#### SECURITY

Northwest Moresby Island Queen Charlotte Islands, B.C.

M486 - SECURITY

OVERPROOF and OP #1-11 MINERAL CLAIMS

NTS 103 ¢/1¢E, 1¢W Skeena Mining Division Lat. 153°05'N Long. 132°33'W

REPORT ON GEOLOGY, GEOCHEMISTRY AND ECONOMIC POTENTIAL

> Dates of Work May 7 - 16, 1979

> > for

Chevron Standard Limited Minerals Staff Vancouver, B.C.

### by

J.S. Christie, Ph.D. G.G. Richards, M.A.Sc. P.Eng.

August 15, 1979



Owner - Chevron Canada Limited Operator - Chevron Standard Limited Contractor - JMT Services Corp.

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GEOCHEMISTRY - Gold - Arsenic - Mercury	in	pocket	

### INTRODUCTION

The Security Property, comprised of 12 mineral claims (148 units), is centred on the peninsula between Security Inlet and Inskip Channel, on northwest Moresby Island, Queen Charlotte Islands. Staking of the Overproof and Op claims was the outcome of several exploration programmes initiated after anomalous silt samples were collected by the writers around the shores of Inskip Channel and Security Inlet while prospecting in the area in mid-June 1977 and early May 1978. The initial prospecting was funded by B.C. Department of Mines Prospectors Assistance Grants. Initial sampling indicated large areas of high arsenic geochem with associated spotty gold anomalies over a large area of about 5 km by 8 km. The Overproof and Op #1-6 claims were staked to cover the strongest parts of the geochem anomaly in late June and July 1978. Follow-up sampling indicated the need to stake more ground and the Op #7-11 claims were added in early May 1979.

The object of the work programme described in this report was to cover the entire claim block in fairly detailed reconnaissance fashion in order to identify targets worthy of more detailed work. Five geologists were deployed by boat or helicopter daily and completed independent traverses collecting samples for geochemical analysis and noting the most prominent features of the geology. Three target areas (Areas A, B, C) have been identified for more detailed sampling and mapping. Survey control was by hip chain, compass, barometer and topographic map enlargement.

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#### LOCATION, TOPOGRAPHY AND ACCESS

The Property covers the mountainous peninsula between Security Inlet and Inskip Channel some 40 km southwest of Sandspit. Slopes are steep and rocky and the minor drainages tend to be steep-walled, waterfall creeks that are difficult to traverse. Vegetation is typical hemlock spruce - cedar rainforest to elevation 2000 feet with cypress swamps and brushy alpine vegetation above.

Access at present is by boat or aircraft from Sandspit or Queen Charlotte City. A road is planned to Security Cove by MacMillan-Bloedel to connect with the existing Deena road and Sandspit, but construction dates have not yet been finalized.

### CLAIMS

The Property consists of the OVERPROOF and OP #1-11 mineral claims described below and shown on accompanying maps.

NAN	4E	RECORD NO.	UNITS	RECO (Mo)	RD D. nth)	ATE
OVI	ERPROOF	677	4	July	28,	1978
OP	#1	673	2	n	11	**
	#2	674	12	ti		п
	#3	675	12	11	"	N
	#4	676	6	13	11	"
	#5	678	15	н	81 -	n
	#6	679	15	11	n	"
	#7	1305	18	May	29,	1979
	#8	1306	20	11	"	"
	#9	1307	20	**	11	"
	#10	1308	20	H	"	"
	#11	1309	4	**	11	"





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#### GEOLOGY

Regional mappng by Sutherland-Brown 1968, B.C. Dept. of Mines Bull. #54, indicated that the Security area is underlain by rocks of the Karmutsen and Kunga Formations of Triassic-Jurrasic age. The Karmutsen is described as a submarine volcanic succession comprised principally of tholeiitic basalt but containing interbedded aquagene tuffs and minor sediments.

The Kunga is a sedimentary succession which includes massive grey basals limestone overlain by black limestones, flaggy black limestone and limy argillite, thin bedded limy argillite-argillite, and non calcareous argillite. Distinctive Kunga ammonites and pelecypods were noted at several localities on the Property.

Reconnaissance mapping has indicated the presence of a stock composed of medium grey quartz feldspar porphyry in the north eastern part of the property on the OP#8 and#9 mineral claims. Dykes of similar composition and texture are numerous and tend to lie along northeasterly to northwesterly structures. Dykes of more leucocratic quartz porphyry which typically display flow banding are also abundant. Both types of dyke contain disseminated pyrite and quartz-pyrite veinlets and bear a close spatial relationship to silica alteration zones and the goldarsenic geochem anomalies.

## STRUCTURE

The structure on the Security Property is not well known but steeply dipping faults appear to be important. These vary in character from sharp planar slickensided surfaces to gougy zones many feet in width. In age, they range from pre to post-dyke and in some instances the early formed faults have localized dykes and zones of strong silica-pyrite, and carbonate-silica-pyrite alteration. Minor folds have been recognized in the Kunga argillites and folding on a larger scale may be an important feature of the geology at Security. Geology to date is inadequate to demonstrate a fold pattern.

### ALTERATION AND MINERALIZATION

Alteration at Security is variable in character but hard dense silicification accompanied by large quartz veins, quartz veinlets, quartz breccia, fracture and disseminated pyrite, and general bleaching is most striking. Such zones are shown on the attached map where it is apparent that the above type of hard silicification is closely associated with acid dykes and developed to the greatest extent within the volcanic part of the succession. However, occurrences are known within the sediments such as at R242, R435, C243 and C286 where silicified limestone and argillites contain significant gold values.

Less intense and less obvious alteration is widespread on the property. Within the volcanics large zones of chloritization and weak bleaching with up to 2 - 3% introduced pyrite are present. Within the sediments weak hornfels-like silicification or weak pervasive clay alteration (bleaching) accompanied by fracture and disseminated sulfide occurs over fairly large areas. In some argillites, alteration is hardly noticeable but examination with a high power lens reveals abundant fine disseminated and hairline fracture controlled sulfide. Within the thin bedded limy argillites and black limestone, bedded pyrite is common but such pyrite may be a feature of primary sedimentation. Arsenopyrite, while seldom recognized in the field, may be fairly common considering the strong arsenic geochemistry. Sulfides tend to be fine grained at Security, and surface oxidation and leaching is strong, especially at the higher elevations.

#### GEOCHEMISTRY

In total some 340 rock, soil and silt samples have been analyzed for Au - As - Hg by Vangeochem Labs Ltd. From these, 36 check analyses were made on the Au by Bondar-Clegg Ltd. Rock chip samples were made up from three to ten rock chips, were small enough to fit into standard kraft sample bags and are therefore only preliminary in nature. Silt samples were collected with a spoon from active silt in creeks. Soil samples were collected from the B-horizon which occurred from 1 cm to 10 cm beneath the A-horizon.

At Vangeochem Labs Ltd. the samples were analyzed geocehmically for gold by treating a ten gram sample with an organic acid and analyzing with atomic absorption.

For arsenic, samples were dissolved in perchloric nitric acid and analyzed colorimetrically.

For Hg, samples were dissolved in a controlled aqua regia solution and analyzed by closed cell atomic absorption.

At Bondar Clegg Ltd., for Au, samples were ashed, dissolved and analyzed by closed cell atomic absorption.

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## GOLD:

Anomalous gold geochem is widespread but spotty and the strongest anomalies known to date are located in the central and western parts of the claim block. Two large areas (A and B on Geology Map) stand out as good target areas for exploration for commercial grade gold mineralization.

Area A some 3000 X 1500 metres in size contains numerous highly anomalous samples. Some of these such as R422 - 1855 ppb Au, R435 - 3140 ppb Au, R242 - 840 ppb Au are high enough to be direct leads to important mineralization considering the widespacing of samples to date.

A smaller area of anomalous gold geochemistry is found in Area B associated with a large northeast trending zone of brecciation, silicification and quartz veining. Sampling to date is sparse but results are moderately encouraging. Soil sample WH-43 -1000 ppb Au may be a good lead and several rocks in the 50 - 200 ppb range are encouraging as these are leached surface samples.

### ARSENIC:

Arsenic forms a strong regional geochem anomaly broader and more consistent than the associated gold anomalies in Areas A and B. A third zone, Area C, is indicated to be of interest on the basis of strong arsenic geochemistry although surface gold values are low. Area C is centred on the largest and strongest alteration system known on the property. Silicification, brecciation and quartz veining is intense and pyrite-quartztourmaline alteration is strong. The ridge outcrops, samples R397 - R403 are oxidized and sulfides are almost totally leached, and arsenic values are low. However samples collected on both sides beneath the ridge outcrops are highly anomalous in arsenic R405 - R405 and C224 - C230.

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Quartz porphyry and quartz feldspar porphyry dykes and stock are also strongly positive for arsenic.

#### **MERCURY:**

Mercury values are fairly low over most of the property. The higher mercury values obtained correlate well with mapped faults, especially faults which have localized ankeritic carbonate-pyrite mineralization. At present mercury does not appear to be a good indicator of alteration or mineralization associated with gold.

#### CONCLUSIONS

The reconnaissance geology-geochemical programme on the Security property has indicated 3 large areas (A, B and C) worthy of more detailed work on the basis of strongly anomalous gold and/or arsenic geochemistry, strong alteration and sulfide mineralization, and favourable geology. A soil grid should be established in each of the three areas although spacing of samples should remain fairly broad. Lines 100 - 150 metres apart with samples at 50 metre intervals should be adequate for the next phase. Geology should be noted and sample density should be increased in areas of existing anomalies or in areas where sulfide or quartz mineralization is encountered on the lines. Samples should be analyzed for Au - As. This programme of grid sampling will allow selection of the most favourable areas of the property for detailed mapping and sampling.

ubmitted. hards, M.A.Sc. P.Eng.

August 15, 1979

Man days - Field - Geologists	
D. Arscott (May 8-15) 7 days @ 140.00	980.00
J.S. Christie (May 8-15) 7.5 days @ 150.00	1,125.00
G.G. Richards (May 8-15) 7.5 days @ $150.00$	1,125,00
W = Howell (May 8-15) = 8.5 days (0.115.00)	977 50
$\begin{array}{c} \text{(May 0-15)} & \text{(15)} & ($	977.50
C. Harvivel (May 8-15) 7.5 days @ 125.00	937.50
Man days - Office - plotting data: J.S. Christie ) G.G. Richards ) N.A. Navada ) 1/2 man day each	270.00
C. Harvivel )	
Food & meals - 36 man days @ \$20.00	720.00
Boat & motor rental - 7 days @ \$50.00	350.00
Truck rental - one day @ \$50.00	50.00
Camp & equipment rental	75.00
Technical supplies & equipment - flagging, etc.	200.00
Geochem analyses - Vangeochem	3,757.50
Map enlargements - Vancal	233.41
Air fare - 4 men one way - Vancouver to Sandspit	306.80
Expense Accounts:	
D. Arscott	108 75
JS Christia	40 11
W A Howell	40.11
W.A. NOWELL	74.68
C. Harviver	90.05
Air freight	37.21
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15 May 80 miles 168.00	
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	\$ 14,043.01

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### CERTIFICATE OF QUALIFICATIONS

I, James S. Christie of Vancouver, British Columbia do hereby certify that,

- I am a Professional Geologist residing at 3921 W. 31st Ave., Vancouver, B.C. V6S 1Y4.
- I am a graduate of the University of British Columbia
  B.Sc. Honours Geology 1965, Ph.D. Geology 1973.
- I have practiced my profession as a mining exploration geologist, continuously since 1965.
- 4. I am a Fellow of the Geological Association of Canada.
- 5. I am a Member of the Geological Society of America.
- This report is based on my personal knowledge of the district, and mapping of the geology at the property.

James S. Christie, Ph.D.

### STATEMENT OF QUALIFICATIONS

I, Gordon G. Richards of Vancouver, British Columbia do hereby certify that,

- 1. I am a Professional Engineer of the Province of British Columbia, residing at 818 West 68th Ave, Vancouver, B.C., V6P-2V2.
- I am a graduate of the University of British Columbia
  B.A.Sc. Geology 1968, M.A.Sc. Geology 1974.
- I have practised my profession as a mining exploration geologist, continuously since 1968.
- This report is based on my personal knowledge of the district, and mapping of the geology at the property.

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Gordon G. Richards, P.Eng.

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## APPENDIX

## GEOCHEM RESULTS



VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA V7P 2S3

TELEPHONE: 986-5211 AREA CODE: 604

• Specialising in Trace Elements Analyses •

## Certificate of Geochemical Analyses

-IN ACCOUNT WITH-

J.M.T. Services Corporation 8827 Hedson Street Vancouver, B.C. V6P 4N1 Attention:

Report No:	79 47	009	Page	1	of 9
Samples Arrived:	May	22,	1979		
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75	nd	40	155			<u> </u>
79 C 276	10	40	3			
77 *	nd	10	180			
78	nd	30	60			
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CALL STREET, SALES NORTH VANCOUVER, B.C., AREA CODE: 604 CANADA V7P 2S3

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79 R 365	*	nd	80	2			
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69		nd	60	10			
70		nd	100	55			
71		nd	150	17			25 mesh
72		- 10	200	2		-	
73	*	nd	nd	6			
74		nd	40	18			25 mesh
75		10	150	3			
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79	*	nd	10	3	"		ju
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81	• 20	10	40	23			1
82	* 2 <del>5</del>	20	200	37			
83		30	150	56			
84		nd	20	4			
79 R 385	•	nd	10	5			
86		nd	60	40	1		25 mesh Au
87		nd	40	<sup>:</sup> 78			1
88	*	nd	20	5			
89		nd	60	7			
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- 93	<b>*</b> /0	20	10	12			
94	* 40	30	_60	6			-
95		nd	60	45		:	25 mesh
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98		nd	40	45			
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All values are believed to be correct to the best knowledge of the charks? based on the method and instruments used.

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## **Certificate of Geochemical Analyses**

-IN ACCOUNT WITH-

## J.M.T. Services Corporation

Attention:

Report No:	79 47	009	Page 6	of	9
Samples Arri	ved:				
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Comple Marking	Au	As	Нg			
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07	nd	>1000	14			•
08 *	10	60	12		<u> </u>	
09	10	1000	20 -			
10 *	nd	15	20 '			· · · ·
	nd	20	112-	1		
12	nd	200	<b>60</b> ·			
13 */05	80	20	55			· • ·
14 *	10	40	60			
15	nd	40	55			
<b>16</b> • 730	700 #	800	nd			
17 *	70	200	nd			
18	nd	nd	65			
19	nd	4	190			
20	10	20	45			25 mesh
21	nd	20	54			
22	60	800	64			
23 * 2075	1855 #	>1000	8			
79 R 424	10	200	88			
25	nd	4	70			
26	nd	30	48	<b>!</b>		25 mesh
27	nd	30	64	11		
28	nd	50	58			: 
29	20	100	392	1	i	25 mesh
30	40	80	58		1	25 mesh
31	625 #	200	24	•		25 mesh
32	nd	150	48			25 mesh
33	nd	60	68			25 mesh
34	20	60	120		10.00 10.00	
35	30	60	130			
36 * 3635	3140 #	15	14			
37	nd	200	75			
38	10	20	138	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
39	nd	40	74	* 		
40	10	40	65	8 		25 mesh
41 5	nd	60	60			and a second
79 R 442	nd #1	<b># 4</b> 0	135			
516 5 Kg+		<u>.</u>	<u> </u>	<u>.</u>		1.1
* ro	ck, # rej	peated an	alyses		Signed	Upal.
lo x 1.6683 = % MoS <sub>2</sub> 1 Ti	oy oz./ton = 34.	.28 ppm	1 ppm = 0.(	001%	nc = none det	noted ppm = Arts per mi

All values are believed to be correct to the best knowledge of the analyst based on the method and instruments used



VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA V7P 2S3

TELEPHONE: 986-5211 AREA CODE: 604

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J.M.T. Services Corporation

Attention:

Report No:7947009Page7of9Samples Arrived:Report Completed:For Project:Analyst:

Sample Marking		Au	As	Hg			
		ppb	ppm	ppb	<u></u>		
79 R 443		nd	100	82			25 mesh
79 WH 1	*	nd	20	72			
. 2		nd	15	15		· ··· 6	
3	*	10	10	46			
4		nd	40	64			
5	*	nd	30	4			
6		nd	60	64			
7	*	🖙 nd	30	14			a service a
- 8	• 15	20	nd	6		·	
9		10	40	70			25 mesh
10		nd	30	72			25 mesh
11	±	nd	200	12			
12		nd	nd	160			25 mesh
13		nd	30	150			25 mesh
14		nd	100	54			25 mesh
15		nd	40	65			25 mesh
. 16	•	nd	20	38			
17		60	100	106			25 mesh
17	H.S.	nd	30	34			
18		nd	20	38		······	
79 WH 19	•	10	40	48	8	,	25 mesh
20		10	60	84			
21		10	20	160			
22		nd	30	78	3		
23		nd	30	64	· · ·		25 mesh
24	1	nd	40	60	• .		
25		nd	60	64			
26		nd	nd	52			25 mesh
27		nd	40	37.2			25 mesh
28		30	_20	150			
29	i	30	4	3280			
30		nd	60	820			
31		nd	20	640	•		25 mesh Au
32		nđ	40	280			
33		nd	30	166	· • • • • • • • • • • • • • • • •		
34		10	60	184			
35		nd	20	332			
36		10	30	128			
79 WH 37		20	100,	100			1
					1		
MARKS: * Rock							61 -
						<b>•</b> •	111-11/1

% Mo x 1.6683 = % MoSz

1 Troy cz./ton = 34.28 ppm

1 ppm = 0.0001%

All values are believed to be correct to the best knowledge of the analyst based on the method and instruments used

ppm + parts per million



## VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C.,

CANADA V7P 2S3

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Attention:

Report No: of 9 79 47 009 Page 8 Samples Arrived: Report Completed: For Project: Analyst:

Sample Marking	Au	As	Hg		
	ppb	ppm	ppb		
79 WH 38 *	nd	60	96		
39	nd	40	60		
40 *	nd	10	34		
41	nđ	40	150		
42	nd	60	132		25 mesh
43	1000	800	140		
. 44 * 5	20	4	12		
<b></b>	60	400 *	84		- 25 mesh
46	nd	2	78		
47 •	10	2	50		
48	nd	4	94		25 mesh
49	nd	2	30		25 mesh
50	nd	2	74		
51	nd	30	102		
52	nd	20	84		
53	nd	10	88		
54	20	10	70		
55	nd	*	130		
56	nd	10	34		25 mesh
57	10	60	28		
79 WH 60	nd	30	50		
61 *	10	10	6		
62	nd	40	96	•	с. -
63	nd	40	82		
64	nd	10	132	· · · · · · · · · · · · · · · · · · ·	25 mesh
65	10	60	50 S		2
66 <b>*</b>	nd	20	60		
67	nd	40	32		25 mesh
68	nd	200	42		25 mesh
69 *	nd	20	14		
70	nd	30	18		
71	nd	40	60		
72	nd	60	64		
73	nđ	20	360		4 
74 *	nd	100	18	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
75 *	nd	2	10		
79 WH 76	20	600	48	· ·	
S D9 1 * /0	20	2	20		ا مليكشكا
S D9 2 *	10	40	10	1	
EMARKE: * Rock	**************************************			and an	
: :					Signed: VOV



VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA V7P 2S3

TELEPHONE: 986-5211 AREA CODE: 604

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J.M.T. Services Corproation

Attention:

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Report No: **79 47 009** Page **9** of **9** Samples Arrived: Report Completed: For Project: Analyst:

Constant Martine	Au	As	Hg			
Sample Marking	ppb	mada	daa			
S D9 3	nd	20	28.		<u> </u>	
4	nd	40	48	:		
5A *	nd	30	20			
6 * 25	30	30	10			
7 *	nd	10	20			
<u>8 ± 70</u>	50	60	6	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
9 415	20	20	44			
104 *	-10	20	44			
	- 10 	60	10			
105 -		100	12			
	na	100	18			
	10	2	6			
14 40	40	30	4		1	
15 * 80	90	20	10			
16	nd	400	56			
17 *	nd	40	6			
18 *	nd	30	44			
. 19	nd	4	80			
20 * 75	60	400	nd			
21 •	nd	30	8			
22 *	nd	30	64			
S D9 23	nd	10	82	1		
24	nd	4	22			6
25	nd	20	42			-
26	nd	10	66			
27	nđ	40	128		i	25 mark
28	nd	60	60			25 mach
S D9 29	nd	40	56	1		25 mesn
5 20 20	11C4 ,	40,	307			
			i			
1						
-						1
i						
		-				
						· · · · · · · · · · · · · · · · · · ·
						1
				1 + 	-	
REMARKS						
* Rock						
					Signed:	
% Mo x 1.6583 = % McS2 1 Tro	v oz./to" = 34.	28 ppm	1 som = 0 00	001%	nd = none deter	ted purcie parts per million

All values are believed to be correct to the best knowledge of the analyst based on the method and instruments used.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEX: 04-54554

NDAR-CLEGG & COMPANY LT

# Geochemical Lab Report

Souri I Char Free Char

## Extraction Fire Assay & Hot Aqua Regia

Report No. 29 - 645

Atomic Absorption

From JNT Services

Fraction Used \_\_\_\_\_

Method\_

Date \_\_\_\_\_

**July 5** 19 **79** 

V-18

		Au	1		T	CAMP		<b>A</b> 11		1	1
SAMP		ррб			1	SAMPL	.E NO.	စုခိုရီ			 
79C	243	560				S-D9	6	25			
	252	290					8	70			
	261	40					9	<b>45</b> *			
	286	395					14	40			
79 <b>H</b>	381	210					15	80			
	384	5					20	75			
	410	5									
79R	34	245									
	41	425									
	357	100									
	360	50									
	378	260									1
	380	35								-	
	381	20				* detect	tion limi	t on s	mell s	mple	
	382	25		1						-	
	392	< 5			+						
	393	10			1						
	394	40									
······	397	< 5									
	399	< 5									
	413	105							Million		
	416	730					<u></u>				
	417	100					·				
	423	2075									
	436	3635									
9WH	8	15					<u>_</u>		<u> </u>		
	46										
00	31	405	· · · · · · · · · · · · · · · · · · ·								
~~	34						, <u> </u>	· · · · · ·			
		066							PL. J. D		
5-D9	1	10									
			i								



