137
A001	642	827		B1138
A001	827	1115		B1139
A001	1115	1404		B1140
A001	1404	1537		B1141
A001	1537	1757		B1142
A001	1757	2057		B1143
A001	2057	2357		B1144
A001	2357	2657		B1145
A001	2657	2874		B1146
A001	2874	3174		B1147
A001	3174	3474		B1148
A001	3474	3666		B1149
A001	3666	3866		B1150
A001	3866	4166		B1151
A001	4166	4466		B1152
A001	4466	4766		B1153

GRAPHIC LOG

ROCK TYPE	STRUCTURES	FRACTURES	MINERALIZATION ALTERATION	OPEN

IDEN	6B0201	UNIQUE ID OF PROJECT	DRILL HOLE/TRAVERSE	SIZE OF CORE	LOGGED	BY	DRILLER (S)	MONTH	YEAR	TYPE	TIME-HRS	SURVEYED
		BALL	DDS-15	MQWL	SEPT90	JFB		SEP	90	300		JFB

SYSTEM

GRID AZIMUTH

PAGE 12 OF 12

S	DRILL COORD SYSTEM UNITS →	M/F	TOTAL DEPTH/LENGTH	AZM	V ANG	NORTHING	EASTING	ELEVATION
		MT	74•67	090•00	-60•00	-1313•00	-1192•00	1278•00

	HORIZON FLAG			FROM						TO					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
/															
	ZONE FLAG														
L															

PLACER DOME INC.
DRILL LOG FORM 4

MBG - JULY 90

RECOV			T-MOD		%MIX	ROCK				VEINS S	M	L	tot	DEFINED MINERAL FIELDS																				OPEN FIELDS			
18	19	20	21	22	23	24	25	26	27	43	44	45	46	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
																																		X	X	Y	Y
RQD			CS							FRACTURES S	M	L	tot																								
																																		X	X	Y	Y

DESCRIPTIVE REMARKS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTIVE REMARKS	18	19	20	21	22	23	24	25	26
A	0	0															RECOV			SAMPLE No.					
A	0	0	1			4	7	6	6			5	0	6	6					B	1	1	5	4	
A	0	0	1			5	0	6	6			5	3	6	6					B	1	1	5	5	
A	0	0	1			5	3	6	6			5	5	3	2					B	1	1	5	6	
A	0	0	1			5	5	3	2			5	7	2	6					B	1	1	5	7	
A	0	0	1			5	7	2	6			5	9	2	1					B	1	1	5	8	
A	0	0	1			5	9	2	1			6	1	8	7					B	1	1	5	9	
A	0	0	1			6	1	8	7			6	4	8	7					B	1	1	6	0	
A	0	0	1			6	4	8	7			6	7	8	7					B	1	1	6	1	
A	0	0	1			6	7	8	7			7	0	8	7					B	1	1	6	2	
A	0	0	1			7	0	8	7			7	2	7	7					B	1	1	6	3	
A	0	0	1			7	2	7	7			7	4	6	7					B	1	1	6	4	
A	0	0	2			1	0	6	7											B	8	3	3		
/	E	N	D																						

APPENDIX # 2

ASSAY RESULT TABLES
(DRILL CORE AND SLUDGE SAMPLES)

ASSAY RESULTS

DDS-12 (DRILL CORE)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B1051	5.29	8.29	3.00	155	29
B1052	8.29	11.29	3.00	170	30
B1053	11.29	14.29	3.00	65	15
B1054	14.29	17.29	3.00	90	17
B1055	17.29	20.29	3.00	100	16
B1056	20.29	23.29	3.00	140	6
B1057	23.29	26.29	3.00	50	37
B1058	26.29	29.29	3.00	90	7
B1059	29.29	32.29	3.00	75	13
B1060	32.29	35.29	3.00	150	7
B1061	35.29	38.29	3.00	100	15
B1062	38.29	41.29	3.00	50	11
B1063	41.29	42.94	1.65	65	20
B1064	42.94	45.72	2.78	45	62
B1065	45.72	48.72	3.00	97.5	52
B1066	48.72	51.72	3.00	90	77
B1067	51.72	54.72	3.00	95	40
B1068	54.72	56.94	2.22	80	36
B1069	56.94	59.94	3.00	75	14
B1070	59.94	62.94	3.00	10	10
B1071	62.94	65.94	3.00	< 5	9
B1072	65.94	68.94	3.00	10	6
B1073	68.94	70.49	1.55	80	10
B1074	70.49	72.31	1.82	< 5	3
B1075	72.31	74.12	1.81	5	3
B1076	74.12	77.12	3.00	60	12
B1077	77.12	80.12	3.00	30	9
B1078	80.12	83.12	3.00	5	21
B1079	83.12	85.38	2.26	160	10
B1080	85.38	88.38	3.00	< 5	4
B1081	88.38	91.38	3.00	20	2
B1082	91.38	94.38	3.00	< 5	2
B1083	94.38	97.23	2.85	7.5	5

ASSAY RESULTS

DDS-13 (DRILL CORE)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B1084	4.57	7.57	3.00	30	16
B1085	7.57	10.57	3.00	80	15
B1086	10.57	13.57	3.00	10	9
B1087	13.57	16.57	3.00	20	10
B1088	16.57	19.57	3.00	15	10
B1089	19.57	20.68	1.11	50	16
B1090	20.68	21.97	1.29	55	15
B1091	21.97	24.29	2.32	65	28
B1092	24.29	26.57	2.28	27.5	33
B1093	26.57	28.85	2.28	30	27
B1094	28.85	31.85	3.00	35	20
B1095	31.85	34.85	3.00	15	8
B1096	34.85	37.85	3.00	20	6
B1097	37.85	40.85	3.00	20	8
B1098	40.85	43.85	3.00	15	14
B1099	43.85	46.85	3.00	20	7
B1100	46.85	49.85	3.00	5	11
B1101	49.85	52.85	3.00	< 5	10
B1102	52.85	54.41	1.56	10	22
B1103	54.41	57.41	3.00	10	190
B1104	57.41	60.41	3.00	15	104
B1105	60.41	63.41	3.00	15	31
B1106	63.41	65.68	2.27	30	53

ASSAY RESULTS

DDS-14 (DRILL CORE)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B1107	4.57	7.57	3.00	< 5	107
B1108	7.57	10.57	3.00	15	136
B1109	10.57	13.57	3.00	200	176
B1110	13.57	16.57	3.00	10	105
B1111	16.57	19.57	3.00	75	139
B1112	19.57	22.57	3.00	215	200
B1113	22.57	25.57	3.00	710	219
B1114	25.57	27.43	1.86	25	93
B1115	27.43	30.43	3.00	< 5	49
B1116	30.43	33.43	3.00	35	300
B1117	33.43	35.20	1.77	< 5	58
B1118	35.20	38.20	3.00	< 5	12
B1119	38.20	41.20	3.00	< 5	11
B1120	41.20	44.20	3.00	< 5	8
B1121	44.20	47.20	3.00	< 5	26
B1122	47.20	50.20	3.00	30	38
B1123	50.20	53.20	3.00	15	79
B1124	53.20	56.20	3.00	< 5	119.5
B1125	56.20	59.20	3.00	15	101
B1126	59.20	62.20	3.00	< 5	84
B1127	62.20	65.20	3.00	< 5	125
B1128	65.20	68.20	3.00	< 5	44
B1129	68.20	71.20	3.00	< 5	20
B1130	71.20	74.20	3.00	< 5	154
B1131	74.20	77.20	3.00	10	72
B1132	77.20	80.20	3.00	5	58
B1133	80.20	83.20	3.00	< 5	98.5
B1134	83.20	86.20	3.00	< 5	18
B1135	86.20	89.20	3.00	< 5	102
B1136	89.20	92.50	3.30	< 5	105

ASSAY RESULTS

DDS-15 (DRILL CORE)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B1137	4.57	6.42	1.85	< 5	240
B1138	6.42	8.27	1.85	< 5	210
B1139	8.27	11.15	2.88	15	240
B1140	11.15	14.04	2.89	< 5	116
B1141	14.04	15.37	1.33	< 5	141
B1142	15.37	17.57	2.20	20	167
B1143	17.57	20.57	3.00	20	260
B1144	20.57	23.57	3.00	10	187
B1145	23.57	26.57	3.00	5	183
B1146	26.57	28.74	2.17	< 5	150
B1147	28.74	31.74	3.00	15	140
B1148	31.74	34.74	3.00	5	19
B1149	34.74	36.66	1.92	< 5	42
B1150	36.66	38.66	2.00	< 5	44
B1151	38.66	41.66	3.00	7	28.5
B1152	41.66	44.66	3.00	< 5	10
B1153	44.66	47.66	3.00	10	40
B1154	47.66	50.66	3.00	5	23
B1155	50.66	53.66	3.00	10	20
B1156	53.66	55.32	1.66	< 5	66
B1157	55.32	57.26	1.94	< 5	9
B1158	57.26	59.21	1.95	< 5	9
B1159	59.21	61.87	2.66	30	90
B1160	61.87	64.87	3.00	< 5	9
B1161	64.87	67.87	3.00	5	7
B1162	67.87	70.87	3.00	< 5	4
B1163	70.87	72.77	1.90	125	8
B1164	72.77	74.67	1.90	< 5	7.5

ASSAY RESULTS

DDS-12 (SLUDGE SAMPLES)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B801	18.90	21.94	3.04	190	167
B802	21.94	24.69	2.75	150	287
B803	24.69	27.58	2.89	80	176
B804	27.58	30.63	3.05	85	224
B805	31.09	34.14	3.05	90	371
B806	34.14	36.88	2.74	250	225
B807	36.88	39.62	2.74	85	127
B808	39.62	41.76	2.14	85	128
B809	41.76	43.28	1.52	90	110
B810	43.28	45.72	2.44	65	118
B811	45.72	48.77	3.05	125	164
B812	48.77	51.81	3.04	100	158
B813	51.81	54.86	3.05	145	160
B814	54.86	57.91	3.05	110	113

ASSAY RESULTS

DDS-13 (SLUDGE SAMPLES)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B828	9.14	12.19	3.05	25	87
B829	12.19	15.24	3.05	15	47
B830	18.29	21.03	2.74	50	92
B831	21.33	23.65	2.32	20	76.5
B832	24.08	27.13	3.05	50	57

ASSAY RESULTS

DDS-15 (SLUDGE SAMPLES)

Sample number	From (m)	To (m)	Width (m)	Au (ppb)	Cu (ppm)
B833	10.67	10.67	0.00	80	230

APPENDIX # 3

ASSAY RESULT SHEETS
(DRILL CORE AND SLUDGE SAMPLES)

```
PDI GEOCHEM SYSTEM:  Data From: V243 BALL CR ISKUT

 GRID     SAMPLE         PROJECT    Au1    Cu
                                    PPB   PPM

104G8              B1051   0575     155    29
104G8              B1052   0575     170    30
104G8              B1053   0575      65    15
104G8              B1054   0575      90    17
104G8              B1055   0575     100    16
104G8              B1056   0575     140     6
104G8              B1056*  0575     140     6


END OF LISTING -    7 RECORDS PRINTED    Run on: 90:09:25 at 11:07:26
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PDI GEOCHEM SYSTEM:  Data From: V243 BALL CK ISKUT

 GRID        SAMPLE          PROJECT     Au1     Cu
                                         PPB     PPM

104G8                 B1057    0574       50     37
104G8                 B1058    0574       90      7
104G8                 B1059    0574       75     13
104G8                 B1060    0574      150      7
104G8                 B1061    0574      100     15
104G8                 B1062    0574       50     11
104G8                 B1063    0574       65     20
104G8                 B1064    0574       45     62
104G8                 B1065    0574      105     53
104G8                 B1065*   0574       90     51
104G8                 B1066    0574       90     77
104G8                 B1067    0574       95     40
104G8                 B1068    0574       80     36
104G8                 B1069    0574       75     14
104G8                 B1070    0574       10     10
104G8                 B1071    0574       <5      9
104G8                 B1072    0574       10      6
104G8                 B1073    0574       80     10
104G8                 B1074    0574       <5      3
test      STD P1               0574              22
104G8                 B1075    0574        5      3
104G8                 B1076    0574       60     12
104G8                 B1077    0574       30      9
104G8                 B1078    0574        5     21
104G8                 B1079    0574      160     10
104G8                 B1080    0574       <5      4
104G8                 B1081    0574       20      2
104G8                 B1082    0574       <5      2
104G8                 B1083    0574       10      5
104G8                 B1083*   0574        5      5
104G8                 B1084    0574       30     16
104G8                 B1085    0574       80     15
104G8                 B1086    0574       10      9
104G8                 B1087    0574       20     10
104G8                 B1088    0574       15     10
104G8                 B1089    0574       50     16
104G8                 B1090    0574       55     15
104G8                 B1091    0574       65     28
104G8                 B1092    0574       30     33
104G8                 B1092*   0574       25     33
104G8                 B1093    0574       30     27
104G8                 B1094    0574       35     20
104G8                 B1095    0574       15      8
104G8                 B1096    0574       20      6
104G8                 B1097    0574       20      8
104G8                 B1098    0574       15     14
104G8                 B1099    0574       20      7
test      STD AU8              0574      300
test      STD AU8              0574      315
test      STD P1               0574              22


END OF LISTING -    50 RECORDS PRINTED     Run on: 90:09:25 at 16:30:33
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PDI GEOCHEM SYSTEM:  Data From: V243 BALL CK ISKUT

 GRID      SAMPLE          PROJECT     Au1    Cu
                                       PPB    PPM

104G8               B1100    0586        5     11
104G8               B1101    0586       <5     10
104G8               B1102    0586       10     22
104G8               B1103    0586       10    190
104G8               B1104    0586       15    104
104G8               B1105    0586       15     31
104G8               B1106    0586       30     53
test     STD P1              0586              22
test     STD AU8             0586      380



END OF LISTING -    9 RECORDS PRINTED    Run on: 90:09:25 at 11:07:26
```

PDI GEOCHEM SYSTEM: Data From: V243 BALL CR ISKUT

GRID	SAMPLE	PROJECT	Au1 PPB	Cu PPM
104G8	B1107	0601	<5	107
104G8	B1108	0601	15	136
104G8	B1109	0601	200	176
104G8	B1110	0601	10	105
104G8	B1111	0601	75	139
104G8	B1112	0601	215	200
104G8	B1113	0601	710	219
104G8	B1114	0601	25	93
104G8	B1115	0601	<5	49
test	STD P1	0601		26
104G8	B1116	0601	35	300
104G8	B1117	0601	<5	58
104G8	B1118	0601	<5	12
104G8	B1119	0601	<5	11
104G8	B1120	0601	<5	8
104G8	B1121	0601	<5	26
104G8	B1122	0601	30	38
104G8	B1123	0601	15	79
104G8	B1124	0601	<5	120
104G8	B1124*	0601	<5	119
104G8	B1125	0601	15	101
104G8	B1126	0601	<5	84
104G8	B1127	0601	<5	125
104G8	B1128	0601	<5	44
104G8	B1129	0601	<5	20
104G8	B1130	0601	<5	154
104G8	B1131	0601	10	72
104G8	B1132	0601	5	58
104G8	B1133	0601	<5	98
104G8	B1133*	0601	<5	99
104G8	B1134	0601	<5	18
104G8	B1135	0601	<5	102
104G8	B1136	0601	<5	105
104G8	B1137	0601	<5	240
104G8	B1138	0601	<5	210
104G8	B1139	0601	15	240
104G8	B1140	0601	<5	116
104G8	B1141	0601	<5	141
104G8	B1142	0601	20	168
104G8	B1142*	0601	20	166
104G8	B1143	0601	20	260
104G8	B1144	0601	10	187
104G8	B1145	0601	5	183
104G8	B1146	0601	<5	150
104G8	B1147	0601	15	140
104G8	B1148	0601	5	19
104G8	B1149	0601	<5	42
104G8	B1150	0601	<5	44
104G8	B1151	0601	<5	29
104G8	B1151*	0601	10	28
104G8	B1152	0601	<5	10
104G8	B1153	0601	10	40
104G8	B1154	0601	5	23
104G8	B1155	0601	10	20
104G8	B1156	0601	<5	66
104G8	B1157	0601	<5	9
104G8	B1158	0601	<5	9

```
PDI GEOCHEM SYSTEM:  Data From: V243 BALL CR ISKUT

 GRID     SAMPLE         PROJECT    Au1    Cu
                                    PPB   PPM

104G8              B1159   0601      30     90
104G8              B1160   0601      <5      9
test     STD P1            0601             26
104G8              B1161   0601       5      7
104G8              B1162   0601      <5      4
104G8              B1163   0601     125      8
104G8              B1164   0601      <5      8
104G8              B1164*  0601      <5      7
test     STD AU8           0601     390
test     STD AU8           0601     270



END OF LISTING -   67 RECORDS PRINTED    Run on: 90:10:05 at 16:15:51
```

```
PDI GEOCHEM SYSTEM:  Data From: V243 BALL CK ISKUT

 GRID      SAMPLE          PROJECT     Au1    Cu
                                       PPB    PPM

104G8               B801    0587       190    167
104G8               B802    0587       150    287
104G8               B803    0587        80    176
104G8               B804    0587        85    224
104G8               B805    0587        90    371
104G8               B806    0587       250    225
104G8               B807    0587        85    127
104G8               B808    0587        85    128
104G8               B809    0587        90    113
104G8               B809*   0587        90    107
104G8               B810    0587        65    118
104G8               B811    0587       125    164
104G8               B812    0587       100    158
104G8               B813    0587       145    160
104G8               B814    0587       110    113
104G8               B828    0587        25     87
104G8               B829    0587        15     47
104G8               B830    0587        50     92
104G8               B831    0587        15     77
104G8               B831*   0587        25     76
104G8               B832    0587        50     57
test      STD AU8           0587       355
test      STD P1            0587               22


END OF LISTING -   23 RECORDS PRINTED    Run on: 90:10:03 at 11:16:04
```

```
PDI GEOCHEM SYSTEM:  Data From: V243 BALL CR ISKUT

 GRID     SAMPLE         PROJECT    Au1    Cu
                                    PPB   PPM

104G8               B833   0600      85   230
104G8               B833*  0600      75   230


END OF LISTING -    2 RECORDS PRINTED    Run on: 90:10:05 at 16:15:51
```

APPENDIX # 4

ANALYSIS TECHNIQUES

PLACER DOME INC. RESEARCH CENTRE

GEOCHEM LABORATORY

GENERAL TESTS

Elements

Mo Cu Zn Pb Cd Ni Co Ag Mn

Procedure

1. Weigh 0.50 g of -80 mesh soil, sediment or -100 mesh pulverized rock into numbered 16 x 150 tests tubes. Every tenth sample should be a duplicate sample or an internal known reference standard.

2. Add 1 mL HNO_3 followed by 2 mL $HClO_4$. Samples containing carbonates may react vigorously at first, so add 1 mL HNO_3 and let stand until the reaction stops before adding 2 mL $HClO_4$.

3. Place tubes in test tube block on hot plate at 160°C. The samples will boil vigorously at first and then decrease as the HNO_3 boils away. Organic samples should be watched to see that they do not foam. If they do foam, then take the test tube out of the block and gently tap the bottom of the tube on an asbestos pad. Highly organic soils can be handled by adding the acid and letting them stand overnight.

   The temperature of the hot plate should be set so that after the HNO_3 boils away (45 min → 1 h), then the $HClO_4$ boils gently and refluxes down the sides of the test tube. Total digestion time is 4 hours.

4. Cool the sample by adding 6 mL demineralized water and immersing the test tube rack in cold water for 2 min. After cooling, bring the volume up to 10 mL, cap and shake.

5. Read on AA using air/acetylene flame for all elements except Mo which should be run using N_2O/acetylene flame. Background correction should be used on Pb, Cd, Ag. Turn burner head for Zn.

RAM/:ojt/M003
1990-10-18

PLACER DOME INC. RESEARCH CENTRE

GEOCHEM LABORATORY

GENERAL TESTS

Standards

- All standards are made in 15% $HClO_4$.
- Factor is 20.

	Standard Concentrate (µg/mL)	AA Setting (ppm)	
Cu Zn Pb Co Ni Mn	5.0	100	
	10.0	200	
Mo	1.0	20	add 2 mL per 100 mL 20% $AlCl_3$ to Mo Stds.
	2.0	20	
	4.0	80	
Cd	0.10	2.0	
	0.50	10.0	
	1.00	20.0	
Ag	0.50	1.0	
	0.10	2.0	
	0.20	4.0	

Samples giving a reading above the high standard are diluted 1 to 10 with 15% $HClO_4$ and re-analyzed.

Wavelengths

Mo	313.2 nm
Cu	324.7
Zn	213.8
Pb	283.3
Cd	228.0
Ni	232.0
Co	240.7
Mn	279.5
Ag	328.0

RAM/:ojt/M003
1990-10-18

PLACER DOME INC. RESEARCH CENTRE

GEOCHEM LABORATORY

STANDARD PROCEDURE FOR SAMPLES PREPARATION

Soils

1. Dry sample at temperature <120°F.
2. Sieve sample to -80 mesh.
3. Keep -80 mesh. Discard +80 mesh.

Sediments

1. Dry sample at temperature <120°F.
2. Sieve sample to -80 mesh.
3. Seive +80 reject to -20 mesh.
4. Keep -80 mesh. Keep +80 -20 mesh. Discard +20 mesh.

Rocks

Small Rocks (<500 g)

1. Jaw crush dry sample in jaw crusher (4") to 3/8".
2. Split sample in a riffle if necessary to approximately 200-250 g.
3. Pulverize for 2 min in a ring pulverizer, (-100 mesh).
4. Roll the sample at least 25 times.

Large Rocks (>500 g) & Drill Core

1. Jaw crush dry sample in large jaw crusher (6") to 1/2".
2. Cone crush sample to 1/4".
3. Split sample in a riffle to 250 g. Save reject material.
4. Pulverize split for 2 min.
5. Roll sample at least 25 times.

RAM/:ojt/M002
1990-10-17

PLACER DOME INC. RESEARCH CENTRE

GEOCHEM LABORATORY

GEOCHEM GOLD TESTS

Procedure

1. Weigh 10.0 g sample into a Coors 07 crucible.
2. Heat in muffle furnace for 4 h @ 600°C.
3. Cool, transfer to 150 mL glass beaker and add 30 mL Aqua Regia (3 parts HCl, 2 parts H_2O, 1 part HNO_3).
4. Digest at just off the boil for 2 hours.
5. Cool, and bulk up to 110 mL mark on beaker.
6. Stir and leave overnight to settle.
7. Decant 50 mL of sample solution into 25 x 200 mm screw cap test tube.
8. Add 7 mL MIBK, cap and turn tube upside down and back at least 25 times.
9. Read organic layer on A.A.

Standards

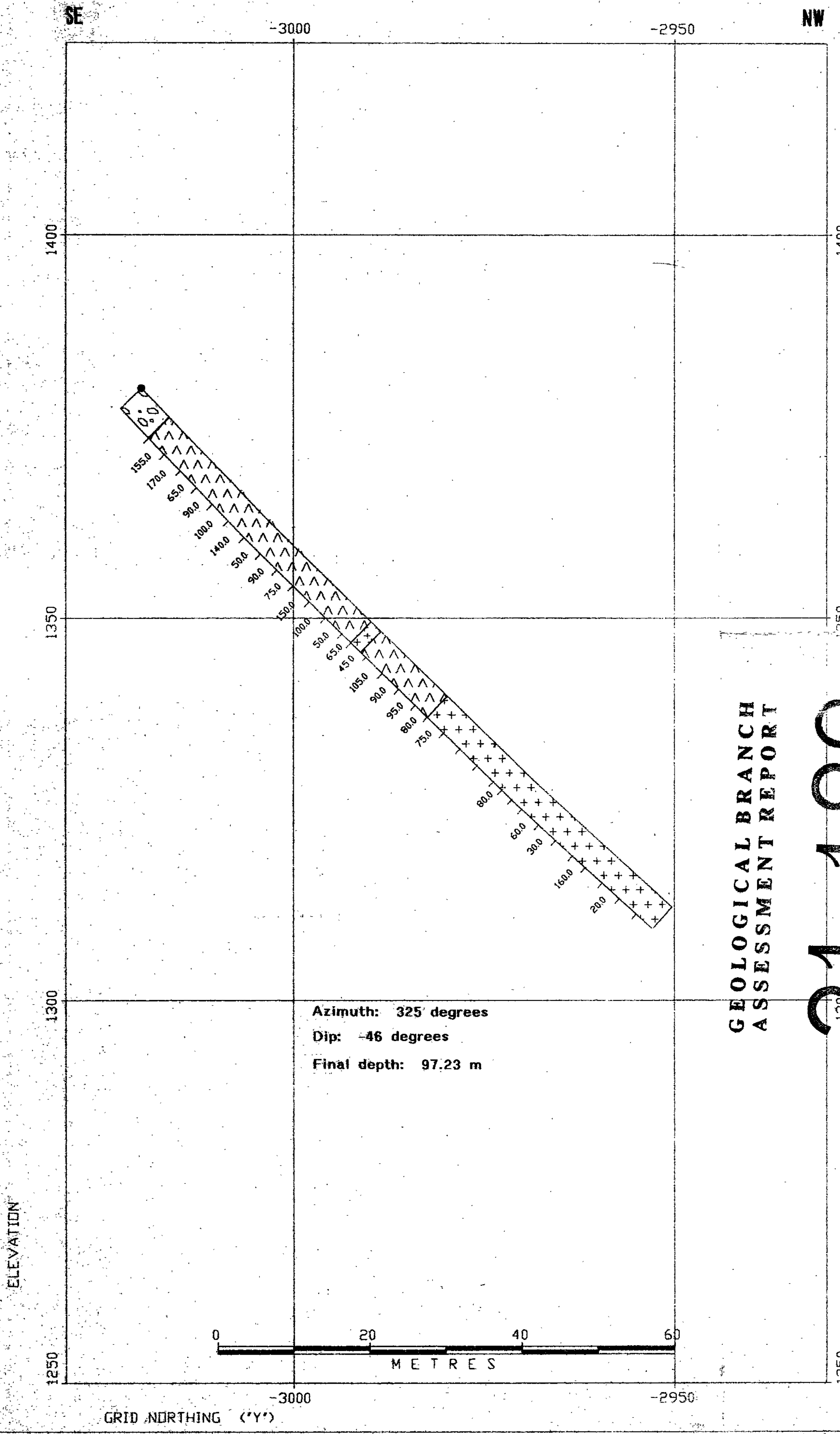
1. In 250 mL separatory funnel add 10 mL H_2O, 1 mL HCl, 2 drops of HNO_3 and the following amounts of Au:

   0.1 mL of 1000 µg/mL Au stock solution = 1000 ppb
   0.2 mL of 1000 µg/mL Au stock solution = 2000 ppb
   0.4 mL of 1000 µg/mL Au stock solution = 4000 ppb

2. Add 100 mL MIBK and shake for 2 min.
3. Drain aqueous layer.
4. Use saturated MIBK for blank.
5. Set 1000 ppb std on reading of 200 and multiply readings by 5. Detection limit is 5 ppb.
6. For higher samples, standards can be made in 30% aqua and the remaining half of the original sample solution can be run in the aqueous phase.

RAM/:ojt/M001
1990-10-17

DDS-12



Azimuth: 325 degrees

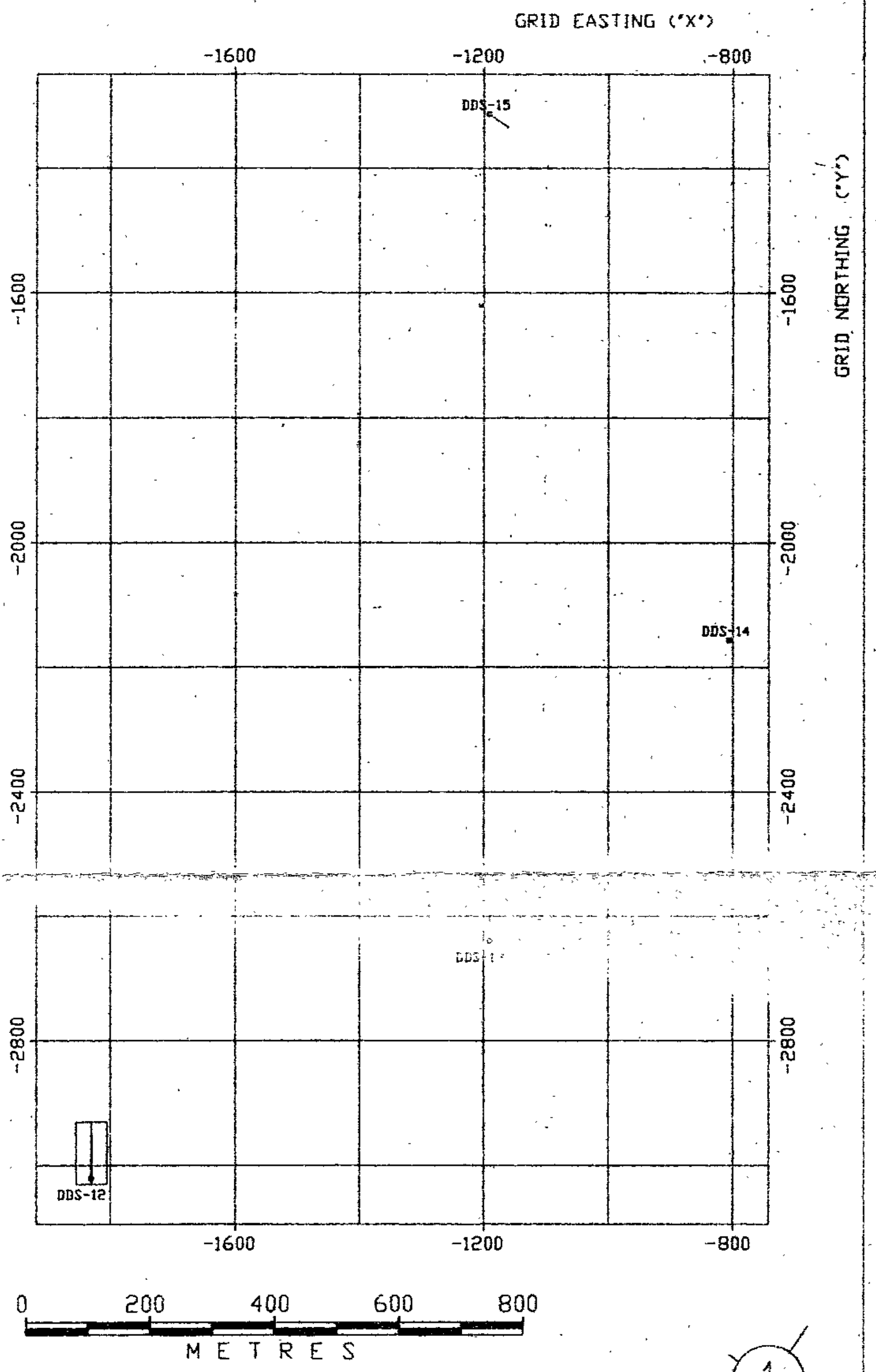
Dip: -46 degrees

Final depth: 97.23 m

ROCKTYPE SYMBOLS

+ MONZONITE

o.o OVERBURDEN ^^ ANDESITE



LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
-1830.	-3030.	-1830.	-2930.

WIDTH	ZT	ZB
50.	1400.	1275.

LOOKING W

DATA FILE:\EXPL\BALLCK\GEOLOG\DHLIST

ASSAY CUTOFF: 20.00

POSTED DATA

ASSAYS	DH	ROCK TYPE
AU1		PGI

PLACER DOME EXPLORATION LIMITED

DRAWN BJR

DATE 23/11/90

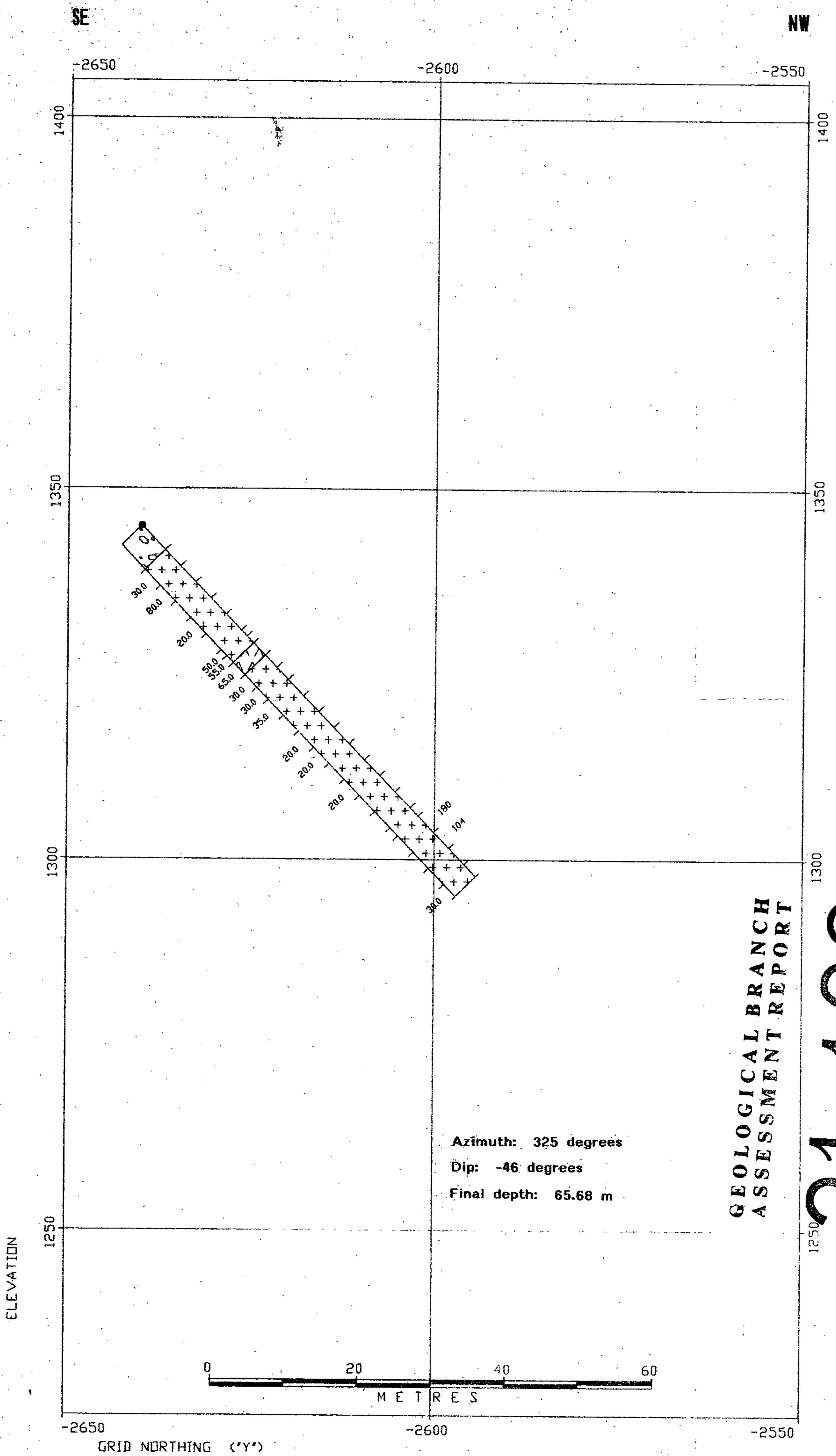
SCALE 1:500

BALL CREEK PROJECT 243
CROSS SECTION -1830S
PPB AU

NO.

Figure: 9

DDS-13



Azimuth: 325 degrees

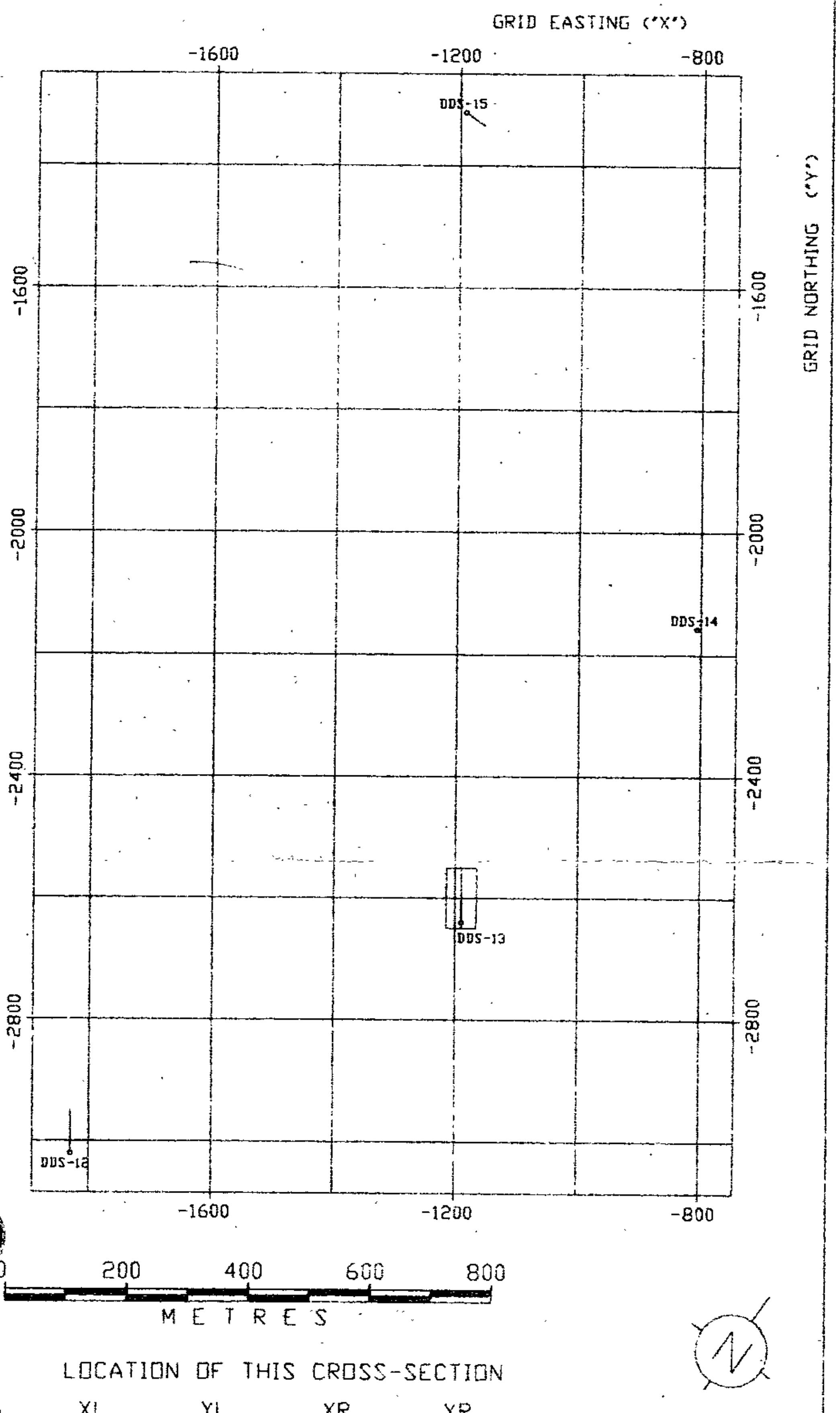
Dip: -46 degrees

Final depth: 65.68 m

ROCKTYPE SYMBOLS

^^ ANDESITE

°o OVERBURDEN ++ MONZONITE



LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
-1190.	-2650.	-1190.	-2550.

WIDTH	ZT	ZB
50.	1380.	1250.

LOOKING W

DATA FILE:\EXPL\BALLCK\GEOLOG\DHLIST

ASSAY CUTOFF: 20.00, 100

POSTED DATA

ASSAYS DH ASSAYS

AU1 CU

PLACER DOME EXPLORATION LIMITED

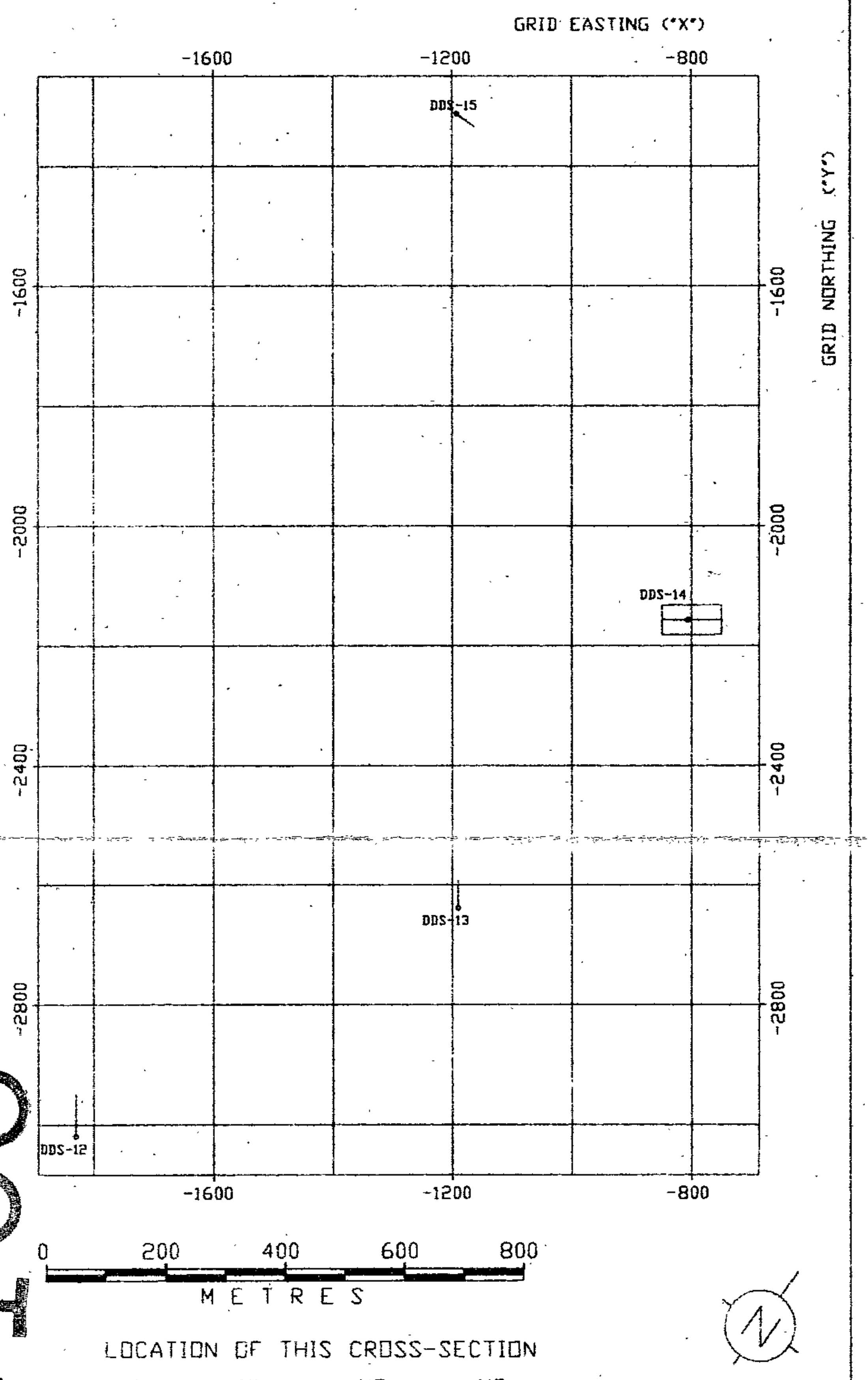
DRAWN BJR	BALL CREEK PROJECT 243 CROSS SECTION -1190W PPB AU AND PPM CU
DATE 23/11/90	
SCALE 1:500	
	NO **Figure: 10**

DDS-14

ROCKTYPE SYMBOLS

+ MONZONITE

∴ OVERBURDEN ^^ ANDESITE

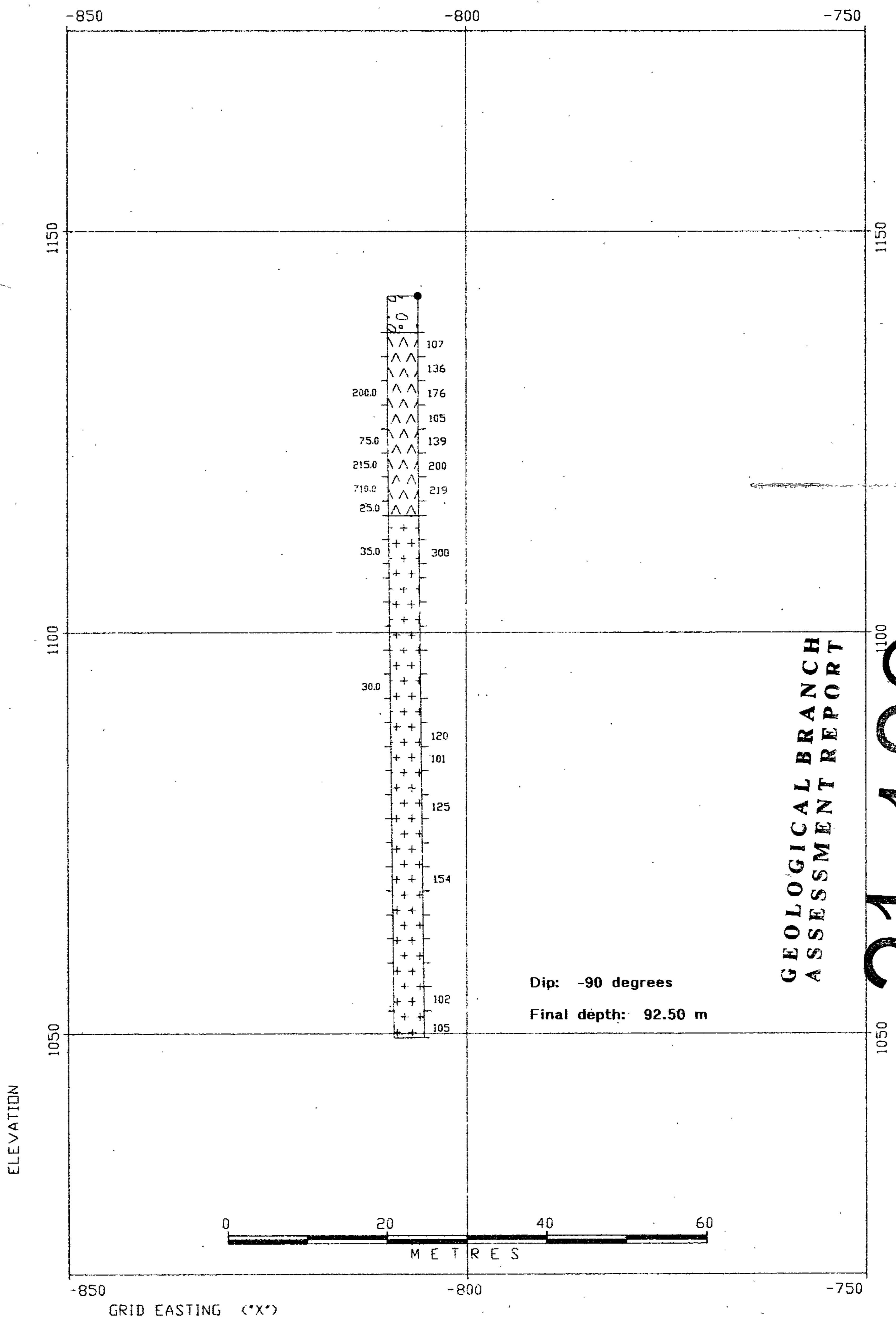


LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
-850.	-2157.	-750.	-2157.

WIDTH	ZT	ZB
50.	1150.	1049.

LOOKING N



Dip: -90 degrees

Final depth: 92.50 m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,180

DATA FILE:\EXPL\BALLCK\GEOLOG\DHLIST

ASSAY CUTOFF: 20.00, 100

POSTED DATA
ASSAYS DH ASSAYS
AU1 CU

PLACER DOME EXPLORATION LIMITED

DRAWN BJR
DATE 23/11/90
SCALE 1:500

BALL CREEK PROJECT 243
CROSS SECTION -2157S
PPB AU AND PPM CU

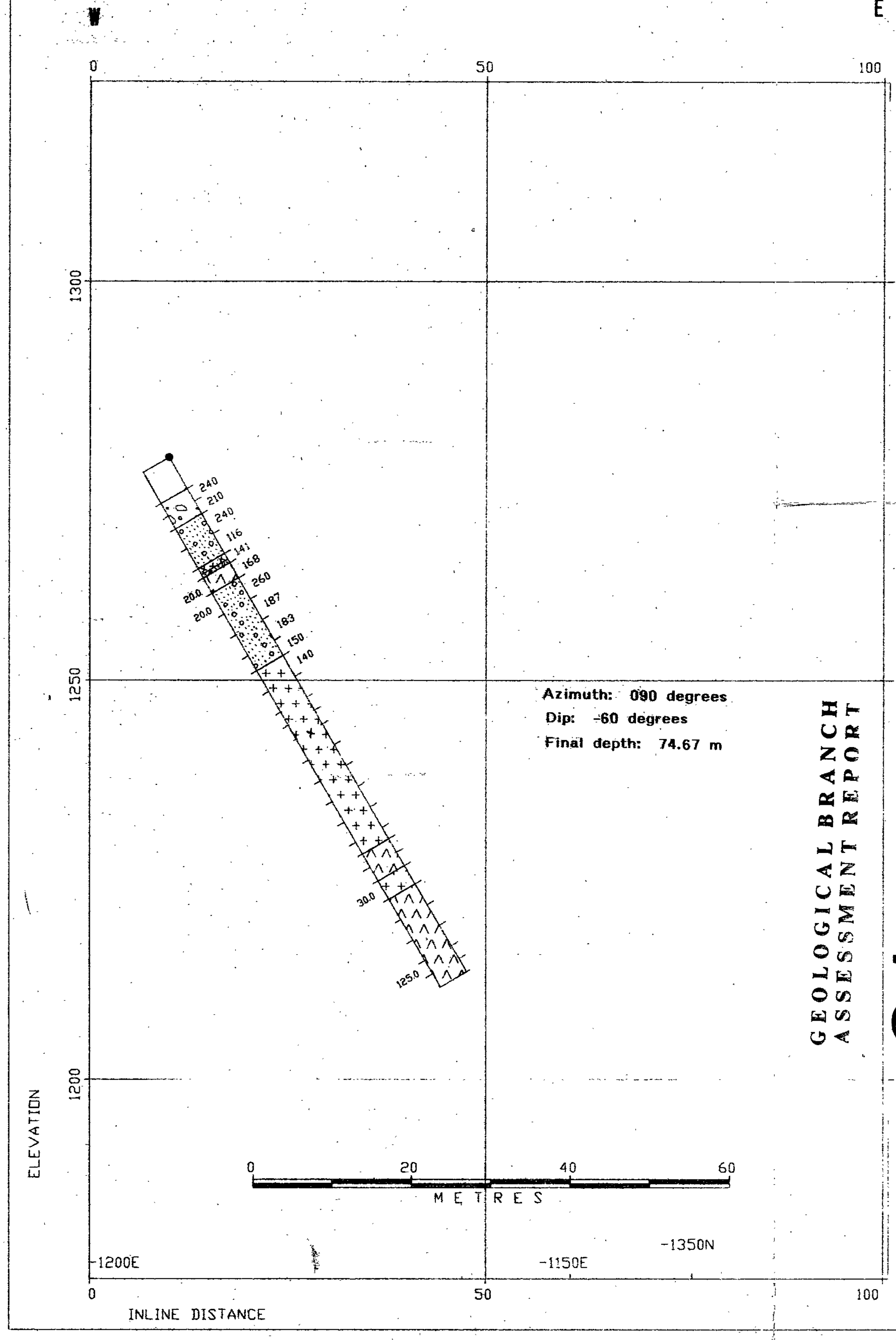
NO.

Figure: 11

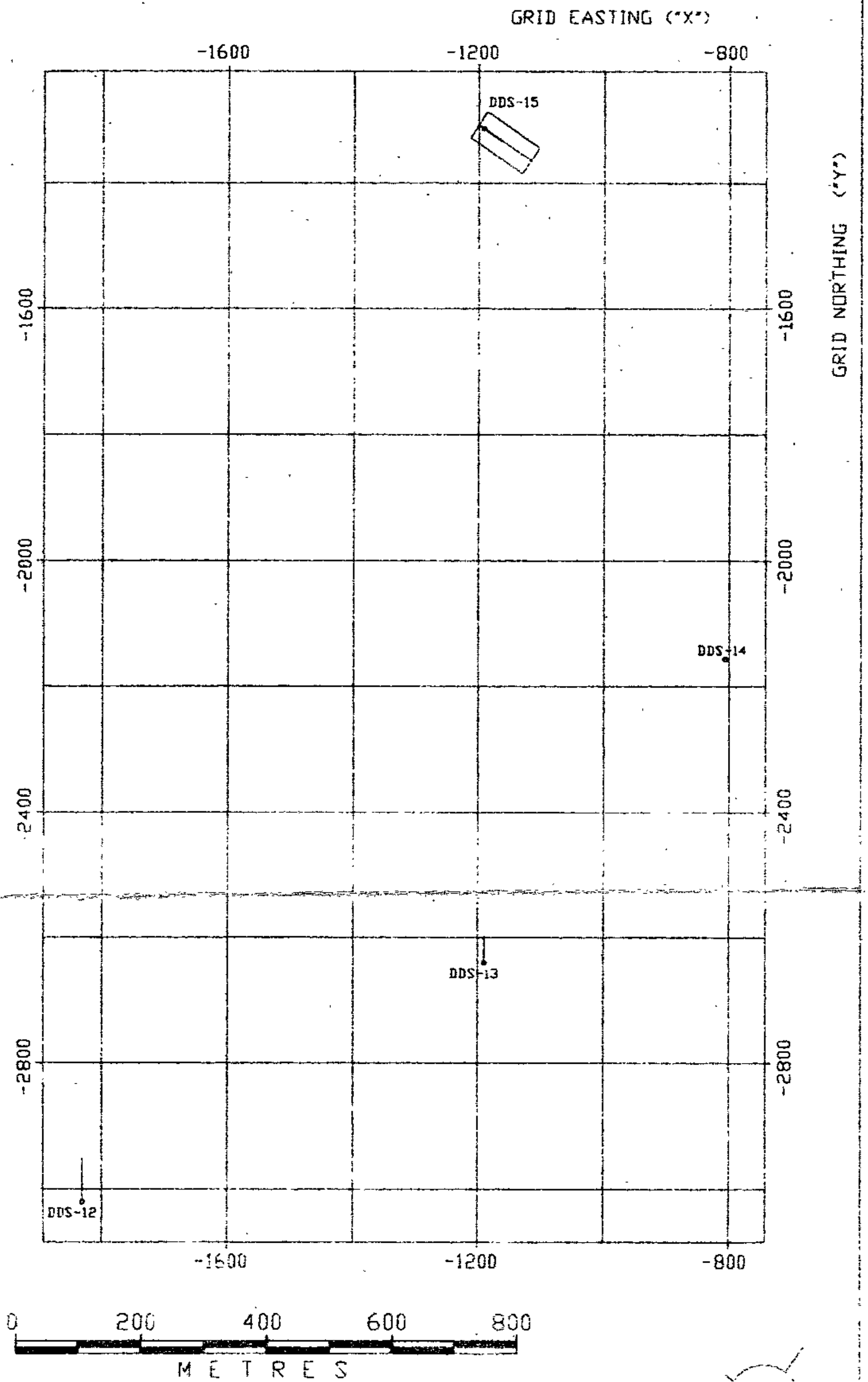
DDS-15

ROCKTYPE SYMBOLS

- ^^ ANDESITE
- ⁘ ANDESITE LAPILLI TUFF
- ++ MONZONITE
- ☐ LOST CORE
- ⁘ OVERBURDEN



Azimuth: 090 degrees
Dip: -60 degrees
Final depth: 74.67 m



GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,180

LOCATION OF THIS CROSS-SECTION

XL	YL	XR	YR
-1200.	-1307.	-1117	-1364.

WIDTH	ZT	ZB
50.	1300.	1200.

LOOKING N

DATA FILE:\EXPL\BALLCK\GEOLOG\DHLIST

ASSAY CUTOFF: 20.00, 100

POSTED DATA
ASSAYS AU1 | DH | ASSAYS CU

PLACER DOME EXPLORATION LIMITED

DRAWN BJR
DATE 23/11/90
SCALE 1:500
NO.

BALL CREEK PROJECT 243
CROSS SECTION -1313S
PPB AU AND PPM CU

Figure: 12

LEGEND

GROUP TWO (Lower Jurassic ?) Mainly epiclastics & basalt.

- 12 Andesitic lapilli tuff, locally crystal rich
- 11 Andesitic greywacke
- 10 Andesitic conglomerate, sometime with limestone clasts
- 9 Limestone
- 8 Well-bedded, graded andesitic greywacke – conglomerate
- 7 Basaltic mudstone
- 6 Basalt flows.
  - 6a pillowed, amygdaloidal
  - 6b non-pillowed porphyritic &/or vesicular

UNCONFORMITY

GROUP ONE (Upper to Late Triassic). Mainly andesitic country rocks intruded by monzonite.

- 5 Andesitic lahar. Contains clasts of Unit 2,3 & 4
  - 5a lahar with Unit 2 clasts only & with minor interbeds of andesitic pyroclastics. Intruded by andesite dykes labelled as 2c
- 4 K-spar megacrystic andesite with trachytic flow texture
  - 4a plug
  - 4b flows
  - 4c dykes
- 3 Monzonitic intrusive (K-Ar date = Late Triassic) – undifferentiated monzonite
  - 3a lower dyke latite porphyry
  - 3b upper dyke monzonite porphyry
  - 3c ridge dyke monzonite porphyry
- 2 Andesite – either pyroclastic or flow
  - 2a pyroclastics
  - 2b flows
  - 2c dykes
- 1 Sedimentary rocks
  - 1a black siliceous argillite
  - 1b brown well-bedded siltstone with Norian (Upper Triassic) fossils

Attitudes (inclined, vertical) of :

- Bedding
- Joint
- Cleavage
- Shearing
- Lineation
- Primary flow structures in igneous rocks
- Dyke
- Vein (indicating gangue & width) CB 2cm

- Outcrop boundary
- Fault (observed or topographic trace). Dip indicated.
- Geological contact (inferred)
- Flow contact
- ● Soil sample site
- ○ Stream sediment sample site
- △ 4307 Rock sample site
- Rock sampling line (random chips)
- Diamond drill hole projection (1973,74,&75 holes)
- Diamond drill hole projection (1990 holes)

21180

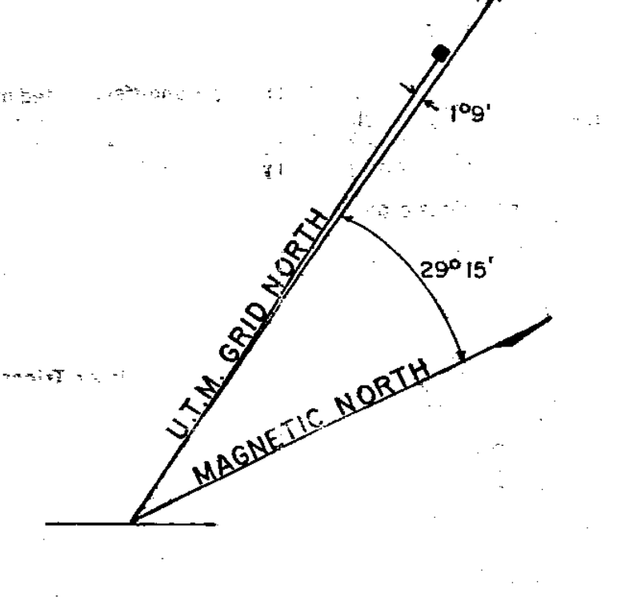
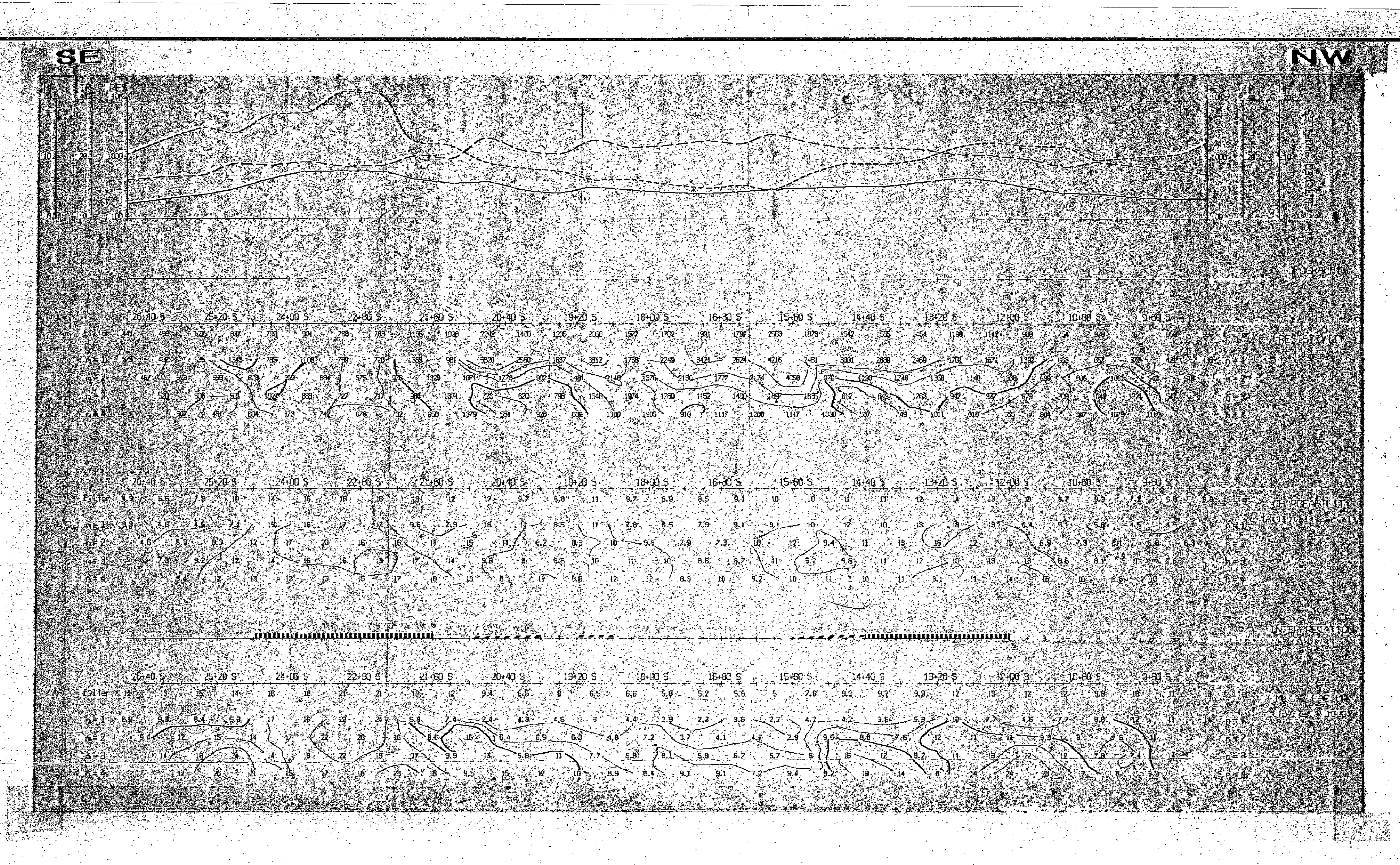


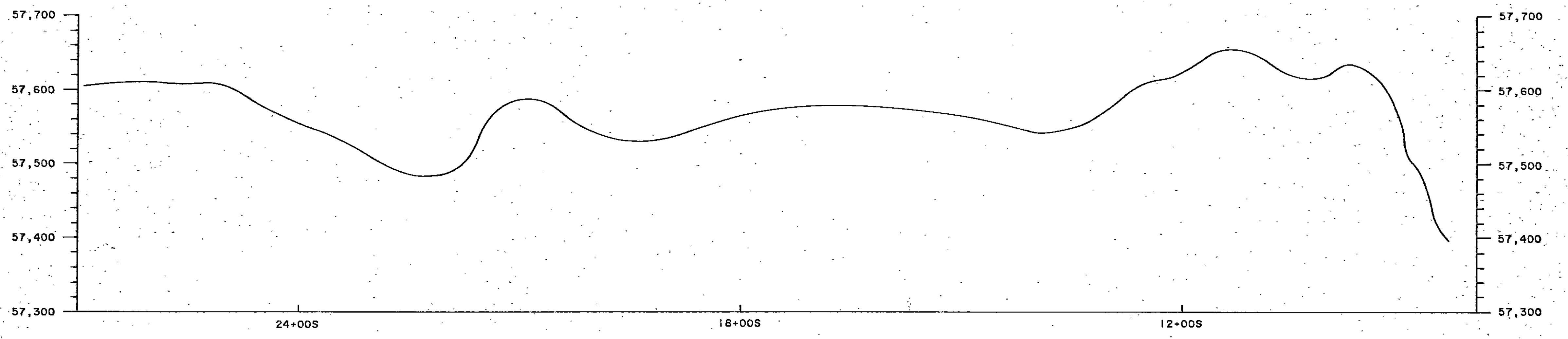
FIGURE 5

0 100 200 400 800
METRES

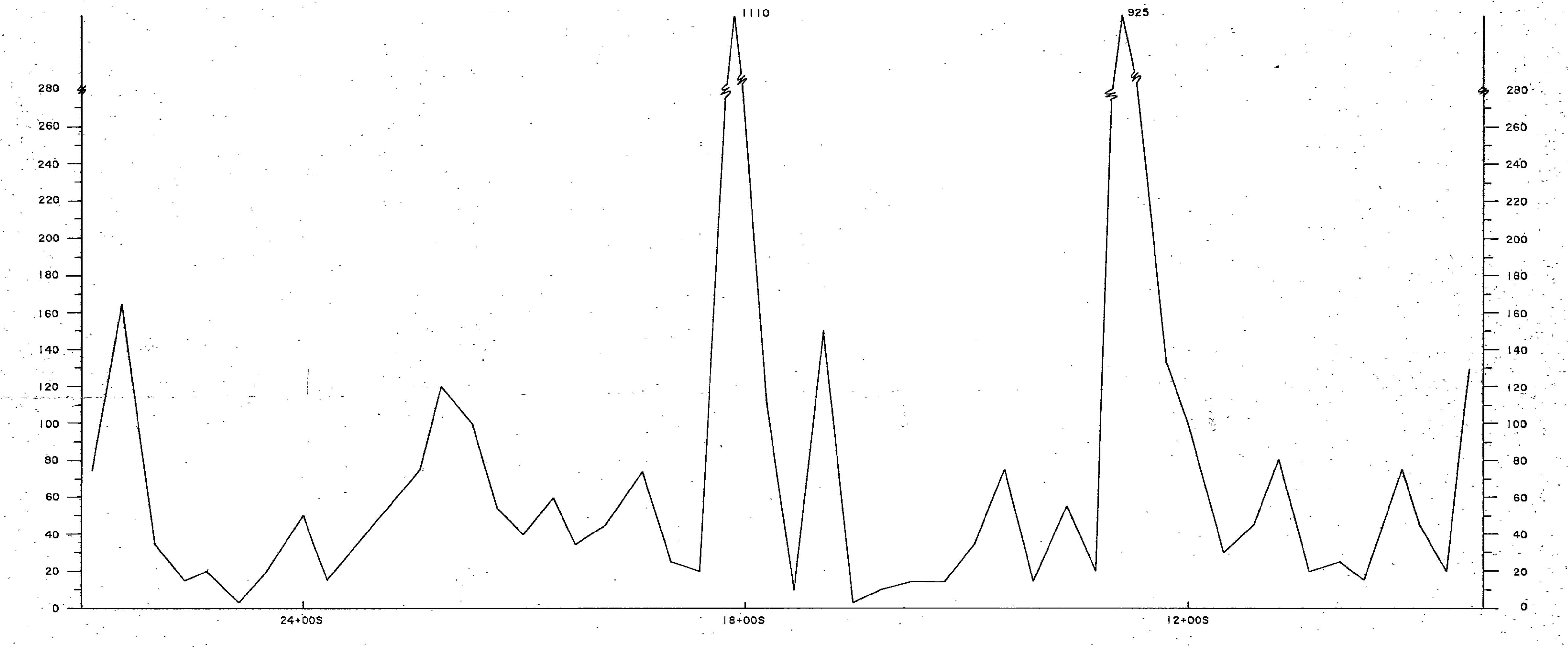
PLACER DOME EXPLORATION LTD.	
BALL CREEK PROJECT	
DRAWN BY : R.TURNA	GEOLOGY AND DIAMOND DRILLING PLAN
DATE : NOV. 1990	
SCALE 1:5000	
REVISED : J. BARIL	FILE Nº. V 243 104 G/8W



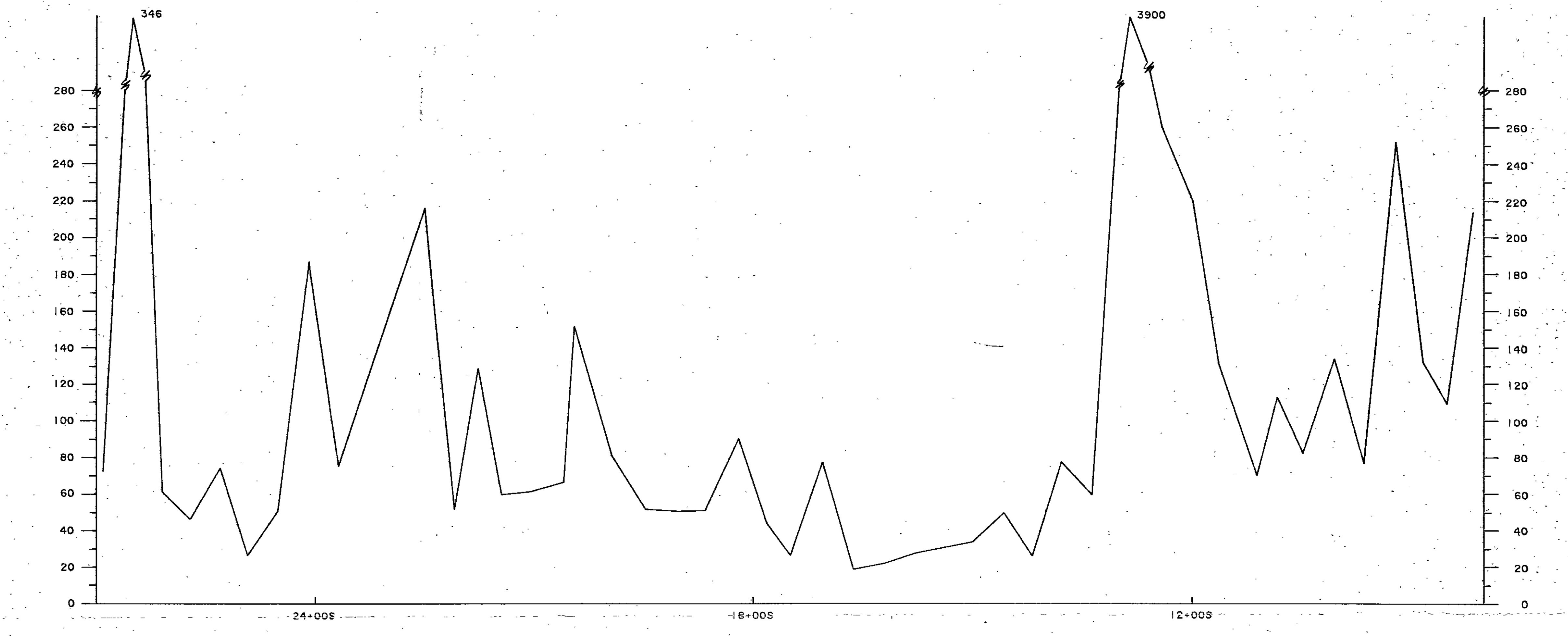
INDUCED POLARIZATION SURVEY



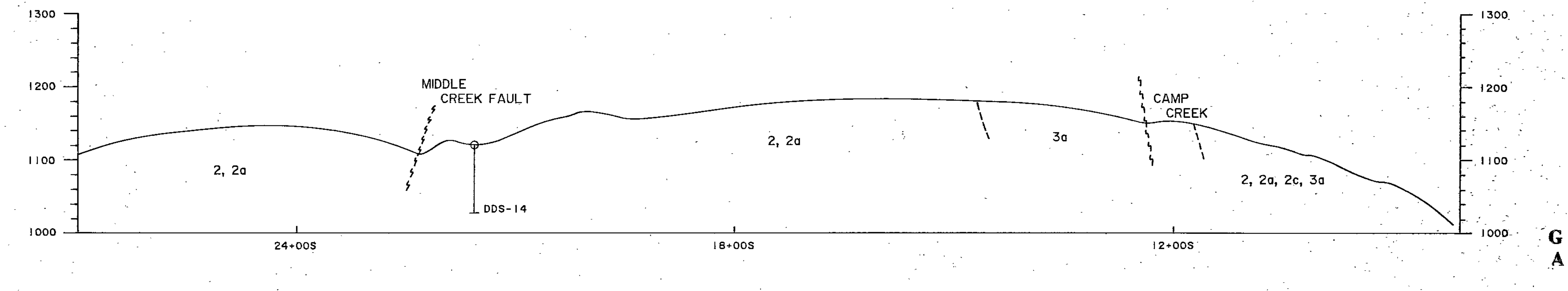
MAGNETIC DATA (nanoteslas)



SOIL GEOCHEMISTRY- GOLD (ppb)



SOIL GEOCHEMISTRY- COPPER (ppm)



GEOLOGY- CROSS SECTION (metres)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,180

LEGEND

ROCK UNITS

Upper to Late Triassic

5	Andesitic lahar. Contains clasts of Unit 2, 3 & 4 5a lahar with Unit 2 clasts only & with minor interbeds of andesitic pyroclastics. Intruded by andesite dykes labelled as 2c
4	K-spar megacrystic andesite with trachytic flow texture 4a plug 4b flows 4c dykes
3	Monzonitic intrusive (K-Ar date = Late Triassic) - undifferentiated monzonite 3a lower dyke latite porphyry 3b upper dyke monzonite porphyry 3c ridge dyke monzonite porphyry
2	Andesite - either pyroclastic or flow 2a pyroclastics 2b flows 2c dykes
1	Sedimentary rocks 1a black siliceous argillite 1b brown well-bedded siltstone with Norian (Upper Triassic) fossils

GEOLOGICAL SYMBOLS

- Fault
- Geological contact (inferred)
- Diamond drill hole
- Off-section diamond drill hole projection

INDUCED POLARIZATION SURVEY SYMBOLS

Filtered Profiles

Resistivity	— — —	filter
Polarization	———	
Metal Factor	- - - - - - -	
Logarithmic Contours	1, 1.5, 2, 3, 5, 7.5, 10, . . .	

Interpretation

- Well defined, strong increase in polarization with or without marked decrease in resistivity
- Fairly well defined moderate increase in polarization
- Poorly defined polarization increase
- Resistivity feature

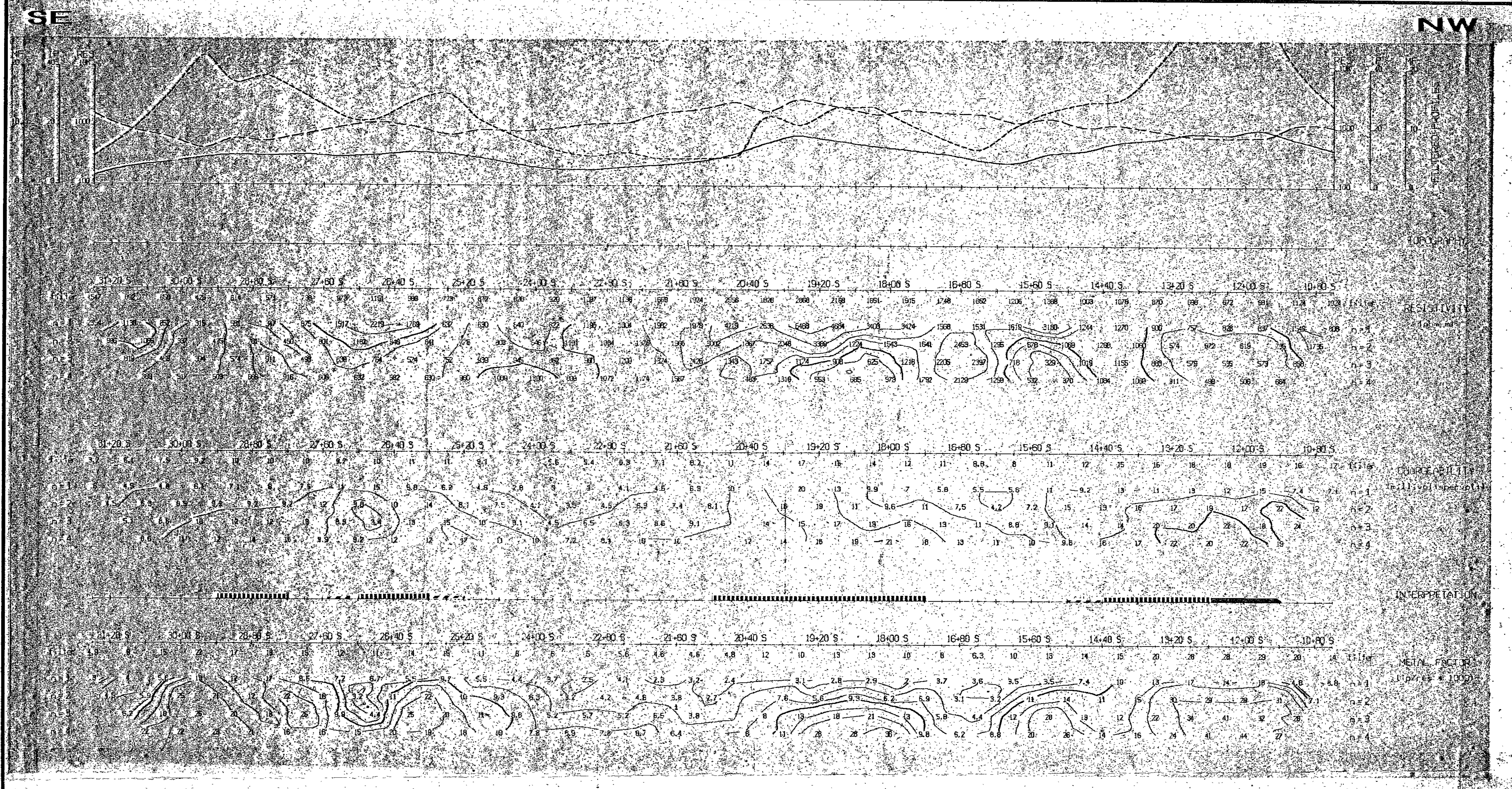
FIGURE 6

0 100 200 400 800
METRES

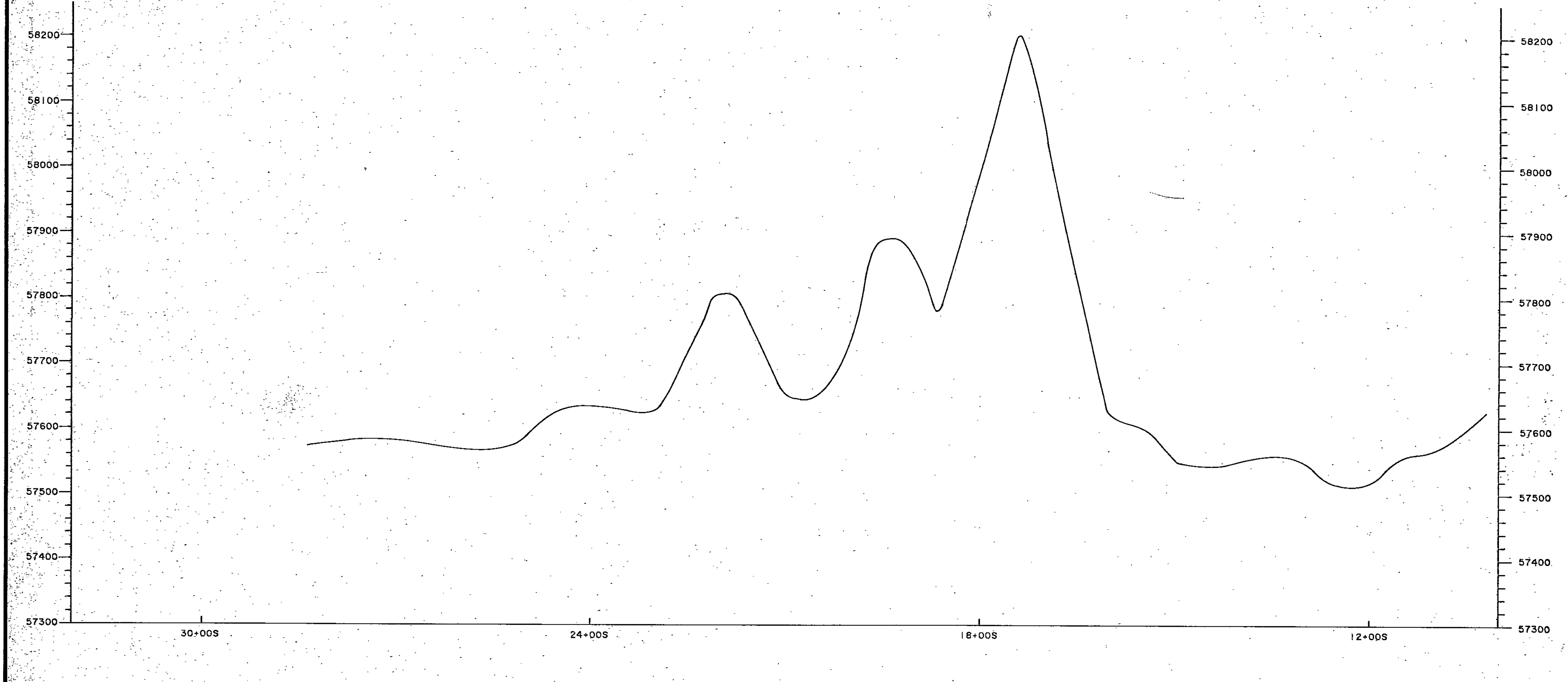
PLACER DOME EXPLORATION LTD.

BALL CREEK PROJECT

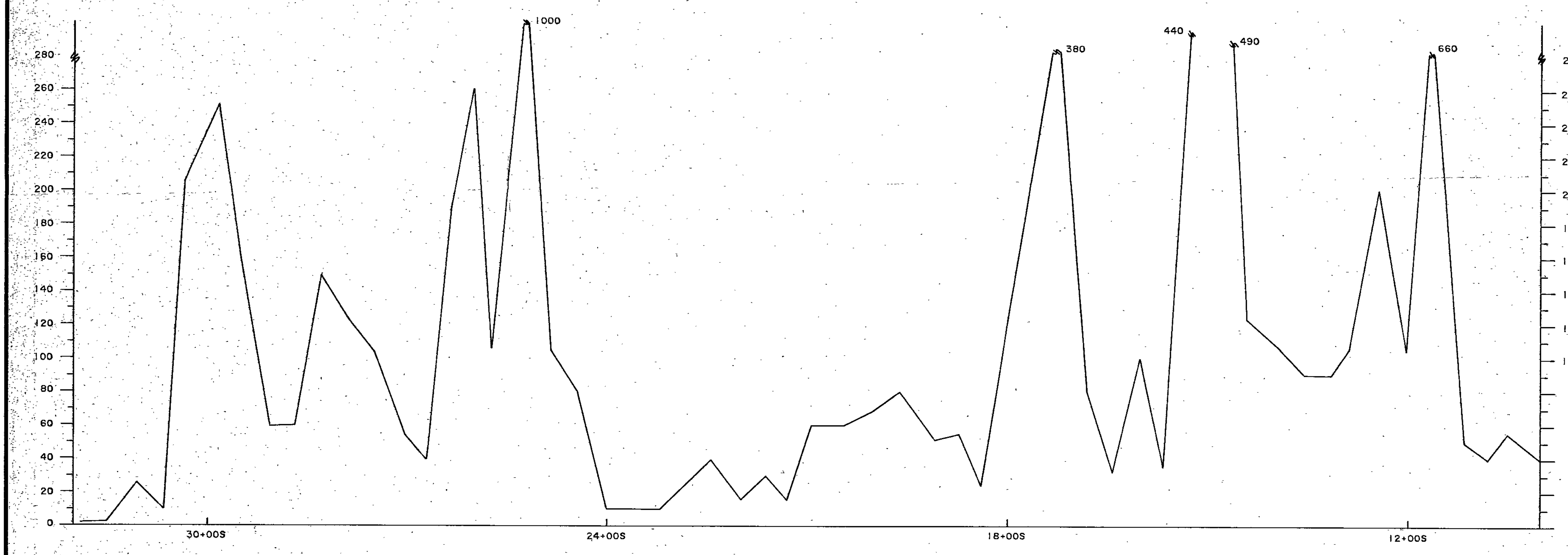
DRAWN BY : HANDESIGN	STACKED PROFILES LINE 800W (Looking southwest)
DATE : NOV. 1990	
SCALE 1 : 5000	
REVISED :	FILE Nº : 243 104 G/8W



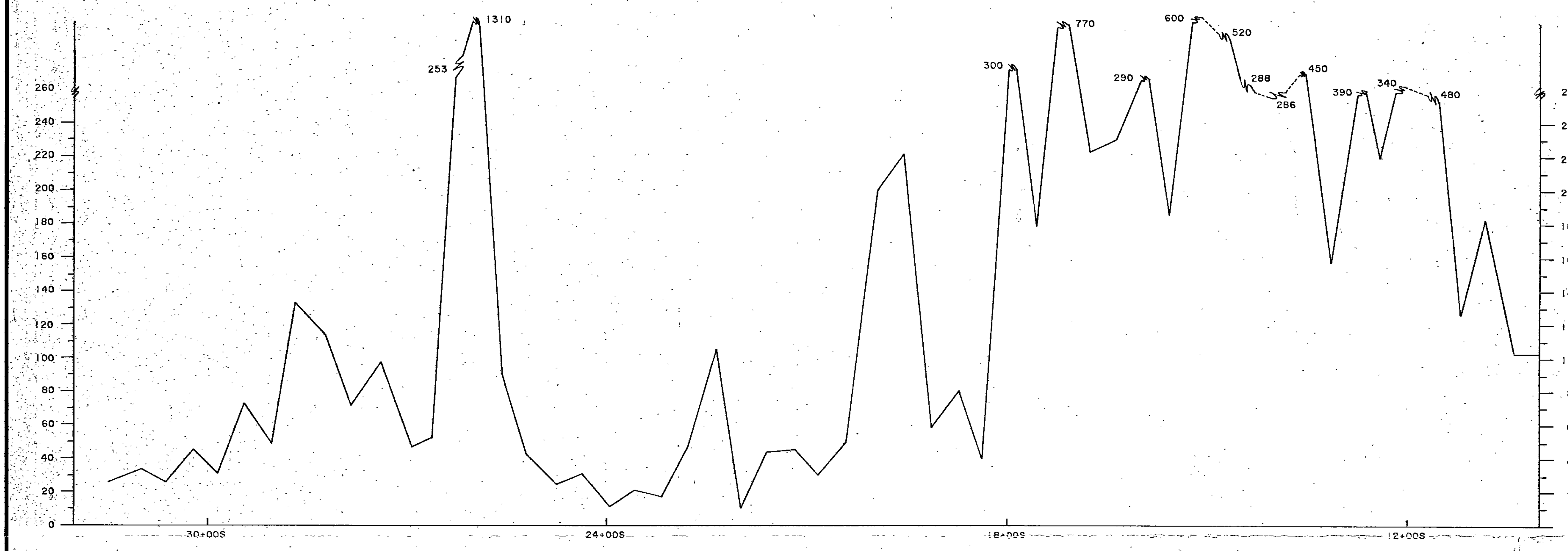
INDUCED POLARIZATION SURVEY



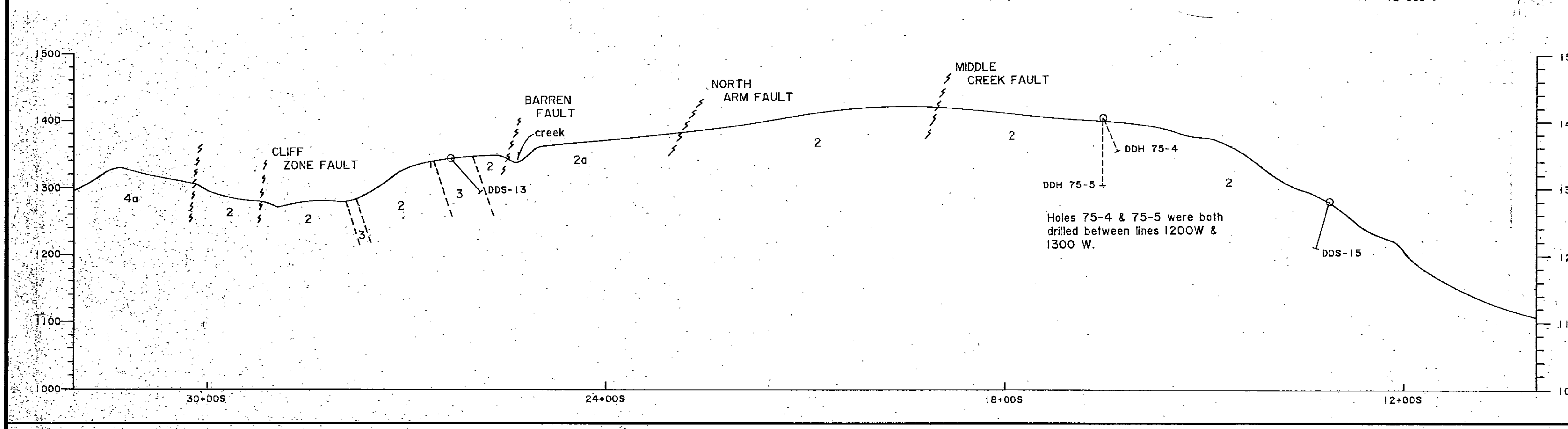
MAGNETIC DATA (nanoteslas)



SOIL GEOCHEMISTRY-GOLD (ppb)



SOIL GEOCHEMISTRY-COPPER (ppm)



Holes 75-4 & 75-5 were both drilled between lines 1200W & 1300 W.

GEOLOGY-CROSS SECTION (metres)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

21,180

LEGEND

ROCK UNITS

Upper to Late Triassic

5	Andesitic lahar. Contains clasts of Unit 2, 3 & 4 5a lahar with Unit 2 clasts only & with minor interbeds of andesitic pyroclastics. Intruded by andesite dykes labelled as 2c
4	K-spar megacrystic andesite with trachytic flow texture 4a plug 4b flows 4c dykes
3	Monzonitic intrusive (K-Ar date = Late Triassic) - undifferentiated monzonite 3a lower dyke latite porphyry 3b upper dyke monzonite porphyry 3c ridge dyke monzonite porphyry
2	Andesite - either pyroclastic or flow 2a pyroclastics 2b flows 2c dykes
1	Sedimentary rocks 1a black siliceous argillite 1b brown well-bedded siltstone with Norian (Upper Triassic) fossils

GEOLOGICAL SYMBOLS

⌇⌇⌇⌇⌇	Fault
– – – –	Geological contact (inferred)
—○	Diamond drill hole
- - -○	Off-section diamond drill hole projection

INDUCED POLARIZATION SURVEY SYMBOLS

Filtered Profiles

Resistivity	— — —
Polarization	———
Metal Factor	- - - - - - - -
Logarithmic Contours	1, 1.5, 2, 3, 5, 7.5, 10, . . .

filter
*
* *
* * *
* * * *

Interpretation

▬▬▬	Well defined, strong increase in polarization with or without marked decrease in resistivity
▮▮▮▮▮▮	Fairly well defined moderate increase in polarization
▰ ▰ ▰ ▰	Poorly defined polarization increase
	Resistivity feature

FIGURE 7

0 100 200 400 800
METRES

PLACER DOME EXPLORATION LTD.

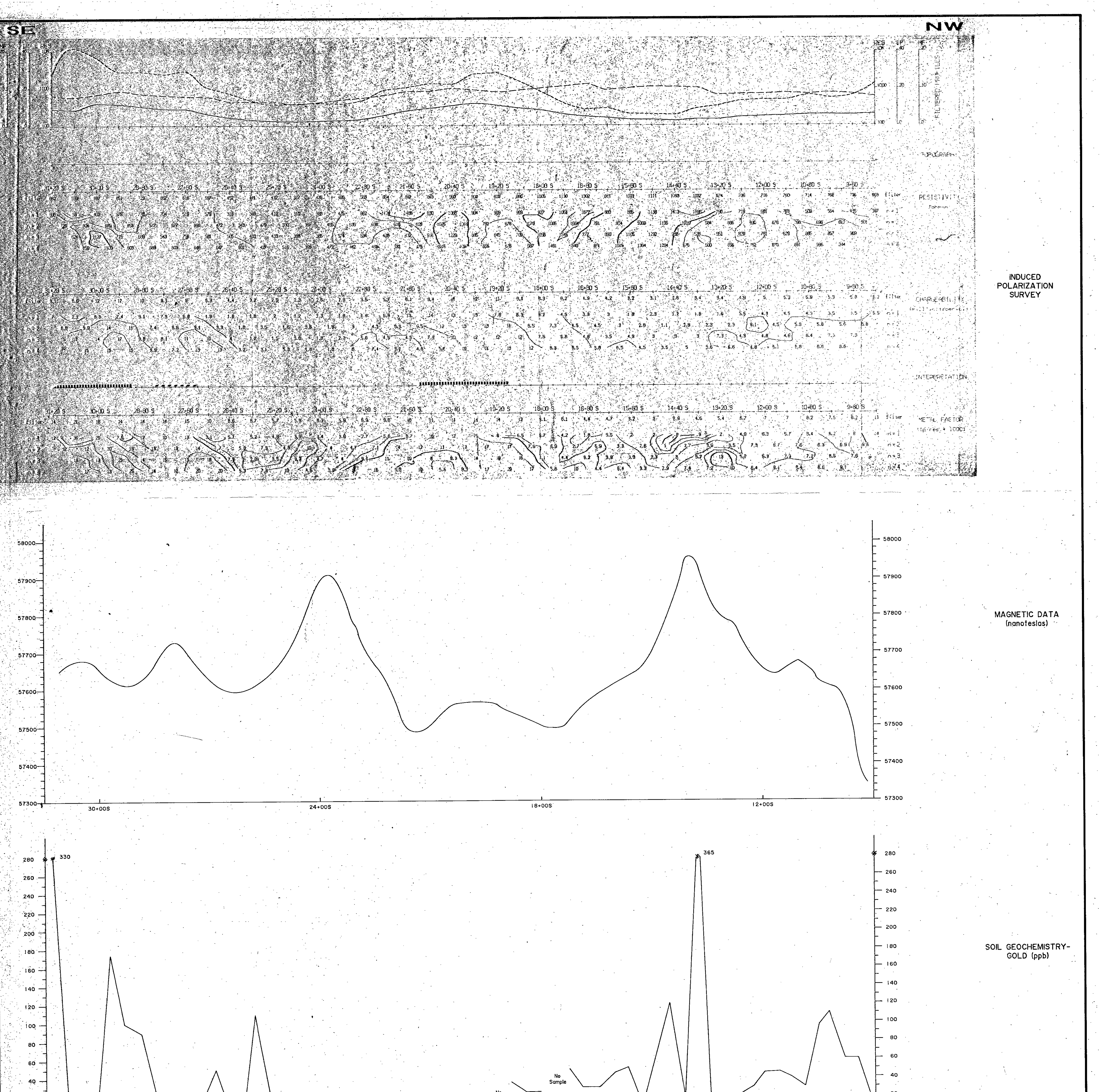
BALL CREEK PROJECT

DRAWN BY : HANDESIGN
DATE : NOV. 1990
SCALE 1 : 5000
REVISED :

STACKED PROFILES
LINE 1200W
(Looking southwest)

FILE Nº. : 243

104 G/8W



GEOLOGICAL BRANCH ASSESSMENT REPORT

21,180

LEGEND

ROCK UNITS

Upper to Late Triassic

5	Andesitic lahar. Contains clasts of Unit 2, 3 & 4 5a lahar with Unit 2 clasts only & with minor interbeds of andesitic pyroclastics. Intruded by andesite dykes labelled as 2c
4	K-spar megacrystic andesite with trachytic flow texture 4a plug 4b flows 4c dykes
3	Monzonitic intrusive (K-Ar date = Late Triassic) - undifferentiated monzonite 3a lower dyke latite porphyry 3b upper dyke monzonite porphyry 3c ridge dyke monzonite porphyry
2	Andesite - either pyroclastic or flow 2a pyroclastics 2b flows 2c dykes
1	Sedimentary rocks 1a black siliceous argillite 1b brown well-bedded siltstone with Norian (Upper Triassic) fossils

GEOLOGICAL SYMBOLS

⌇⌇⌇⌇	Fault
— — —	Geological contact (inferred)
—○	Diamond drill hole
- - -○	Off-section diamond drill hole projection

INDUCED POLARIZATION SURVEY SYMBOLS

Filtered Profiles

Resistivity	— — —
Polarization	———
Metal Factor	- - - - - -
Logarithmic Contours	1, 1.5, 2, 3, 5, 7.5, 10, . . .

filter

Interpretation

▬▬▬	Well defined, strong increase in polarization with or without marked decrease in resistivity
▮▮▮▮▮	Fairly well defined moderate increase in polarization
▰ ▰ ▰	Poorly defined polarization increase
	Resistivity feature

FIGURE 8

0 100 200 400 800
METRES

PLACER DOME EXPLORATION LTD.

BALL CREEK PROJECT

DRAWN BY : HANDESIGN	STACKED PROFILES LINE 1800W (Looking southwest)
DATE : NOV. 1990	
SCALE 1 : 5000	
REVISED :	FILE Nº : 243 104 G/8W