MAP NO.:			
116 B 8	**ASSESSMENT REPORT** X **PROSPECTUS** **CONFIDENTIAL** X **OPEN FILE**	**DOCUMENT NO:** 092787 **MINING DISTRICT:** Dawson **TYPE OF WORK:** Geology, Geochemistry

REPORT FILED UNDER: Total Energold Corporation Ltd.

DATE PERFORMED: June 20 - August 23, 1989 **DATE FILED:** December 8, 1989

LOCATION: **LAT.:** 64° 18'N **AREA:** Antimony Mountain

LONG.: 138° 45'W **VALUE $:** 220 200.00

CLAIM NAME & NO.: BUZ 1-6 YB 04013-04018 HUD 1-12 YB 04001- YB04012 HUD 13-14 YB 17940-17941 TOOTH 1-35 YB 17966-18000 TOOTH 36-61 YB23001-23026 TOOTH 63 YB 23028 TOOTH 65 YB 23030 TOOTH 68 YB 23033 TOOTH 70-96 YB 23035-23061 TOOTH 98 YB 23063 TOOTH 98 YB 23063 TOOTH 101 YB 23066 TOOTH 103-180 YB 23068-23145

WORK DONE BY: K. Pelletier

WORK DONE FOR: Total Energold Corporation

DATE TO GOOD STANDING:	

REMARKS: #81 THOR, #73 O'BRIEN Five arsenopyrite-pyrite-quartz-tourmaline-calcite-chalcopyrite-pyrrhotite veins occur within metasediments and a diorite-monzonite intrusion. A total of 245 rock chip samples and 1012 soil and silt samples were taken. The JC vein is 30-50 cm wide and continuous for 130 metres with sporadic gold values of up to 0.412 ounces per ton.

OFFICE OF THE REGIONAL MANAGER
MINERAL RIGHTS
DEC 08 1989
WHITEHORSE
YUKON TERRITORY

GEOLOGICAL AND GEOCHEMICAL REPORT ON THE BUZ 1-14, HUD 1-6 AND TOOTH 1-180 CLAIMS

O'BRIEN PROPERTY
Antimony Mountain Area
Dawson Mining District
NTS 116 B/8
Lat. 64° 18' N, Long. 138° 45' W

Owner: TOTAL ENERGOLD CORPORATION
#21-1114 First Avenue
Whitehorse, Yukon
Y1A 1A3

092787

work performed: June 20 to August 23, 1989

By: K. Pelletier and T. Tucker
November, 1989

RECEIVED
DEC 4 1989
MINING
RECORDERS OFFICE
DAWSON, Y.T.

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 220,200.00.

Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

SUMMARY

Five mineral occurrences are found on the property, the JC, Rainbow, TK, TT and Toby veins, composed of arsenopyrite-pyrite-quartz-tourmaline-calcite ±chalcopyrite ±pyrrhotite. Two pyrrhotite-diopside skarns are also found on the property. The JC and Rainbow veins and calc-silicate skarns are located on the Buz and Hud Claims while the TT and Toby veins are on the Tooth Claims.

The JC vein is 30-50 cm wide and continuous for 130 m with sporadic values up to 0.412 opt Au. Located on a steep mountain slope, the Rainbow vein can be traced for 170 m, is continuous for 85 m and averaged 0.19 opt Au in 19 one metre samples. Float from the TK trench assayed 0.32 opt Au.

The TT vein is approximately 25-35 cm in width and continuous for 200 m with values of 0.054 and 0.047 opt Au. The Toby vein is exposed in two trenches approximately 15 m apart and has values less than 0.1 opt.

Two skarn showings on North Ridge and Antimony Creek contain up to 2 m of massive pyrrhotite and pyrite. No significant gold values were returned.

A total of 245 rock chip samples and 1012 soil and silt samples were taken on the property including 151 soil samples collected on the Thor grid. The JC, Rainbow and TK showings were strongly reflected in the soil results. Contour soil samples along the slope where the TK trench float occurs showed anomalous Au. Anomalous silt sample results up to 172 ppb Au and 1030 ppm As were found at the headwaters of Antimony Creek below the JC and Rainbow showings.

Lost Creek, Skarn Gulch and Toby Gulch have possibly anomalous gold values that reflect the Toby and TT veins. The upper reaches of Jan Creek and Hawk Creek have anomalous silt geochemical gold values from areas draining the intrusive. The Walker claim antimony vein is the only showing in the vicinity but is too distant from these drainages to be a possible source.

Four drill holes were previously drilled on the Buz and Hud claims by Anaconda in 1980. Vein intersections were not assayed for Au but significant Ag values up to 39.9 ppm over 1 m were reported. Drill core will be resampled for Au assays.

TABLE OF CONTENTS

Summary		i
1.0	Introduction	1
2.0	Location, Access and Claim Information	1
3.0	History	1
4.0	Regional Geology	3
5.0	Buz and Hud Claims Exploration	
5.1	Local Geology, Mineralization and Prospecting	3
5.2	Geochemistry	9
6.0	Tooth Claims Exploration	
6.1	Local Geology, Mineralization and Prospecting	12
6.2	Geochemistry	13
7.0	Conclusions and Recommendations	14
8.0	Statement of Costs	16
9.0	References	17
10.0	Statement of Qualifications	18

LIST OF FIGURES

1.	Regional Location Map	2
2.	Property Location Map	4
3.	Geology Map of the O'Brien Property	in pocket
4.	Thor Grid Map	in pocket
5.	Geology of the Rainbow Vein	7
6.	Geochemistry of the Rainbow Vein	8
7.	Thor Grid Contour Map for Au	in pocket
8.	Thor Grid Contour Map for As	in pocket
9.	Thor Grid Contour Map for Ag	in pocket
10.	Thor Grid Contour Map for Cu	in pocket
11.	Thor Grid Contour Map for Pb	in pocket
12.	Thor Grid Contour Map for Zn	in pocket
13.	Regional Geochemistry Map for Au and As	in pocket
14.	Regional Geochemistry Map for Ag,Cu,Pb and Zn	in pocket

IN APPENDIX

Appendix 1. Assay Results
Appendix 2. Analytical Procedures

1.0 INTRODUCTION

Exploration work was carried out by Total Energold Corporation on the Buz, Hud and Tooth claims between June 20 and August 23, 1989. Regional geochemical and geological surveys were conducted over the entire property, and grid geochemistry and hand trenching were done within the Buz and Hud claims.

This report provides a summary of the details, results and costs of the work done during 1989 and recommends an exploration program for 1990.

2.0 LOCATION, ACCESS AND CLAIM INFORMATION

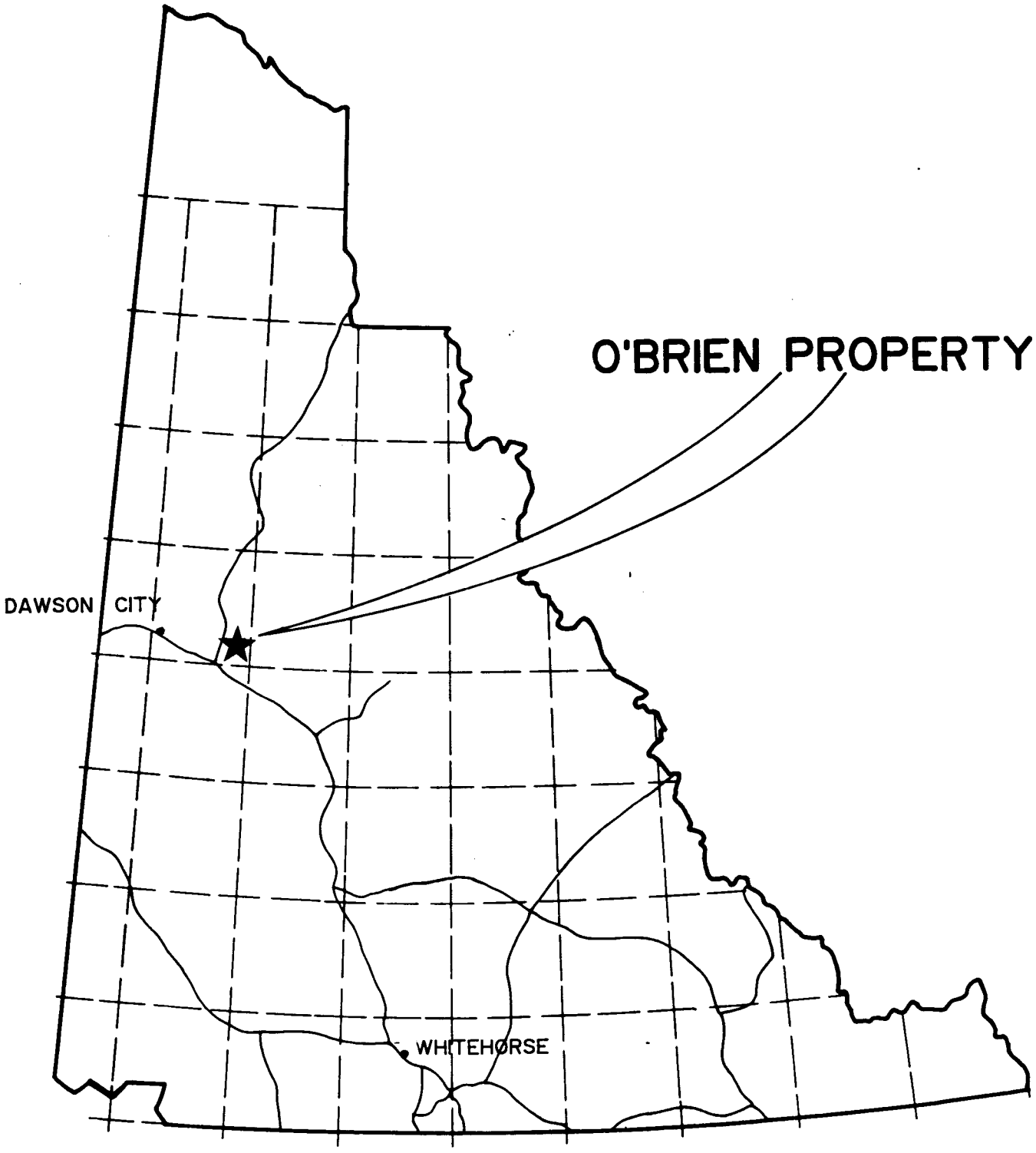
The Buz, Hud and Tooth claims, collectively named the O'Brien Property, are located in northwestern Yukon within the Dawson Mining District (Figure 1). The center of the property is at approximately latitude 64°18'N and longitude 138°13'W on claim sheet 116B/8. It comprises 198 claims owned by Total Energold Corporation; particulars of the claims are as follows.

Claim Name		Record Number	Record Date	Expiry Date
TOOTH	1-35	YB17966-18000	16/09/88	01 Jan 1994
TOOTH	36-61	YB23001-23026	16/09/88	01 Jan 1994
TOOTH	63	YB23028	16/09/88	01 Jan 1994
TOOTH	65	YB23030	16/09/88	01 Jan 1994
TOOTH	68	YB23033	16/09/88	01 Jan 1994
TOOTH	70-96	YB23035-23061	16/09/88	01 Jan 1994
TOOTH	98	YB23063	16/09/88	01 Jan 1994
TOOTH	101	YB23066	16/09/88	01 Jan 1994
TOOTH	103-180	YB23068-23145	16/09/88	01 Jan 1994
HUD	1-12	YB04001-04012	08/09/87	01 Jan 1995
HUD	13-14	YB17940-17941	08/09/87	01 Jan 1994
BUZ	1-6	YB04013-04018	08/09/87	01 Jan 1995

Access to the property is by helicopter, available for charter in Dawson City approximately 65 km to the west. The property is located approximately 15 km east of the Dempster Highway, about 100 km by road from Dawson, where supplies may be ferried from Bensen Creek along the highway. An overgrown cat trail exists to the Walker claims in the southeastern corner of the property.

3.0 HISTORY

The Thor 1-192 claims were initially staked in 1979 by Anaconda Canada Exploration Ltd. following reconnaissance exploration in the area to examine causes for anomalous



SCALE

0 100 200

KILOMETRES

TOTAL ENERGOLD CORPORATION

O'BRIEN PROPERTY

LOCATION MAP

N.T.S. 116 B/8	TECH: M.F.	DATE DEC. '88
SCALE: 1 : 555,000	D'TING:	FIGURE 1

stream sediments identified by the GSC. During the same year grid sampling and a MAX-MIN electromagnetic survey was conducted but the geophysical data was defaulted due to instrument failure. In 1980 the property was mapped in detail, hand trenching was done on vein showings and 4 NQ holes were drilled.

Anaconda Exploration Ltd. allowed the Thor claims to lapse and the property was restaked by Kim Hudson, a prospector and geologist, in 1987. She collected rock samples on the property during that year and the previous field season.

In 1988, Total Energold Corporation staked 180 claims (Tooth Claims) to cover the area surrounding the Antimony Stock. The Buz and Hud claims were optioned by Total Energold in 1989.

4.0 REGIONAL GEOLOGY

The O'Brien Property is underlain by late Proterozoic metasediments of the "Grit" unit and Cambrian-Ordovician calcareous sediments of the Road River Formation (Green, 1972). The metasediments have been folded and thrust faulted during Jurassic time and intruded by the Antimony Mtn. Stock during the mid-Cretaceous. The Antimony Mtn. stock forms part of a linear group of northwest trending alkaline plutons which parallel the northern margin of the Tintina Trench. Many of these intrusions are associated with precious metal mineralization.

The "Grit" unit comprises intercalated shale (SHL), metagreywacke (MGWK), meta-quartzite (MQTZ) and coarse-grained greywackes and quartz pebble conglomerates (GRIT). Relatively thin (<5 m) units of calc-silicate skarn(SKRN) occur locally within the section. The Road River Formation includes a calcareous greywacke and calcilutite unit (CGWK), locally interbedded with calcarenite (GSSD).

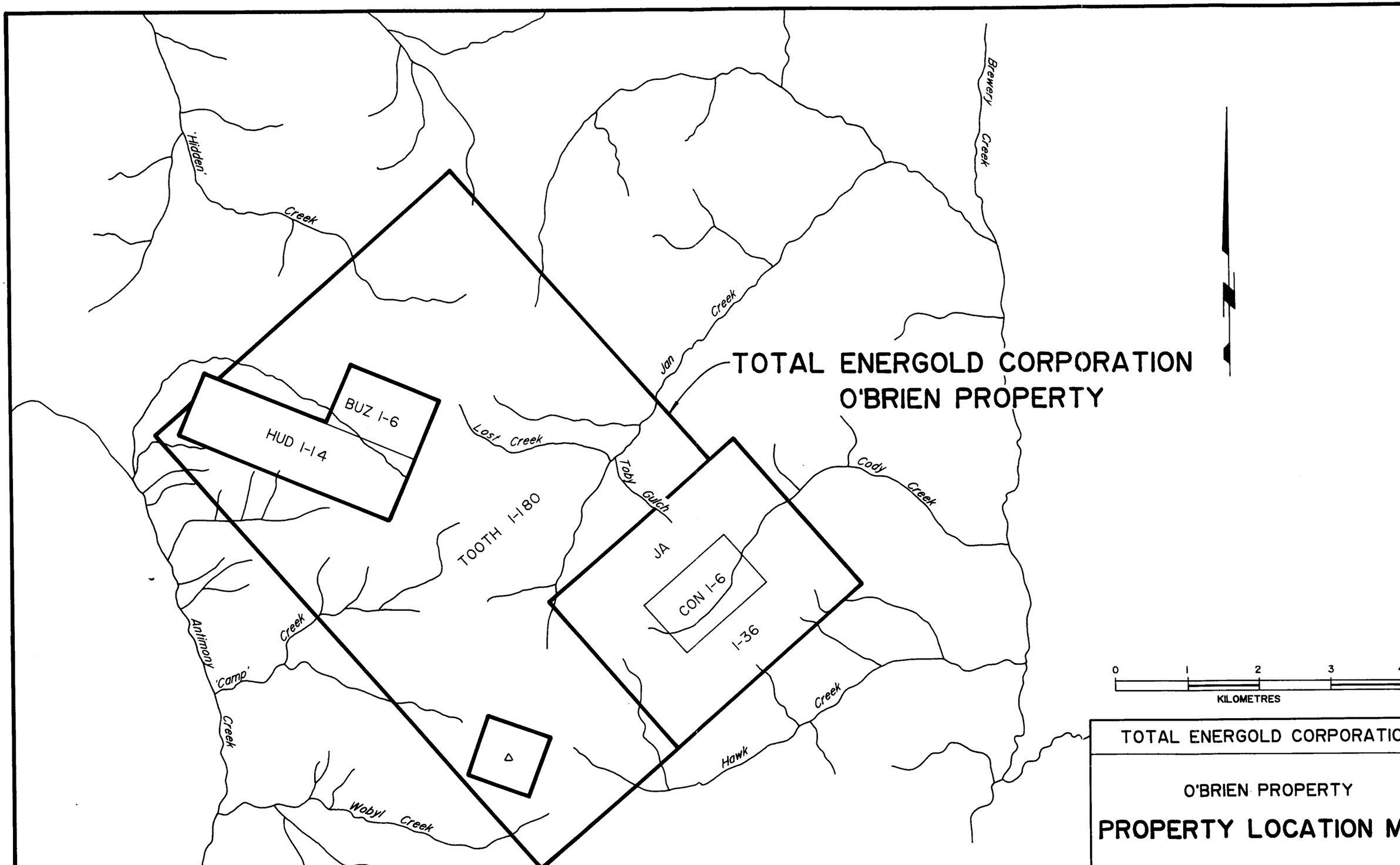
The Antimony Mtn. Stock forms an oblong-shaped intrusive body, approximately 7 x 4 km, which dominates the central part of the property and two related apophyses at the northern extension of the stock. It is composed of medium-grained, feldspar porphyritic hornblende monzonite and quartz-monzonite in its core, and fine to medium-grained diorite forms the margins of the pluton. Related diorite dykes and sills occur locally.

5.0 BUZ AND HUD CLAIMS 1989 EXPLORATION

5.1 Local Geology, Mineralization and Prospecting

The Buz and Hud claims are located within the northwestern part of the property (Figure 2), at the western contact of the Antimony Mtn. Stock. Hornfelsed metagreywacke is the

TOTAL ENERGOLD CORPORATION
O'BRIEN PROPERTY



0 1 2 3 4
KILOMETRES

TOTAL ENERGOLD CORPORATION

O'BRIEN PROPERTY

PROPERTY LOCATION MAP

N.T.S.: 116 B/8	TECH:	DATE: NOVEMBER 1989
SCALE: 1 : 50000	DRAUGHTING: kbdesign	FIGURE: 2

most abundant lithology in the area, and is at least 800 m thick on North Ridge. Both the meta-sediments and the Antimony Stock have undergone extensive alteration.

Adjacent to the contact with the Antimony Mountain Stock sedimentary rocks are intensely silicified, have undergone varying degrees of pyritization and locally have been intensely phyllically altered. Late stage tourmaline occurs within both the intrusion and adjacent metasediments, most commonly in vein structures.

Sediments throughout most of the property are rusty weathering due to the extensive pyrite alteration. Fine-grained and disseminated pyrite occurs within the country rock and as fine to medium-grained micro-fracture fill. It forms between 5% and 30% of the host rock, and is locally associated with finely disseminated pyrrhotite. Although pyritization is spacially related to the Antimony Mtn. Stock on a regional scale, on North Ridge it occurs up to 2.5 km away from the intrusion, suggesting that the stock is present at depth in the western part of the property.

Phyllic alteration appears locally in country rocks adjacent to the Antimony Mtn. Stock. Within the metasediments, phyllic alteration occurs along both fractures and bedding planes, forming bands ranging from 50 cm to up to 5 m wide. Within these alteration planes sediments are completely replaced by fine-grained sericite and chlorite, and are commonly associated with disseminated pyrite, pyrrhotite and tourmaline.

Potassic metasomatism is evident in the Antimony Stock near its contact with country rock. Medium-grained diorite is overprinted by fine-grained secondary biotite, feldspars are intensely sericitized and the fine-grained matrix is a characteristic light pink color due to secondary potassic feldspar overprinting plagioclase.

During mapping of the Buz and Hud property 46 rock chip samples and float of mineralized rocks were collected for assay. Results are shown on Figures 13 and 14.

Mineralization occurs within quartz-tourmaline-arsenopyrite-pyrite veins and quartz-chalcopyrite-arsenopyrite-pyrite-calcite veins ranging in thickness from 10 cm to up to 2 m wide. The three showings include the JC Vein at the headwaters of Antimony Creek, the Rainbow Vein located on the top of North Ridge and the TK showing at the base of North Ridge (Figure 3).

The JC vein is located adjacent to the contact of the Antimony Mtn. Stock (Figure 4). It is approximately 30 cm wide and is composed of fine-grained arsenopyrite, pyrite quartz and tourmaline. Previous trenching by Anaconda

(1980) has shown that it is continuous for at least 130 m, and drill hole data shows that it is also continuous at depth for at least 50 m.

A total of 10 rock chip grab samples were collected on the surface and trench exposures of the JC Vein (Figure 4). Assays include values of 0.108, 0.134 and 0.412 opt Au, but most samples returned values of <0.02 opt Au.

Anaconda drill hole 80-A2 (Figure 4) was drilled in order to intersect the JC Vein at depth. The hole intersected 20 cm of massive arsenopyrite and chalcopyrite with an adjacent 7 m of pyrrhotite-diopside skarn with 20% disseminated sulfides 70 m below the surface. Assay results from the logs indicate an intersection of 4.9 m at 0.581 opt Ag, 2220 ppm Cu, 706 ppm Pb and 2910 ppm Zn. Au was not assayed in core samples.

The Rainbow Vein is situated in the cliffs of a cirque at the headwaters of Antimony Creek (Figure 3). The vein structure is composed of two separate veins, one at 1800 m and one at 1760 m elevation. Both are spacially related to parallel trending diorite dykes but they also crosscut the dikes (Figure 5).

At 1800 m, the Rainbow Vein structure follows an east-west trending, steep to vertical fault structure within sediments adjacent to the monzonite stock. An offset along the contact suggests the intrusion may also be cut by the fault (Figure 3). The vein can be traced for 170 m; mineralization is continuous for at least 85 m and the vein pinches out rapidly in both an east and west direction to quartz-tourmaline-calcite. Massive, coarse-grained chalcopyrite and quartz with intergranular tourmaline and pyrite characterize the vein on the east where the structure is approximately 2 m wide. Towards the west along a 105° strike, the vein thins to 50 cm and contains fine to coarse-grained arsenopyrite and minor chalcopyrite. The vein structure is typically associated with fault breccia at or near its margins, composed of angular massive quartz fragments in a tourmaline-pyrite matrix.

The upper vein is paralleled by a 20-30 cm wide arsenopyrite-pyrite-tourmaline-quartz vein at 1760 m, which is continuous for at least 65 m. This vein is highly lenticular in structure and could not be traced along strike.

A total of 19 one metre width samples and 9 grab rock chip samples were collected along the length of the Rainbow Vein (Figure 6). From the samples collected along the 1800 m vein, 2 trench samples returned Au values of 0.523 to 0.892 opt and a grab sample assayed 0.958 opt Au. The average Au for the trench samples was 0.19 opt Au. Ag values of up to

LEGEND

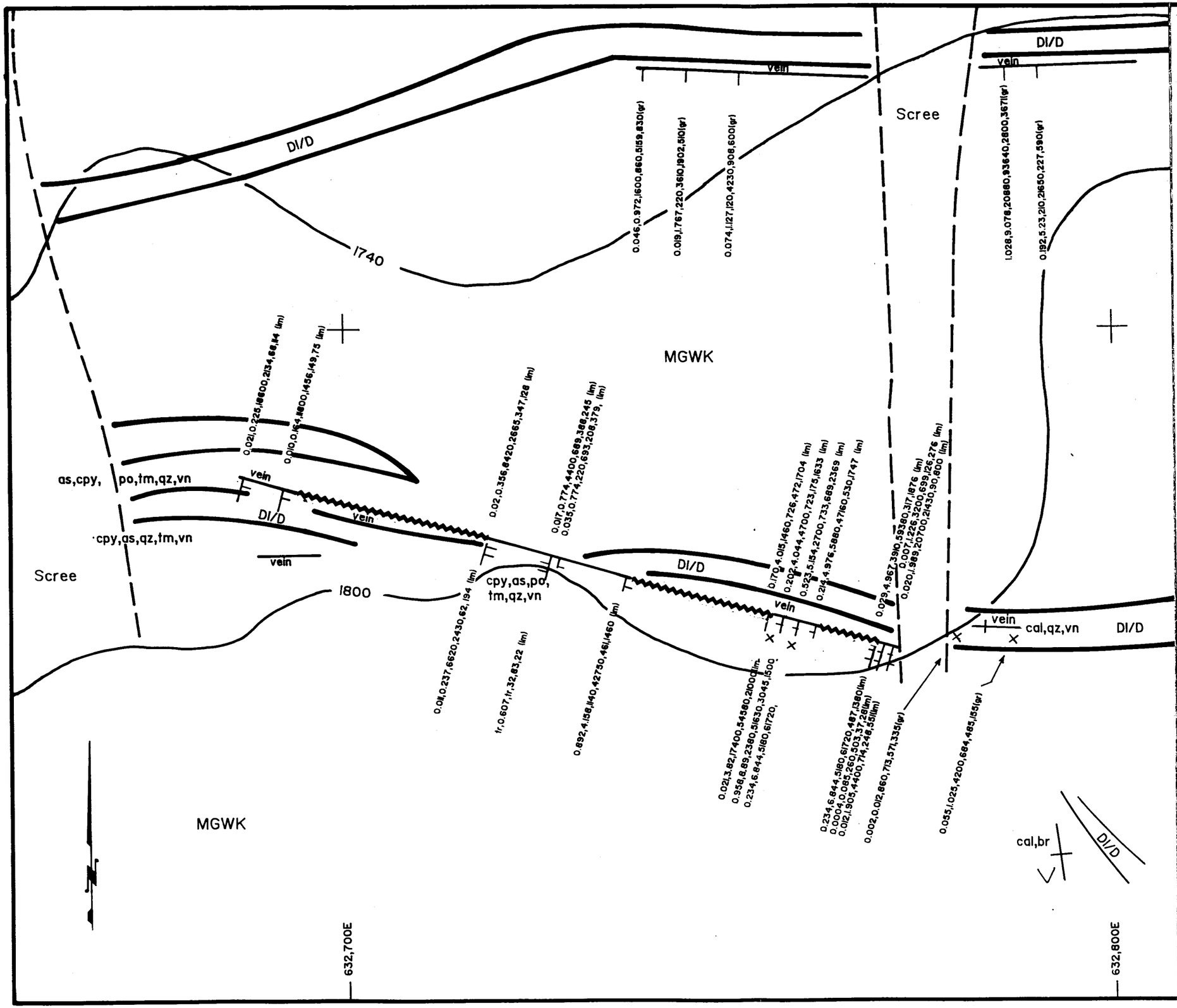
MGWK	greywacke and minor quartzite
DI/D	diorite dyke

Abbreviations

as	arsenopyrite
cal	calcite
cpy	chalcopyrite
po	pyrrhotite
qz	quartz
tm	tourmaline
vn	vein

Scree
Scree
Scree
MGWK
MGWK
MGWK
MGWK
MGWK
DI/D
DI/D
DI/D
DI/D
DI/D
DI/D
DI/D
DI/D
Area of Figure 6
qhs,cl
as,cpy,tm,qz, vn
qz,tm,as,vn
qz,cal,tm,vn
as,cpy,po,tm, qz,vn
cpy,as,qz,tm,vn
cpy,as,qz, tm,vn
cal,br
7,133,200N
7,133,100N
7,133,000N
632,600E
632,700E
632,800E
1800
1860
15
35
86
82
24
32
25
25
20
34
42
12
20
25
83
49
52
82
36
24
64
75
62
54
64
63
81
78
51
21

TOTAL ENERGOLD CORPORATION		
O'BRIEN PROJECT Rainbow Vein		
N.T.S.: 116B/8	TECH: KSP	DATE: Nov., 1989
SCALE: 1: 1000	DRAUGHTING: R.J.S.	FIGURE: 5



LEGEND

MGWK	greywacke and minor quartzite
DI/D	diorite dyke

Abbreviations:

as	arsenopyrite
cal	calcite
cpy	chalcopyrite
po	pyrrhotite
qz	quartz
tm	tourmaline
vn	vein

Rock Chip Sample	Au opt,Ag opt,As ppm,Cu ppm, Pb ppm,Zn ppm, (width)
~~	Fault Line

TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT

Rainbow Vein

N.T.S.: 116B/8	TECH: KSP	DATE: Nov.,1989
SCALE: 1:500	DRAUGHTING: RJS	FIGURE: 6

5.154 and 8.890 opt over 1.0 m were returned, with an average value of 3.26 opt Ag for the 19 trench samples. Copper values of up to 61720 ppm were found. The lower vein assayed up to 1.028 opt Au and 9.078 opt Ag over 25 cm and averaged 0.27 opt Au and 3.63 opt Ag from 5 grab samples.

The TK showing comprises massive arsenopyrite-pyrite-chalcopyrite float obtained from trenching along the base of North Ridge, approximately 600 m westward along strike from the JC vein. A grab sample from the TK showing returned a Au assay of 0.32 opt.

Calc-silicate skarn occurs within a limestone unit on the western end of North Ridge and at 1370 m in Antimony Creek. The North Ridge showing occurs within a thin limestone horizon in the core of an overturned syncline. The syncline is located on the footwall of a north-south trending thrust fault. Massive limestone has local calc-silicate alteration with small pods of massive pyrrhotite and pyrite. Au values were between 56 and 156 ppb. In Antimony Creek, a thin skarn horizon (approximately 2 m) composed of fine-grained massive pyrrhotite, pyrite and calcite is interbedded with metagreywacke. The unit was not traceable along strike on either side of the creek. Rock chip samples returned values of 17 and 35 ppb Au.

5.2 Geochemistry

Random stream sediment samples were collected along the length of Antimony Creek. The samples consisted of silt size material which were collected in labelled paper envelopes. Sample depth was approximately 5 to 15 cm. The samples were forwarded to Northern Analytical Laboratories in Whitehorse, Yukon and analyzed for gold by a 15 gram Fire Assay, and silver, copper, lead, zinc and arsenic by Atomic Absorption (A.A.) technique. The geochemical results and procedures used to obtain those results are included in Appendices 1 and 2 respectively.

In general, the only anomalous assay values were collected at the headwaters of the creek where the JC showing occurs and on Camp Creek which drains the south slope of North Ridge near the Rainbow Vein. Values up to 172 ppb Au and 1030 ppm As were found on Antimony Creek and 192-366 ppb Au and up to 3180 ppm As on Camp Creek.

Contour soil sampling was carried out on the Buz and Hud claims in areas of high mineral potential. Approximately 39 samples were collected and treated in the same manner as the Thor grid samples. Nineteen contour soil samples were collected at 200 m intervals below the TK showing at the base of a recessive unit.. Of these, 12 samples returned anomalous values up to 272 ppb Au. These indicate that the TK vein has a lateral extent within the recessive unit.

Results from all stream and soil samples are shown on Figures 13 and 14.

A 475 m x 125 m grid was established on the property in order to conduct a geochemical survey over the area of the JC showing at surface and in the trenches along strike (Figure 4). Only the valley floor portion of the grid was soil sampled due to the rugged nature of the upper part of the grid and extensive coarse talus cover. The sampled area ranges from 6+50E to 11+00E and 50 m north and 100 m south of the baseline. A total of 151 samples were collected at 25 m intervals.

Soil samples along the grid were taken from the "B" soil horizon and placed in labelled paper envelopes. The samples were analyzed with the same procedure described for soil samples.

The results from the Thor grid soil geochemical survey were processed by the STATS+ computer program. The program is an integrated statistical data processing package. Each of the six elements in the 151 samples were processed in order to determine anomalous, probably anomalous and possibly anomalous cutoffs. The histograms and cumulative frequency diagrams for the Thor grid can be found in appendix X. The following chart lists the results of the statistical analysis. All assays are in parts per million (ppm) aside from gold which is reported in parts per billion (ppb).

THOR GRID

	GOLD (ppb)	SILVER (ppm)	ARSENIC (ppm)	COPPER (ppm)	LEAD (ppm)	ZINC (ppm)
BACKGROUND	< 40	< 1.8	< 1100	< 175	< 40	< 120
POSSIBLY ANOMALOUS	40 - 55	1.8 - 2.4	1100 - 1600	175 - 250	40 - 60	120 - 150
PROBABLY ANOMALOUS	55 - 70	2.4 - 3.0	1600 - 2000	250 - 350	60 - 80	150 - 190
ANOMALOUS	> 70	> 3.0	> 2000	> 350	> 80	> 190

Results from the Thor grid soil geochemistry survey have been plotted at 1:1000 scale and the six elements were contoured for delineation of any significant anomalous zones. Figures 7 to 12 are the contoured maps which were generated.

The soil geochemistry results have defined an anomaly which is east-west trending in the area of the known JC Showing. The showing is found between 8+75E to 10+25E and along 0+40S. Samples of the vein, which have been trenched periodically along strike for 130 m, returned values of up to 0.412 opt Au over 30 cm and 2.304 opt Ag over 50 cm.

Anaconda drill hole 80-A3 (Figure 4) was drilled approximately beneath this soil anomaly and a 1.0 m intersection, 50 m below the JC showing, assayed 0.931 opt Ag, 2590 ppm Cu, 7570 ppm Pb, and 911 ppm Zn over 0.3 m. Drill hole samples were not assayed for Au.

A local Au, Ag, Cu, Pb, Zn anomaly exists between 9+25E to 10+00E and 1+25S to 0+50S. This area, to the south of the JC showing, probably defines additional small scale veins which parallel the JC vein structure and do not outcrop on the surface.

All the elements exhibit local sporadic highs on other parts of the grid, particularly in the west on lines 6+50E and 6+75E. Due to the small size of the known veins it is likely that local highs are indicative of the presence of similar veins. A sample of massive arsenopyrite-chalcopyrite float was found in the vicinity of 6+75E and 0+75S, near the collar for drill hole 80A-3, which assayed 0.134 opt. Au and 3.784 opt. Ag. The float may be from a vein which is responsible for the anomalous results in the west. It should be noted that many of the anomalous samples were taken in the area of two small creeks which cut through the grid. The Rainbow vein is found in the cliffs above the grid and therefore these two creeks would contain anomalous material derived from this vein.

6.0 TOOTH CLAIMS 1989 EXPLORATION

6.1 Local Geology, Mineralization and Prospecting

Folded and block faulted metasediments of the "Grit" unit and Road River Formation are cut by the Antimony Mtn. Stock, which dominates the central part of the claim block area (Figure 3). Stratigraphic sections range from <100 to up to 2500 m in thickness, and in general are composed predominantly of the MGWK unit.

Detailed 1:10,000 scale geological mapping of the property has shown that the lower part of the Grit unit is composed of varicoloured shales interbedded with thick, massive layers of coarse-grained grit. This horizon grades upsection into fine-grained metagreywackes and intercalated meta-quartzite horizons, which are locally intercalated with calc-silicate skarns in the upper part of the section. The Grit unit is conformably overlain by calcareous greywackes, calcilutites and calcarenites of the Road River Formation in the northwestern and southwestern parts of the property.

There are two prominent fault directions in the area of the Tooth Claims, an east-west and north-northwest trending set, which cut both the metasediments and the Antimony Mtn. stock (Figure 3). Direction of movement along faults is difficult to acertain due to the monotony of stratigraphic sections and typical absence of marker horizons. Localized shear stress textures along the east-west trending faults suggest a large component of transcurrent motion, but mineralization along many of these structures also suggests that the faults underwent extensional or normal displacement. For the north-northwest trending faults, map patterns and intrusion breccias along the faults suggest a large component of normal displacement.

Two vein structures were discovered along possibly related east-west trending faults which cut the Antimony Mtn. Stock; the TT Vein on Rusty Ridge and the Toby Vein on the Ridge south of Jan Creek (Figure 3). They are composed of arsenopyrite-pyrite-quartz-tourmaline-calcite. The TT Vein is approximately 25-35 cm in width and continuous for at least 200 m. and the Toby Vein is poorly exposed and its exposure is localized.

The Antimony Mtn. stock is extensively cut by shear zones throughout the area of the Tooth Claims, many of which are associated with calcite veins and rarely with quartz-tourmaline veins. Exceptions include Toby and TT Veins described above, and calcite-chalcopyrite-azurite-malachite veins exposed on two ridges flanking the western slopes of Antimony Mtn..

Approximately 200 rock chip samples and float samples of mineralized rocks were collected for assay. Grab samples collected from the Toby Vein returned assayed values of 0.052, 0.032, 0.041 and 0.061 opt Au. Samples from The TT Vein returned values of 0.054 and 0.047 opt.

6.2 Geochemistry

The Tooth Claims have been intensively sampled. All major drainages have been stream sediment sampled and areas which displayed anomalous results were contour soil sampled.

The results from the regional stream sediment samples were processed by the STATS+ computer program. The program is an integrated statistical data processing package. Each of the six elements in 198 samples were processed in order to determine anomalous, probably anomalous and possibly anomalous cut offs. The following chart lists the results of the statistical analysis.

REGIONAL STREAM SEDIMENT SAMPLES

	GOLD (ppb)	SILVER (ppm)	ARSENIC (ppm)	COPPER (ppm)	LEAD (ppm)	ZINC (ppm)
BACKGROUND	< 80	< 1.3	< 450	< 110	< 55	< 180
POSSIBLY ANOMALOUS	80 - 160	1.3 - 1.7	450 - 650	110 - 140	55 - 75	180 - 240
PROBABLY ANOMALOUS	160 - 180	1.7 - 2.1	650 - 900	140 - 190	75 - 105	240 - 280
ANOMALOUS	> 180	> 2.1	> 900	> 190	> 105	> 280

Stream sediment samples were taken at random spacings along the creeks in order to determine anomalous areas on the property. The samples consisted of silt size material which was collected and placed into labelled paper envelopes. The samples were forwarded to Northern Analytical Laboratories in Whitehorse, Yukon and analyzed for gold by a 15 gram Fire Assay, and silver, copper, lead, zinc and arsenic by Atomic Absorption (A.A.) technique. The geochemical results and procedures used to obtain those results are included in Appendices 1 and 2.

In general, significant results for Au (>100ppb) were only obtained in areas with known mineralization such as the TT and Toby Veins, with the exception of headwaters of Jan Creek and Hawk Creek. Both of these areas are situated within the Antimony Mtn. Stock.

In Jan Creek Au values of 149, 159, 227 and 174 ppb were obtained from samples collected at the headwaters of the creek which drains Antimony Mountain and the Wizard Ridge. An anomalous value of 188 ppb Au and "possibly anomalous" values of 108, 105 ppb Au were obtained from the headwaters

of Hawk Creek which also drains Antimony Mountain. A "possibly anomalous" Au value of 83 ppb Au was also found on Hidden Creek and an anomalous value of 338 ppb on Wobyl Creek.

Soil samples were taken along contours at regular spacings and at various locations on the property in order to establish the presence of anomalous areas. Samples were taken from the "B" soil horizon and placed in labelled paper envelopes. Sample depth ranged from 5 - 20 cm. They were assayed using the same procedure as for stream sediments.

Extensive contour soil sampling was done in areas where stream sediment surveys returned anomalous results of >100 ppb Au. Contour sampling was also done in areas at or near the contact with the Antimony Mtn. Stock, particularly downslope from sediments containing extensive secondary pyrite and pyrrhotite, and adjacent to known mineralized showings in order to delineate possible extensions of veins beneath cover.

Contour soil samples were collected on both sides of Rusty Ridge and on the Ridge north of Antimony Creek. Only one significant value of 1354 ppb was obtained from the ridge north of the creek, and 3 possibly anomalous values of 119, 138 and 167 ppb Au were collected on Rusty Ridge. The anomalous value was investigated and the country rocks above the sample location were found to contain pods of arsenopyrite and pyrite but mineralization was highly localized within a calcareous horizon within the sediments.

A randomly spaced contour sample line was collected on the slopes around Hawk Creek, located in the southeastern part of the property. Closely spaced samples were collected along the northern slopes along the contact with the Antimony Mtn. Stock and randomly collected throughout the rest of the valley. No significant Au values (>50 ppb) were returned.

At the headwaters of Jan Creek, "anomalous" soil samples values of 186, 269 and 285 were obtained from the slope below Wizard Ridge. Only one possibly anomalous value of 101 ppb Au was returned from the contour on the ridge north of the creek. Numerous shears occur in the area but no mineralization occurs at the surface.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Extensive regional stream, soil and rock chip sampling throughout the O'Brien property has provided a large sample base from which to define statistical anomalous values for the six elements chosen for geochemical analysis including Au, Ag, As, Cu, Pb and Zn. Arsenic is correlative with high

gold values throughout the property, and anomalous Cu values characterize the Rainbow Vein and small similar veins adjacent to the western contact of the Antimony Mtn. Stock.

Rock chip sampling of pyrite-pyrrhotite altered rocks and mineralized skarn horizons throughout the property returned assay values which were consistently <50 ppb Au for skarns and generally less than 50 ppb for metagreywacke and meta-quartzite. Further exploration is necessary to determine the potential of mineralized skarns.

The soil geochemical survey has been successful in defining known showings throughout the property. The JC showing and Rainbow Vein have good geochemical expressions on Antimony Creek and Camp Creek, and the TT and Toby Veins in Lost Creek and Toby Gulch. Soil geochemistry indicates that the TK showing likely extends along strike within a recessive unit. Overall, the area was heavily glaciated and, therefore, overburden may be a factor towards why other veins have not been defined by the survey.

Jan and Hawk Creeks have anomalous gold in silt samples draining the intrusive. The Walker showing on the east side of Antimony Mountain is the only known mineral occurrence in the area but this is too distant a source for either Jan or Hawk Creeks. A more likely source is Wizard Ridge on the north side of Antimony Mountain.

It is recommended the shear zones on Wizard Ridge be sampled more extensively to determine whether they provide the source for anomalous stream and soil gold values found at the headwaters of Jan Creek. More intensive geochemical sampling to locate the source of the possibly anomalous values in Hidden, Wobyl and Hawk Creeks is required.

Further exploration on the Buz and Hud property would require further drilling of the known showings. Relogging and resampling of the existing core, available at the DIAND core library in Whitehorse, should be done to verify widths and assay results before drilling is recommended. The JC showing is currently considered the best target for further drilling. Although the vein is relatively narrow, regional mapping in the area of the O'Brien Property has shown that vein structures typically pinch and swell. Drilling of the JC showing along strike could test this potential. The TK showing is also considered a good candidate for further drilling. Geological mapping suggests that Anaconda drill hole 80-A1 may not have been deep enough to intersect the vein at depth.

8.0 COST STATEMENT

The following is a summary of the costs incurred on the BUZ, HUD, and TOOTH claims during 1989.

Description	
Labour (210 man days)	$ 33,070
Telephone	400
Stationary & Supplies	2,300
Maps/Publications(orthophotos)	12,300
Equipment Rental	4,000
Drafting	700
Vehicles	4,000
Consultants	2,000
Contractors- Non tech	1,000
Aircraft Charter (205 hr.)	121,370
Fuel	6,000
Assays (245 @ $17.50/sample)	4,290
Geochemistry (1012 @ $14.50/sample)	14,670
Camp Accom &Board (210 man days @ $50/md)	10,500
Travel	3,600
TOTAL EXPLORATION	$220,200

The names and addresses of all persons employed in performing the survey and preparing the report and the time employed are listed below.

Richard Basnett	45 Pelly Rd Whitehorse	Jan 89-Sept 89
Karen Pelletier	Box 4241 Whitehorse	May 04-Sept 89
Terry Tucker	4220 4th Av Whitehorse	May 17-Sept 89
Jan Tindle	3341 Lakeside Rd Whistler, B.C.	June 04-Sept 89
Kevin May	2790 Fairview Vancouver, B.C.	May 16-Sept 89
Wil VanRanden	111 Parklane Whitehorse	July 18-21 89
Mike Kendall	Bag 2775 Whitehorse	July 18-21 89

9.0 REFERENCES

Green, L.H., 1972. Geology of Nash Creek, Larsen Creek, and Dawson map-areas, Yukon Territory. Geol. Surv. Can. Memoir, 364, 157p.

Hall, R., Baldry, K. and Fitzmaurice, T. 1980. Anaconda Canada Exploration Ltd. Final Report - 1980 Antimony Mountain Project, Yukon Territory. 35p.

Roots, C., Baldry, K. and Carlson, G.G., 1979. Anaconda Canada Exploration Ltd., report - 1979 Yukon Project Geology, Geochemistry and Geophysics, THOR 1-192 Claim Group, Antimony Mountain. 44p.

10.0 STATEMENT OF QUALIFICATIONS

I, **KAREN S. PELLETIER**, hereby certify that:

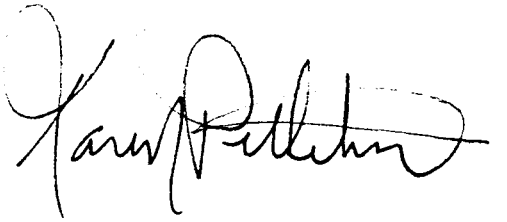
1. I am a graduate of Memorial University of Newfoundland, having obtained a Bachelor of Science degree with specialization in geology. I have also obtained a Master of Science degree from Carleton University from the Faculty of Earth Sciences;

2. I have been active in both mineral exploration and academic geological studies on a full-time and part-time basis for 13 years in the Northwest Territories, British Columbia and the Yukon;

3. I participated in the work described in this report as an employee of **Total** Energold Corporation;

4. I have no interest in the claims or securities of **Total** Energold Corporation, nor do I expect to receive any.

SIGNED at Whitehorse, Yukon this 30 day of Nov. 1989.



Karen S. Pelletier, M.Sc.

STATEMENT OF QUALIFICATIONS

I, **TERRY LEE TUCKER**, hereby certify that:

1. I am a graduate of the University of Alberta, having obtained a Bachelor of Science degree, Specialization in Geology - May, 1989;

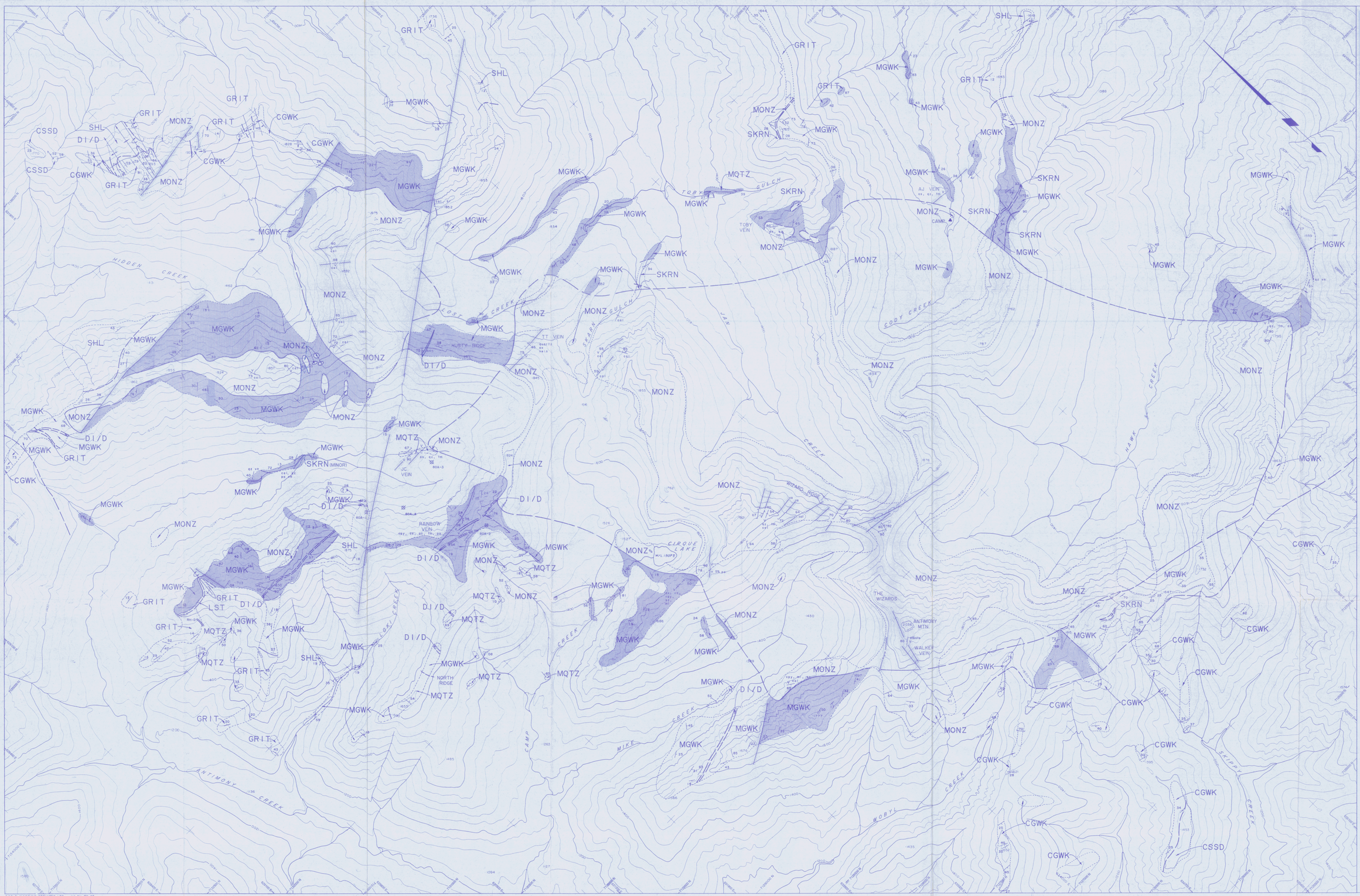
2. I have been active in mineral exploration in various capacities on a full-time and part-time basis for 2.5 years in the Yukon Territory, Canada, Australia and Papua New Guinea;

3. I participated in the work described in this report as an employee of Total Energold Corporation;

4. I have no interest in the claims or securities of Total Energold Corporation, nor do I expect to receive any.

SIGNED at Whitehorse, Yukon this 30 day of November 1989.

Terry Lee Tucker, B.Sc.



LEGEND

MONZ	Fine to medium-grained, plagioclase – porphyritic hornblende **quartz-monzonite to diorite.**
DI/D	Fine-grained, hornblende and hornblende-biotite **diorite dyke.**
CGWK	Fine-grained, laminated to thin bedded calcareous **greywacke and siltstone** with minor interbedded calcarenite.
CSSD	Medium to coarse-grained, massive **calcarenite** with interpalated calcareous siltstone and calcilutite.
LST	Massive **limestone.**
SHL	Fissle, green, grey and red coloured **shale.**
MGWK	Fine to medium-grained, laminated to thin bedded **meta-greywacke**, argillite, and minor quartzite. Upper greenschist facies with local hornfel facies metamorphic grade.
MQTZ	Fine to coarse-grained, massive to poorly bedded **quartzite.** Typically recrystallized hornfel facies.
GRIT	Medium to coarse-grained, quartz-rich, massive **arkose, greywacke** and **quartz pebble conglomerate.**
SKRN	Fine-grained to aphanitic, pink and green banded **calc silicate skarn.**
	Rusty weathering metasediments with 5-30% very fine-grained, disseminated pyrite and pyrrhotite.

ABBREVIATIONS

as	arsenopyrite	**py**	pyrite
az	azurite	**qz**	quartz
cal	calcite	**sc**	scorodite
cpy	calcopyrite	**tm**	tourmaline
ml	malachite	**br**	breccia
po	pyrrhotite	**vn**	vein

SYMBOLS

Rock outcrop, area of outcrop, float

Geological boundary (defined, inferred)

Bedding (horizontal, inclined, vertical, overturned, dip unknown)

Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)

Lineation, axis of minor folds (horizontal, inclined, vertical)

Drag-fold (arrow indicates plunge)

Fault (defined, interpreted)

Fault (inclined, vertical, relative movement)

Surface joint (horiz., inclined, vert., dip unknown)

U/G joint (horiz., inclined, vert., dip unknown)

Syncline (defined, approximate)

Anticline (defined, approximate)

Anticline and syncline (overturned)

Intensity (weak, moderate, strong)

Vein (inclined, vertical, dip unknown)

Zone of alteration

Rock sample, X: 0324, 015
Assay: Au, Ag ounce/ton

Trench

Adit or tunnel

Rock dump or tailings

Shaft, raise, winze

Diamond drill hole (centering section, leaving section) (on section / plan)

Contours 2500

Stream or creek (perennial, intermittent)

Marsh

Lake

Road

100 0 100 300 500 m

SCALE 1:10000

TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT GEOLOGY MAP

092787

Project Name: O'BRIEN Project No:

Latitude: Longitude:

Mining Division: DAWSON NTS: 116 B/8

To accompany a report by:

Alpha No: Drawing No. 3

Date: NOVEMBER 1989 Map No:

Draughting: Eldridge

EAGLE MAPPING SERVICES LTD. Job No. 89-47


LEGEND
MONZ quartz-monzonite to diorite
DI/D diorite dyke
MGWK meta-greywacke and argillite, minor quartzite
MQTZ meta-quartzite
GRIT arkose, greywacke and conglomerate
ABBREVIATIONS
as arsenopyrite
az azurite
cal calcite
cpy calcopyrite
ml malachite
po pyrrhotite
py pyrite
qz quartz
sc scorodite
tm tourmaline
vn vein
Sample Au Ag Cu Pb Zn As
3004 14100 78.9 692 226 119 3900
3005 1219 54.7 674 605 74 80
3006 125 0.1 14 5 6 4500
3007 1137 58.4 178 5240 19 4700
3008 926 1.7 543 227 25 4900
3009 316 46.9 688 1272 434 4700
3010 3688 5.7 490 113 18 1280
3011 78 0.7 467 29 497 4300
3012 335 2.9 405 93 33 4700
3013 4595 129.6 713 571 335 2010
AREA INDEX
ENLARGEMENT OF AREA 7
SYMBOLS
Rock- outcrop, area of outcrop, float
Geological boundary (defined, inferred)
Bedding (horizontal, inclined, vertical, overturned, dip unknown)
Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)
Lineation, axis of minor folds (horizontal, inclined, vertical)
Drag - fold (arrow indicates plunge)
Fault (defined, interpreted)
Fault (inclined, vertical, relative movement)
Surface joint (horiz., inclined, vert., dip unknown)
U/G joint (horiz., inclined, vert., dip unknown)
Syncline (defined, approximate)
Anticline (defined, approximate)
Anticline and syncline (overturned)
Intensity (weak, moderate, strong)
Vein (inclined, vertical, dip unknown)
Zone of alteration
Rock sample; X 0.324, 0.15 Assay Au, Ag ounce / ton
Trench
Adit or tunnel
Rock dump or tailings
Shaft, raise, winze
Diamond drill hole (entering section, leaving section) (on section / plan)
Contours 2500
Stream or creek (perennial, intermittent)
Marsh
Lake
Road
0 10 20 40 60METRES
SCALE 1:1,000
TOTAL ENERGOLD CORPORATION
O'BRIEN PROPERTY
THOR GRID
092787
Project Name O'BRIEN Project No.
Latitude Longitude
Mining Division Dawson NTS 116B/8
To accompany a report by
Alpha No. Drawing No. 4
Date November,1989 Map No. 7-N
MGWK
MONZ
GRIT
JC showing
NSA
80A3
80A4
1m @ 31.9ppm Ag 7570ppm Pb 2590ppm Cu, 911ppm Zn
10m @ 1145g/t Pb 2590, 7570, 911
as, tm, qz vn (as 553g/t Au)
calcite vn
surficial location



LEGEND :

SAMPLE LOCATION ○ Au(ppb), Ag(ppm), As(ppm) Cu(ppm), Pb(ppm), Zn(ppm)

INSUFFICIENT SAMPLE ins

TRACE tr

GOLD	GOLD IN SOILS (PPB)
BACKGROUND	< 40
POSSIBLY ANOMALOUS	40 - 55
PROBABLY ANOMALOUS	55 - 70
ANOMALOUS	> 70

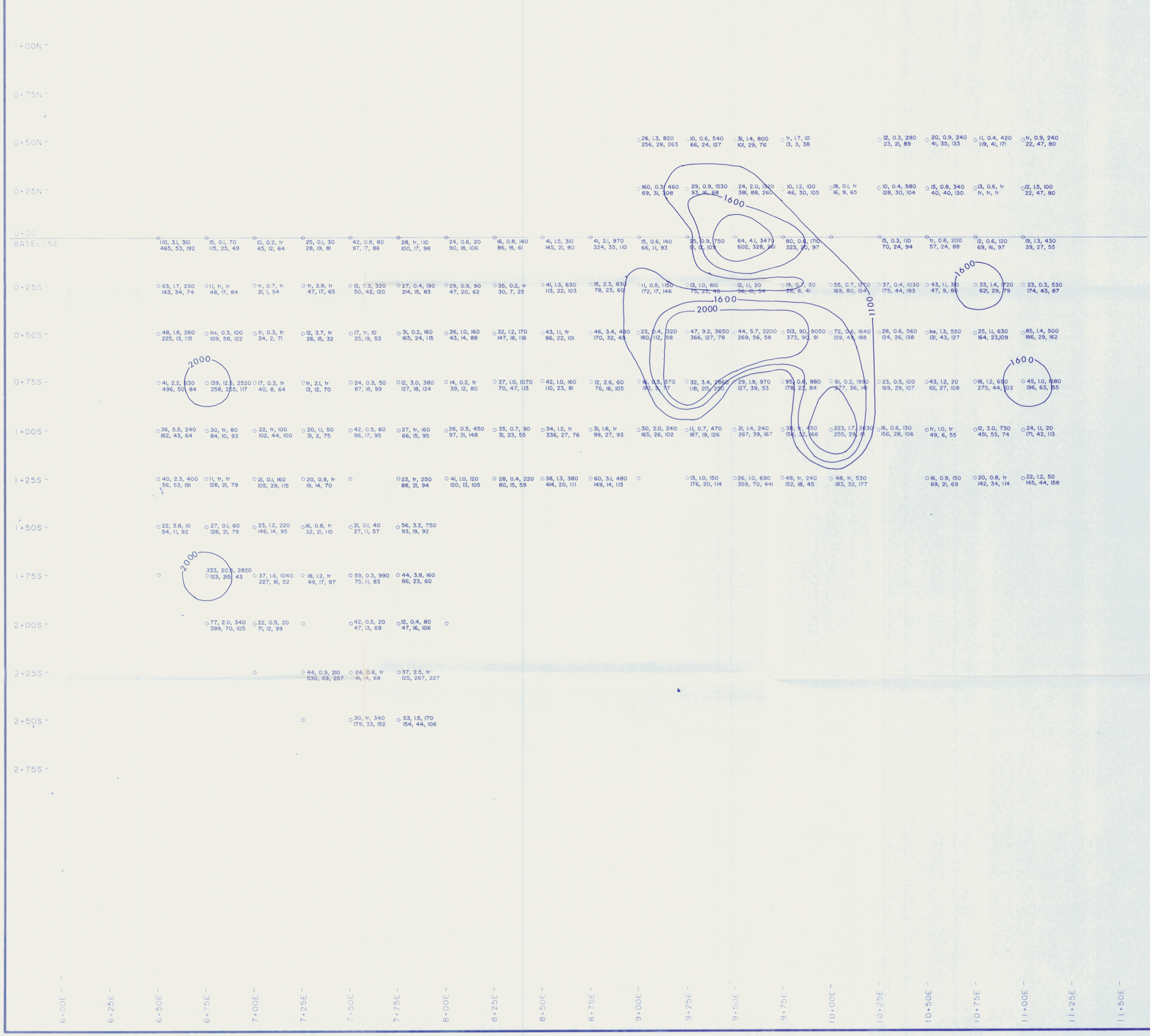
TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT
THOR GRID
SOIL GEOCHEMISTRY

248

092787

N.T.S. : 116 B/8	TECH. :	DATE : NOVEMBER 1989
SCALE : 1:1000	DRAUGHTING :	FIGURE : 7



LEGEND :

SAMPLE LOCATION o Au(ppb), Ag(ppm), As(ppm) Cu(ppm), Pb(ppm), Zn(ppm)

INSUFFICIENT SAMPLE ins

TRACE tr

ARSENIC	ARSENIC IN SOILS (PPM)
BACKGROUND	< 1100
POSSIBLY ANOMALOUS	1100 - 1600
PROBABLY ANOMALOUS	1600 - 2000
ANOMALOUS	> 2000

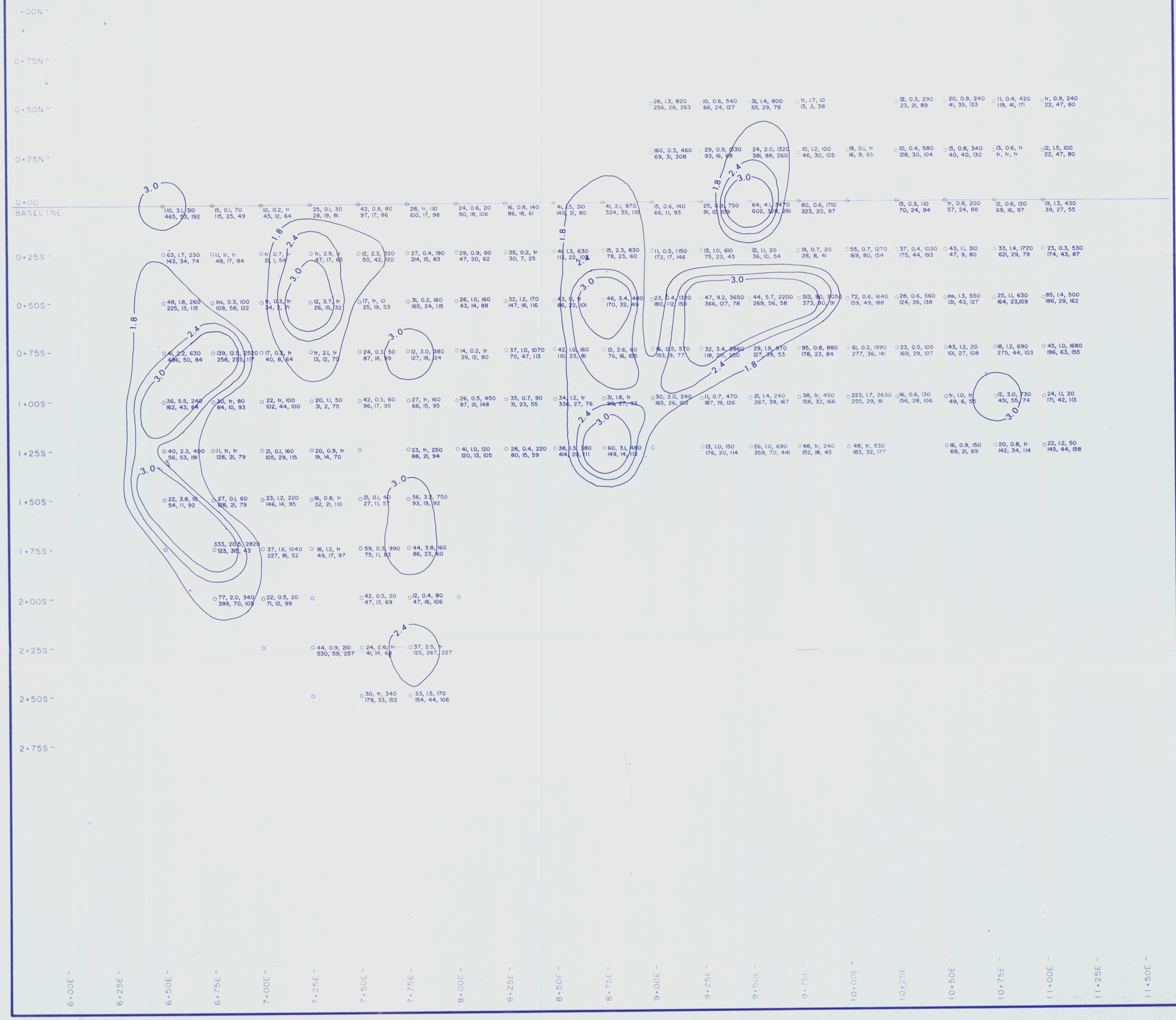
TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT (247)

THOR GRID

SOIL GEOCHEMISTRY 092787

N.T.S. : 116 B/8	TECH. :	DATE : NOVEMBER 1989
SCALE : 1 : 1000	DRAUGHTING :	FIGURE : 8



LEGEND :

SAMPLE LOCATION ○ Au(ppb), Ag(ppm), As(ppm) Cu(ppm), Pb(ppm), Zn(ppm)

INSUFFICIENT SAMPLE ins

TRACE tr

SILVER	SILVER IN SOILS (PPM)
BACKGROUND	< 1.8
POSSIBLY ANOMALOUS	1.8 - 2.4
PROBABLY ANOMALOUS	2.4 - 3.0
ANOMALOUS	> 3.0

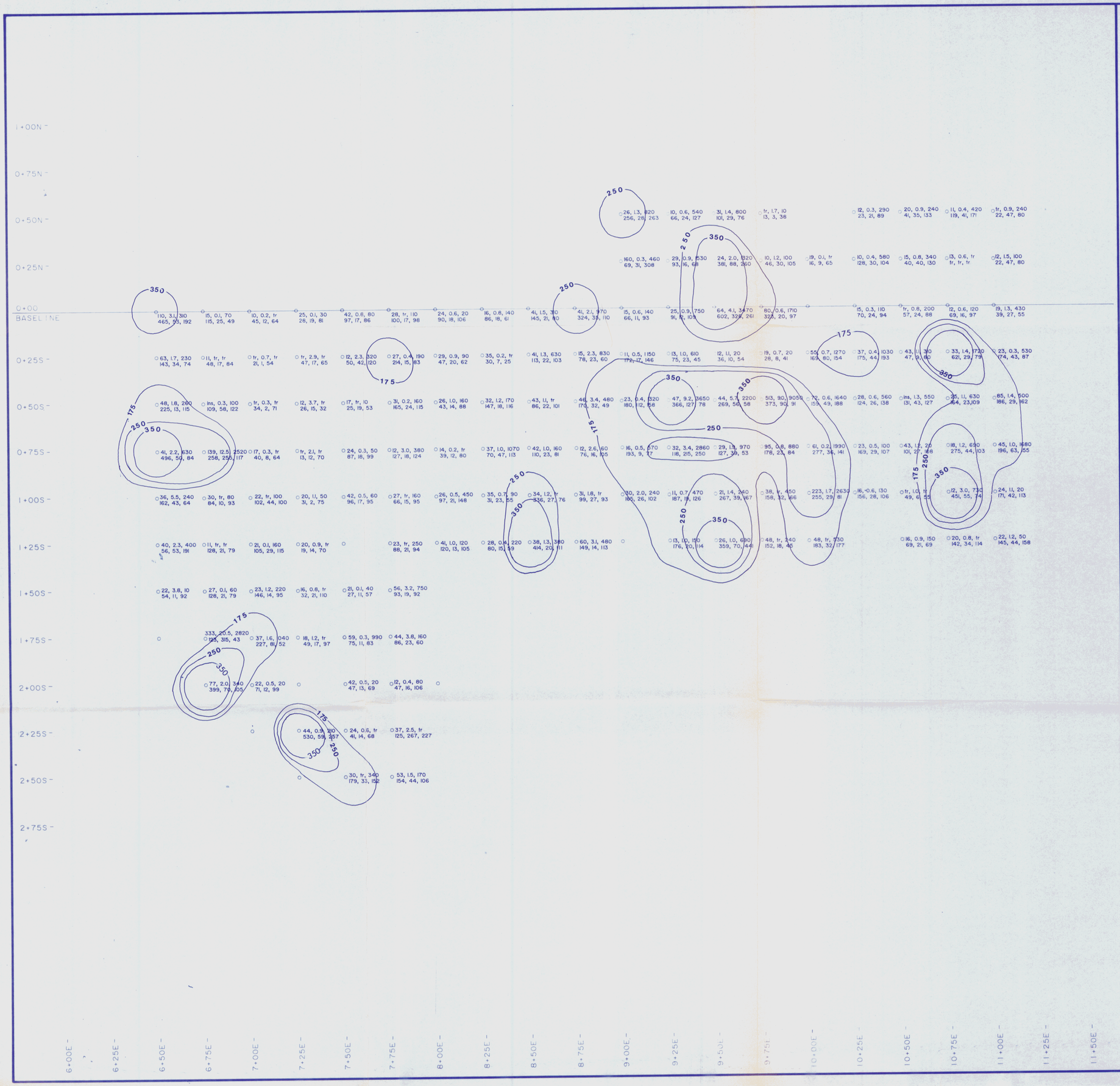
TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT
THOR GRID
SOIL GEOCHEMISTRY

246

092787

N.T.S. 116 B/8	TECH. :	DATE : NOVEMBER 1989	
SCALE : 1:1000	DRAUGHTING : tbdesign	FIGURE : 9	



LEGEND :

SAMPLE LOCATION ○ Au(ppb), Ag(ppm), As(ppm) Cu(ppm), Pb(ppm), Zn(ppm)

INSUFFICIENT SAMPLE ins

TRACE tr

COPPER	COPPER IN SOILS (PPM)
BACKGROUND	< 175
POSSIBLY ANOMALOUS	175 - 250
PROBABLY ANOMALOUS	250 - 350
ANOMALOUS	> 350

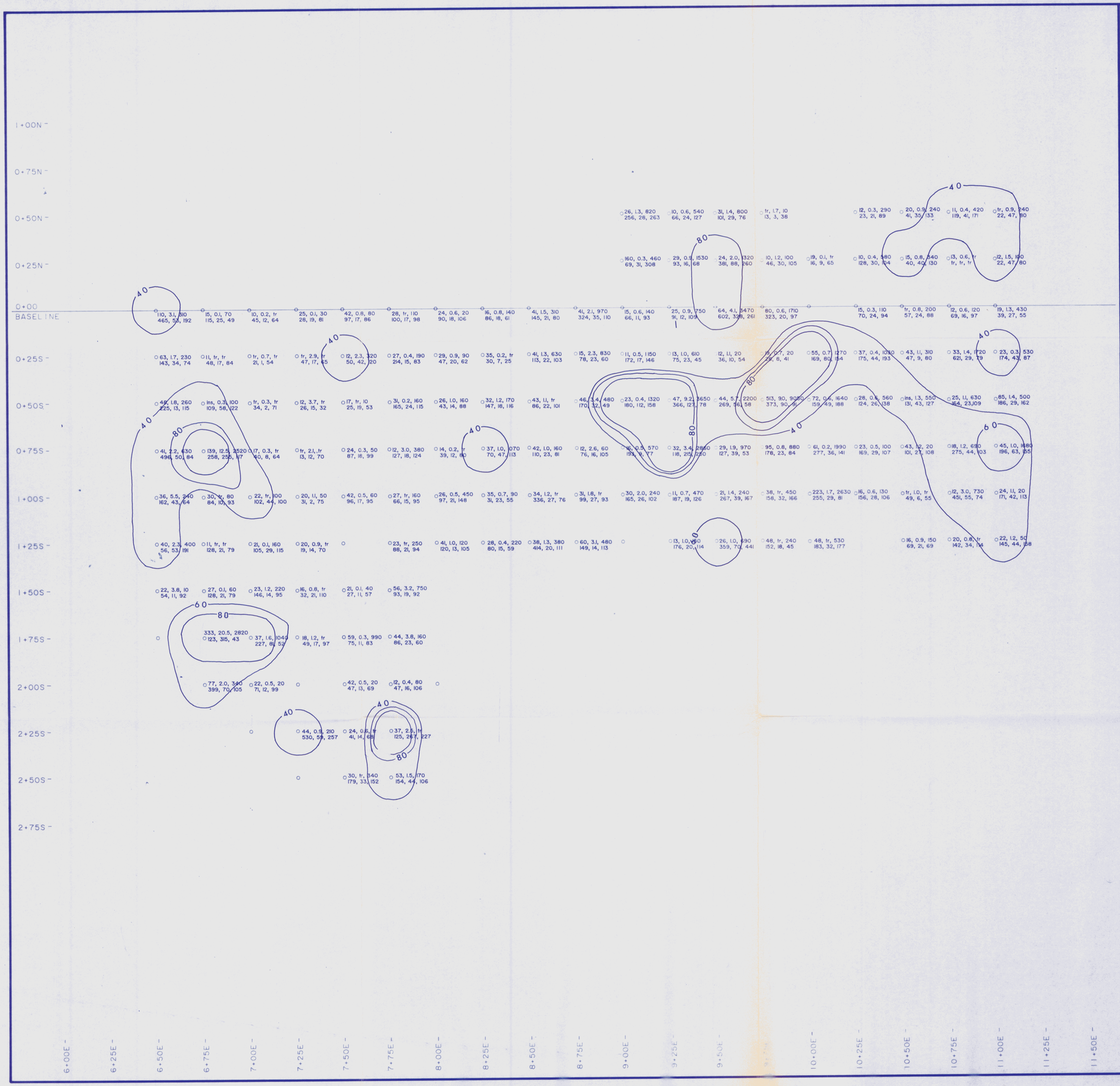
TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT
THOR GRID
SOIL GEOCHEMISTRY

249

092787

N.T.S. : 116 B/8	TECH. :	DATE : NOVEMBER 1989
SCALE : 1 : 1000	DRAUGHTING :	FIGURE : 10



LEGEND :

SAMPLE LOCATION	o	Au(ppb), Ag(ppm), As(ppm) Cu(ppm), Pb(ppm), Zn(ppm)
INSUFFICIENT SAMPLE	ins	
TRACE	tr	

LEAD	LEAD IN SOILS (PPM)
BACKGROUND	< 40
POSSIBLY ANOMALOUS	40 - 60
PROBABLY ANOMALOUS	60 - 80
ANOMALOUS	> 80

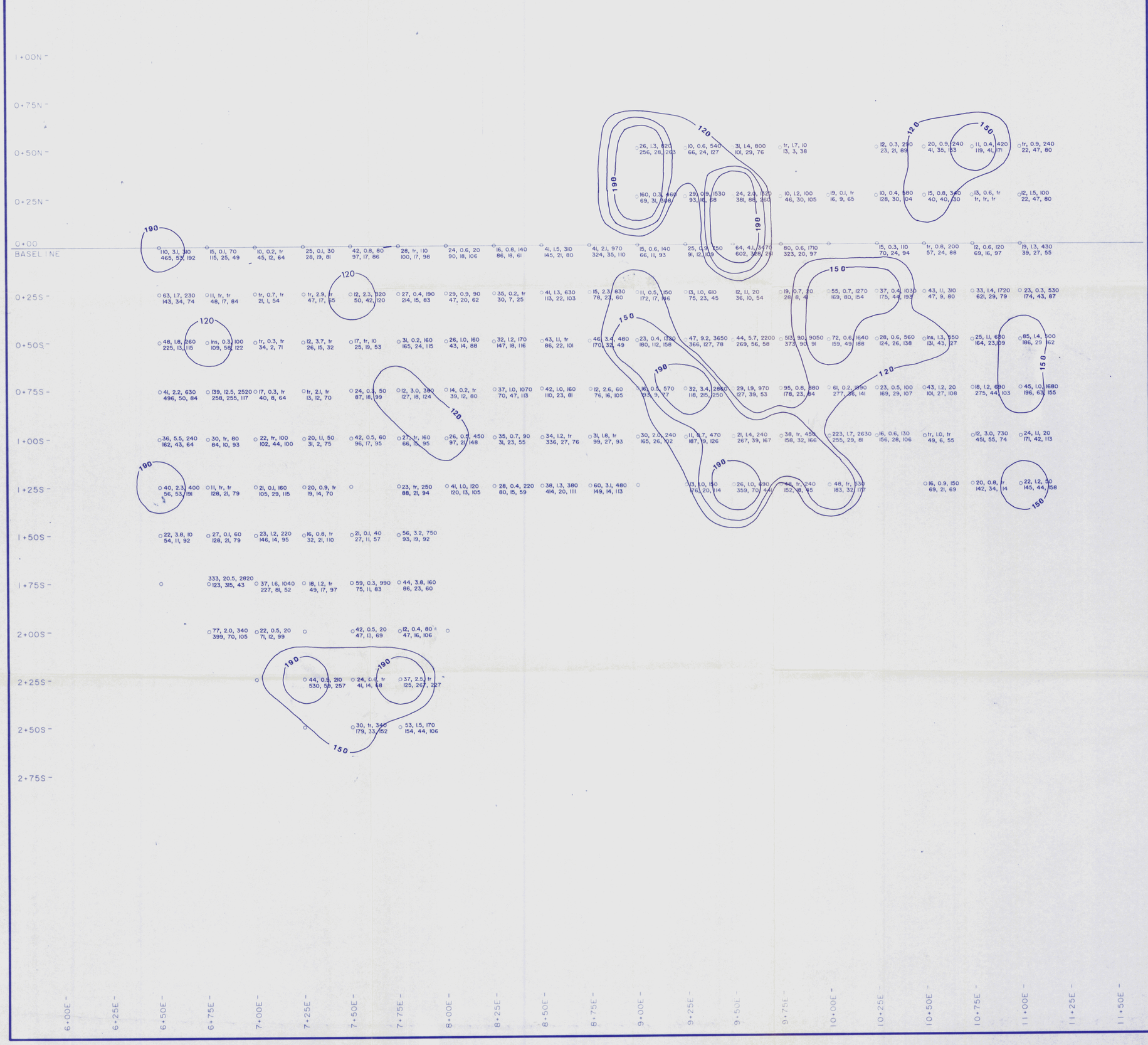
TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT
THOR GRID
SOIL GEOCHEMISTRY

250

092787

N.T.S. : 116 B/8	TECH. :	DATE : NOVEMBER 1989
SCALE : 1:1000	DRAUGHTING :	FIGURE : 11



LEGEND :

SAMPLE LOCATION ○ Au(ppb), Ag(ppm), As(ppm)
Cu(ppm), Pb(ppm), Zn(ppm)

INSUFFICIENT SAMPLE ins

TRACE tr

ZINC	ZINC IN SOILS (PPM)
BACKGROUND	< 120
POSSIBLY ANOMALOUS	120 - 150
PROBABLY ANOMALOUS	150 - 190
ANOMALOUS	> 190

TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT
THOR GRID
SOIL GEOCHEMISTRY 092787

(251)

N.T.S. : 116 B/8	TECH. :	DATE : NOVEMBER 1989
SCALE : 1 : 1000	DRAUGHTING :	FIGURE : 12

RUSTY RIDGE

TT VEIN

TOBY VEIN

AJ VEIN

RAINBOW VEIN

CIRQUE LAKE

WIZARD RIDGE

THE WIZARDS

ANTIMONY MOUNTAIN

WALKER VEIN

NORTH RIDGE

ANTIMONY CREEK

GEOCHEMISTRY SYMBOLS

Au (ppb), As (ppm) 0 x

1989 Soil Sample Location 0

1989 Rock Chip Sample Location x

1989 Stream Sediment Sample Location |

INS Insufficient Sample

NA Not Assayed

NS No Sample

tr trace

REGIONAL STREAM SEDIMENT SAMPLES

	GOLD (PPB)	ARSNIC (PPM)
BACKGROUND	<80	<450
POSSIBLY ANOMALOUS	80-160	450-650
PROBABLY ANOMALOUS	160-180	650-900
ANOMALOUS	>180	>900

N

7139000 N

7134000 N

7129000 N

7124000 N

SYMBOLS

Rock outcrop, area of outcrop, float

Geological boundary (defined, inferred)

Bedding (horizontal, inclined, vertical, overturned, dip unknown)

Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)

Lineation, axis of minor folds (horizontal, inclined, vertical)

Drag-fold (arrow indicates plunge)

Fault (defined, interpreted)

Fault (inclined, vertical, relative movement)

Surface joint (horiz., inclined, vert., dip unknown)

U/G joint (horiz., inclined, vert., dip unknown)

Syncline (defined, approximate)

Anticline (defined, approximate)

Anticline and syncline (overturned)

Intensity (weak, moderate, strong)

Vein (inclined, vertical, dip unknown)

Zone of alteration

Rock sample, N 0.824, 0.18 Assay Au, Ag ounce / ton

Trench

Adit or tunnel

Rock dump or tailings

Shaft, raise, winze

Diamond drill hole (bottoming section, leaving section) (on section / plan)

Contours 2500

Stream or creek (perennial, intermittent)

Marsh

Lake

Road

0 50 100 200 300 m

SCALE 1:10000

TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT

REGIONAL GEOCHEMISTRY

GOLD, ARSENIC

092787

Project Name O'BRIEN Project No.

Latitude Longitude

Mining Division NTS 104/8

To accompany a report by

Alpha No. Drawing No.

Date November 1989 Map No. 13

EAGLE MAPPING SERVICES LTD. Job No. 89-47

RUSTY

TT VEIN

RAINBOW VEIN

CIRQUE LAKE

NORTH RIDGE

TOBY VEIN

AJ VEIN

WIZARD

THE WIZARDS

ANTIMONY MOUNTAIN

WALKER VEIN

EAGLE MAPPING SERVICES LTD. Job No. 89-47

REGIONAL STREAM SEDIMENT SAMPLES

	SILVER (ppm)	COPPER (ppm)	LEAD (ppm)	ZINC (ppm)
BACKGROUND	0.1-1.4	30-110	30-55	80-160
POSSIBLY ANOMALOUS	1.3-1.7	110-140	55-75	160-240
PROBABLY ANOMALOUS	1.7-2.1	140-190	75-105	240-280
ANOMALOUS	>2.1	>190	>105	>280

GEOCHEMISTRY SYMBOLS

Ag (ppm), Cu (ppm), Pb (ppm), Zn (ppm) o x |

1989 Soil Sample Location o

1989 Rock Chip Sample Location x

1989 Stream Sediment Sample Location |

INS Insufficient Sample

NA Not Assayed

NS No Sample

tr trace

N

7139000 N

7134000 N

7129000 N

7124000 N

X 434000 E

SYMBOLS

Rock outcrop, area of outcrop / float

Geological boundary (defined, inferred)

Bedding (horizontal, inclined, vertical, overturned, dip unknown)

Schistosity, gneissosity, cleavage, foliation (horizontal, inclined, vertical, dip unknown)

Lineation, axis of minor folds (horizontal, inclined, vertical)

Drag-fold (arrow indicates plunge)

Fault (defined, interpreted)

Fault (inclined, vertical, relative movement)

Surface joint (horiz., inclined, vert., dip unknown)

U/G joint (horiz., inclined, vert., dip unknown)

Syncline (defined, approximate)

Anticline (defined, approximate)

Anticline and syncline (overturned)

Intensity (weak, moderate, strong)

Vein (inclined, vertical, dip unknown)

Zone of alteration

Rock sample, X 0.324, 0.15
Assay: Au, Ag ounce / ton

Trench

Adit or tunnel

Rock dump or tailings

Shaft, raise, winze

Diamond drill hole (entering section, leaving section) (on section / plan)

Contours 2500

Stream or creek (perennial, intermittent)

Marsh

Lake

Wood

0 50 100 200 300 m

SCALE 1:10000

TOTAL ENERGOLD CORPORATION

O'BRIEN PROJECT

REGIONAL GEOCHEMISTRY

SILVER, COPPER
LEAD, ZINC

092787

Project Name O'BRIEN Project No.

Latitude Longitude

Mining Division NTS 104B/8

To accompany a report by

Alpha No. Drawing No.

Date November 1989 Map No. 14

GEOLOGICAL AND GEOCHEMICAL REPORT ON THE BUZ 1-12, HUD 1-6 AND TOOTH CLAIMS

O'BRIEN PROPERTY

APPENDICES I AND II

092787

To accompany report by K. Pelletier and T. Tucker
November 24, 1989





APPENDIX 1

ASSAY RESULTS

Northern Analytical Laboratories ltd.

June 24, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

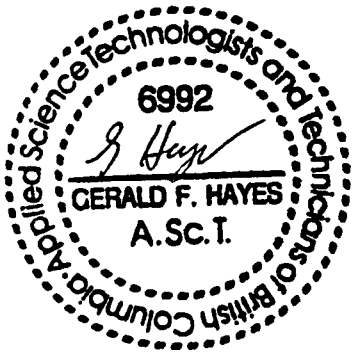
ASSAY CERTIFICATE

Work Order # 29004 File # 29004c PO# None

KM89

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1351	34	2.2	53	166	225	250
1352	33	1.3	42	80	137	150
1353	26	1.3	38	41	118	690
3151	68	0.3	86	96	172	110
3152	87	1.7	113	112	188	80
3153	50	0.5	91	42	106	190
3154	116	1.6	224	69	400	200
3155	68	0.5	95	46	182	210
3156	48	<0.1	177	59	249	250
3157	82	0.4	117	69	193	230
3158	63	0.2	84	59	149	380
3159	63	<0.1	77	44	133	290
3160	78	<0.1	64	64	127	170
3161	50	<0.1	55	61	112	160

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS



105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 8, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29004 File # 29004a PO#

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1312	43	13.9	52	177	60	110
1313	1089	2.7	22	8	11	1550
1314	37	7.3	35	41	44	1370
1315	57	0.4	20	74	39	160
1316	30	2.4	4	3	14	70
1321	43	4.2	64	89	112	740
1322	31	2.9	56	11	46	110
1323	16	1.6	18	<1	59	40
1324	29	2.1	36	16	16	130
3273	41	<0.1	107	31	42	30
3274	25	<0.1	29	30	34	<10
3275	25	0.8	20	25	60	170
3276	25	6.8	149	95	73	240
3257	61	2.5	32	55	61	110

Applied Science Technologists and Technicians of British Columbia
6982
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.



July 10, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29004 File # 29004b PO#

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1317	<10	0.7	33	16	45	260
1318	22	2.9	22	351	505	170
1319	83	15.1	22	4782	31030	1190
1320	24	10.4	58	3883	6211	520
1401	12	1.1	9	32	62	120
1402	15	0.5	13	33	12	70
1403	<10	0.7	39	6	40	220
1404	24	0.9	45	30	32	150
1405	17	1.1	55	12	66	430
1406	31	0.7	206	23	20	930
1407	<10	1.2	42	26	70	<10
3309	12	1.8	58	20	33	240
1661	18	1.0	18	11	2	100
1662	<10	1.5	158	16	39	270
1663	11	1.6	319	41	33	650
1664	<10	1.1	12	<1	58	60
1665	<10	1.0	24	11	59	70
1666	14	0.7	24	50	71	360
1667	24	1.5	6	10	20	280
1668	35	3.3	91	6	26	310
1669	10	1.2	32	15	30	70
1670	18	1.5	96	15	27	190
1671	14	1.4	54	17	25	210
1672	<10	1.5	60	37	47	230

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 10, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29009 File # 29009a PO# 3027

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1673	10	2.6	110	33	49	40
1674	28	2.2	70	19	38	80
1675	26	2.5	57	4	54	10
1325	93	2.1	76	22	102	230
1326	559	59.2	696	7872	9692	42200
1327	38	2.9	12	24	37	14300
1328	1618	4.8	17	161	256	420
1329	1401	53.2	212	14130	4867	102700
1330	765	79.4	452	12740	19740	72000
1331	1863	121.7	213	6226	638	173200
1332	43	87.1	199	20650	9780	96800
3310	47	1.9	60	22	16	230
3311	49	1.6	160	11	18	200
3312	1185	28.9	15730	16	146	370
3313	27	2.4	140	14	30	170
3314	32	2.3	69	9	133	<10
3330	1783	183.3	18350	128	196	25400
3331	39	4.3	1507	21	108	270
3332	42	2.0	190	13	23	250

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 18, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29004 File # 29004d PO# NONE

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3255	35	0.9	60	32	86	420
3256	108	0.7	36	23	68	400
3258	92	<0.1	69	34	150	600
3259	68	<0.1	39	19	91	300
3260	105	1.2	46	38	87	340
3261	46	1.0	46	8	106	300
3262	68	0.3	51	44	129	110
3263	110	0.1	53	46	83	230
3264	42	<0.1	51	78	134	100
3265	56	<0.1	32	27	82	<10
3266	13	0.2	54	33	89	50
3267	51	<0.1	25	42	81	<10
3268	45	0.9	61	73	94	340
3269	57	0.4	70	44	87	420
3270	57	0.6	76	21	93	250
3271	69	0.1	72	12	91	400
3272	65	0.6	47	27	83	140
3277	INS	0.4	34	53	101	100
3278	245	1.2	65	49	116	800
3279	956	1.4	99	74	151	4930
3280	1030	0.8	121	36	270	2130
3281	300	<0.1	110	12	218	1500
3282	176	0.9	76	31	149	530
3283	471	1.9	114	29	122	980

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 18, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29004 File # 29004e PO# NONE

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3284	238	1.1	90	79	210	920
3285	176	0.5	96	74	221	890
3286	144	0.9	87	73	201	640
3287	155	<0.1	87	68	190	670
3288	INS	0.2	72	60	159	500
3289	17	<0.1	55	59	145	560
3290	73	0.2	57	55	135	180
3291	97	<0.1	56	56	141	370
3292	89	0.3	60	62	129	60
3293	174	0.8	170	84	101	1140
3294	227	0.5	84	56	84	750
3295	159	0.5	110	72	93	740
3296	149	0.3	141	31	60	200
3297	21	0.3	131	44	85	770
3298	78	<0.1	119	42	99	480
3299	131	0.8	105	44	82	490
3300	59	1.4	106	39	84	1740
3301	82	0.7	83	48	93	280
3302	90	0.3	85	45	98	450
3303	74	0.4	70	37	100	300
3304	123	0.5	72	38	96	500
3305	77	0.6	77	41	96	530
3306	65	0.3	77	29	88	350
3307	69	0.6	11	7	16	90
3308	35	0.5	63	42	82	390

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 19, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29019 File # 29019a PO# 3667

Sample	ppb Au	ppm Ag	ppm Pb	ppm Zn	ppm Cu	ppm As
1676	61	2.5	43	44	14	130
1677	77	1.4	25	42	25	150
1678	68	1.9	209	301	17	90
1679	51	1.8	65	32	31	130
1680	53	2.0	36	400	30	<10
1681	69	1.7	52	63	60	780
1682	56	2.6	19	42	165	100
1683	66	1.4	<1	17	83	210
1684	55	1.5	15	30	75	<10
1685	75	2.6	26	20	38	90
1686	42	1.6	26	25	83	380
3333	74	17.2	7093	124000	201	110
3334	54	5.5	793	23900	132	120
3335	49	1.1	12	18	24	<10
3336	53	1.1	30	17	22	10
3337	63	7.0	93	46	84	360
3329	52	1.9	16	51	65	30

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 23, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29019 File # 29019b PO# 3667

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3367	100	1.1	100	57	127	930
3368	37	0.4	54	34	176	80
3369	42	0.9	57	32	156	80
3370	INS	1.0	80	44	157	80
3371	<10	0.8	49	30	156	50
3372	<10	0.5	50	33	132	30
3373	<10	0.7	47	20	140	50
3375	113	0.9	123	39	120	1220
3376	36	1.9	228	154	107	130
3377	24	0.7	101	50	122	260
1368	21	1.1	77	127	1320	2920
1369	<10	0.4	35	45	103	330
1370	<10	0.4	22	42	68	230
1371	<10	0.3	44	90	116	350
1372	30	0.9	20	67	118	140
1373	89	0.7	247	71	120	740

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6982
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 27, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29025 File # 29025a PO# 3671

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1333	121	3.2	164	183	122	740
1334	87	5.0	241	404	123	150
1335	161	1.6	111	52	39	9810
1336	77	1.7	17	<1	61	210
1337	224	1.3	182	35	46	1900
1338	91	0.3	106	15	44	30
1339	82	0.2	54	38	25	60
1340	287	32.4	7578	359	337	7070
1341	5110	21.0	1107	1147	1787	218500
1342	654	402.7	8178	21760	5602	2520
1343	85	9.0	477	177	176	530
3453	52	1.6	44	89	169	340
3454	203	5.0	317	106	61	93200
3350	2057	1.7	92	<1	30	174000
3451	73	0.5	349	27	33	490

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 27, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29009 File # 29009c PO# 3027

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3315	48	0.9	168	34	123	610
3316	45	0.9	288	45	208	880
3317	46	0.6	276	13	31	830
3318	39	0.8	295	1	54	860
3319	38	1.2	229	34	21	780
3320	62	1.0	229	32	10	660
3321	32	0.9	235	24	33	680
3322	18	1.0	223	54	167	640
3323	14	1.6	106	110	186	160
3324	44	1.8	111	125	251	90
3325	28	1.5	111	68	167	140
3326	31	1.2	94	46	183	60
3327	36	0.6	79	35	158	130
3328	26	1.0	82	35	188	90

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 27, 1989

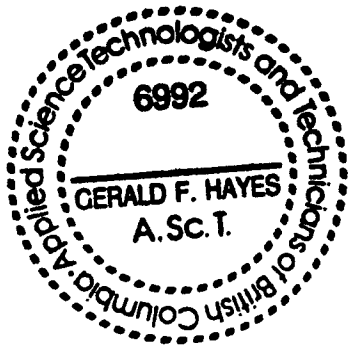
Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29009 File # 29009d PO# 3027

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3162	108	56.0	195	1407	515	5240
3163	48	2.5	111	146	156	210
3164	47	1.4	73	40	142	2990
3165	63	1.8	427	47	95	240
3166	166	111.2	560	14280	31380	146000
3167	681	2.9	176	190	6300	34700
3168	40	0.7	32	33	62	720
3169	32	0.5	40	56	54	440
3170	27	1.5	26	48	73	170
1363	25	0.7	53	79	147	80
1364	47	0.6	54	61	127	50
1365	40	0.3	45	44	131	<10
1366	43	0.2	49	50	130	20
1367	33	0.3	75	28	143	<10

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS



105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 31, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29024 File # 29024a PO# 3670

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1697	50	23.1	826	74	24	172000
1698	77	1.8	112	<1	<1	24800
1699	1978	4.1	320	14	1	97300
1700	267	0.3	54	36	4	7970
1751	55	0.6	60	<1	2	500
1752	5647	2.1	90	23	<1	76500
1753	65	0.2	25	5	<1	550
1754	311	1.2	55	17	<1	3900
1755	1475	33.6	813	112	8	197000
1756	18940	6.2	569	39	<1	54400
1757	2076	11.7	223	114	<1	102000
1758	180	1.0	116	5	3	1480
1759	496	1.7	32	41	<1	3780
1760	63520	12.0	1564	94	16	188000
1761	5033	0.9	104	20	3	9400
1762	164	0.5	34	2	13	410
1763	2443	1.9	24	19	1	17000
1764	74	<0.1	57	6	17	60
1765	2758	0.1	54	13	1	2080
1766	38460	66.8	794	621	58	116000
1767	20	0.7	209	29	22	740
1768	30	0.5	85	23	13	320
1374	94	1.3	270	13	176	840
1375	71	2.7	97	161	107	780
1376	58	1.9	74	20	133	290
1377	53	1.3	107	21	157	240

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

1687-1696.

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 31, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29025 File # 29025c PO# 3671

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3171	50	1.8	146	132	68	240
3172	117	2.9	169	107	85	50
3173	520	2.0	442	228	93	10500
3174	94	1.4	145	123	61	200
3175	76	1.2	76	165	175	70
3176	374	1.5	36	39	53	1310
3177	66	1.2	49	114	38	30
3378	27	1.4	74	78	42	450
3379	58	1.6	86	83	61	880
3380	35	3.6	122	84	47	830
3381	47	2.3	105	81	20	690
3382	22	1.3	113	94	44	550
3383	<10	1.8	15	58	15	140
3384	38	2.1	68	53	15	290
3385	43	1.0	76	62	56	280
3386	49	1.7	49	54	141	40
3387	45	1.7	151	93	55	110
3388	25	1.6	130	70	69	60
3389	32	0.7	91	50	44	150
3390	35	0.5	95	101	26	190
3391	47	0.4	89	16	34	30
3392	43	1.4	95	54	63	80
3393	44	0.5	64	17	52	110
3394	25	1.6	62	37	62	<10

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

July 31, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29025 File # 29025b PO# 3671

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3338	38	1.5	133	62	67	<10
3339	44	0.3	97	37	4	<10
3340	53	1.1	478	24	16	<10
3341	76	0.7	642	42	20	160
3342	51	1.7	117	63	16	1110
3343	88	1.9	2550	78	81	1500
3344	156	1.5	84	62	8	280
3345	56	0.3	15	7	13	980
3346	1781	2.0	12	54	26	24330
3347	1178	2.7	12	24	419	19030
3348	1388	2.4	427	135	34	26010
3349	1871	2.5	11	79	24	23750
3395	16	2.3	55	26	84	130
3396	85	1.2	220	48	93	2260
3397	38	3.7	184	35	369	1080
3398	55	1.6	116	11	128	580
3399	67	2.4	161	53	174	880
3400	87	2.4	153	40	157	920

Au -- 15g fire assay/AAS finish
Metals -- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 5, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29055 File #29055b PO#3673

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3401	148	3.0	123	14	79	180
3402	192	<.1	289	25	95	60
3403	99	.4	103	7	63	13
3404	366	2.1	581	752	374	3180
3405	127	1.3	388	280	161	1320
3406	47	<.1	152	50	112	530
3407	115	.8	282	42	84	400
3408	84	.4	162	40	209	810
3409	57	<.1	152	63	108	570
3410	51	<.1	137	70	99	370
3411	31	.8	678	78	113	470
1378	2128	.3	56	29	41	1840
1379	173	4.9	114	1011	500	6970
3412	44	2.2	53	9	94	360
3413	35	1.0	109	2	53	10
3415	48	<.1	115	26	84	250
3416	37	<.1	122	19	158	380
3417	54	.4	140	31	49	100
3418	49	<.1	172	66	137	130
3419	40	<.1	181	60	103	150
3420	42	<.1	177	80	139	40
3421	18	<.1	174	31	90	170
3422	13	<.1	244	67	102	290

Au -- 15g Fire Assay/AAS
Metals-- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 5, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29055 File # 29055a PO# 3673

Sample	oz/t Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1344	0.002	3.5	10020	22	22	130
1345	0.005	27.1	67230	1002	307	3420
1346	0.009	2.9	544	13	26	4460
1347	0.021	130.7	54580	71	2100	17400
1348	0.011	37.3	231	13870	1789	140180
1349	0.001	3.1	19	47	23	710
1350	0.002	1.3	126	25	59	1140
3455	0.003	4.2	264	14	16	1260
3456	0.958	304.5	51630	3045	1500	2380
3457	0.002	2.1	245	36	4	1170
3458	0.029	5.6	416	26	16	22900
3459	0.002	1.6	206	25	30	1980
3001	0.002	0.4	53	15	28	2100
3002	0.003	41.9	570	2202	36	7500
3003	0.006	0.6	30	10	<1	14900
1771	0.020	68.1	21430	90	800	20700
1772	0.001	2.7	255	24	74	2310

Au -- 15g Fire Assay/AAS
Metals-- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 6, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29055 File # 29055d PO# 3673

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3425	83	0.6	72	53	135	320
3426	57	0.1	47	51	115	220
3427	INS	1.1	81	58	157	380
3428	50	0.2	40	24	94	50
3429	INS	0.4	54	46	106	340
3430	INS	0.6	59	60	167	220
3431	82	0.4	76	47	155	420

Au -- 15g Fire Assay/AAS
Metals-- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 11, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29087 File #29087A PO#3675

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1408	108	0.3	92	9	31	280
1409	117	0.4	124	4	60	280
1410	88	0.8	61	19	36	160
1411	69	0.3	25	16	17	210
1412	73	<0.1	21	9	14	20
1413	59	<0.1	26	24	16	60
1414	73	<0.1	21	2	19	360
1415	61	0.1	27	22	23	140
1416	68	0.9	27	13	13	110
1417	58	0.3	29	<1	33	270
1418	100	0.6	74	46	111	1830

Au -- 15g Fire Assay/AAS
Metals-- Aqua-regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 25, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29087 File # 29087b PO# 3675

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J8	<10	2.4	81	58	63	<10
J9	<10	2.3	170	46	71	220
J10	32	2.3	59	51	75	110
J12	16	1.9	87	60	56	310
J13	103	3.4	421	80	150	610
J14	24	2.9	104	16	35	100
J15	145	2.6	223	71	56	160
J16	23	2.4	191	36	98	70
J17	18	2.7	194	53	130	260
J18	34	2.0	120	37	60	230
J19	10	2.0	175	38	55	170
J21	<10	2.2	117	38	49	100
J22	33	2.7	290	50	48	270
J23	702	3.4	1033	72	104	1680
J24	2090	12.5	1240	1276	530	5040
J25	65	10.0	1100	1131	479	4550
J26	<10	1.2	101	32	73	180
J27	42	1.3	36	14	50	<10
J28	17	0.5	39	17	47	30
J29	<10	1.5	118	28	44	100
J30	<10	1.2	154	48	70	110
J32	19	1.6	88	45	75	220
J34	<10	1.2	69	46	78	180
J38	32	2.6	138	218	123	1690
J42	767	3.3	146	64	81	1750
J44	358	3.3	117	53	87	390
J45	1437	2.9	135	84	102	480
J46	39	2.8	50	26	83	370
J47	13	3.5	70	25	79	250

Au -- 15g Fire Assay/AAS
Metals -- Aqua regia digestion/AAS



105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 25, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29086 File # 29086a PO# 3676

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3464	750	2.4	87	46	7	5900
3465	5730	9.5	890	79	17	99200
3466	6860	18.8	1239	30	18	130100
3467	67000	27.9	357	174	14	307000
3468	53970	16.7	376	42	13	189000
3469	1900	3.9	27	51	7	2500
3470	23700	20.1	801	82	40	229400
3471	57940	28.0	483	134	12	247400
3472	4320	4.2	50	79	8	7500
3473	50950	30.0	249	149	15	10170
3474	6480	2.8	138	22	4	8100
3475	101600	18.6	149	55	13	332500
3476	4590	4.9	126	25	9	25400
3477	4530	9.3	325	8	13	42800
3478	16600	6.4	98	97	11	55800
3479	510	3.4	45	43	7	44600
3480	6210	10.5	166	100	11	4100

Au -- 1AT Fire Assay/Grav
Metals -- Aqua regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

August 25, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29103 File # 29103a PO# 3683

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1509	679	12.2	2665	347	128	8420
1510	35200	310.9	93640	2800	3671	20880
1511	3200	107.9	41250	1274	1449	3810
1512	1000	170.1	59380	317	1876	3910
1513	8000	234.4	61720	487	1380	5180
1514	7330	170.4	47160	530	1747	5880
1515	30533	142.4	42750	461	1460	1140
1516	858	13.6	3386	72	177	104800
1517	393	8.1	2430	62	194	6620
1518	354	5.6	1456	149	75	11800
1519	735	7.7	2134	68	114	18600

Au -- 15g Fire Assay/AAS
Metals -- Aqua regia digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 4, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29161 File # 29161b PO# 3114

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
4551	21	0.7	23	<1	11	150
4553	21	0.4	124	8	24	40
4554	35	0.2	38	17	9	<10
4555	11	<0.1	20	<1	8	<10
4556	23	0.5	20	<1	10	<10
4557	21	0.8	35	9	13	<10
4558	22	<0.1	33	2	14	<10
4559	25	<0.1	28	<1	11	<10
4560	37	1.5	36	16	12	<10
4561	29	0.4	30	15	10	<10
4562	21	0.2	26	10	20	<10
4563	26	<0.1	24	12	14	1010
4564	24	<0.1	90	1	14	240
4570	20	<0.1	50	10	30	<10
4571	28	0.3	50	18	22	60
4582	17	<0.1	74	65	114	890
4583	12	0.4	145	25	65	4640
4584	32	<0.1	277	22	75	2190
4586	34	1.4	135	145	182	990
4587	34	0.2	236	77	150	6200

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
CERALD F. HAYES
A.Sc.T

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 5, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29161 File # 29161c PO# 3114

Sample	oz/t Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As	ppm Sb
4552	0.010	29.2	15630	33	578	1150	40
4565	<0.004	2.0	182	3	20	30	10
4566	0.012	3.3	589	8	24	60	10
4567	0.008	2.6	169	11	23	1240	10
4568	0.024	3.4	602	30	70	1880	50
4569	<0.004	2.7	767	38	92	<10	30
4572	<0.004	1.8	40	7	29	<10	10
4573	1.76	2.1	875	90	43	60600	270
4574	3.188	11.7	1463	303	61	84300	720
4575	0.012	20.4	2639	27	211	3880	210
4576	0.272	11.7	1382	109	106	75600	590
4577	0.040	8.6	1824	25	70	24200	200
4578	0.120	3.2	468	49	35	53000	300
4579	0.014	12.8	1956	37	114	5370	150
4580	0.896	8.9	1430	166	49	77700	800
4581	0.086	2.9	1309	40	123	38700	170
4585	0.008	0.9	286	20	43	3100	30
4588	<0.004	<0.1	62	<1	24	1240	10
4589	0.016	<0.1	42	14	15	830	<10
4599	0.012	11.9	2069	60	131	6720	210

Au -- 1/2 AT Fire Assay/Grav
Metals -- Aqua Regia Digestion/AAS

Note -- Sb will be low since assay was not prepared for Sb

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 4, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29161 File # 29161a PO# 3114

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
4590	37	0.6	38	1	22	<10
4591	22	0.4	102	<1	12	30
4592	37	<0.1	86	19	1	60
4593	42	0.8	49	38	54	1690
4594	40	1.0	42	15	<1	90
4595	24	<0.1	94	10	<1	<10
4596	24	0.6	26	15	9	<10
4597	28	0.1	35	20	13	<10
4598	21	0.6	15	17	12	<10
4600	49	<0.1	64	31	23	1600
4601	22	<0.1	31	30	34	280
4602	56	0.1	43	20	11	230
4603	22	0.2	65	1	13	<10
4604	17	0.7	56	2	30	<10
4605	15	<0.1	49	7	24	80
4606	16	<0.1	66	2	24	90
4607	27	1.0	60	<1	17	10
4608	29	<0.1	55	<1	12	<10
4609	37	0.5	99	7	12	30
4610	45	1.0	10	7	18	<10
4611	23	2.6	3	3	42	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 7, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29129 File # 29129a PO# 3688

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3705	21	2.5	64	32	114	460
3706	<10	2.3	68	44	190	430
3707	14	1.2	42	31	121	240
3708	15	2.0	49	26	109	240
3709	17	2.0	54	29	120	170
3710	18	0.3	61	29	142	300
3711	16	1.3	58	30	140	120
3712	<10	1.6	56	29	128	60
3713	<10	1.4	49	32	140	<10
3714	17	0.8	54	28	126	30
3715	<10	0.4	58	26	137	130
3716	<10	0.7	55	32	154	120
3717	32	0.3	43	46	117	40
3718	25	0.8	40	20	119	20
3719	20	1.1	42	21	122	40
3720	30	1.0	36	23	120	<10
3721	14	0.7	33	18	118	80
3722	32	0.3	32	16	111	20
3723	31	0.9	35	53	189	10
3724	24	0.3	36	86	232	<10
3725	<10	1.0	30	26	145	<10
3726	15	0.6	40	24	167	120
3727	<10	1.4	53	14	317	30
3728	17	0.5	131	14	237	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 7, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29129 File # 29129b PO# 3688

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3729	18	3.1	52	112	307	<10
3730	11	0.9	34	73	324	<10
3731	20	0.1	24	24	124	110
3732	17	0.4	28	35	130	<10
3733	17	1.5	28	34	155	<10
3734	25	0.7	26	74	170	<10
3735	19	1.8	37	33	204	<10
3736	24	1.1	39	27	188	<10
3737	19	2.3	44	37	153	40
3738	24	1.2	30	25	140	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, TY, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 9, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29130 File # 29130C PO# 3689

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1520	<10	20.8	32	83	22	<10
1521	6592	179.1	21650	227	590	210
1522	2551	38.6	4230	908	600	120
1523	674	60.5	3610	1902	510	220
1524	1590	33.3	860	2159	830	1600
1525	2009	2.4	77	23	27	17850
1780	267	5.7	84	43	8	16880
1781	8740	17.5	334	54	7	17260
1782	9293	14.9	149	92	4	78900
1783	2317	12.2	147	58	8	49200
1784	5257	15.1	220	33	15	48300

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 9, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29113 File # 29113b PO# 3687

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3651	20	1.2	32	10	50	250
3652	39	0.4	99	75	100	460
3653	112	2.2	105	95	127	2080
3654	62	1.2	60	91	93	440
3655	52	1.1	125	89	133	1960
3657	42	1.7	49	80	86	440
3658	18	2.9	75	88	117	730
3659	11	0.8	96	96	109	520
3660	24	1.7	53	28	68	460
3661	15	1.0	93	55	86	1110
3662	<10	0.5	48	22	59	310
3663	<10	<0.1	26	73	56	150
3664	<10	2.2	18	48	37	90
3665	18	1.5	76	73	89	830
3666	<10	0.1	70	63	78	470
3667	<10	2.3	47	54	65	510
3668	18	2.7	60	51	80	1060
3669	27	0.1	45	46	54	510
3670	10	0.9	55	61	72	880
3671	35	0.7	54	78	74	1030
3672	101	2.2	72	55	65	720
3673	31	1.2	68	55	60	380
3674	133	1.7	138	65	84	1500
3675	105	0.4	96	49	63	1170
3676	285	4.9	246	197	78	1520
3677	175	4.8	168	71	103	820

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 9, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29113 File # 29113c PO# 3687

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3678	269	3.6	170	53	87	1190
3679	186	4.4	103	28	86	420
3680	73	1.7	200	57	63	660
3681	93	2.4	145	38	74	1060
3682	24	1.2	182	35	76	1140
3683	53	4.2	164	19	49	470
3684	179	1.2	159	28	55	370
3685	155	1.4	549	75	63	1150
3686	172	3.7	281	49	71	1140
3687	110	0.8	338	37	69	900
3688	46	0.3	215	95	103	1020
3689	42	2.8	110	68	95	940
3690	47	1.2	155	57	73	620
3691	42	0.9	95	40	71	480
3692	<10	2.0	121	44	78	790
3693	<10	1.4	216	41	60	620
3694	20	0.2	149	58	83	1340
3695	<10	0.8	57	18	52	440
3696	60	1.9	68	26	54	330
3697	33	0.1	71	32	68	1050
3698	<10	<0.1	52	40	65	140
3699	40	0.7	40	18	32	10
3700	12	0.6	80	59	77	730
3701	11	0.3	42	40	48	<10
3702	19	1.3	190	244	107	1510
3703	64	0.5	200	75	86	1010
3704	52	0.2	125	70	42	1110

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 9, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29113 File # 29113a PO# 3687

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J-083	12	1.0	24	34	50	<10
J-084	22	1.4	81	386	124	460
J-085	57	<0.1	160	156	352	950
J-086	56	2.2	156	235	168	1920
J-087	1354	16.2	218	3664	342	2780
J-088	72	0.5	49	80	307	1430
J-089	37	1.9	54	22	59	350
J-090	78	1.4	200	32	53	1950
J-091	<10	0.7	99	38	80	2220
J-092	23	0.4	35	23	86	110
J-093	46	1.2	87	46	97	580
J-094	61	0.2	80	47	105	1400
J-095	25	<0.1	78	51	161	320
J-096	61	1.3	71	48	118	2010
J-097	46	0.9	62	46	90	2070
J-098	56	1.2	54	58	134	1160
J-099	51	0.4	36	48	91	730
J-100	172	0.4	38	90	129	2240
J-101	56	0.5	50	37	77	1290
J-102	59	1.2	24	36	89	280
J-103	54	1.5	32	60	83	50
J-104	70	1.2	65	41	76	230
J-105	52	1.5	51	23	65	<10
J-106	44	0.8	133	48	131	90
J-107	26	0.1	66	35	80	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 9, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29130 File # 29130a PO# 3689

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J-108	119	1.9	56	33	108	<10
J-109	151	1.7	74	30	141	230
J-110	167	3.8	99	41	133	210
J-111	139	1.5	39	8	98	50
J-112	170	0.7	45	15	84	540
J-113	185	1.1	204	38	77	1220
J-114	220	1.9	168	38	112	920
J-115	334	0.6	109	20	81	<10
J-116	251	3.2	177	22	83	130
J-117	523	2.3	254	23	103	590
J-118	550	3.3	561	43	72	640
J-119	397	4.1	71	29	100	840
J-120	434	0.5	30	3	135	610
J-121	379	2.9	120	6	197	760
J-122	396	0.5	24	10	64	200
J-123	416	3.0	19	18	45	160
J-124	1516	2.4	82	47	124	190
J-125	411	0.8	17	28	65	10
J-126	365	2.9	30	60	86	<10
J-127	315	3.4	13	21	49	60
J-128	457	0.8	19	24	88	140
J-129	417	3.1	12	17	49	<10
J-130	461	1.9	10	14	57	<10
J-131	458	2.5	29	40	188	<10
J-132	<10	<0.1	37	14	68	<10
J-133	48	<0.1	16	10	40	<10
J-134	23	0.6	26	16	54	10
J-135	20	0.2	29	10	53	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians
6982
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 9, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29130 File # 29130b PO# 3687

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J-136	65	0.1	22	4	45	<10
J-137	55	1.0	31	16	42	20
J-138	23	0.3	21	12	45	<10
J-139	78	0.3	46	22	49	120
J-140	100	<0.1	31	15	100	150
J-141	63	<0.1	56	39	77	160
J-142	21	0.3	13	11	39	<10
J-143	38	<0.1	21	24	62	120
J-144	27	0.3	17	10	52	40
J-145	138	0.3	61	31	66	600
J-146	89	<0.1	71	35	73	930
J-147	69	1.0	47	17	52	810
J-148	54	0.2	20	14	61	30
J-149	56	0.2	40	30	90	60
J-150	31	0.5	21	23	55	<10
J-151	76	0.3	49	42	107	40
J-152	52	0.2	19	11	46	<10
J-153	58	0.4	22	20	55	<10
J-154	51	0.3	20	62	60	100
J-155	61	0.1	28	32	79	920
J-156	35	1.3	93	299	185	950
J-157	110	5.0	145	85	175	600
J-158	46	3.9	22	5	39	110
J-159	78	1.0	136	203	252	360
J-160	19	0.6	14	19	33	<10
J-161	40	1.8	23	4	54	<10
J-162	40	0.2	21	15	62	<10
J-163	22	0.6	19	9	47	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of B.C.
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 13, 1989

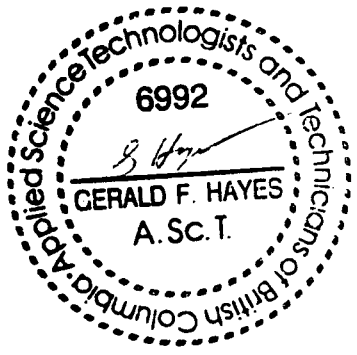
Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104a PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3501	43	1.1	47	9	80	310
3502	ins	1.3	131	43	127	550
3503	43	1.2	101	27	108	20
3504	<10	1.0	49	6	55	<10
3505	16	0.9	69	21	69	150
3506	16	0.6	156	28	106	130
3507	23	0.5	169	29	107	100
3508	28	0.6	124	26	138	560
3509	37	0.4	175	44	193	1030
3510	15	0.3	70	24	94	110
3511	10	0.4	128	30	104	580
3512	12	0.3	23	21	89	290
3513	19	0.1	16	9	65	<10
3514	55	0.7	169	80	154	1270
3515	72	0.6	159	49	188	1640
3516	61	0.2	277	36	141	1990
3517	223	1.7	255	29	81	2630
3518	48	<0.1	183	32	177	530
3520	48	<0.1	152	18	45	240
3521	38	<0.1	158	32	166	450
3522	95	0.8	178	23	84	880
3523	513	9.0	373	90	91	9050
3524	19	0.7	28	8	41	20
3525	80	0.6	323	20	97	1710

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS



105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 13, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104b PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3550	30	2.0	165	26	102	240
3552	60	3.1	149	14	113	480
3553	31	1.8	99	27	93	<10
3554	12	2.6	76	16	105	60
3555	46	3.4	170	32	49	480
3556	15	2.3	78	23	60	830
3557a	38	1.7	105	20	94	320
3557b	41	2.1	324	35	110	970
3558	41	1.5	145	21	80	310
3559	41	1.3	113	22	103	630
3560	43	1.1	86	22	101	<10
3561	42	1.0	110	23	81	160
3562	34	1.2	336	27	76	<10
3563	38	1.3	414	20	111	380
3564	28	0.4	80	15	59	220
3565	35	0.7	31	23	55	90
3566a	37	1.0	70	47	113	1070
3566b	36	0.7	53	22	85	130
3567	32	1.2	147	18	116	170
3568	35	0.2	30	7	25	<10
3569	16	0.8	86	18	61	140
3570	24	0.6	90	18	106	20
3571	29	0.9	47	20	62	90
3572	26	1.0	43	14	88	160

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 14, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104h PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J48	35	1.3	44	225	231	<10
J49	29	1.2	23	16	93	<10
J50	12	0.8	19	34	87	<10
J51	16	0.8	26	30	86	<10
J52	10	1.5	51	34	86	<10
J53	13	1.6	31	28	39	<10
J54	11	1.7	35	12	50	<10
J55	31	1.5	41	25	66	60
J56	31	1.1	64	23	81	30
J57	29	1.5	35	30	68	<10
J58	20	2.0	24	17	60	<10
J59	52	1.2	160	44	154	30
J60	29	1.0	54	27	55	<10
J61	34	1.4	61	43	90	110
J62	42	1.1	175	204	1052	80
J63	11	0.3	91	51	100	<10
J64	17	<0.1	78	29	90	<10
J65	19	<0.1	52	30	74	<10
J66	12	0.1	59	38	80	10
J67	<10	0.1	27	16	92	10
J68	18	0.1	43	28	81	<10
J69	50	0.1	173	35	127	50
J70	24	0.2	50	33	46	20
J71	17	0.3	49	25	76	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

plotted.

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 14, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104g PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3623	333	20.5	123	315	43	2820
3624	77	2.0	399	70	105	340
3625	22	3.8	54	11	92	10
3626	40	2.3	56	53	191	400
3627	36	5.5	162	43	64	240
3628	41	2.2	496	50	84	630
3629	48	1.8	225	13	115	260
3630	63	1.7	143	34	74	230
3631	110	3.1	465	53	192	310
3632	87	0.7	130	37	161	270
3633	47	0.4	122	40	247	30
3634	77	2.1	104	17	184	80
3635	125	2.4	74	55	119	420
3636	153	0.8	156	64	51	710
3637	107	2.7	440	166	125	830
3638	147	5.0	430	281	255	710
3639	273	7.5	508	675	3119	2140
3640	127	4.6	537	681	240	1400
3641	122	3.1	514	519	4506	1640
3642	127	4.3	543	846	4332	1110
3643	104	3.0	327	773	4601	1330
3644	43	1.5	97	128	184	300
3645	29	0.4	153	43	79	70
3646	31	0.4	72	27	98	110

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 14, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104f PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3599	<10	2.9	47	17	65	<10
3600	12	3.7	26	15	32	<10
3601	<10	2.1	13	12	70	<10
3602	20	1.1	31	2	75	50
3603	20	0.9	19	14	70	<10
3604	16	0.8	32	21	110	<10
3605	18	1.2	49	17	97	<10
3606	44	0.9	530	59	257	210
3607	22	0.5	71	12	99	20
3608	37	1.6	227	81	52	1040
3609	23	1.2	146	14	95	220
3610	21	0.1	105	29	115	160
3611	22	<0.1	102	44	100	100
3612	17	0.3	40	8	64	<10
3613	<10	0.3	34	2	71	<10
3614	<10	0.7	21	1	54	<10
3615	10	0.2	45	12	64	<10
3616	15	0.1	115	25	49	70
3617	11	<0.1	48	17	84	<10
3618	ins	0.3	109	58	122	100
3619	139	12.5	258	255	117	2520
3620	30	<0.1	84	10	93	80
3621	11	<0.1	34	4	77	<10
3622	27	0.1	128	21	79	60

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 14, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104c PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3573	14	0.2	39	12	80	<10
3574	26	0.5	97	21	148	450
3575	41	1.0	120	13	105	120
3576	28	<0.1	100	17	98	110
3577	27	0.4	214	15	83	190
3578	31	0.2	165	24	115	160
3579a	34	1.9	98	29	59	400
3579b	12	3.0	127	18	124	380
3580	27	<0.1	66	15	95	160
3581	23	<0.1	88	21	94	250
3582	56	3.2	93	19	92	750
3583	44	3.8	86	23	60	160
3584	12	0.4	47	16	106	80
3585	37	2.5	125	267	227	<10
3586	53	1.5	154	44	106	170
3587	30	<0.1	179	33	152	340
3588	24	0.6	41	14	68	<10
3589	42	0.5	47	13	69	20
3590	59	0.3	75	11	83	990
3591	21	0.1	27	11	57	40
3593	42	0.5	96	17	95	60
3594	24	0.3	87	18	99	50
3595	17	<0.1	25	19	53	10
3596a	12	2.3	50	42	120	320
3596b	24	3.2	134	20	130	280
3597	42	0.8	97	17	86	80
3598	25	0.1	28	19	81	30

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 14, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104d PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3432	<10	0.9	22	47	80	240
3433	12	1.5	99	57	123	100
3434	19	1.3	39	27	55	430
3435	23	0.3	174	43	87	530
3436	85	1.4	186	29	162	500
3437	45	1.0	196	63	155	1680
3438	24	1.1	171	42	113	20
3439	22	1.2	145	44	158	50
3440	20	0.8	142	34	114	<10
3441	12	3.0	451	55	74	730
3442	18	1.2	275	44	103	690
3443	25	1.1	164	23	109	630
3444	33	1.4	621	29	79	1720
3445	12	0.6	69	16	97	120
3446	13	0.6	<1	<1	<1	<10
3447	11	0.4	119	41	171	420
3448	20	0.9	41	35	133	240
3449	15	0.8	40	40	130	340
3450	<10	0.8	57	24	88	200

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
CERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 14, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104e PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3526	10	1.2	46	30	105	100
3527	<10	1.7	13	3	38	10
3528	31	1.4	101	29	76	800
3529	24	2.0	381	88	260	1320
3530	64	4.1	602	328	261	3470
3531	12	1.1	36	10	54	20
3532	44	5.7	269	56	58	2200
3533	29	1.9	127	39	53	970
3534	21	1.4	267	39	167	240
3535	26	1.0	359	70	441	690
3536	13	1.0	176	20	114	150
3537	11	0.7	187	19	126	470
3538	32	3.4	118	215	250	2860
3539	47	9.2	366	127	78	3650
3540	13	1.0	75	23	45	610
3541	25	0.9	91	12	109	750
3542	29	0.9	93	16	68	1530
3543	10	0.6	66	24	127	540
3544	26	1.3	256	28	263	820
3545	16	0.3	69	31	308	460
3546	15	0.6	66	11	93	140
3547	11	0.5	172	17	146	1150
3548	23	0.4	180	112	158	1320
3549	16	0.5	193	9	77	570

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT. Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 15, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104j PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1501	400	65.0 1.905	714	248	551	4400
1502	236	42.0 1.226	699	126	276	3200
1503	15	2.9	503	37	28	260
1504	17900 0.523	176.5 5.154	733	689	2369	2700
1505	6930 0.202	138.5 4.044	723	175	1633	4700
1506	5829 0.170	137.5 4.015	726	472	1704	1460
1507	1196 0.035	26.5 0.774	693	208	379	220
1508	585	26.5 0.774	689	378	245	4400
3004	14100 0.412	78.9 2.304	692	226	119	3900
3005	1219	54.7 1.597	674	605	74	80
3006	125	0.1	14	5	6	4500
3007	1137	58.4 1.705	178	5240	19	4700
3008	926	1.7	543	227	25	4900
3009	316	46.9 1.369	688	1272	434	4700
3010	3688 0.108	5.7	490	113	18	1280
3011	78	0.7	467	29	497	4300
3012	335	2.9	405	93	33	4700
3013	4595 0.134	129.6 3.784	713	571	335	2010
1526	64	0.4	369	34	30	860
3460	69	0.6	98	28	41	3800

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 15, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104i PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J72	12	1.2	54	24	100	<10
J73	<10	0.5	52	17	79	<10
J74	10	0.6	37	12	67	<10
J75	23	0.1	35	13	71	<10
J76	18	0.1	43	13	56	<10
J77	13	1.0	57	21	60	50
J78	20	0.8	71	26	62	620
J79	<10	1.3	42	13	53	10
J80	22	0.8	57	82	218	1040
J81	26	0.1	61	15	66	<10
J82	<10	0.7	18	10	53	<10
3647	57	2.5	321	138	223	1010
3648	48	2.0	262	115	257	790
3649	78	3.0	276	131	192	1190
3650	97	5.2	392	169	290	1750
1380	153	0.9	138	42	468	2570

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 16, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29104 File # 29104k PO# 3681

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3461	19	1.4	61	18	133	180
3462	69	3.2	531	53	83	4170
3463	1024	100.1	553	3809	1842	4460
1773	26	1.1	130	63	43	1890
1774	40	1.2	35	62	38	790
1775	<10	0.2	26	9	17	<10
1776	11	1.3	82	22	17	20
1777	20	1.2	73	20	18	<10
1778	2204	9.7	528	64	119	4390
1779	1450	38.3	564	245	330	1150
4512	2609	51.5	150	1991	16	4280
1419	124	0.9	112	24	28	1000

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern
Analytical
Laboratories ltd.

September 16, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29172 File # 29172a PO# 3113

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3481	34	1.5	47	18	16	<10
1527	1884	35.1	684	485	155	4200
1528	5664	40.6	687	633	3420	3800
1529	867	35.8	707	189	3682	4200
1530	71	3.5	670	38	176	4200
1531	650	370.3	6750	10570	2860	16200

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 21, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29172 File # 29172b PO# 3113

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3739	15	0.4	194	236	199	990
3740	16	<0.1	90	31	65	<10
3741	38	<0.1	97	18	52	<10
3742	ins	11.5	415	393	372	3140
J164	77	<0.1	71	15	53	<10
J165	21	<0.1	117	14	102	<10
J166	49	0.8	69	53	178	<10
J167	<10	<0.1	212	28	133	<10
J168	35	<0.1	116	27	187	170
J169	29	<0.1	51	17	81	<10
J170	23	<0.1	87	36	219	<10
J171	17	<0.1	86	57	203	<10
J172	<10	<0.1	80	47	200	<10
J173	14	0.1	60	221	317	<10
J174	25	0.1	72	195	209	<10
J175	21	1.3	61	345	261	<10
J176	23	0.4	51	163	419	<10
J177	11	<0.1	67	272	430	<10
J178	22	<0.1	72	150	262	<10
J179	46	<0.1	85	108	184	<10
J180	39	<0.1	81	191	334	<10
J181	25	2.9	84	1367	1042	20
J182	21	<0.1	34	32	143	<10
J183	38	<0.1	46	28	198	70
J184	37	<0.1	36	18	179	20
J185	26	<0.1	45	30	193	40
J186	32	<0.1	66	38	311	70
J187	42	<0.1	35	29	208	50
J188	26	<0.1	36	26	158	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians
6992
GERALD F. HAYES
B.SC. T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

September 27, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29209 File # 29209a PO# 3129

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
J189	39	0.1	37	18	104	50
J190	27	<0.1	59	20	136	<10
J191	28	1.7	48	23	142	<10
J192	29	1.9	51	18	169	<10
J193	38	0.5	44	12	158	<10
J194	60	0.6	51	18	126	<10
J195	37	0.4	101	64	547	<10

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

November 15, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29024 File # 29024b PO# 3670

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
1769	104	1.4	38	85	51	300
1770	260	0.4	130	30	9	140
1687	29	<0.1	57	12	12	280
1688	54	<0.1	79	10	21	360
1689	40	1.9	125	5	40	140
1690	1291	34.5	210	1841	17	19800
1691	68	2.7	112	33	10	1300
1692	17	2.1	51	54	28	6800
1693	43	1.5	47	42	30	3800
1694	10	1.2	38	11	45	140
1695	86	1.1	69	32	32	960
1696	71	90.9	381	14810	8370	11

Au -- 15g Fire Assay AAS
Metals -- Aqua Regia Digestion AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

November 3, 1989

Total Energold Corp
21 - 1114 - 1st Ave
Whitehorse, Yukon
Y1A 1A3

ASSAY CERTIFICATE

Work Order # 29055 File # 29055c PO# 3673

Sample	ppb Au	ppm Ag	ppm Cu	ppm Pb	ppm Zn	ppm As
3423	58	0.8	156	55	77	100
3178	88	1.8	312	187	102	250
3179	68	0.3	175	74	140	1280
3180	72	<0.1	81	16	220	920
3181	37	<0.1	112	77	98	690
3182	25	<0.1	106	65	101	610
3183	49	1.0	323	35	315	860
3184	72	1.3	269	32	274	1030
3185	33	1.0	203	44	246	730
3186	56	0.8	173	53	220	660
3187	65	1.6	67	297	310	350
3188	31	0.4	90	48	153	590
3374	54	0.6	82	34	148	350
3424	21	0.3	57	42	151	300

Au -- 15g Fire Assay/AAS
Metals -- Aqua Regia Digestion/AAS

Applied Science Technologists and Technicians of British Columbia
6992
GERALD F. HAYES
A.Sc.T.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

APPENDIX 2

ANALYTICAL PROCEDURES

Northern Analytical Laboratories ltd.

SAMPLE PREPARATION

Soils

Incoming soils are sorted, counted and logged. The soils are placed in an oven devoted to geochem and dried at 150 F.

When soils are dry, they are sieved through an 80 mesh screen. If 20g of -80 # soil is not obtained, the +80 # is then sieved through a 40 # sieve and placed in a separate bag. The reject is stored in its' origional bag.

Rocks

Incoming rocks are sorted, counted and logged. Rocks are first crushed through a jaw crusher set at 3/8" gap and then crushed through a 1/8" gap.

The crushed sample is split using a Jones Riffle until a 250g sample is obtained. The reject is placed in its origional bag and stored.

The sample is then dried at 150 F and pulverized to -150 # using a ring pulverizer.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

TRACE LEVEL GOLD FIRE ASSAY

15g of sample is mixed with a suitable flux in a 30g crucible, inquarted with 2 mg Ag and fused at 1900 F. The contents of the crucible is poured into a mold and allowed to cool. The slag is broken off and discarded. The lead button is then pounded into a cube.

The lead button is placed into a bone ash cupel which has been preheated to 1800 F. When the lead is completely molten, the temperature is dropped to 1750 F. The dampers are opened to allow air inside the furnace. When cupelation is complete, the cupel is taken out and allowed to cool.

The silver-gold prill is picked out of the cupel and dropped into a 16 x 150 mm test tube. 2 mls of 1:1 Nitric Acid is added and the test tube is heated to dissolve the silver. 3 mls of HCl is then added to dissolve the gold. The test tube is made up to 10 mls using a reference, mixed and run on the A.A.

ORE GRADE GOLD FIRE ASSAY

The furnace procedure is identical to the above method except that 30g or one Assay Ton of sample is usually weighed.

The resulting silver-gold prill is picked out of the cupel and hammered flat and dropped into a porcelain crucible. 1:3 Nitric acid is added and the crucible is placed on a 350 F hot plate until all the silver is dissolved. Some (conc.) Nitric is added to ensure complete dissolution of the silver. The Silver Nitrate solution is decanted off and the gold is washed three times with D.I. water. The crucible is then replaced on the hot plate to dry.

The gold is annealed using a propane torch and allowed to cool to room temperature. The gold is now weighed on a micro-balance to one microgram. After calculations, oz/t or g/t gold is reported.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

Northern Analytical Laboratories ltd.

ATOMIC ABSORPTION ANALYSIS

Geochem Digestion [Trace Level Analysis]

0.500g of sample is weighed into a 16 x 150 mm test tube. 2 mls of 1:1 Nitric Acid is added and the test tube is placed in a hot water bath for 20 minutes. 3 ml of HCl is added and the sample is heated for 40 minutes. When digestion is completed, the sample is cooled in a cold water bath. The test tube is then bulked to 10 mls using a reference, stirred and allowed to settle. The sample is now ready to run on the A.A.

For ICP the sample is digested in one step using 5 mls of 3 parts HCl, 1 Part Nitric Acid and 2 parts water.

Assay Digestion [Ore Level Analysis]

1.000g of sample is weighed into a class A 100 ml volumetric flask. 5 mls of Nitric Acid is added and the flask is placed on a 400 F hot plate until the red fumes indicating reaction subside. 20 mls of water* and 10 mls of HCL are added and placed on the hot plate for 5 minutes. The flask is then bulked to the neck with water and brought to a boil. The flask is then cooled, bulked to the mark, shaken and allowed to settle prior to running on the A.A.

* Some elements require special treatment. For example, Sb requires 20 mls 10% Tartaric acid.

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: [403] 668-4968 Fax: [403] 668-4890