DDAM CLAIM GROUP
(2059, 2070)
NTS 92F2

NANIMO MINING DIVISION

GEOPHYSICAL SURVEY

JUNE 1990

OWNER AUTHOR: PAUL W. JONES

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SUMMARY

The following is a geophysical report pertaining to work done on the Ddam claim group(2069,2070). The work was within the Ddam 1 claim. A geophysical program was undertaken during February of 1990. The program involved setting up a grid and then running both a VLF-Em electromagnetic and a magnetometer survey.

The lithology on the property is of Sicker volcanics, with predominantly Nitnat Formation mixed lapilli-agglomeratic tuffs. Included within the tuff assemblege is a distictive siliceous, banded, grey-black aphanitic tuff which is found along the cliffs on the west drainage of Henry Lake Creek. Silicified, bleached, pyritic zones appear at the contact of the mixed lapilli-agglomeratic tuff, volcanic sandstone unit (F), and the upper green matrix with purple and green fragment lapilli-agglomeratic tuff unit (C).

The geophysical surveys were run to detect possible disseminated pyritic zones, prominent fault/shear zones and geologic contacts. Previous mapping (see DDAM assessment report 17562) identified a fault/shear zone with disseminated pyrite and sericite alteration. It is postulated to be a hanging wall splay off of the Henry Lake Creek fault and may have economic potential.

The survey took 7 man days to set up and complete. In this time 5 VLF-EM geophysical anomalies of moderate to strong potential were delineated. The magnetic data when correlated with the geology and the VLF-EM highlights the fault/shear zone and may correlate with previously discovered sulfide occurences. The current development of the Debbie and Yellow claims adjacent to the west, warrents the further evaluation of the Ddam claims.

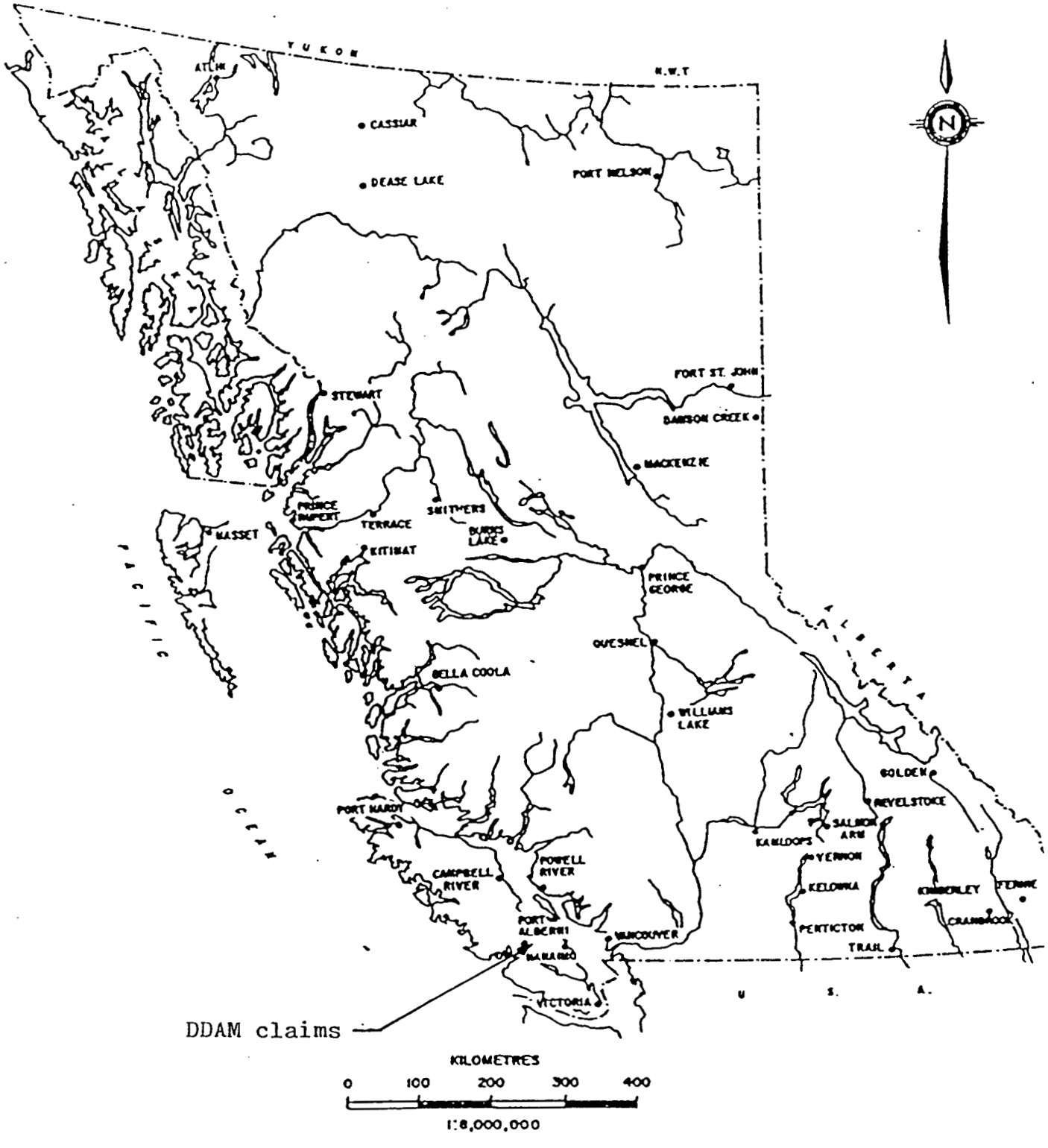


Figure 1 : Location Map

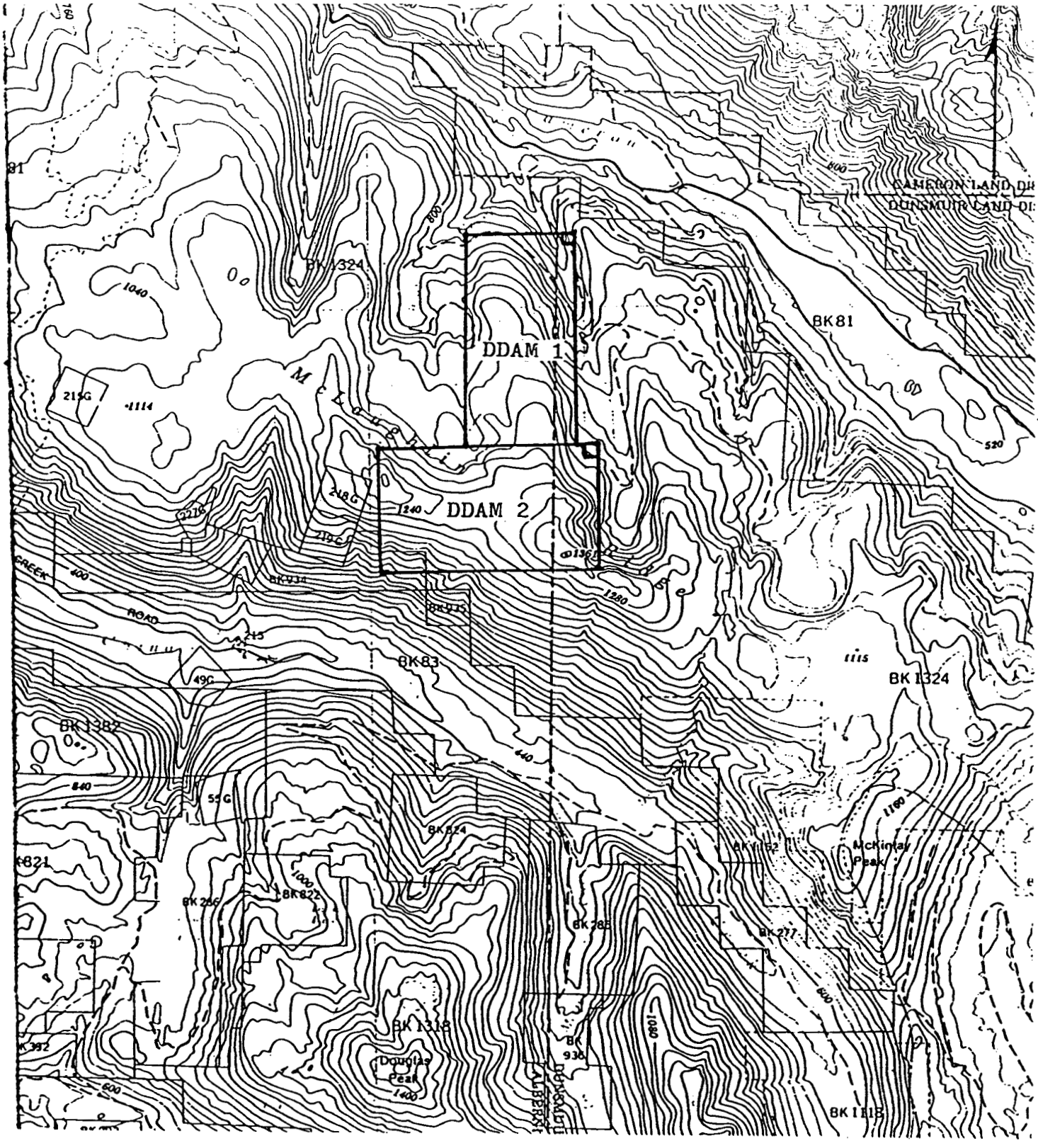


FIGURE 2: TOPOGRAPHIC MAP OF CLAIM AREA Scale 1:50,000

0 500m 3km

INTRODUCTION

The Ddam claim group is located on south central Vancouver Island 14 km southeast of Port Alberni, B.C. (figure 1). Access is via highway 4 and logging roads in the Cameron Division of MacMillan-Bloedel. Logging during the winter of '87-'88 including further road construction has made the upper reaches of the Ddam group much more feasible for extensive exploration.

Elevation on the claim group ranges from 600 to 1300 metres with creeks and road cuts providing rock exposure. Pleistocene glaciation has blanketed much of the claim area with a thin layer of glacial debris.

The claim group covers 16 units, has an anniversary date of March 1st, and is 100% owned by Paul W. Jones, prospector.

GEOLOGY

REGIONAL:

The Ddam claim group is situated on a fault bound block of Sicker volcanics within the Insular Belt of the Canadian Cordillera. Pennsylvanian to Permian in age, Sicker volcanics are characterized by basaltic to rhyolitic meta-volcanic flows, tuffs and lapilli-agglomerates of greenschist metamorphic grade.

Precious and base metal vein/replacement mineralization is prominent in this region. These types of deposits are located in Karmutsen and Sicker volcanics and are proximal to major structures and/or dioritic Jurassic Island intrusives.

The geology of this region is similar to that of the Buttle Lake area where Westmin Resources is mining Kuroko-type, polymetallic sulphide ore. These exhalite ore bodies are related to rhyolitic or rhyodacite volcanics of the Myra formation of the Sicker Group.

Adjacent and to the west of the Ddam group lies the Debbie and Yellow properties. The original Victoria occurence operated in 1896, 1898, 1933-36 and 1939. It produced 384 oz Au, 52 oz Ag, and 194 lbs Cu. These properties are at present undergoing extensive development, including the driving of a 1.2 mile underground adit into the Mineral Creek and Linda gold zones.

PROPERTY:

The Ddam claim group has rock types from both the Sicker and the Vancouver Groups, the Sicker being the most extensive. The Sicker Group rocks host the Mineral-Yellow mineral occurences.

The Sicker Group is divided into two formations in this area. The lower Nitnat and the upper McLaughlin Ridge (proposed nomenclature A. Sutherland Brown, C.Y. Yorath). The McLaughlin Ridge Formation replaces the Myra Formation label in name, although both are similar in age and lithology.

On the Ddam group the basal unit is a thick massive fine grained dark green andesite flow lava (unit I). The flow edges are more strongly chlorite altered and occasional sulphide lenses up to 5cm long containing pyrite, magnetite and chalcopyrite occur along the contacts.

Above the flow lava is a thick massive fine to medium grained green tuff (unit H). Within this tuff unit are graded beds showing stratigraphic tops upward.

The top of the massive tuff is capped by a continuous aphanitic, siliceous, banded grey-black tuff (unit G). This banded tuff is chert-like with a concoidal fracture. The tuff forms a sharp cliff in the Henry Lake Creek valley.

Above the cherty tuff is an other thick mixed lapilli to agglomeratic tuff (unit F). This tuff has a mixed appearance on the weathered surface and in some places has a volcanic sandstone texture. The tuff has a green matrix and green fragments. The fragments are either of the lower massive tuff composition or the cherty tuff.

There exists the possibility of a facies change from Henry Peak west to Cop Mountain, therefore enabling two different units to overlie the mixed lapilli to agglomeratic tuff unit. On Henry Peak the overlying unit is a devitrified feldspar porphry tuff (unit E). This unit is banded and forms the majority of Henry Peak.

Overlying the porphry tuff is a lapilli tuff with a purple matrix and green fragments (unit D). Due to limited exploration and outcrop exposure the exact relationship and extent is somewhat dubious.

To the west the overlying rock unit is a green matrix with broken purple and green lapilli to agglomeratic tuff (unit C). Again due to the lack of rock exposure along the contact the relationship between units (F) and (C) is

suspect. Sporatically along what is believed to be the geologic contact there are altered zones that are silicified, bleached with a pervisive light brown colour. The phenocrysts have been uralitized. Some of these zones have from 5-10% disseminated pyrite. There exists the possibility that a low angle thrust fault may exist between these two units.

Down the slope on the southern flank of McLauglin Ridge the final Sicker Group unit is a massive green agglomeratic to lapilli tuff (unit B).

Unconformibly overlying the Sicker Group is the Vancouver Group. The lower Karmutsen Formation an extensive basaltic pillow lava member is fault bounded and is located on the eastern boundry of the Ddam claims (unit A).

STRUCTURE:

The Ddam claim group has numerous structural lineaments crossing the property including a splay off of the Mineral-Yellow Creek fault. This is evident from air photo interpretation. The Au mineral potential lies within these structural lineaments. The possible thrust fault mentioned in the property geology section may also be of structural interest.

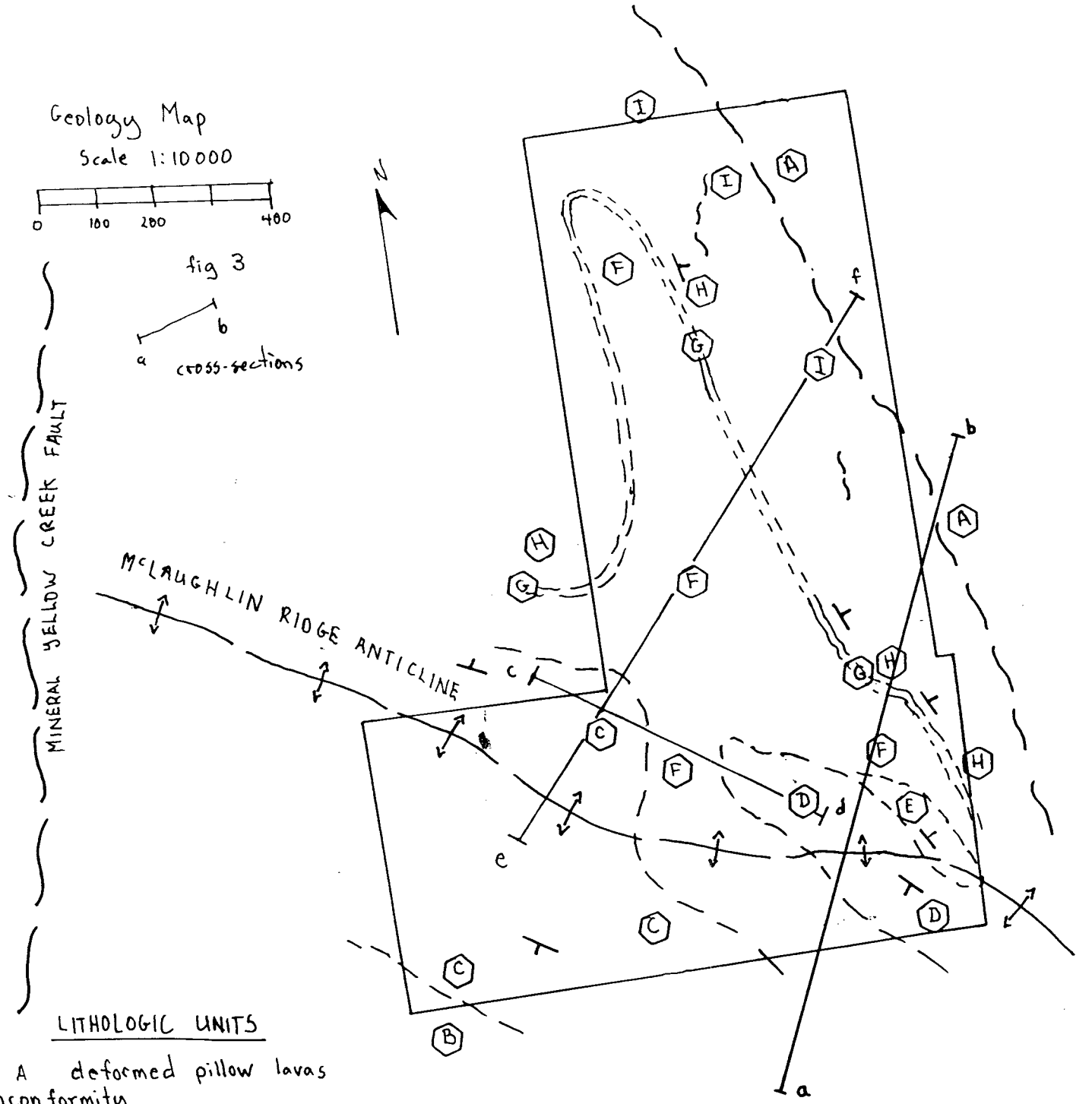
Geology Map

Scale 1:10000

0 100 200 400

fig 3

a b cross-sections



LITHOLOGIC UNITS

A deformed pillow lavas

unconformity

B massive green agglomeratic → lapilli tuff

C green matrix with broken purple and green lapilli → agglomeratic tuff

D purple matrix green fragment lapilli tuff

E devitrified feldspar porphyry tuff

F mixed lapilli → agglomeratic tuff? volcanic sandstone?

G banded grey → black chert-like tuff

H massive green tuff

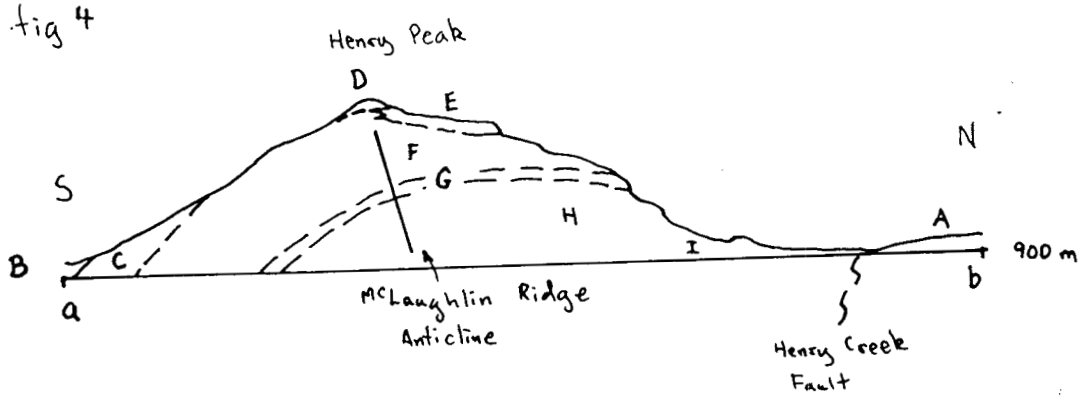
I andesite flow lavas

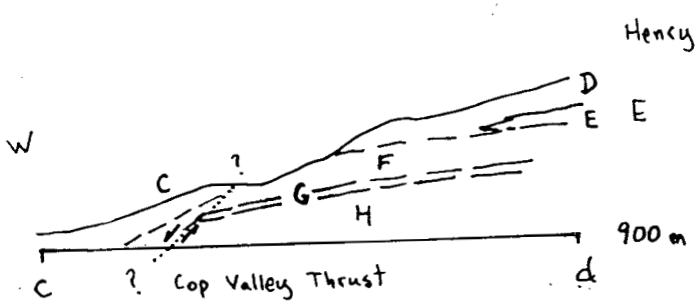
Cross - Sections

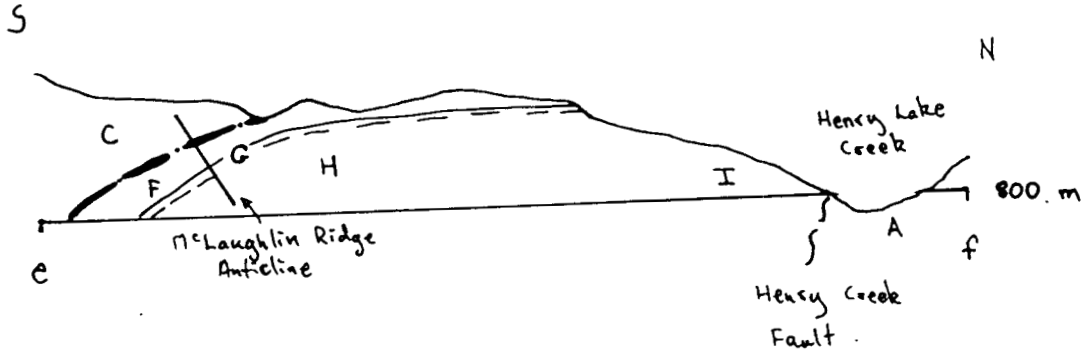
Scale 1: 10000

0 100 200 400

fig 4







GEOPHYSICAL SURVEY

An EM-VLF and a magnetic geophysical survey were run over a grid on the Ddam 1 claim. The grid included four parallel/subparallel lies. Due to the steepness of the survey area, existing logging roads and natural benches were used to facilitate in taking better readings and tie in the grid.

The four lines are:
Line #1 0+00N-7+50N 325'azm (on a logging road),
Line #2 0+00S-7+25S 323' azm (partially on a logging road),
Line #3 0+00N-5+50N 323' azm (on a natural bench),
Line #4 0+00S-6+50S 323' azm (at the edge of the logged area).
This grid was topofilled in and the stations were flagged. The line stations were 25 metres apart (slope corrected). Deep snow hampered afixing some station flags. Subsequent to the establishment of the grid the surveys were run.

EM-VLF:

The EM-VLF survey was carried out with a Geonics EM-16 VLF receiver. This receiver measures deflections in wave forms of established frequencies. The receiver has a signal coil and a reference coil which are tunned to a specific transmitting frequency through the use of a crystal. The two crystals used in this survey were Seattle, Washington (NPG) 18.6kHz and Laulualei, Hawaii (NPM) 23.4 kHz. The signals were strong which compensated for the non orthagonal station direction. Measurements are made by first rotating the instument about a horizontal plane until a null signal is acheived. The instrument is then rotated horizontally 90' from the null, keeping the station at the operators right. The instrument is rotated about a vertical plane until a second null is acheived and the dip measurment is read off an inclinometer on the side of the machine. This is the Real (In-phase) reading. A fine tunning adjustment knob is dialed to further eliminate the signal and this reading is the Quadrature (Out-of-phase) reading. Not having a station orthogonal to the survey lines, required that 2 stations be used to substantiate anomalous conductors. The survey was performed to dilineate possible disseminated and or massive sulphide bodies and conductive zones. The receiver measured the dip angle, in percent, of the electromagnetic field component. This dip angle is the deviation from the horizontal of the major axis of the electromagnetic field components polarized ellipse. A total of 4 lines were surveyed with a total length of 2.65 kilometers. The raw data was Fraser Filtered which reproduces the cross overs into positive peaks for conductor location. Seperation of crest to trough through inflection points of non-filtered data give

some indication of maximum conductor depth. Shape of dip angle curve relates to subsurface orientation of conductors.

The survey revealed five conductors. Only #3 & #4 are continuous conductors over 2 lines. The other conductors are single line conductors.

Conductor # 1 is located on line #2 at 0+37 S. It is a quadrature conductor(Seattle) of 3X standard deviation. The magnetic responce is low in this area. No topographic or geologic features appear to be associated with this conductor.

Conductor # 2 is located on line #3 from 4+62 N to 4+87 N. It is a quadrature conductor(Hawaii) of 3X standard deviation. It is associated with a magnetic high/low/high transition, but no topographic or geologic features are evident.

Conductors # 3 and # 4 are located on lines #3 & #4 and from 2+87 N to 3+12 N & 3+87 S, respectively. Conductor # 3 includes all of a 3X stnd devn(Seattle) real, a 3X stnd devn (Hawaii) real and a 2X stnd devn(Hawaii) quadrature conductor.

Conductor #5 is located on line #3 at 0+37 N. This conductor is a 3X stnd devn real conductor(Hawaii) and a 2X stnd devn real conductor(Seattle). It is associated with an east/west magnetic low trough and is in the vicinity of an area where lenses of massive sulphide pyrite mineralization was prospected.

MAGNETIC:

The magnetic survey was performed over the entire grid using a McPar Proton Recession Magnetometer system. This included a base station that was set up to record the dinurial magnetic variations every 30 seconds and a field instrument. The base station collected readings through out the day and was conected to a thermal printer which revealed the data on a tape. The field magnetometer displayed a reading when activated. This reading was then recorded in a notebook. The base station recorded a time at the instant the magnetic reading was taken. This clock was syncronized with a digital watch which the field operator wore and referred to when recording the line readings. The magnetometers were also calibrated for the regional accepted magnetic level to add correctness to the survey. After the survey was completed a statistical average magnetic reading was established for each of the two days. This was done by taking the mean reading of all of the base station readings each day. The difference of the base station reading (at the instant the field reading was taken) from the calculated mean was added or subtracted to or from the field reading to compensate for the dinurial

variation. This gave the resultant magnetic reading. On the first day base station readings for the last 2 hours were not recovered due to a failure in the recording of the base station. This resultant data was further massaged to obtain a statistical mean and standard deviation using a standard calculation. The standard deviation was then used as a contour interval when plotting the resultant data.

The magnetic data displays two distinct anomalies. One corresponds with the fault/shear creek zone. The footwall edge of the zone is reflected by a sharp magnetic low bordered by corresponding magnetic highs. A north/south low trough that extends along line #2 may be a geologic contact. The magnetic data is better utilized with other geophysical and geological information.

CONCLUSIONS

The geophysical surveys partially delineated the presence of the fault/shear zone. A more extensive survey would better confirm the total extent of the structure and would highlight areas with greater potential. A more extensive survey is recommended.

STATEMENT OF COSTS

GRID PREPARATION:

FERRY TRANSPORTATION	45.00	
TRUCK @ $50.00/DAY 1 DAY	50.00	
ACCOMADATION	32.00	
FOOD	35.00	
EQUIPMENT	10.00	
1 MANDAY @ $150.00/MANDAY	150.00	322.00

GEOPHYSICAL SURVEY:

FERRY TRANSPORTATION	90.00	
TRUCK @ $50.00/DAY 3 DAYS	150.00	
ACCOMADATION	90.00	
FOOD	120.00	
6 MANDAYS	900.00	
RENTAL GEOPHYSICAL EQUIPMENT	240.00	1590.00

REPORT	200.00
TOTAL	2112.00

STATEMENT OF QUALIFICATIONS

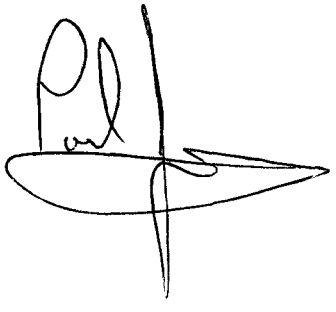
I, PAUL WILLIAM JONES, of #1 2804 West 1st Ave of the city of Vancouver in the Province of British Columbia, do hereby certify that:

I have worked in the mineral exploration industry in Canada and the United States for 13 years.

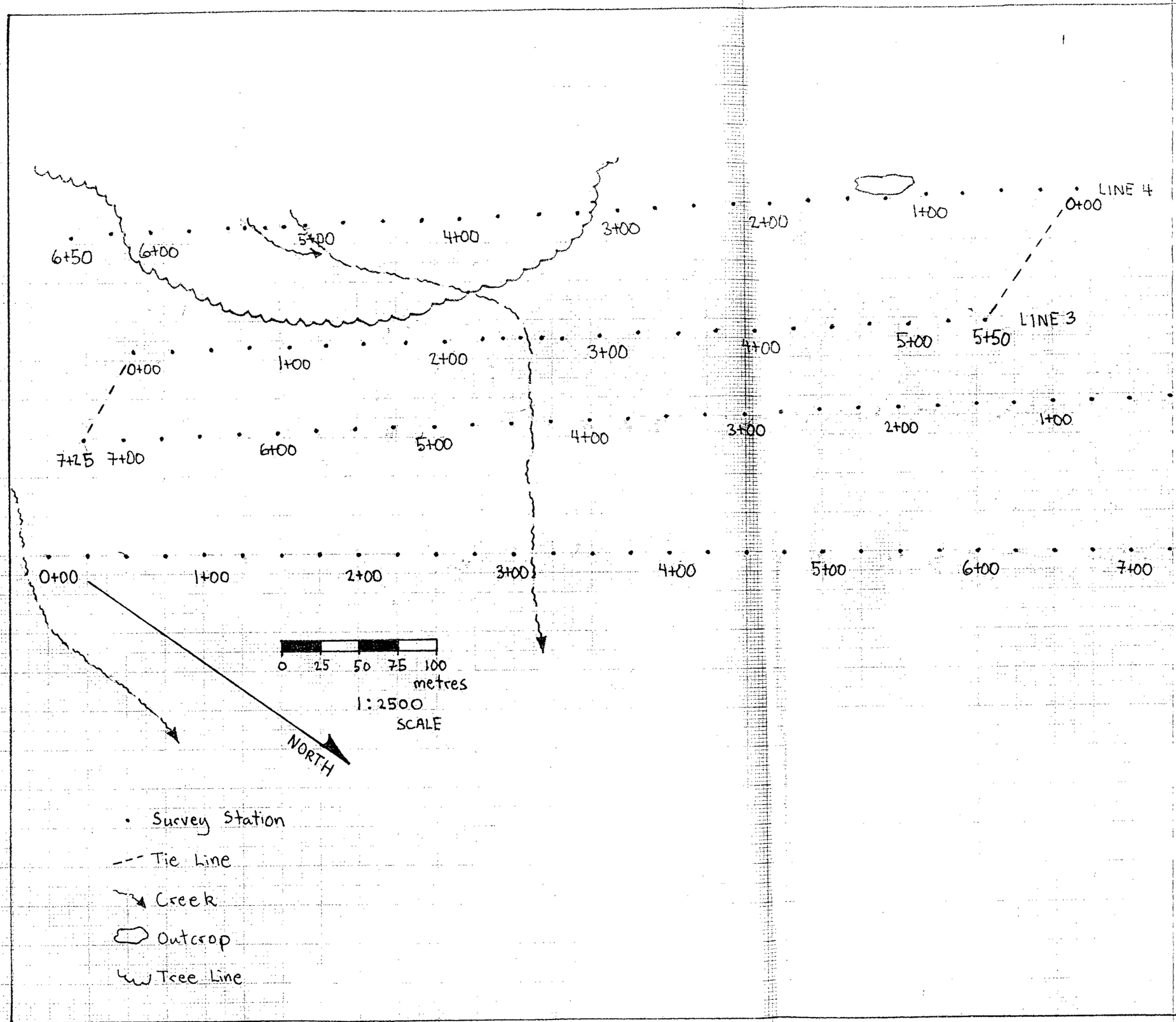
At present I am employed full time as a prospector and perform geophysical, geochemical and geological surveys as my regular job.

I have studied physics at the University of Victoria completing 3 years.

The work done during this program was completed under my supervision, and by myself.

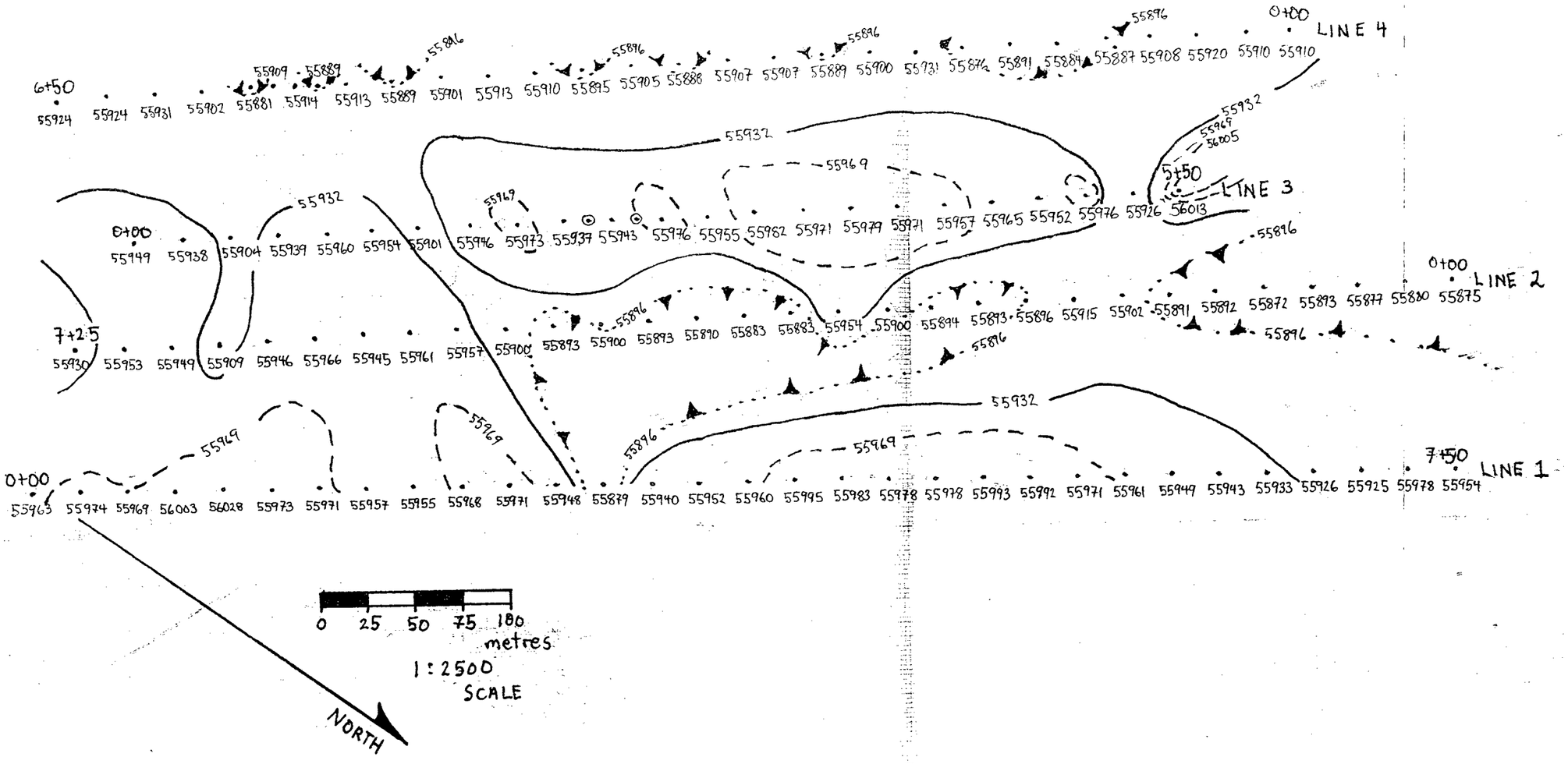


APPENDIX B : GEOPHYSICAL DATA



DDAM 1 CLAIM
GEOPHYSICAL SURVEY
GRID LOCATION MAP

June 1990 92 F/2
Figure 5



• Survey Station

55949 Magnetic Value (Gamma's)

⊙ No Magnetic Reading

Magnetic Contour Intervals (— Mean, --- High, ·1· Low)
Interval ± standard Deviation
From Mean

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,105

DDAM 1 CLAIM
GEOPHYSICAL SURVEY
MAGNETIC CONTOUR MAP

June 1990 92 F/2

Figure 7

MAGNETIC SURVEY DATA (GAMMA'S) February 17, 1990

LINE #1

STATION	MAG TIME	BASE TIME	MAG READING	BASE READING	CORRECTED READING
0	12 45 00	13 45 28	55955	55907	55963
25	12 48 00	13 48 28	55965	55906	55974
50	12 49 00	13 49 28	55960	55906	55969
75	12 50 00	13 50 28	55994	55906	56003
1+00	12 51 00	13 51 28	56019	55906	56028
25	12 52 30	13 52 58	55965	55907	55973
50	12 53 20	13 53 48	55964	55908	55971
75	12 54 15	13 54 43	55948	55906	55957
2+00	12 55 00	13 55 28	55946	55906	55955
25	12 56 15	13 56 43	55958	55905	55968
50	12 57 00	13 57 28	55960	55904	55971
75	12 57 35	13 58 03	55937	55904	55948
3+00	12 58 40	13 59 08	55868	55904	55879
25	12 59 20	13 59 48	55929	55904	55940
50	13 00 25	14 00 53	55940	55903	55952
75	13 01 30	14 01 58	55947	55902	55960
4+00	13 02 15	14 02 43	55982	55902	55995
25	13 03 00	14 03 28	55970	55902	55983
50	13 03 45	14 04 13	55966	55903	55978
75	13 04 35	14 05 03	55966	55903	55978
5+00	13 05 45	14 06 13	55982	55904	55993
25	13 06 30	14 06 58	55982	55905	55992
50	13 09 20	14 09 48	55961	55905	55971
75	13 10 00	14 10 28	55952	55906	55961
6+00	13 10 45	14 11 13	55939	55905	55949
25	13 11 30	14 11 58	55932	55904	55943
50	13 12 55	14 13 23	55922	55904	55933
75	13 13 40	14 14 08	55915	55904	55926
7+00	13 14 30	14 14 58	55915	55905	55925
25	13 15 10	14 15 38	55967	55904	55978
7+50	13 16 10	14 16 38	55943	55904	55954

55915 MEAN READING

MAG - FIELD MAGNETOMETER
BASE - BASE STATION

MAGNETIC SURVEY DATA (GAMMA'S) February 17, 1990

LINE #2

STATION	MAG TIME	BASE TIME	MAG READING	BASE READING	CORRECTED READING
00	14 09 10	15 09 38	55865	55905	55875
25	14 11 00	15 11 28	55870	55905	55880
50	14 11 40	15 12 08	55867	55905	55877
75	14 12 35	15 13 03	55883	55905	55893
1+00	14 16 10	15 16 38	55861	55904	55872
25	14 17 10	15 17 38	55881	55904	55892
50	14 18 00	15 18 28	55880	55904	55891
75	14 18 40	15 19 08	55892	55905	55902
2+00	14 19 25	15 19 53	55905	55905	55915
25	14 20 10	15 20 38	55886	55905	55896
50	14 21 00	15 21 28	55884	55907	55893
75	14 22 00	15 22 28	55885	55906	55894
3+00	14 22 45	15 23 03	55891	55906	55900
25	14 23 30	15 23 58	55946	55907	55954
50	14 24 35	15 25 03	55875	55907	55883
75	14 25 30	15 25 58	55876	55908	55883
4+00	14 26 20	15 26 48	55883	55908	55890
25	14 27 53	15 28 21	55886	55908	55893
50	14 28 50	15 29 18	55894	55909	55900
75	14 35 45	15 36 03	55887	55909	55893
5+00	14 37 50	15 38 18	55898	55913	55900
25	14 41 10	15 41 38	55959	55915	55957
50	14 43 30	15 43 58	55960	55914	55961
75	14 45 25	15 45 53	55944	55914	55945
6+00	14 48 00	15 48 28	55966	55915	55966
25	14 51 30	15 51 58	55946	55915	55946
50	14 53 00	15 53 28	55909	55915	55909
75	14 55 00	15 55 28	55948	55914	55949
7+00	14 57 00	15 57 28	55952	55914	55953
7+25	16 01 00	16 01 28	55930	55915	55930

55915 MEAN READING

MAG - FIELD MAGNETOMETER
BASE - BASE STATION

MAGNETIC SURVEY DATA (GAMMA'S) February 17, 1990

LINE #3

STATION	MAG	BASE	MAG READING	BASE READING	CORRECTED READING
00	15 21 00	16 21 28	5 5957	5 5923	55944
25	15 22 50	16 23 18	5 5946	NOTE *	
50	15 24 30	16 24 58	5 5912		
75	15 26 00	16 26 28	5 5947		
1+00	15 27 40	16 28 08	5 5968		
25	15 29 10	16 29 38	5 5962		
50	15 30 30	16 30 58	5 5909		
75	15 32 20	16 32 48	5 5954		
2+00	15 36 00	16 36 28	5 5981		
25	15 38 50	16 39 18	5 5945		
50	15 40 50	16 41 18	5 5951		
75	15 44 00	16 44 28	5 5984		
3+00	15 45 20	16 45 48	5 5963		
25	15 47 25	16 47 53	5 5990		
50	15 51 30	16 51 58	5 5979		
75	15 53 15	16 53 43	5 5987		
4+00	15 54 50	16 55 18	5 5979		
25	15 55 45	16 56 03	5 5965		
50	16 00 30	17 00 58	5 5973		
75	16 01 30	17 01 58	5 5960		
5+00	16 02 45	17 03 03	5 5984		
25	16 04 30	17 04 58	5 5934		
5+50	16 06 15	17 06 43	5 6021	——	56013

55916 MEAN READING

MAG - FIELD MAGNETOMETER
BASE - BASE STATION

NOTE * No Base Station Readings

MAGNETIC SURVEY DATA (GAMMA'S) February 18, 1990

LINE #4

STATION	MAG TIME	BASE TIME	MAG READING	BASE READING	CORRECTED READING
2+00	11 56 40	12 56 40	55891	55878	55901
25	11 59 15	12 59 15	55899	55877	55910
50	12 01 20	13 01 20	55910	55878	55920
75	12 02 30	13 02 30	55892	55872	55908
1+00	12 05 30	13 05 30	55875	55876	55887
25	12 08 40	13 08 40	55874	55874	55884
50	12 17 00	13 17 00	55875	55872	55891
75	12 20 00	13 20 00	55861	55873	55876
2+00	12 22 00	13 22 00	55915	55872	55931
25	12 25 30	13 25 30	55884	55872	55900
50	12 28 00	13 28 00	55873	55872	55889
75	12 30 45	13 30 45	55893	55874	55907
3+00	12 32 30	13 32 30	55893	55874	55907
25	12 34 00	13 34 00	55875	55875	55888
50	12 35 30	13 35 30	55890	55873	55905
75	12 37 20	13 37 20	55879	55872	55895
4+00	12 39 00	13 39 00	55894	55872	55910
25	12 40 40	13 40 40	55897	55872	55913
50	12 42 30	13 42 30	55884	55871	55901
75	12 46 30	13 46 30	55871	55870	55889
5+00	12 48 15	13 48 15	55895	55870	55913
12	12 50 00	13 50 00	55871	55870	55889
25	12 53 00	13 53 00	55897	55871	55914
37	12 54 30	13 54 30	55892	55871	55909
50	12 58 30	13 58 30	55863	55870	55881
75	13 00 30	14 00 30	55883	55869	55902
6+00	13 02 20	14 02 20	55912	55869	55931
25	13 04 00	14 04 00	55905	55869	55924
6+50	13 05 15	14 05 15	55905	55869	55924

55888 MEAN READING

MAG- FIELD MAGNETOMETER
BASE- BASE STATION

MAGNETOMETER SURVEY CALCULATIONS

TIME Corr: June 17, 1990

Field Mag Time Set	10:35:23	hr:min:sec
Base Station Time Set	11:36:00	
Difference	1:00:28	

June 18, 1990

Field Mag Time set	9:38:00
Base Station Time Set	10:38:00
Difference	1:00:00

June 17, 1990

Mean Base Mag Reading Data

$n = 546$
$\bar{x} = 55914.992674$ → 55915 gammas

Line #3 Mean Field Mag Reading

$n = 23$
$\bar{x} = 55963.086957$ → 55963 gammas
$s = 25.23870314$ → 25 gammas

June 18, 1990

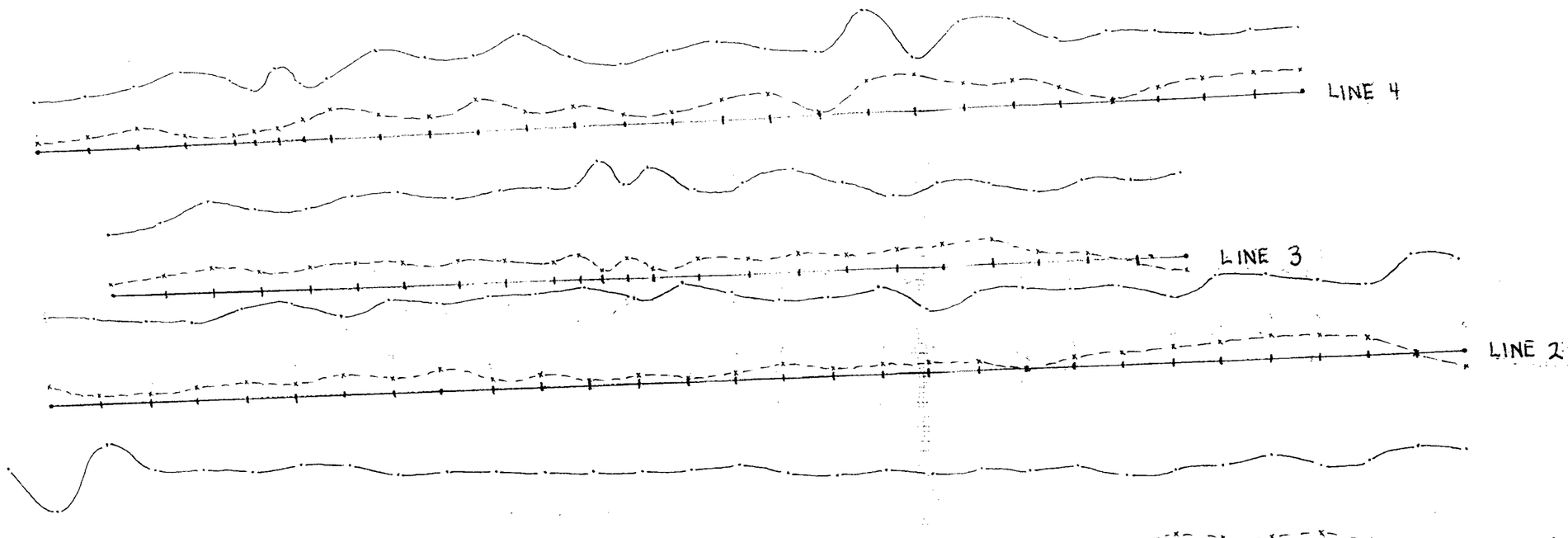
Mean Base Mag Reading Data

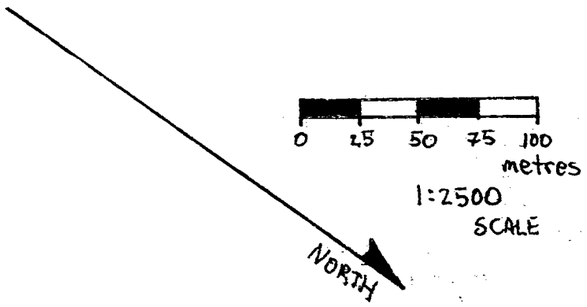
$n = 464$
$\bar{x} = 55887.8103448$ → 55888 gammas

CONTOUR MAG MAP DATA:

Mean Corrected $\bar{x} = 55932.106195$ → 55932 gammas
$s = 36.56583349$ → 37 gammas

$\bar{x}+3s$	56042		
$\bar{x}+2s$	56005		
$\bar{x}+s$	55969	MEAN 55932	} CONTOUR INTERVALS
$\bar{x}-s$	55896		
$\bar{x}-2s$	55859		
$\bar{x}-3s$	55822		





REAL

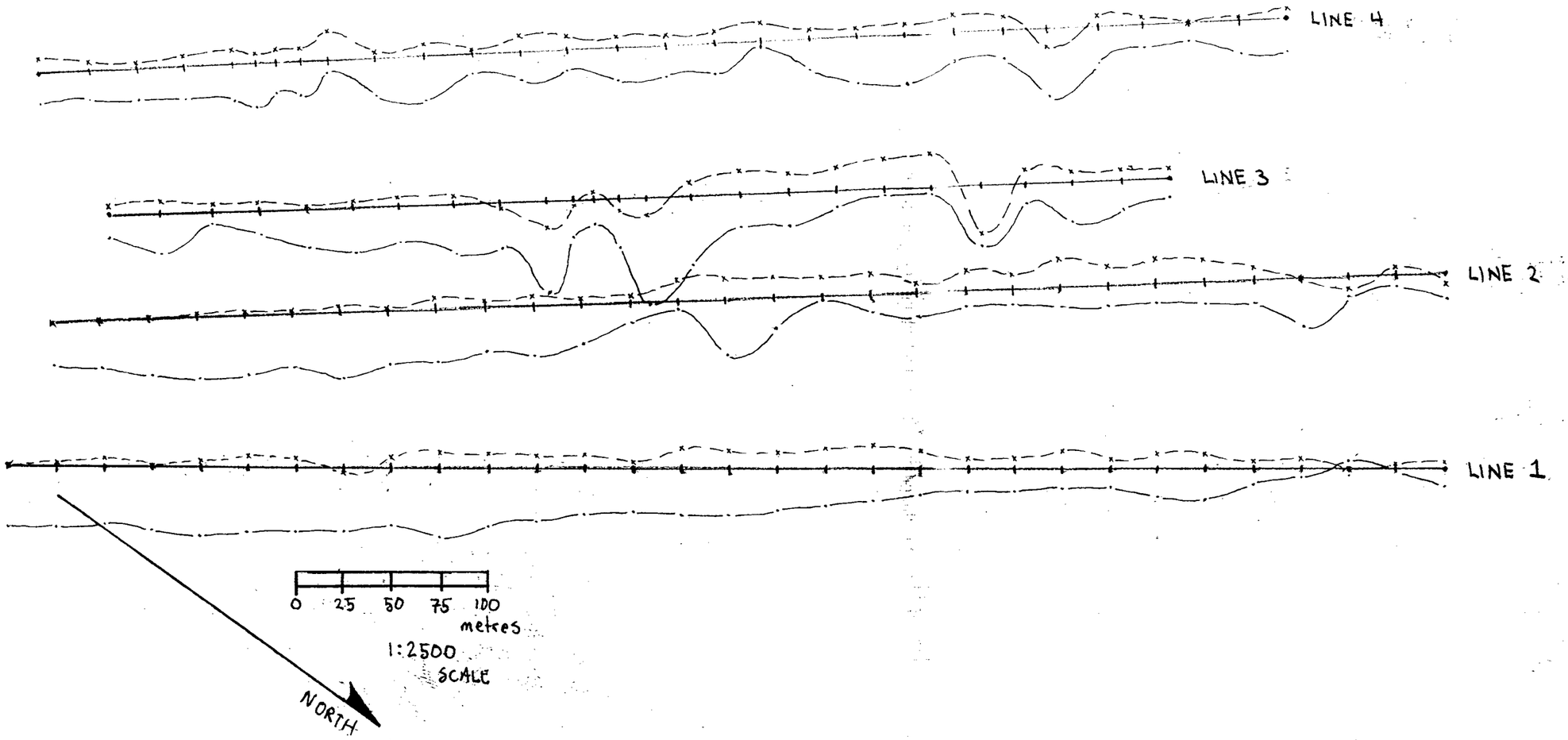
QUADRATURE

• VALUE %, 1mm = 2%

DDAM 1 CLAIM
GEOPHYSICAL SURVEY
EM-VLF DATA; SEATTLE

June 1990 92 F/2

Figure 6a



REAL

QUADRATURE

VALUE %, 1mm = 2%

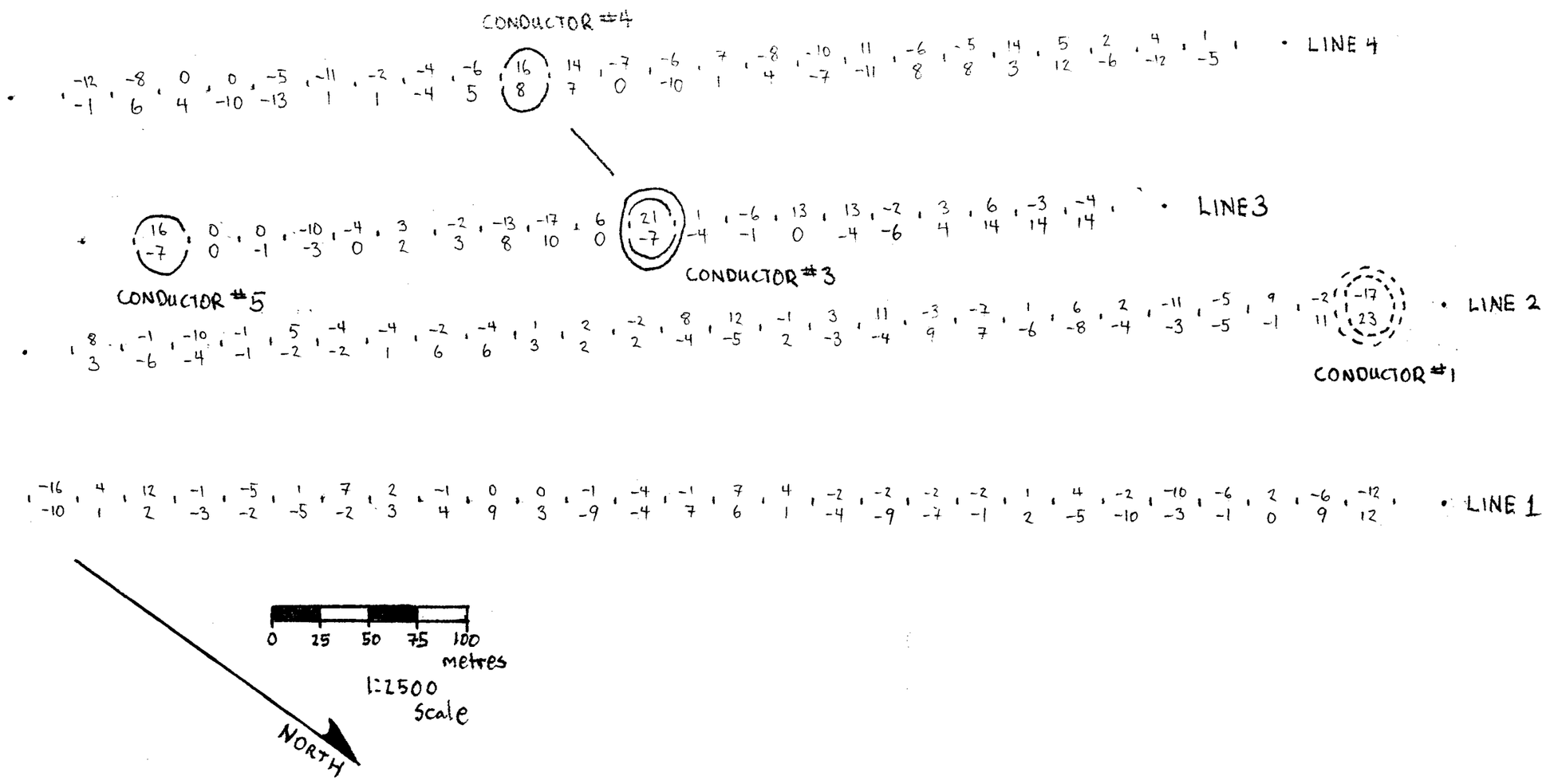
DDAM 1 CLAIM

GEOPHYSICAL SURVEY

EM-VLF, DATA; HAWAII

June 1990 92 F/2

Figure 6b



DDAM 1 CLAIM

GEOPHYSICAL SURVEY

EM-VLF FRASER FILTERED DATA

SEATTLE

June 1990

Figure 6c

LINE 4

LINE 3

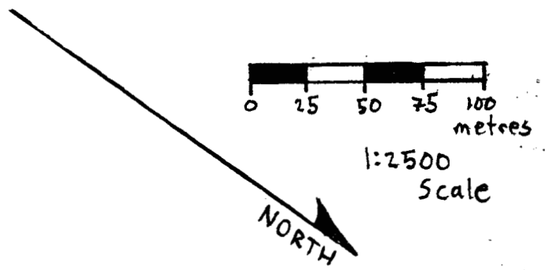
LINE 2

LINE 1

CONDUCTOR #5

CONDUCTOR #3

CONDUCTOR #2



46 REAL
18 QUADRATURE

DDAM 1 CLAIM

GEOPHYSICAL SURVEY

EM-VLF FRASER FILTERED DATA

HAWAII

June 1990

Figure 6d

EM-VLF SURVEY DATA (%), February 17, 1990

LINE #1 STATION	SEATTLE REAL RAW	SEATTLE REAL Fr Fl	SEATTLE QUADRATURE RAW	SEATTLE QUADRATURE Fr Fl	HAWAII REAL RAW	HAWAII REAL Fr Fl	HAWAII QUADRATURE RAW	HAWAII QUADRATURE Fr Fl
0+00 N	35		-6		-25		0	
25	26	-16	-6	-10	-25	0	1	2
50	44	4	1	1	-24	-6	3	-2
75	33	12	-3	2	-26	-6	0	3
1+00 N	33	-1	-3	-3	-29	1	2	5
25	32	-5	-1	-2	-27	2	4	-4
50	35	1	-2	5	-27	2	3	-4
75	35	7	0	-2	-27	-1	-1	8
2+00 N	31	2	2	3	-25	-3	4	8
25	32	-1	-2	4	-30	7	6	-1
50	32	0	1	9	-25	12	5	-2
75	32	0	-5	3	-23	9	4	-2
3+00 N	32	-1	-5	-9	-20	4	5	1
25	32	-4	-2	-4	-19	-1	2	8
50	33	-1	1	7	-20	1	8	3
75	35	7	-4	6	-20	6	7	-1
4+00 N	31	4	-4	1	-18	8	6	4
25	30	2	-5	-4	-16	8	8	2
50	32	-2	-4	-9	-14	8	9	-6
75	31	2	-1	-7	-12	6	7	-8
5+00 N	33	2	1	-1	-10	3	4	0
25	32	1	1	2	-10	3	4	3
50	34	4	0	-5	-9	-1	7	0
75	30	-2	0	-10	-8	-8	4	2
6+00 N	32	-10	6	-3	-12	0	7	-2
25	34	-6	4	-1	-13	14	6	-6
50	38	2	5	0	-7	19	3	-5
75	34	-6	6	9	-4	13	4	-5
7+00 N	36	-12	3	12	3	-8	0	0
25	42		-1		-1		2	
7+50 N	40		-2		-8		2	

REAL - In Phase
QUADRATURE - Out-of-Phase
RAW - Field Measurement
Fr Fl - Frasers Filtered

EM-VLF SURVEY DATA (%), February 17, 1990

LINE #2 STATION	SEATTLE REAL RAW	SEATTLE REAL Fr Fl	SEATTLE QUADRATURE RAW	SEATTLE QUADRATURE Fr Fl	HAWAII REAL RAW	HAWAII REAL Fr Fl	HAWAII QUADRATURE RAW	HAWAII QUADRATURE Fr Fl
0+00 S	38		-7		-10		-4	
25	40	-17	6	23	-4	14	3	4
50	29	-2	7	11	-8	17	-5	-7
75	32	9	9	-1	-20	-10	0	-19
1+00 S	35	-5	9	-5	-9	-13	5	-14
25	35	-11	6	-3	-9	-3	9	-4
50	27	2	7	-4	-7	0	10	0
75	32	6	5	-8	-8	-1	8	1
2+00 S	32	1	4	-6	-8	-4	11	5
25	33	-7	0	7	-6	2	6	5
50	32	-3	3	9	-6	5	8	1
75	26	11	8	-4	-10	-8	4	-5
3+00 S	36	3	4	-3	-7	-3	9	-4
25	33	-1	3	2	-1	18	8	-1
50	32	12	6	-5	-13	12	9	-1
75	36	8	3	-4	-23	-15	9	6
4+00 S	41	-2	1	2	-3	-2	9	13
25	35	2	4	2	-8	26	3	6
50	40	1	2	3	-16	15	2	-1
75	38	-4	5	6	-21	3	4	0
5+00 S	38	-2	4	6	-18	5	2	1
25	36	-4	9	1	-22	9	4	3
50	38	-4	6	-2	-22	5	1	2
75	32	5	8	-2	-27	-3	2	1
6+00 S	38	-1	5	-1	-22	0	1	1
25	37	-10	7	-4	-24	2	1	1
50	32	-1	5	-6	-25	-6	1	2
75	33	8	3	3	-23	-10	0	1
7+00 S	35		3		-20		0	
7+25 S	38		8		-18		0	

REAL - In Phase
QUADRATURE - Out-of-Phase
RAW - Field Measurement
Fr Fl - Fraser Filtered

EM-VLF SURVEY DATA (%), February 17, 1990

LINE #3

STATION	SEATTLE REAL RAW	SEATTLE REAL Fr Fl	SEATTLE QUADRATURE RAW	SEATTLE QUADRATURE Fr Fl	HAWAII REAL RAW	HAWAII REAL Fr Fl	HAWAII QUADRATURE RAW	HAWAII QUADRATURE Fr Fl
0+00 N	25		4		-9		3	
25	29	16-	7	-7	-17	41 +	5	-3
50	37	0	10	0	-5	-4	3	-5
75	33	0	8	-1	-10	-20	2	-2
1+00 N	33	-10	9	-3	-16	-8	1	3
25	37	-4	10	0	-19	0	2	6
50	39	3	10	2	-15	-5	4	-3
75	35	-2	9	3	-20	-23	5	-22
2+00 N	38	-13	9	8	-19	-10	-2	-11
25	38		7		-39		-11	
37	38	-17	10	10	-15	4	-2	9
50	48		3		-10		3	
62	38	6	8	0	-20	-23	-5	7
75	45	21 +	3	-7	-44	13	-7	19 +
3+00 N	35	1	7	-4	-28	46 +	6	18 +
25	37	-6	6	-1	-13	21	9	3
50	42	13	8	0	-13	16	8	5
75	36	13	6	-4	-7	14	10	8
4+00 N	30	-2	8	-6	-3	-18	12	-28
25	35	3	10	4	-3	-27	14	-40
50	33	6	10	14	-25	4	-20	16 +
75	29	-3	4	14	-8	5	6	22 +
5+00 N	33	-4	2	14	-16	4	4	-2
25	32		-2		-12		4	
5+50 N	34		-6		-8		4	

REAL - In Phase
QUADRATURE - Out-of-Phase
RAW - Field Measurement
Fr Fl - Fraser Filtered

EM-VLF SURVEY DATA (%), February 18, 1990

LINE #4

STATION	SEATTLE REAL RAW	SEATTLE REAL Fr Fl	SEATTLE QUADRATURE RAW	SEATTLE QUADRATURE Fr Fl	HAWAII REAL RAW	HAWAII REAL Fr Fl	HAWAII QUADRATURE RAW	HAWAII QUADRATURE Fr Fl
0 S	26		9		-13		-4	
25	27	1	9	-5	-14	-9	1	-6
50	26	4	8	-12	-8	3	0	-6
75	28	2	5	-6	-10	25	3	7
1+00	29	5	0	12	-15	15	4	10
25	27	14	7	3	-28	-19	-8	-17
50	35	-5	10	8	-12	-8	5	-15
75	35	-6	10	8	-12	15	8	6
2+00	22	-11	15	-11	-20	0	4	6
25	42	-10	13	-7	-19	-24	3	-4
50	26	-8	1	4	-13	-12	3	-7
75	28	7	10	1	-2	11	8	1
3+00	32	-6	8	-10	-13	12	5	4
25	29	-7	4	0	-13	-3	5	0
50	25	14	4	7	-14	-6	4	-4
75	29	16	8	8	-9	-3	6	2
4+00	39	-6	7	5	-12	5	7	7
25	31	-4	13	-4	-8	14	1	2
50	31	-2	7	1	-18	-5	5	-7
75	35	-11	9	1	-16	-16	1	-11
5+00	25		12		-5		12	
12	23	-5	8	-13	-15	8	4	2
25	30		5		-13		5	
37	21	0	4	-10	-18	12	4	7
50	25	0	3	4	-16	-1	6	6
75	30	-8	4	6	-14	-4	4	6
6+00	25	-12	8	-1	-14	-3	1	-4
25	22		5		-12		3	
6+50S	21		6		-13		6	

REAL - In-Phase
QUADRATURE - Out-of-Phase
RAW - Field Measurement
Fr Fl - Fraser Filtered

EM-VLF SURVEY CALCULATIONS

FRASER FILTERED DATA

SEATTLE

Real

$\bar{x} = 5.27$ → 5.3%
$s = 4.637379153$ → 4.6%

$\bar{x}+2s = 14.54748558$ → 15%
$\bar{x}+3s = 19.18486473$ → 19%

Quadrature

$\bar{x} = 5.313725494$ → 5.3%
$s = 4.793705023$ → 4.8%

$\bar{x}+2s = 14.90113554$ → 15%
$\bar{x}+3s = 19.69484056$ → 20%

HAWAII

Real

$\bar{x} = 9.596491228$ → 9.6%
$s = 9.254071786$ → 9.3%

$\bar{x}+2s = 28.1046348$ → 28%
$\bar{x}+3s = 37.35870659$ → 37%

Quadrature

$\bar{x} = 4.95454555$ → 5.0%
$s = 5.330712006$ → 5.3%

$\bar{x}+2s = 15.61596947$ → 16%
$\bar{x}+3s = 20.94668147$ → 21%