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SUMMARY OF EXPLORATION TO JUNE 30, 1971  
AND RECOMMENDATIONS FOR PROPOSED EXPLORATION  
JULY - DECEMBER, 1971

COMBINED EXPLORATION PROJECTS  
- ANVIL MINING CORPORATION  
- PELLY RIVER MINES

Compiled by: J.S. Brock  
Contributions by: D. Jenning  
J. Heslop  
W.J. Roberts  
J.S. Brock

June 30, 1971  
Faro, Yukon



Summary

A review of exploration activities completed to June 30, 1971, has been compiled within this report by Anvil and Dynasty exploration staff. Proposals and recommendations for continued exploration of Anvil and Pelly River Mines holdings have also been offered. The estimated budget to year end for this work totals \$ 478,236.

This report will serve as a reference for Chief Exploration Geologist, J. Jansons, who will be assuming responsibility for continuance of the program as of June 28, 1971.

It is also hoped that the material contained herein will enable the Cyprus, Dynasty, Anvil exploration management committee to review the program as well as to assist in future planning of its course.

Respectfully submitted,

John S. Brock  
June 30, 1971  
Faro, Yukon

Schedule of Exploration

A generalized schedule of exploration for the combined Anvil Mining Corporation - Pelly River Mines project has been suggested.

The proposed budget has been designed for the periods, and projects outlined on Table (II) "Exploration Schedule July 1 - December 31/71."

Details concerning proposed planning of projects follow under sections:

- Rotary Drilling
- Pit Geology
- Regional Geology
- Regional Geochem
- Data Presentation
- Geophysics
- Diamond Drilling
- Faro No.4 Area
- Research Geology

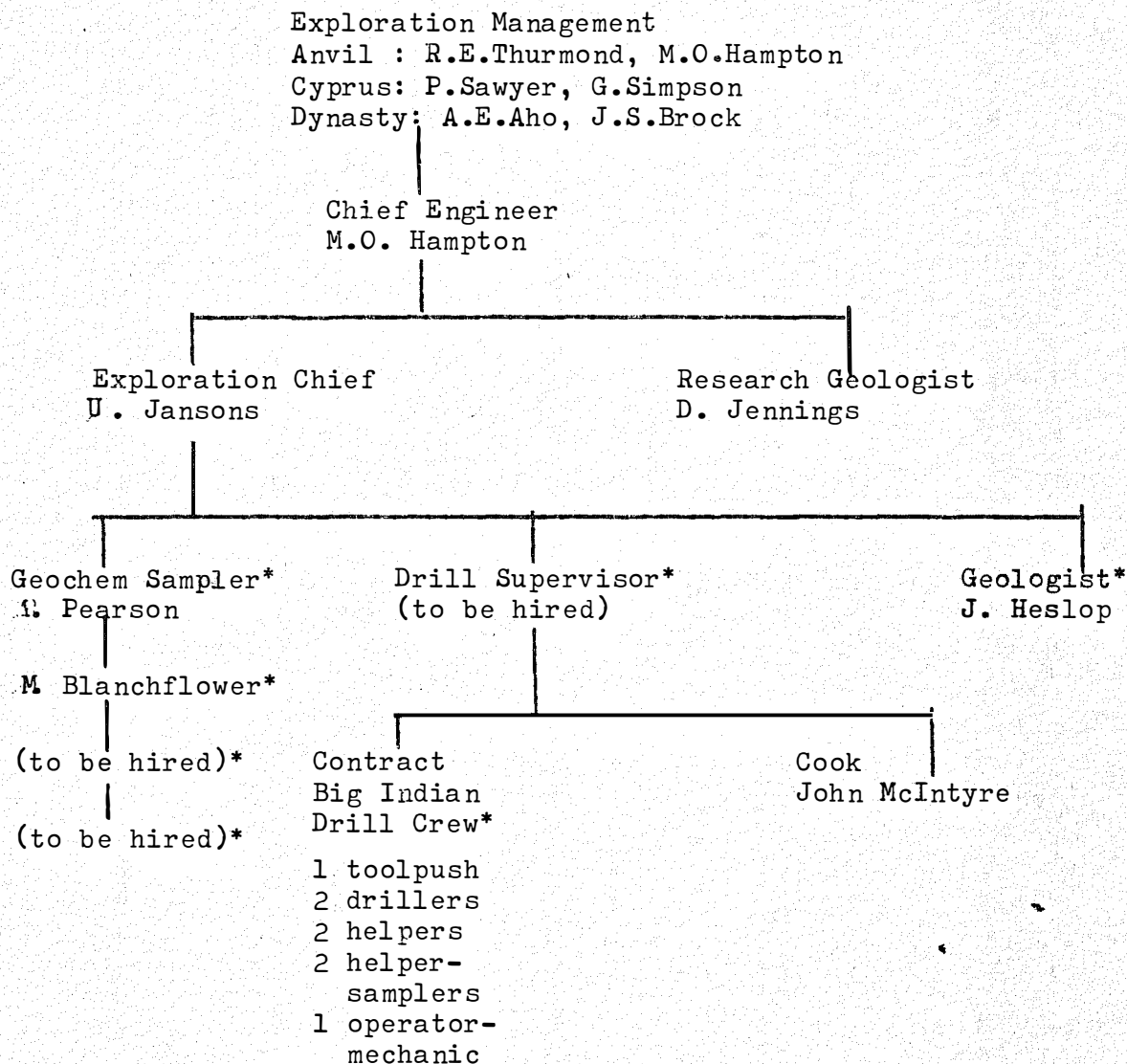
EXPLORATION SCHEDULE JULY 1 - DEC. 31  
 ANVIL MINING CORPORATION  
 COMBINED EXPLORATION, ANVIL-PELLEY RIVER MINES

	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Rotary Drilling Mob-Demob	■		■			
Bedrock & Target Testing	■	■				
Geology Pit	■					
Regional		■	■	■		
Geochem Regional	■	■				
"Fill-In"			■			
*Geophysics - Turair	■					
*Diamond Drilling		■	■			
Data presentation & filing of assess- ment work				■	■	■

\*Contingent on results

PERSONNEL

1. Chief Engineer (M.O. Hampton)  
Reports to exploration management committee
2. Chief Exploration Geologist (U. Jansons)  
Reports to M.O. Hampton  
Heads exploration department, responsible for rotary drilling, diamond drilling, geochemical sampling, regional mapping, and other direct exploration operations. Will work with research geologist in exploration method and planning.
3. Research Geologist (D. Jennings)  
Reports to M.O. Hampton  
Will control overall research program and collaborate with other exploration staff to design exploration methods applicable to the Anvil area search for base metal sulphide deposits.
4. Geologist (Ph.D. Candidate, J. Heslop)  
Reports to U. Jansons. Will map pit with view of establishing metamorphic, structural, stratigraphic, and mineralogic controls.  
Will also participate in regional geologic mapping program as time permits.
5. Drill Supervisor (to be hired)  
Reports to U. Jansons.  
Employed during period rotary drilling is in progress, must have drilling and supervising experience with the knowledge and desire of obtaining accurate samples and efficiency.
6. Geochemical Samplers (Blanchflower, Pearson, 2 to be hired)  
Report to U. Jansons  
- soil sample on regional geochem program
7. Cook - responsible to Drill Supervisor  
Rotary drill camp cook, responsible for kitchen, laundry, ordering of cooking supplies.
8. Contractor (Non-Anvil personnel)  
Responsible to Drill Supervisor  
Big Indian Drilling - (2) 12 hour shifts  
1 toolpush  
2 drillers  
2 helpers  
2 helper-samplers  
1 equipment operator-mechanic  
8 man crew



\* seasonal employees

TABLE (ii)  
ORGANIZATION CHART  
EXPLORATION STAFF  
July 1 - Dec. 31, 1971.

Rotary Drilling

Poor drill performance of the Big Indian '3-way-drill' because of variable overburden conditions, and a high proportion of downtime forced a change in drill method, see Appendix (ii)

A Mayhew 1,000 rotary drill mounted on a Nodwell Flextrach will be used to continue the bedrock testing program. This unit will be capable of drilling to depths of at least 700 feet, should deeper holes be required for geological information or testing of specific targets for sulphides.

Projected Mayhew 1,000 Performance and Costs

Rental	\$49/hour	\$ 1,750/day
Drilling Rate 0 - 100 feet		8 feet/hour
(tri-cone) 100 - 200 feet		8 feet/hour
200 - 300 feet		6 feet/hour
300 - 400 feet		6 feet/hour

Coring Rate (Mud barrel) 2.5 feet/hour

Hole Time Estimate

Move rig up	2 hours
Drill 100 feet	14 hours
Core 20 feet	8 hours
Rig down	1 hour

Cost Assumption 1 hole, 120 feet/day = \$ 1,750  
25 holes/month = 3,000 feet/month  
Contract cost/30 day month = \$ 52,500  
or \$ 17.50/foot

Planned minimum footage July - August - 6,000 feet

Support Equipment - Rotary Drilling Program

Provided by Big Indian Drilling

- 1 Nodwell mounted Mayhew 1,000
- 1 Nodwell water truck
- 1 Crew Cab 4 x 4
- 1 Bunkhouse

Provided by Anvil

- 1 D 7E Cat
- 1 Foremost
- 1 Bombardier
- 1 Kitchen Trailer

It will be necessary for Anvil to provide both the Bombardier and Foremost for tracked vehicle supply and crew change support. Two vehicles are required in case of breakdown and other maintenance problems. Downtime because of poor vehicle support during the period May 20 - June 26 amounted to 16.3 % of the total planned production time.

Planned Drill Sites

Within the immediate future bedrock testing will be completed on the west Faro Grid. Proposed drilling of lines 184 W, 208 W, and 232 W will not be carried out because of difficult ground conditions as well as the requirements for further soil sampling, bedrock geochemistry and possible locating of AEM conductors that will provide more definite targets.

Drill sites proposed for continued rotary drilling are located within favourable sections of unit 3.

West Faro	Line 136 W	1,000 S	Hole 56 A
		2,000 S	57
		3,000 S	58
		3,000 N	59
		4,000 N	60
	Line 160 W	4,000 N	61
		3,000 N	62
		2,000 N	63
		1,000 N	64
		C B L	65
		1,000 S	66
		1,800 S	67
		3,000 S	68

Hole 67 should be drilled as close to 1800 S as possible to test to depth extensions of the 0.6 mg residual gravity anomaly on line 156 W 1800 S. A 400 foot rotary hole at this site will also provide much needed geologic information regarding extensions of the quartz rich phyllite and quartzite host rocks.

Holes 62 and 59 should also be drilled to 300 feet to test the stratigraphic thickness of quartz rich units in the area as well as possible deeper geochemical halos on strike from the Faro No. 1 orebody.

A total of 43 rotary drill holes are planned for the East Faro Area. Sites are located and plotted on a 1 : 1320 base map showing bedrock test results to date as well as proposed future holes.

The east Faro grid has been used as a reference for the locations of lines 76 W, 52 W, 28 W, 4 W, 20 E, 44 E, and 68 E. Lines 4 W to 76 W can be easily located on the ground, from these picket lines all other lines will have to be surveyed in by compass and chain methods. All lines will have to be cleared by bulldozer taking care not to disturb original pickets and survey monuments, at the same time drill sites can be cleared and allowed to dry.

Two deeper 400 foot holes should be drilled at:  
9 W, 58 S, replacing 4 W, 60 S; to test a coincident AEM - Mag anomaly at that location.

16 E, 21 S replacing 20 E, 30 S, to test a 0.6 mg gravity anomaly at that location.

### Preparation of Drill Sites

The preparation of rotary drill sites must be done as far in advance of the actual drilling as possible in order that the ground surface be allowed to dry out before the rig is set up.

Drill sites on the west Faro grid can easily be located with reference to clearly picketed and well marked hand-cut and 'cat' lines.

Drill sites on the east Faro, L.O., and Bill claims have yet to be surveyed.

Site preparation on the Faro grids must commence as soon as possible, keeping in mind the availability and short time demand for the D 7E at the mine.

Sites for further drilling within the next priority area at DY - RICH - BOB claims have not been located, pending soil sample results and regional mapping yet to be completed in that area.

Drill site markers, white painted posts with the drill hole numbers shown, have been prepared for holes 71 - 0041 to 71 - 0100. These respective markers must be placed at the collar of each completed hole.

### Sampling Procedure

Existing sampling procedure will have to be modified for efficient collection of overburden and bedrock rotary cuttings.

At present a 2 man drill crew is being used for drilling, the sampler being responsible for collecting, bagging, and tagging samples being taken at 10 foot intervals. After a trial period the crew strength may be increased to 3, thus allowing more attention to be paid to sampling by the third crew member.

Big Indian Drilling are providing a 'pit' which will allow cuttings to be separated by gravity thus freeing drilling mud for re-circulation. The problem of re-circulation of fines with the mud has not been solved other than by a makeshift coarse screen. The problem requires research, especially with respect to collecting samples of mineralized bedrock where the grinding action of the rotary method may separate sulphides from the host. A sluice-box system worked moderately well during the 1965 rotary drill program and should be tried again for this project.

Overburden samples should still be collected for geo-chemical analyses, if only to provide research geochemical information.

Loss of samples from holes drilled earlier in 1971 necessitated a procedure whereby each shift change has been made responsible for bringing its samples back to a central location at the drill camp. All samples are collected in a plastic bag, a shipping tag designating date, hole number, and sample interval is then placed outside the bag and the sample bag plus tag are put inside a second, outer protective plastic sample bag. Felt nib marking pens are not adequate for marking bags as the ink is not water-proof and can be washed off.

Ten foot sample intervals taken through bedrock should be prepared and displayed for visual examination and logging. A representative sample from each bag will be taken, dried, and glued to a board. A representative sample should also be panned so that heavy material can be concentrated and examined, an estimate of percentage of sulphides per sample interval can thus be made.

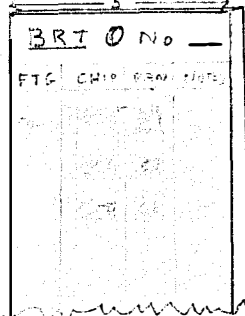


Table (iii) Sample Board (Not to Scale)

Hopefully the drill supervisor can be instructed in the collection of samples, drying, panning, and board preparation, thus freeing the geologist for logging at regular intervals. The board must be made of width narrow enough so that it can be slid under a binocular microscope.

A sample record must be maintained for each hole, an example of the form to be used in Appendix (iii). Records of dates samples were sent for analyzes and what additives were used in drilling are essential when dealing with a large volume of samples in an orderly fashion.

#### Geochemical Analysis

All soils and bedrock chips are being analyzed by Barringer Research at Whitehorse. To date, Cu, Pb, Zn, Cd, and Hg are being tested. In future Cd analyzes should be omitted until the relevance or indeed existence of a Cd halo can be determined about the Faro deposits.

Before a definite plan is adopted regarding the collection of only bedrock chip samples from the rotary drilling, one or two holes should be drilled where about 2 feet of bedrock is cored. A comparison of mercury analysis of core and bedrock chips must be done

to determine the loss, if any, of mercury controlled by fractures or bedding planes that are not retained by the grinding action of the rotary drilling.

#### Plotting of Results

Base maps on a scale of 1 : 1320 have been prepared for plotting of bedrock chip geochemical results for each hole drilled between Faro and Blind Creek. A symbolic representation of anomolous values obtained at each site has been prepared, the map also shows a table of bedrock geochem results received to date.

Property base maps on a scale of 1 : 400 using existing picket line grids for control, have been prepared for plotting of overburden and bedrock chip geochemical results. Complete analysis for each 10 foot sample interval for each hole have been plotted in table form at each drill site.

It is important for geochemical plots of results pertaining to the drill program to be updated on a continuing basis to enable immediate direction of the rotary drill program.

GEOLOGICAL REPORT  
ON THE  
SURFICIAL GEOLOGY  
FARO AREA  
ANVIL DISTRICT, YUKON TERRITORY

by Wayne J. Roberts  
Dynasty Explorations Ltd.  
June 17, 1971

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ILLUSTRATIONS

	<u>Drawing</u>	<u>File</u>
Faro Grid Geology Map	FX-7173	K-1
Faro Cross-Section	FX-7174	K-1
Simplified Section cc	FX-7170	K-1
Simplified Section No. 6	FX-7171	K-1

## Introduction

A period of approximately 2 weeks was spent mapping the Faro grid area between Next Creek and the North Fork of Rose Creek. Mapping detailed 4 categories; rock type, foliation and other structural features, rock magnetism, and mineralization. The prime objective was to trace the favourable host rocks, the quartz mica schists with included quartzite, and attempt to determine major structural features in the area. Due to lack of sufficient outcrop in the northwestern grid area, preliminary interpretation was aided by current bedrock testing holes. Simplified cross sections along lines 28 W, 64 W, 88 W, and 112 W were made using 1965 - 1970 drill logs, outcrop, and the 1971 drilling results.

## General Geology

The grid area is underlain by metamorphics of probably Cambrian - Ordovician age generally heading northwest - southeast bordered on the north by the Anvil Batholith. No bedding was observed or relative ages accurately determined, but it is thought that underlying units in the northern region are older with decreasing age and metamorphic grade of rock units going south.

The oldest rock unit thought to be present, Unit 2, consists of a banded pale green, grey, purplish brown skarn with phyllite to hornfelsic partings. Also found associated with this is a very quartz rich coarse grained biotite schist. In hand specimen, individual light and dark bands are generally less than  $\frac{1}{4}$  of an inch thick but can be up to 1 inch. Minerals identified were diopside, chlorite, biotite, grossularite, and sericite. The dark, more mafic bands appear to be very discontinuous as very thin lenses. Attitudes taken on the smooth phyllite partings were thought to coincide with the  $F_2$  foliation. The banded skarns are predominant in the northern portion of the grid adjacent to the Anvil Batholith in the general area of Mt. Tit. Within this unit 30 - 40 foot thick lenses of limestone with included quartz bands occur on Mt. Tit and to the southeast. Templeman-Kluit believes these lenses occur in a restricted zone of 300 feet near the top of Unit 2.

On the south side of Big Indian Mountain between Faro Creek and the North Fork of Rose Creek, large intervals of coarse grained quartz biotite schist appear to lie on the rather gentle sloping porphyritic granite. Orientation of biotite was generally taken as the  $F_2$  foliation. Plotted fold axes could either belong to the  $D_4$  or  $D_5$  deformation, as it wasn't noted when mapping was undertaken.

Table of Formations

Tertiary	13	-porphyritic hornblende diorite
	12	-pyroxenite green hornblende diorite
↑		
Cretaceous	11	-porphyritic biotite granite to granodiorite
	10	-younger volcanics and sediments not found on Faro Grid Area.
↑		
Ordovician	4	
U. Cambrian	3e	-highly calcareous grey quartz to non quartz rich sericite phyllite
	3d	-"greenstone"-amphibolite, andesitic tuff, chlorite schist
	3c	-green-dark green skarny chlorite biotite phyllite
	3b	-light grey quartz sericite phyllite, black quartz graphite phyllite, and green quartz chlorite phyllite.
	3a	-white to light grey sericite schist to quartz sericite schist
L. Cambrian	2	-"calc-silicates", quartz biotite schist with intervals of pale green and purplish banded skarn with phyllitic partings, hornfels
Proterozoic	1	-Grit unit, quartzite, not found in Faro Grid Area.

Unit 3, termed "phyllites" includes quartz to non quartz rich sericite, chlorite, graphite, biotite, phyllite; lower grade quartz sericite biotite schist; calcareous phyllite; and greenstone. These units underlie the greater percentage of the grid between Next Creek and the North Fork of Rose Creek.

Unit 3a, the lowest member, consists of a quartz rich to non quartz rich sericite (Muscovite?) schist with recognizable variable amounts of biotite, chlorite, staurolite, and garnets. On fresh surfaces it is white to creamy greenish grey, highly foliated along  $F_2$  planes and weathers tan. As noted in the pit and in drill holes this unit surrounds the Faro orebodies and might possibly contain the quartzite interval hosting the sulphides. Since this unit is easily erodable, very few outcrops were noted. Unit 3b, the quartz rich sericite, chlorite, biotite, graphite phyllite appears to overlie the schists but may also contain the host quartzite. Individual folia are generally less than 5 mm except in highly quartz rich intervals where quartz bands were noted up to 1 cm. The sericite rich material is generally grey tending to become greener with added chlorite. Graphite phyllite is black on both weathered and fresh surfaces. The phyllites are well foliated along  $F_2$  planes and generally show good  $L_3$  lineations as well as  $F_4$  and  $F_5$  folds.

A calc-silicate interval, termed unit 3c, may be a skarny interval in the phyllites or might be a portion of unit 2. It contains intervals of light and dark banded skarn as well as dark green diopside and chlorite rich material. With further study it is believed that this unit can be correlated to the original banded calc-silicate.

Unit 3d, probably originally an andesitic tuff, termed greenstone, includes a greenish weathering amphibolite with visible grains of actinolite. Along with the amphibolite is a highly foliated green chlorite schist with good  $S_2$  surfaces and possibly 3rd and 4th deformational folds. It's postulated by Templeman-Kluit that the chlorite schist occurs along the borders of the more massive blocky amphibolite. The greenstone contains minor amounts of pyrite and pyrrhotite which are magnetic. As may be noted on the accompanying "Faro Grid Geology Map", drawing FX-7173, the lenses are highly variable in form but the surface elongation is generally parallel to the  $S_2$  form lines.

Highly calcareous light grey quartzose to non quartzose well foliated sericitic phyllite, Unit 3e, occurs in the southern portion of the grid. It generally is also easily erodable and offers little outcrop in the lower portion of the Rose Creek valley. This unit is thought to be stratigraphically higher in the section than the host rocks and is considered poor prospecting ground.

Units 4 - 10 on the Templeman-Kluit--Dynasty geologic legend include volcanics and sediments of ordovician to Triassic age seperated from the phyllites by the Rose Creek fault or a regional unconformity.

Medium to coarse grained porphyritic granite to granodiorite, Unit 11, intrudes the banded calc-silicates and phyllites, forms part of the Anvil Batholith. Large phenocrysts of potassium feldspar up to 6 inches in length occur somewhat aligned in a northwesterly direction in the granite. The granodiorite to quartz diorite body which pushed up the north-west end of Faro No. 1 deposit is likely a seperate later phase of the batholith.

Unit 12, a dark green hornblende porphyry contains large phenocrysts of hornblende up to a 1/2 inch long which occur in a dark green groundmass. Between lines 12 W and 8 W at 15 S a breccia occurs adjacent to the prophyry. Fragments consist of grey phyllite and schist in a green aphanitic groundmass.

A medium grey fine to medium grained porphyritic hornblende diorite, unit 13, occurs as small bodies adjacent to as well as in the major batholith phases.

### Preliminary Structure

Referring to the "Faro Grid Geology Map" the banded calc-silicates, schists, and phyllites appear to be highly deformed by more than three deformational episodes. The second deformation appears to have been the most predominant producing the planar foliation  $S_2$  seen throughout the district. Form lines on  $S_2$  planes are uneven and appear to indicate large domes and troughs. It is interesting to note that the Faro No. 1 and 3 bodies occur in a trough, the significance of which may only indicate forces altering the deposit at that time of deformation. Rock Unit contacts do not necessarily parallel form lines. Fold axes taken probably belong to  $D_4$  and  $D_5$  stresses acting on the  $S_2$  foliation but these were not individually distinguished. They roughly trend 290 to 310 degrees approximately parallel to the elongation of the Faro deposits. If unit 3c can be correlated to the earlier (?) calc-silicates, the orebodies could possibly occur in a large northwest trending, fold, or sub-parallel zone of movement. All  $L_3$  lineations observed were not noted. Faulting likely occurred during intrusion of the Anvil Batholith and post Cretaceous time, generally in a northeast orientation.

### Economic Geology

Massive galena and sphalerite were only observed in one outcrop on line 46 W, 300 feet south, occurring in dark green, diopside rich skarn included in unit 3c. The host quartzite was not noted anywhere on the grid which may indicate an uneven stratigraphic distribution or a lens.

### Cross-Sections

Four simplified cross-sections over the grid area were drawn using previous diamond drilling results, outcrop, and the recent overburden drilling results. Generally the  $S_2$  foliation is steeper near the contact of the Anvil Batholith, becoming more gentle going south. Old drill holes were not re-logged and probably much of the rock type interpretation as taken from drill logs is not valid. Due to great thicknesses of overburden between the 3a - 2 and 3b - 3e contacts, the favourable area at surface, the recent overburden drilling has been very useful but appears to be of rather limited use in areas thought to be underlain by calc-silicates or calcareous phyllite.

Section No. 6 and cc were also simplified and re-interpreted, indicating the possibility of banded calc-silicates and biotite quartz schist above the No. 1 orebody.

Sequence of Events

1. Deposition of sediment accompanied by volcanic tuff.
2. Volcanogenic deposition of sulphides in host quartz.
3. Section regionally metamorphosed.
4. Further sedimentation and volcanic activity.
5. Intrusion of Anvil Batholith
6. Faulting

Conclusions

Units 3a and 3b, the probably hosts for ore, appear to bend near the northwest end of Faro No. 1 and then bend in a more westerly direction. Most if not all of the following drilling and bedrock testing should be focussed on this belt rather than in the calc-silicates or limy phyllites. Deeper bedrock test rotary drilling is necessary, including possibly one deep hole on lines 136 W and 160 W near 3000 N to increase the odds of locating on strike geochemical halos. No host quartz was located on the grid but this may be due to poor outcrop along the favourable belt. West of Next Creek little quartz rich schist or phyllite was observed with largely banded calc-silicates and limey phyllite. Further exploration on the Faro claims on that side could consist of soil lines and bedrock chip samples over the favourable area marked on the 1" = 1320' Regional Geology Map. No work was done east of the North Fork of Rose Creek.

Respectfully submitted

W.J. Roberts  
Geologist  
Dynasty Exploration

### Faro Pit Geology

Most of the month of July will be spent by Jennings and Heslop mapping the Faro open pit. This job has been designed to:

1. Provide the mine with an up to date working copy of pit geology to aid pit planning and ore control.
2. Provide a basis for initiating the regional geologic mapping through gaining a familiarity with ore controlling structures and host units.

Heslop will expand the mapping into a more specialized study of the sulphides for his thesis.

The Faro geology and sulphide deposits will not be completely understood unless existing diamond drill core is re-logged. Core logs now on file have been logged in varying degrees of detail by different geologists thus creating a plan of the geology and deposits that is subject to question of accuracy. This project will be a time consuming one and would be best done after the exploration season by staff geologists.

### Regional Geology

The main emphasis of the exploration program is to develop the best regional geologic control as possible. This will be accomplished through mapping on a scale of 1 : 1320 by geologists Jansons, Jennings, and Heslop on a part-time basis as determined by the progress of his work in the pit. Jennings will be somewhat flexible in his approach to specific field mapping because of the direction his research may take.

The regional geologic mapping will require work off the Anvil claims, necessary for development of an over all picture. In this respect close co-operation with Wayne Roberts and his findings on the Dynasty program is anticipated. Work with Dynasty geologists in developing the regional geology will avoid duplication of some field work and quicken a better understanding of the region.

The economic significance of the phyllite-schist units will hopefully be better understood after the Faro pit geology is mapped. Geology of the Vangorda and Swim deposits should be studied next, probably in detail by Jennings to further develop his theories regarding ore control. The regional approach may then be better established by general guidelines developed from study of the existing sulphide deposits.

Mapping will be carried out on a base topographic relief map using scale 1 : 1320. These maps have been ordered through the firm of White, Hasford, and Impy in Whitehorse. They will be enlarged from 1 : 50,000 topographic maps published in April, 1971, by the Federal Government.

<u>Advance Print Number</u>	<u>N.T.S.</u>	<u>Area</u>
P 7323	105 K 2	Swim Lakes
7347	" " 6	Mount Mye
7327	" " 3	Buttle Creek
7459	" " 5	Rose Mountain
7343	" " 7	Blind Creek

These bases are ideal for control, all culture including most former geophysical survey grid lines in existence in August 1970, are shown on the maps. The same bases will be used for location of bedrock test drill sites.

The aerial photographs used to prepare the 1 : 50,000 base maps have been ordered for the area between the Crown claims and Blind Creek and will serve to assist the regional geologists in outcrop location.

## PRELIMINARY OUTLINE OF RESEARCH PROGRAM

Proposed geological research in the Anvil area can be categorized under four main headings: 1) Detailed open pit mapping; 2) Regional mapping within the Anvil phyllite belt; 3) Geochemical investigations of the Faro orebodies; and 4) Regional tectonic studies. The objectives of each of the areas of research are summarized in point form below and are listed in order of temporal importance:

### Detailed Mapping of Open Pit:

#### Objectives:

1. Define the geometry of metamorphic fabric elements and their age relationships in rocks exposed in the pit. The ultimate goal of this geometric analysis is to provide a data base for interpretation of the deformational history of the rocks concerned. Relationships in the pit will then be extended to other parts of the Anvil region.
2. Establish any patterns of gross mineralogic zonation in the Faro orebodies and to determine their association (if any) with recognizable stratigraphic units.
3. Use mesoscopic structural data to aid (where possible) in day to day problems of ore control.
4. Establish and maintain a continuing program of detailed geologic mapping and study aimed at determining ore controls, ore genesis, and parameters useful in exploration for additional mineralization.

### Regional Mapping in the Anvil Phyllite Belt:

#### Objectives:

1. Determine the regional macroscopic structure and stratigraphic sequence in the belt. Extensive use will be made of presently available data.
2. Establish a workable and correct lithologic and structural nomenclature in co-operation with other geologists engaged in regional mapping.
3. Define the metamorphic history of the belt in terms of isogradic reactions (if possible), petrogenetic grids, and the facies concept. Attention will be paid to the effects of regional and contact metamorphism on known ore deposits.

Geochemical Investigation of the Faro Orebodies:

Objectives:

1. Establish parameters for recognition of chemical halos around the Faro orebodies as an exploration tool. If these orebodies are of replacement origin, a chemical halo (metasomatic) might be expected. If the orebodies are syngenetic, a detailed analytical program might be designed to define:
  - a) The chemistry of favourable host units;
  - b) The effects of metamorphism on stratabound deposits.This project can be effectively linked with Ph.D. work proposal by John Heslop.

Regional Tectonic Studies:

Objectives:

1. Attempt to understand the tectonic history of the Yukon Plateau with regard to organic history, plutonism, metamorphism, and large scale transcurrent faulting to delineate extensions of the Anvil lead-zinc belt for further exploration.

Close liason between research and exploration will be maintained throughout the course of this work. Research at Anvil is viewed as a co-operative venture among all parties involved. Specific projects related to each of the four main headings will be proposed as pit and regional mapping proceed.

Dave Jennings

Research Geology - Geochemical Research

Further research must be done on Barringer's orientation study of the geochemical halo around the Faro No. 1 deposit. Some question of the validity of a cadmium halo exists as well as how far along strike a mercury halo can be found. In order to properly interpret the results Jennings should re-plot the geochemical values on sections, showing geologic cross-sections, especially longitudinal section cc with projections further to the northwest in the area of diamond drill holes 67-35 and 67-36

Dynasty Explorations is conducting geochemical research involving an attempt to locate geochemical 'markers' within the favourable host section of the lower phyllites. The work is being done by a U.B.C. student earning her Master's degree in geochemistry. Spectrographic analytical methods of core from the Faro area as well as barren sections of phyllite throughout the belt are being investigated at U.B.C. now. Computer services are also available for this study. It is suggested that a compilation of this study with that already done by Barringer plus further sampling and eventual computerization of results would aid greatly in the geochemical exploration approach to be used by Anvil.

J.S. Brock

## Regional Geochemistry

Soil sampling of the Anvil claims between Faro, including West Faro, and Blind Creek has been started. Soil lines are orientated about N 20° E across regional geologic strike, lines are spaced 1200 feet apart and soil stations are established at 200 foot intervals by compass and chain methods. On each line 100 foot intervals are marked by surveyors flagging. A more permanent station identification is recommended as the flagging usually fades or is eaten by moose within a years time. Lath pickets painted with flourescent paint would be more ideal. Between Faro and the Tie claims base line control has been taken from the power transmission right-of-way. Between the Tie claims and the Dy claims, base line control is taken off the Vangorda Creek road. Base lines will have to be projected off the east-west Vangorda road/or coverage of the east Dy and Lake claims. All Anvil, Pelly River Mines, and Kerr Addison claims with the exception of more southerly ground overlain by recent volcanics will be covered by the soil sampling program.

In total about 4,450 stations will be sampled of which 2,225 will be analysed, or samples from every 400 foot station. Intermediate samples will be retained for follow-up detailing of anomolous areas.

Two samples are collected at each 200 foot station, one of organic rich A2 horizon for the purpose of mercury analyses and one of B horizon material for Cu, Pb, Zn tests. To date Cadmium had also been tested for but discontinuance of this analysis is recommended until further geochemical orientation and research is completed around the Faro deposit.

Claim areas already covered by previous soil sample grids are being re-done to collect samples for mercury ansalsis as well as soils for total extraction of copper, lead, and zinc. It appears that only partial extractive techniques were used on soils taken in previous years. The Kerr Addison ground is being sampled for case history and orientation purposes.

Two field assistants are currently employed as one soil sampling team. During the first week of July, two more samplers will be hired, the more experienced samplers will split into two crews, each taking a junior man.

Soil sampling should be completed no later than the end of August. Recently, additional soil sampling over the west Faro claims has been planned in view of the rotary drill program not being extended past Next Creek. In this area, west of Next Creek, no previous soil sampling has been done in previous years. 800 foot spaced sample lines should be laid out over this unsurveyed area.

Rock geochemistry is also recommended for the west Faro area. Rock chips of surface outcrops could be collected by the soil samplers. This data would supplement bedrock chip geochem studies east of Next Creek.

At present, soil samplers have been recording basic environmental and soil types in notebooks. Printed sheets for this purpose should be obtained for noting, depth of sample, colour and texture of soil, local drainage features, and outcrop locations with an attempt to identify rock type.

Soil samples are sorted by two samplers every Saturday, bagged in gunny sacks, and shipped to Barringer's geochemical laboratory at Whitehorse. At the same time overburden and bedrock chip or core samples are also taken from the bulk samples and shipped to Barringer in Whitehorse.

## Geophysics

### Gravity Surveys

Recommendations for gravity survey coverage of an AEM conductor in the vicinity of Faro grid co-ordinate 156 W, 18 S were carried out in June, 1971. A residual gravity anomaly has been interpreted with a maximum value of 0.6 milligals at 156 W, 18 S. Galeski offers an interpretation with a lower peak residual value in the same area.

Galeski has described the survey results:

The Bouguer gravity shows regional gradient toward the north with some indication of a regional high at the south end of the prospect. There is a local steepening in this gradient though the central part of the area along the 55 mgal. contour. The steepening suggests a sharp contact - perhaps along a fault - with heavier materials to the south and lighter ones to the north.

Although aereal coverage is limited, an attempt has been made to break the gravity field into regional and residual components. The steepening mentioned above and a slight flattening south of it combine to yield a residual positive - or rather, two positives split by a saddle. On the westerly of these, maximum amplitude is 0.45 mgal. and calculated maximum possible depth to causative mass is 450'. On the easterly one amplitude is 0.40 mgal and maximum depth is 250'.

Neither residual positive is strong, and both could be due to near-surface effects. In fact, on all lines except 144, there are slight topographic swells in the vicinities of the residual positives. They, the residuals, could represent mineralization, however. If so, you might expect something comparable to the deposit southeast of the main Faro ore body (Faro No. 2). Note that the westerly positive is open west of line 156 W.

The Bouguer positive at the south ends of all the lines may be of additional interest. However, it is too close to the edge of the work for proper analysis.

Follow-up of the gravity-AEM anomaly is recommended by drilling a 400 foot rotary hole on line 160 W 18 S. No further gravity surveys of the Faro grid are recommended until test results from the Terrair Airborne EM survey are compiled.

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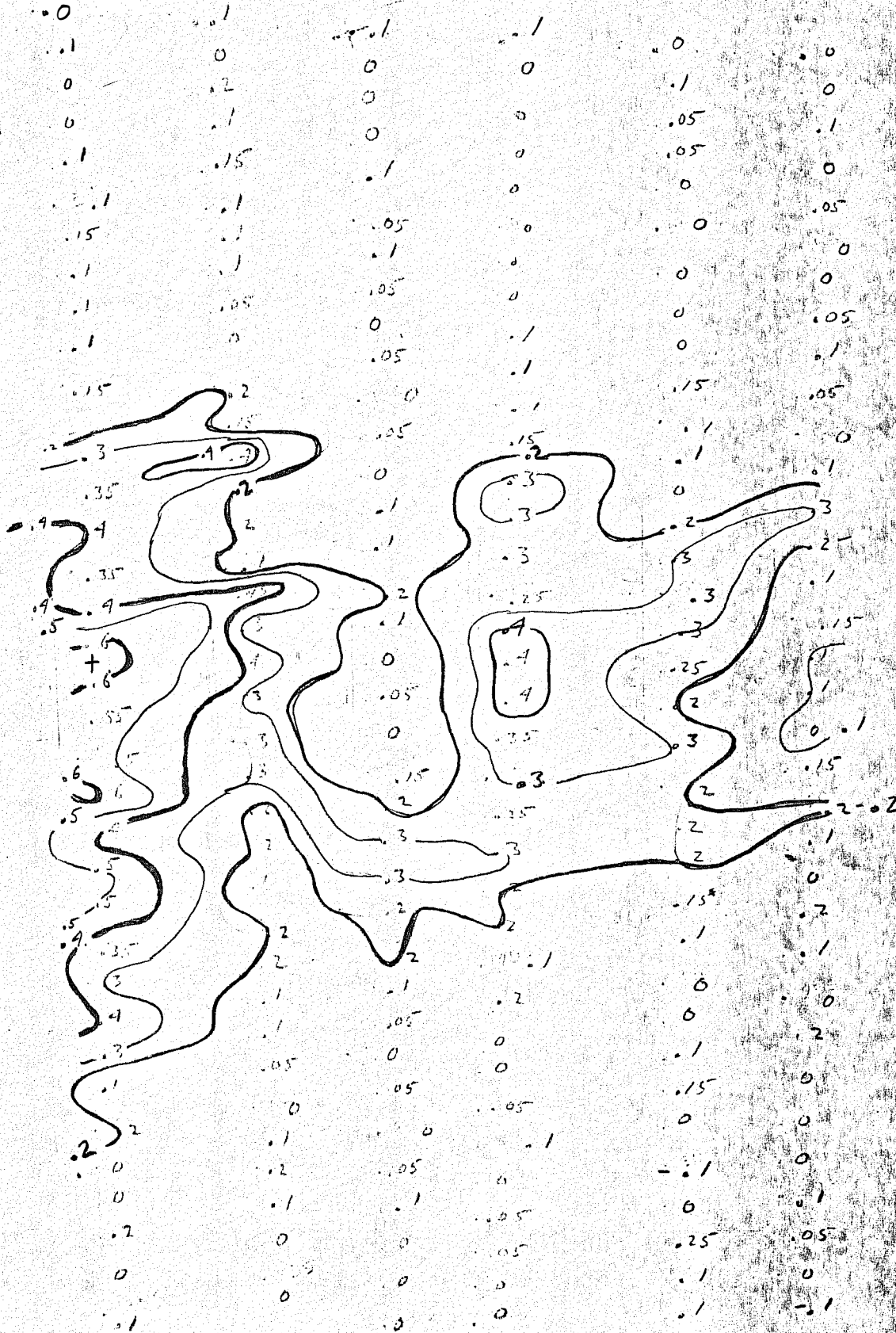


TABLE IV

Interpretation, Residual Gravity over AEM Anomaly Faro Grid

### Terrair Survey

Approximately 75 line miles of Terrair helicopter-borne AEM survey are planned over the Faro Claims as a test survey. If response from the Faro deposits is good, a decision will be made to proceed with further coverage amounting to about 350 line miles over other Anvil claims within the phyllite belt.

Follow-up of Terrair anomalies would be done by rotary drilling during the course of the bedrock-test program.

## Data Presentation

### Maps and Plans for Exploration - 1971

The following maps, prepared to assist planning and carrying out of the 1971 exploration program, have been completed.

#### Faro - Blind Creek Section

1 : 1320 scale Topo base derived from Lockwood 1964 aeromagnetic survey control base, showing claim group locations taken from 1 : 2640 claim maps as well as Anvil Survey maps. All cut grids, picket lines, for former ground surveys have been located on the base map.

1. Geology Map compilation of geology from Anvil 1 : 2640, Dynasty and Atlas investigations and notes from D. Templeman Kluit

2. Geochem Map showing compilation of copper, lead, and zinc soil anomalies taken from surveys conducted between 1964 - 1970 on Anvil Claims. Also shown are areas covered by grid soil surveys.

1971 coverage, 1200 spaced lines, 200 foot sample stations will also be plotted on this map, with results plotted for every second station (every 400 feet)

3. Airborne Geophysics

a compilation of EM and Mag anomalies, taken from Lockwood Survey coverage over Anvil Claims between the Faro claims and Blind Creek.

4. Gravity Map a compilation of residual anomalies and outlines of survey coverage on Anvil Claims between 1964 and 1971

5. Drill Plan locations of all previous drill holes on claims between Faro and Blind Creek. Locations of holes planned and completed on 1971 bedrock test program with results shown for bedrock geochem analyses or last overburden sample for each hole if bedrock not cut.

all bedrock holes showing complete tables of overburden geochem results will be plotted on property maps, of scale 1 : 400 showing existing cut line grid locations where possible.

1 : 400 maps

It has been found that the 1 : 1320 Lockwood base maps will not be adequate for accurate ground control, especially for regional geologic mapping. In preparation for regional mapping and to provide good topographic control for locations of regional geochemical sampling and rotary drill holes, blow-ups of the 1971, 1 : 50,000 topographic manuscripts produced by the federal government are being obtained.

Aerial photographs - RCAF 1970 have also been ordered to aid in geologic mapping of the Faro-Blind Creek belt.

#### Exploration Files

Most of the technical, engineering, and assessment work reports for the Anvil Claims have been filed according to the NTS system. Numerous reports and maps covering previous exploration from 1964 onward must still be found and centralized within one filing system for easy reference. Up-dating of existing files is important so that complete references and back-up data for the current exploration may be on hand.

#### Exploration Meetings

Brief, weekly exploration staff meetings have been found useful for immediate exploration planning and discussion of results. The program can only be directed this way if all data is up-dated on a current basis. Results-to-date will then be in good order for monthly exploration management meetings involving Anvil, Cyprus, and Dynasty representatives, usually held the third Tuesday of each month.

#### Assessment Work And Claims Status

Anvil holds approximately 1500 mineral claims in the Anvil-Vangorda area. The Chief of Exploration will be responsible for ensuring that due dates of these holdings are recognized far enough in advance so that appropriate assessment work can be carried out as a part of exploration. It is suggested that all claims status files be centralized for this purpose.

Faro No. 4 Area

Recent discovery of sulphide mineralization in the area of the Faro Creek diversion, north of the 'gossan area' has created the possibility of additional ore reserves northeast of the Faro No. 3. The Faro No. 4 area is expressed well by geochemical results from the 1965 soils grid but not by any obvious geophysical results.

Further exploration of the area should include:

Geochemical soil sampling over the area between the old Faro Creek bed and the western boundary of the 1965 soils grid and north to about 55 N. This area has never been soil sampled and could overlie northwest extensions of the Faro No. 4 area.

Detailed geologic mapping of outcrop now exposed by the Faro Creek diversion.

Diamond drilling of the Faro No. 4 zone with the first hole in the vicinity of FRH 2, other drill sites to be guided by existing geochemical data, proposed geochemical coverage, and geological mapping.

The Faro Creek diversion has also exposed what is likely the southeast extremity of the Faro No. 2 deposit. Projections of this section have been eroded by the North Fork of Rose Creek but could very well be found on the LO claims. Deeper rotary drilling on the LO claims of geologic projections and a gravity anomaly there are strongly recommended.

ANVIL MINING CORPORATION - EXPLORATION DEPARTMENT  
 COMBINED EXPLORATION BUDGET, ACCUMULATED MONTHS, 1971

	May 1-31	June 1-15	June 16-30	July 1-15	July 16-31	Aug. 1-15	Aug. 16-31	Sept. 1-15	Sept., 16-30	Oct. 1-31	Nov. 1-30	Dec. 1-31	TOTAL
Geophysics - Turair	-	-	-	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
- Gravity	-	-	1,875	1,875	1,875	1,875	1,875	1,875	1,875	1,875	1,875	1,875	1,875
Drilling -	69,626	119,258	142,758	174,508	202,708	229,158	257,358	262,358	262,358	262,358	262,358	262,358	262,358
- Analysis	-	184	1,774	2,414	3,094	3,734	4,414	4,414	4,414	4,414	4,414	4,414	4,414
Equip. - Vehicles	-	13,714	15,574	17,899	20,389	22,714	25,204	25,654	26,104	26,554	26,854	27,154	27,154
- Fuel	10,814	9,293	10,373	11,723	13,163	14,513	15,953	15,953	15,953	15,953	15,953	15,953	15,953
Geochem.	-	5,660	6,260	7,750	8,870	10,040	11,210	11,210	11,210	11,210	11,210	11,210	11,210
- Analysis	3,660	-	2,340	7,240	12,040	16,840	21,640	21,640	21,640	21,640	21,640	21,640	21,640
Geology	-	1,500	2,924	4,450	10,776	12,202	13,528	14,954	16,280	17,975	19,670	21,365	21,365
Camp	10,322	11,984	14,128	16,678	19,378	21,928	24,628	25,228	25,228	25,228	25,228	25,228	25,228
Supv.	5,340	6,244	6,244	7,482	8,720	10,058	11,296	12,584	13,246	14,771	16,296	17,821	17,821
Outside Services	-	1,988	6,418	6,718	6,718	6,718	6,718	6,718	6,718	6,718	6,718	6,718	6,718
Diamond Drilling	-	-	-	-	-	-	17,000	42,500	42,500	42,500	42,500	42,500	42,500
	99,762*	169,825*	210,668	278,737	327,431	369,830	430,824	465,088	467,526	471,196	474,716	478,236	478,236

\*Actual Expenditure

Month	Job	Job Description	Unit Cost	Monthly Job Cost		Year to Date		Total Year	
				Budget	Actual	Budget	Actual	Budget	Actual
April	Expl.	To end of April					76,000		
May	Geoph.	- Airborne - Turair		5,000		5,000			
1-31		Contingent Turair		15,000		15,000			
		Contract Gravity							
	Drill	Contract		41,000		117,000	69,626		
		Supplies							
		Sample Analysis		2,500		2,500			
	Equip.	Equip Costs							
		Vehicle Costs							
		- OPR Labour							
		- Repair Labour							
		- Supplies OPR							
		- Supplies REPP							
		Fuel					10,814		
	Geoche	Consulting					3,660		
		Soil Sampling - Labour		200		200			
		- Materials							
		- Analysis		400		400			
	Geol.								
	Camp			1,015		1,015	10,322		
	Supv						5,340		
	Out. Serv.	Geology - Roberts		900		900			
		Geoph. - Brock		1,050		1,050			
	Staking	MO Claims		400		400			
	D. Drill								
				67,465		143,465	99,762		

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
June 1-15	Geoph.	Airborne - Turair				5,000		5,000		
		Contingent Contract Gravity			15,000		15,000		1,675	
	Drill	Contract		23,500	49,669	40,500	19,075	252,075		1
		Supplies			147		183	983		
		Mob-Demob						9,300		
		Sample Analysis		1,500		4,000	184	4,414		5
	Equip.	Equip. Costs		450		450				3
		Vehicle Costs								
		- OPR Labour			845					
		- Rep. Labour			1,200					
		- Supplies Opr.			84		13,714	227,154		
		- Supplies Repr.			2,666					
		Fuel			7,398		9,293	15,953		
	Geoch.	Consulting			500		4,160	4,160		
		Soil Sampling - Labour		600	1,500	800	1,500	6,750		1
		- Materials						300		
		- Analysis				400		21,640		
	Geol.	Labour		650	1,500	650	1,500	15,165		1
		Supplies		200		200		6,200		2
	Camp	Labour		900	1,000	1,915	5,610	8,210		7
		Supplies			662		6,374	17,018		
	Supv.	Labour			900		5,889	16,716		
		Supplies			4		355	11,105		
	Out. Serv.				1,988	4,165	1,988	6,718		4
	Staking					400				
	D.Drill							42,500		
				27,800		173,480		478,236		
					70,063		169,825			

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
June 15-30	Geoph.	Airborne - Turair						5,000		
		- Contingency					15,000			
		Contract Gravity		1,675		1,675		1,675		
		Materials		200		200		200		
	Drill	Contract		23,500		142,575		252,075		1
		Supplies				183		983		
		Sample Analysis		1,590		1,774		4,414		5
		Mob-Demob						9,300		
	Equip.	Equip. Costs								
		Vehicle Costs								
		- opr labour								
		- rep. labour		1,860		15,574		27,154		11a
		- supplies opr.								11d
		- supplies rep.								
		155/day 12 days								
		Fuel 90/day 12 days		1,080		10,373		15,953		11c
	Geoch.	Consulting				4,160		4,160		12
		Soil Sampling - Labour		600		2,100		6,750		1
		- Materials						3300		
		- Analysis		2,340		2,340		121,640		6
	Geol.	Labour 12 days	.02/day	1,224		2,724		15,165		13a
		Supplies		200		200		6,200		13b
	Camp	Labour		500		6,110		8,210		7
		Supplies 12 days	137/day	1,644		8,018		17,018		7
	Supv.	Labour				5,889		16,716		1
		Supplies				355		1,105		1
	Out. Serv.	Dynasty - Brock, Roberts		44,430		64,195		6,718		4
	Staking									
	D. Drill							42,500		
				40,843		210,668		478,236		

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
July 1-15	Geoph.	Airborne Survey		5,000		5,000		5,000		9
		-Turair Test		15,000		15,000		15,000		
		-Contingent Survey				1,675		1,675		
		Contract Gravity				200		200		
		-Materials								
	Drill	Contract - 15 days	1750/day	26,250		168,825		252,075		10a
		Supplies - Estimate		200		385		985		
		Mobilization		5,300		5,300		9,300		10b
		Sample Analysis	42.5/day	640		2,414		4,414		c
	Equip.	Equip. Costs								
		Vehicles	155/day	2,325		17,899		27,154		11a
		Fuel	90/day	1,350		11,723		15,953		b
	Geoch.	Consulting				4,160		4,160		12
		Soil Sampling -	80/day							
		Labour	86/day	1,290		3,390		6,750		12a
Materials			200		200		300		b	
	Analysis	4.68/smpl	4,900		7,240		21,640		c	
		1040 samples								
Geol.	Labour 13 days	102/day	1,326		4,050		15,165		13a	
	Supplies		200		400		6,200		b	
Camp	Labour		500		6,610		8,210		14a	
	Supplies	137/day	2,050		10,068		17,018		b	
Supv.	Labour		1,238		7,127		16,716		15	
	Supplies				355		1,105			
Out. Serv.	Dynasty		300		6,718		6,718		16	
	Staking									
	D.Drill						42,500			
				\$168,069		\$278,737		\$478,236		

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year	
				Budget	Actual	Budget	Actual	Budget	Actual
July									
16-31	Geoph.	Airborne Survey							
		- Turair Test		-		5,000		5,000	
		Contingent		-		15,000		15,000	
		Contract Gravity		-		1,675		1,675	
		- Materials		-		200		200	
	Drill	Contract 16 days	1750/day	28,000		196,825		252,075	
		- Supplies		200		583		983	
		Mobilization		-		5,300		9,300	
		Sample Analysis	42.5/day	680		3,094		4,414	
	Equip.	Equip Costs							
		Vehicles	155/day	2,490		20,389		27,154	
		Fuel	90/day	1,440		13,163		15,953	
	Geoch.	Consulting		-		4,160		4,160	
		Soil Sampling							
		Labour 13 days	81./day	1,120		4,510		6,750	
		Materials				200		300	
		Analysis	4.68/smpl	4,800		12,040		21,640	
	Geol.	Labour 13 days	102/day	1,326		5,376		15,165	
		Supplies		5,000		5,400		6,200	
	Camp	Labour		500		7,110		8,210	
		Supplies	137/day	2,200		12,268		17,018	
	Supv.	Labour		1,238		8,365		16,716	
		Supplies				355		1,105	
	Out. Serv.			-		6,718		6,718	
	D. Drill							42,500	
	Staking								
					43,994		327,731		478,236

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year	
				Budget	Actual	Budget	Actual	Budget	Actual
Aug. 1-15	Geoph.	Airborne Survey		-		-		-	
		- Turair Test		-		5,000		5,000	
		- Contingent		-		15,000		15,000	
		Contract Gravity		-		1,675		1,675	
		- Materials		-		200		200	
	Drill	Contract 15 days	1750	26,250		223,075		252,075	
		- Supplies		200		783		983	
		- Mob-Demob		-		5,300		9,300	
	Equip.	Sample Analysis	42.50	640		3,734		4,414	
		Equip Costs							
		- Vehicles	155	2,325		22,714		27,154	
	Geoch.	- Fuel	90	1,350		14,513		15,953	
		Consulting	-	-		4,160		4,160	
		- Soil Sampling							
	Geol.	- Labour 13 days	8.6	1,120		5,630		6,750	
		- Materials		100		300		300	
		Analysis		4,800		16,840		21,640	
	Camp	Labour		500		7,610		8,210	
		Supplies		2,050		14,318		17,018	
	Supv.	Labour		1,238		9,603		16,716	
Supplies			100		455		1,105		
Out. Serv.									
					6,718		6,718		
Staking									
D. Drill							42,500		
				42,099		369,830		478,236	

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year			
				Budget	Actual	Budget	Actual	Budget	Actual		
Aug. 16-31	Geoph.	Airborne Survey						5,000	5,000		
		- Turair Test					15,000	15,000			
		- Contingency					1,675	1,675			
		Contract Gravity					200	200			
			- Materials								
	Drill	Contract 16 days		28,000		251,075		252,075			
		- Supplies		200		983		983			
		- Mob-Demob				5,300		9,300			
		Sample Analysis		680		4,414		4,414			
	Equip.	Equip. Costs									
		- Vehicles		2,490		25,204		27,154			
		- Fuel		1,440		15,953		15,953			
	Geoch.	Consulting				4,160		4,160			
		- Soil Sampling									
Labour			1,120		6,750		6,750				
	Materials				300		300				
	Analysis		4,800		21,640		21,640				
Geol.	Labour		1,326		8,028		15,165				
	Supplies				5,500		6,200				
Camp	Labour		500		8,110		8,210				
	Supplies		2,200		16,518		17,018				
Supv.	Labour		1,238		10,841		16,716				
	Supplies				455		1,105				
Out. Serv.			-		6,718		6,718				
Staking											
D.Drill		Contingent		17,000		17,000		42,500		19	
				60,994		430,824		478,236			

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Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year			
				Budget	Actual	Budget	Actual	Budget	Actual		
Sept. 1-15	Geoph	Airborne Survey									
		- Turair Test				5,000		5,000			
		- Contingent				15,000		15,000			
		Contract Gravity				1,675		1,675			
			- Materials			200		200			
		Drill	Contract		1,000		252,075		252,075		20
			- Supplies				983		983		
			- Mob-Demob		4,000		9,300		9,300		
			Sample Analysis				4,414		4,414		
		Equip	Equip Costs								
			- Vehicles		450		25,654		27,154		21
			- Fuel				15,953		15,953		
		Geoch	Consulting				4,160		4,160		
			- Soil Sampling								
	Labour					6,750		6,750		22	
		Materials				300		300			
		Analysis				21,640		21,640			
	Geol.	Labour		1,326		9,354		15,165			
		Supplies			100		5,600		6,200		
	Camp	Labour		100		8,210		8,210		23	
		Supplies			500		17,018		17,018		
	Supv.	Labour		1,238		12,079		16,716			
		Supplies			50		505		1,105		
	Out. Serv.					6,718		6,718			
	Staking										
	D.Drill	Contingent		25,500		42,500		42,500			
				34,264		465,088		478,236			

Month	Job	Job Description	Unit Cost	½ Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
Sept. 16-30	Geoph	Airborne Survey								
		- Turair Test				5,000		5,000		
		- Contingent				15,000		15,000		
		Contract Gravity				1,675		1,675		
			- Materials				200		200	
	Drill	Contract					252,075		252,075	
		- Supplies					983		983	
		- Mob-Demob					9,300		9,300	
		Sample Analysis					4,414		4,414	
	Equip	Equip Costs								
		- Vehicles		450			26,104		27,154	
		- Fuel					15,953		15,953	
	Geoch	Consulting					4,160		4,160	
		- Soil Sampling								
Labour						6,750		6,750		
Materials						300		300		
	Analysis					21,640		21,640		
Geol.	Labour		1,326			10,680		15,165		
	Supplies					5,600		6,200		
Camp	Labour					8,210		8,210		
	Supplies					17,018		17,018		
Supv.	Labour - Jansons		662			12,741		16,716		
	Supplies					505		1,105		
Out. Serv.						6,718		6,718		
Samplng										
D.Drill						42,500		42,500		
				2,438		167,526		178,236		

24

Month	Job	Job Description	Unit Cost	1 Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
Oct. 1-31	Geoph	Airborne Survey				5,000		5,000		
		- Turair Test				15,000		15,000		
		- Contingent				1,675		1,675		
		Contract Gravity				200		200		
	Drill	Contract					252,075		252,075	
		- Supplies					983		983	
		- Mob-Demob					9,300		9,300	
		Sample Analysis					4,414		4,414	
	Equip.	Equip. Costs								
		- Vehicles		450			26,554		27,154	
		- Fuel					15,953		15,953	
	Geoch.	Consulting					4,160		4,160	
		- Soil Sampling								
		Labour					6,750		6,750	
Materials						300		300		
	Analysis					21,640		21,640		
Geol.	Labour		1,495			12,175		15,165		
	Supplies		200			5,800		6,200	26	
Camp	Labour					8,210		8,210		
	Supplies					17,018		17,018		
Supv.	Labour		1,325			14,066		16,716		
	Supplies		200			705		1,105		
Out. Serv.						6,718		6,718		
Staking										
D. Drill						42,500		42,500		
				3,670		471,196		478,236		

Month	Job	Job Description	Unit Cost	1 Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
Nov. 1-30	Geoph	Airborne Survey								
		- Turair Test				5,000		5,000		
		- Contingent				15,000		15,000		
		Contract Gravity				1,675		1,675		
			- Materials				200		200	
	Drill	Contract					252,075		252,075	
		- Supplies					983		983	
		- Mob-Demob					9,300		9,300	
		Sample Analysis					4,414		4,414	
	Equip	Equip Costs								
		- Vehicles		300			26,854		27,154	
		- Fuel					15,953		15,953	
	Geoch	Consulting					4,160		4,160	
		- Soil Sampling								
		Labour					6,750		6,750	
Materials						300		300		
		Analysis				21,640		21,640		
Geol	Labour			1,495		13,670		15,165		
	Supplies			200		6,000		6,200		
Camp	Labour					8,210		8,210		
	Supplies					17,018		17,018		
Supv.	Labour			1,325		15,341		16,716		
	Supplies			200		905		1,105		
Out. Serv.										
						6,718		6,718		
Staking										
D.Drill										
						42,500		42,500		
				3,520		474,716		478,236		

Month	Job	Job Description	Unit Cost	1 Monthly Job Cost		Year to Date		Total Year		
				Budget	Actual	Budget	Actual	Budget	Actual	
Dec. 1-31	Geoph	Airborne Survey								
		- Turair Test				5,000		5,000		
		- Contingent				15,000		15,000		
		Contract Gravity				1,675		1,675		
			- Materials				200		200	
	Drill	Contract					252,075		252,075	
		- Supplies					983		983	
		- Mob-Demob					9,300		9,300	
		Sample Analysis					4,414		4,414	
	Equip	Equip Costs								
		- Vehicles		300			27,154		27,154	
		- Fuel					15,953		15,953	
	Geoch	Consulting					4,160		4,160	
		- Soil Sampling								
Labour						6,750		6,750		
Materials						300		300		
		Analysis				21,640		21,640		
Geol	Labour			1,495		15,165		15,165		
	Supplies			200		6,200		6,200		
Camp	Labour					8,210		8,210		
	Supplies					17,018		17,018		
Supv.	Labour			1,325		16,716		16,716		
	Supplies			200		1,105		1,105		
Out. Serv.						6,718		6,718		
Staking										
D.Drill						42,500		42,500		
				3,520		478,236		478,236		

ANVIL MINING CORPORATION

EXPLORATION DEPARTMENT

BUDGET NOTES

1. Costs estimated from June 15th onward and shown in column "months accumulated to date" have been added to actual costs accrued June 15. See memo, "Exploration Section, Combined Costs, May 31st and June 15, 1971."
2. Geology supplies - Brunten compass, maps, etc.
3. Vehicle costs from May 19th budget, Geochem vehicle - \$ 150.00, Geology vehicle - \$ 300.00
4. Outside service, Dynasty - Brock and Roberts
5. Sample analyses to June 15th, 225 samples @ \$5/sample = \$1,125  
Sample analyses to June 30th, 93 samples @ \$5/sample = \$465
6. Analyses of 500 soils sampled to June 30th @ 4.68/sample = \$2,340.
7. Accrual of camp costs, labour - \$5,610 and supplies \$6,374 to June 15th.
8. Actual drilling cost accumulated to April 30th.
9. See Appendix - Turair Proposal

10. Drilling Costs

- a) Mayhew 1,000 with water truck - \$49/hour = \$1,750/day
- b) Mobilization - \$5,300

Drilling rates as per Big Indian drilling Estimate, May 25, 1971

- rates per hour	0 - 100 Feet	8 Feet/Hour
(rotary)	100 - 200 Feet	8 Feet/Hour
	200 - 300 Feet	6 Feet/Hour
	300 - 400 Feet	6 Feet/Hour

-rate per hour (coring) 2.5 Feet/Hour

-average hole time estimate - move, rig up	2 Hours
drill 100 Ft.	14 Hours
Core 20 Feet	8 Hours
Rig down	1 Hour
	<hr/>
	25 Hours

c) Sample Analysis

- assume holes each 100 feet deep
- assume drill rate 1 hole/day
- assume 0-80 ft., 8 overburden samples  
80-100ft., 1 bedrock chip sample
- analytical costs/day  
8 overburden samples for Cu, Pb, Zn, Cd, Hg, @ \$4.68/sample  
= \$37.50  
1 Bedrock sample for Cu, Pb, Zn, Cd, Hg, @ \$5/sample = \$5.00  
Total cost/day/hole = \$42.50

11. Equipment Costs

a) Anvil Vehicles - estimated charge out rate includes all operating labour, repair labour, supplies operation, supplies, repair, /day.

	RATE	Average Operating Time/Day	Cost/Day
D7	\$15/hour	4 Hours	\$60
Bombardier	\$10/hour	6 Hours	\$60
Foremost	\$15/hour	1 Hour	\$15
2 Trucks	\$20/day		\$20

NOTE: Operator-Mechanic provided by Big Indian Drilling.

b) Fuel - includes fuel used by camp and drilling operation. Fuel costs for period March 6 - June 15, 101 days, is \$9,293, or \$110/day. Discount \$20/day for extra consumption during project while at Swim Lake. Average fuel cost/day for July-September estimated at \$90/day.

c) Fuel costs of \$9,293 from June 15th accounting statement, accrued to June 15th, added to budget.

d) Vehicle operating costs, \$13,714, accrued to June 15th, added to budget.

12. Geochemical Survey

Consulting - charges of \$4,160 accrued to June 15th, added to budget.

a) Labour, Samples -

Blanchflower	500/mo+OT = 600/mo
Pearson	500/mo+OT = 600/mo
- 1 to be hired	475/mo+OT = 530/mo
- 1 to be hired	475/mo+OT = 530/mo
	<u>\$ 2,260/mo</u>

or, for 26 day period, \$86/day

b) Materials - soil sample materials  
- Kraft Bags  
- Flagging

c) Analysis - 4450 samples to be collected  
- 2225 to be submitted for analysis

Cost of soils analysis/sample:

sample prep.	.20	
Copper, Lead, Zinc	2.00	<del>7.10</del>
Cadmium	1.00	4.60
Mercury	<u>2.00</u>	3.50
Less 10%	5.20	<u>\$8.10</u>
	<u>- .52</u>	

4.68

- (2) 2 man sampling crews will average 80 samples/day.
- 4450 samples will take survey 56 days.
- sampling completed to July 1st = 500 samples.
- sampling remaining, 3950 samples = 50 days.



21. Equipment Costs

Vehicle support charges to the Big Indian contract will be terminated. Continuing vehicle support will be required for the geologic and diamond drill program during September.

2 pickup trucks - \$20/day

Other diamond drill support charges have been calculated within the overall cost per foot estimate of \$17/foot.

22. Geochemical soil sampling will terminate August 31st.

23. The drill camp will operate for a nominal time during demobilization of the Big Indian crew, costs have been estimated as such.

25. Drill supervisor terminated - job finished, Jansons continues in supervisory position.

26. Heslop terminated, September 30th, Jennings charged to geology for balance of year.

J.S. Brock, June 1971

A P P E N D I X

References

1. Proposed Exploration Program 1971, Anvil Mining Corporation Limited, Pelly River Mines Ltd. by M.O. Hampton, 1970, Anvil Report
2. Proposed Exploration, May 15 - June 15, 1971 by J.S. Brock, May 19, 1971, Anvil Report
3. Guides to Base Metal Deposits in the Anvil-Vangorda District, by Dirk Templeman-Kluit, Nov. 28, 1968, Northern Miner.
4. Anvil District Geology, by W.O. Karvinen, Atlas Exploration Ltd., September 1970
- \* 5. Dispersion of Selected Ore Elements from Faro Orebodies, an orientation survey by D. Brabec, Atlas Exploration Report, July 7, 1970
6. The Relationship between Sulphide Grain Size and Metamorphic Grade of Host Rocks in some Strata-Bound Pyritic Ores, by Dirk Templeman-Kluit, Canadian Journal of Earth Sciences 7,1339 (1970)
7. Exploration in Yukon with Special Reference to the Anvil-Vangorda District, by A.E. Aho, Western Miner, April 1966
8. Geochemical Exploration of a Yukon Lead-Zinc Deposit, by E.O. Chisholm, Western Miner, November 1954
9. Geophysical Exploration Leading to Discovery of the Faro Ore-Body, Yukon Territory, by J.S. Brock, AIME preprint, March 1971
- \* 10. Minerology and Petrology of Dynasty Tay River Base Metals Prospect, by E. Martenson, Dynasty Report, 1965
11. Geology and Mineral Deposits of the Vangorda District, Central Yukon, by J.F. Fairby, Dynasty, 1965
- \* 12. Geologic, Geophysical, Geochemical Investigations of the Sun Tie Claims Groups, by W.J. Roberts, Anvil Report, Sept., 1970
13. Geological Significance of Stratabound Sulphide Deposits, by D.F. Sangster, GAC Proceedings, Vol 23, 1971
14. Lower Cambrian Strata and Base Metals, by H. Gabrielse, Western Miner, February, 1969
15. Anvil-Vangorda District, Yukon, Project 670009; by D.J. Templeman Kluit, GSC Summary of Activities, 1970

EXPLORATION DEPARTMENT  
 ANVIL MINING CORPORATION  
BEDROCK DRILL TEST PROGRAM

I. Analysis of Drill Performance

Time Period	27 Days	648 Hours	
Downtime		257.5 Hours	39%
Production Time		390.5 Hours	61%

A. Downtime 257.50 Hours

<u>Anvil</u>			
Site Prep.	10.00 Hours	4.0%	
Equip. Repairs	51.50 Hours	20.0%	
Waiting for Cat.	23.50 Hours	9.2%	
Walking	42.00 Hours	16.3%	
	<u>117.00 Hours</u>	<u>49.5%</u>	

<u>Big Indian</u>			
Maintenance & Prep.	77.75 Hours	30.0%	
Stuck in Hole	42.25 Hours	16.4%	
Supply Shtg.	10.50 Hours	4.1%	
	<u>130.50 Hours</u>	<u>50.5%</u>	

B. Production Time

1. a) Perc. 999 Feet } 1479 Feet } 1717 Feet  
 b) Rotary 480 Feet }  
 c) Core 238 Feet }
2. a) Perc: Over a 16 day period, 62.5 Ft./Day  
 May 25 - 27, May 29 - June 10  
 b) Rotary: Over a 7 day period, 68.5 Ft./Day  
 June 12 - 13, June 18 - 20
3. Rotary and Perc: Over a 23 day period. 64.0 Ft./Day
4. Total Production Time - 390.5 Hours - 4.4 Ft./Hour  
 Within a 27 day period.

Exploration Department  
 Anvil Mining Corporation  
Bedrock Drill Test

II. Footage Drilled

<u>Date</u>	<u>Hole</u>	<u>Perc.</u>	<u>Rotary</u>	<u>Core</u>	<u>Ftg. Total</u>	
May 25	41	51	-	-	51	
26	41-42	65	-	23	88	
27	42	15	-	-	15	-Moved to Pit
28	-	-	-	-	0	-Pit Sampling
29	42	105	-	-	105	-Pit Sampling move
30	-	15	-	20	35	back to GRD
31	43	10	-	-	10	
June 1	-	85	-	-	85	
2	43-44	32	-	15	47	
3	44-45	54	-	12	66	
4	45-46	30	-	36	66	
5	47	100	-	4	104	
6	47-48	140	-	-	140	
7	48	110	-	-	110	
8	49-50	74	-	14	88	
9	50-51	81	-	26	107	
10	51	32	-	-	32	
11	-	-	-	-	00	
12	51A	-	32	-	32	
13	-	-	75	3	80	
14	-	-	-	18	18	
15	-	-	70	-	70	
16	52	-	132	-	132	
17	-	-	-	28	28	
18	53	-	33	18	51	
19	54	-	58	19	77	
20	55	-	80	-	80	
		999	480	238	1717	

27 Days - 648 Hours

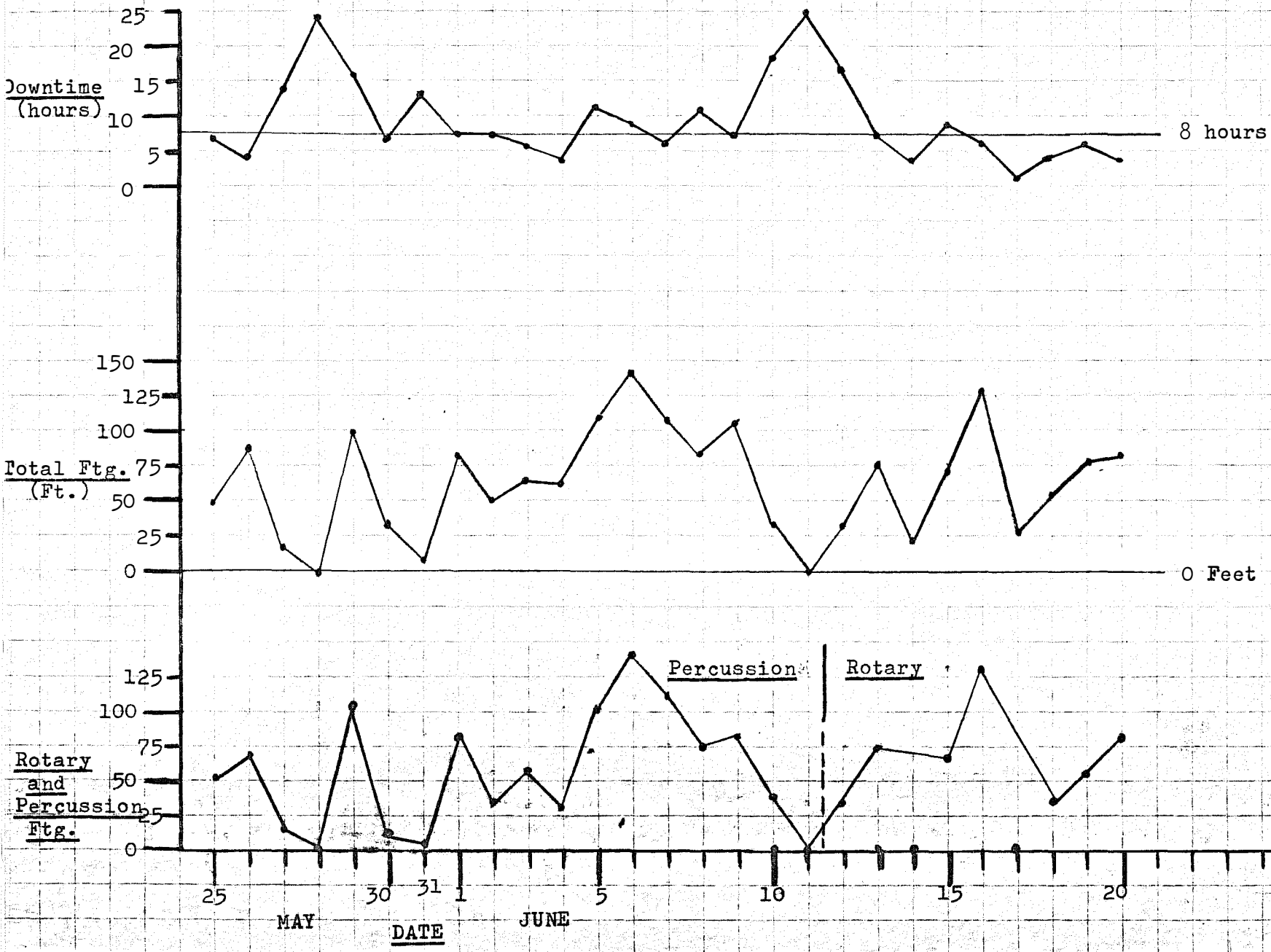
Exploration Department  
 Anvil Mining Corporation  
 Bedrock Drill Test

III. Downtime Analysis			Repairs	Repairs	Waiting	Stuck	Supply		
Date	Hole	Site Prep.	Anvil Equip.	Big Indian Equip.	for Cat.	in Hole	Shtg C Rig	Walking	Total
May 25	41	3.5	-	3.5	-	-	-	-	7.0
26	41-42	-	-	2.0	-	2.5	-	-	4.5
27	42	-	9.5	4.5	-	-	-	-	14.0
28	-	-	24.0	-	-	-	-	-	24.0
29	42	-	16.0	-	-	-	-	-	16.0
30	-	-	-	1.5	-	4.5	.5	-	6.5
31	42-43	2.0	-	-	-	12.0	-	-	14.0
June 1	-	-	-	4.0	-	-	2.5	2.25	8.75
2	43-44	-	-	7.0	-	-	-	1.5	8.5
3	44-45	-	-	2.0	3.0	-	1.0	-	6.0
4	45-46	-	-	-	2.0	.25	.5	1.0	3.75
5	47	-	2.0	-	6.0	-	1.5	2.0	11.5
6	47-48	.5	-	3.0	-	-	3.5	2.5	9.5
7	48	-	-	-	3.5	-	-	2.0	5.5
8	49-50	-	-	6.0	1.5	-	-	3.0	10.5
9	50-51	2.0	-	-	-	-	-	5.5	7.5
10	51	-	-	10.0	-	7.0	-	1.00	18.0
11	51	-	-	19.25	1.0	-	-	3.75	24.0
12	51A	-	-	-	-	16.0	.5	1.0	17.5
13	-	-	-	4.0	-	-	-	3.0	7.0
14	-	-	-	-	-	-	-	3.0	3.0
15	-	-	-	2.5	4.0	-	-	3.0	9.5
16	52	2.0	-	-	1.0	-	-	3.0	6.0
17	-	-	-	-	-	-	.5	1.0	1.5
18	53	-	-	3.5	1.0	-	-	-	4.5
19	54	-	-	3.0	.5	-	-	2.0	5.5
20	55	-	-	2.0	-	-	-	1.5	3.5
27 Days 648 Hours		10.0	51.5	77.75	23.5	42.25	10.5	42.0	----- Total - 257.5

Exploration Department  
 Anvil Mining Corporation  
 Bedrock Drill Test

IV. Analysis of Downtime/Day

Total Ftg./Day  
Rotary and Percussion Ftg./Day





$$\begin{array}{r} 3 \\ 24 \\ \hline 1920 \\ 2 \\ \hline 3840 \end{array}$$

4000

$$\begin{array}{r} 25020 \\ \hline 4000 \end{array}$$

5000