

ARIS SUMMARY SHEET

District Geologist, Vancouver

Off Confidential: 95.10.12

ASSESSMENT REPORT 23730

MINING DIVISION: Nanaimo

PROPERTY: Var
LOCATION: LAT 50 34 00 LONG 127 31 00
UTM 09 5602470 605052
NTS 092L12E
CLAIM(S): Var 1-8
OPERATOR(S): Ecowaste Industries Ltd.
AUTHOR(S): Krukowski, S.T.
REPORT YEAR: 1994, 67 Pages
COMMODITIES
SEARCHED FOR: Limestone
KEYWORDS: Triassic, Quatsino Formation, Limestones, Limestone
WORK
DONE: Drilling, Physical
DIAD 1072.9 m 8 hole(s); NQ
Map(s) - 5; Scale(s) - 1:50 000, 1:5000
TOPO 600.0 ha
MINFILE: 092L



CONTINENTAL LIME INC.

STANLEY T. KRUKOWSKI, Ph.D.

GEOLOGIST

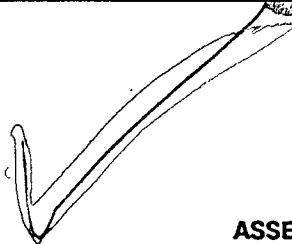
670 EAST 3900 SOUTH, SUITE 205
SALT LAKE CITY, UTAH 84107

(801) 264-6878
FAX (801) 264-8039



Province of
British Columbia

Ministry of
Energy, Mines and
Petroleum Resources
GEOLOGICAL SURVEY BRANCH



ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)] Diamond Drilling Project of VAR Property	TOTAL COST \$138,187.42
--	-----------------------------------

AUTHOR(S) Stanley T. Krukowski SIGNATURE(S) Stanley T. Krukowski

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S) NAN-94-0800815-36 YEAR OF WORK 1994

STATEMENT OF WORK - CASH PAYMENT EVENT NUMBER(S)/DATE(S) 3060420 / Oct 12 1994

PROPERTY NAME VAR Property

CLAIM NAME(S) (on which work was done) VAR 1, VAR 2, VAR 3, VAR 4, VAR 5, VAR 6, VAR 7, VAR 8.

COMMODITIES SOUGHT High-calcium limestone

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN _____

MINING DIVISION Nanaimo NTS 92 L / 12 E

LATITUDE 50 ° 34 . . . LONGITUDE 127 ° 31 . . . (at centre of work)

OWNER(S)
1) Ecowaste Industries, Ltd. 2) _____

MAILING ADDRESS
c/o Continental Lime, Ltd.
215-10 451 Shellbridge Way
Richmond, BC V6X 2W8

OPERATOR(S) [who paid for the work]
1) Ecowaste Industries, Ltd. and 2) _____
affiliated companies

MAILING ADDRESS
c/o Continental Lime, Ltd.
215-10 451 Shellbridge Way
Richmond, BC V6X 2W8

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
Quatsino Formation (Triassic); 200 m thick; fault block limestone
beds; 2 km²; Bearing: 340°, Dip: 30° W.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS N/A

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOFYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core	3520 ft (1073 m); 8 holes; NQ core	VAR 1	\$126,801.92
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralogaphic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)	1:5000, 600 hectares	VAR 1 through VAR 12	\$ 11,385.50
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other	Includes surveying in 4 drill holes.		
TOTAL COST			\$138,187.42

RECEIVED
 JAN 19 1995
 Gold Commissioner's Office
 VANCOUVER, B.C.

LOG NO: JAN 26 1995 U
 ACTION:
 FILE NO:

TABLE OF CONTENTS

	<u>Page</u>
Location	1
Access	2
History	2
Economic Assessment	2
New Work Performed	3
Objective and Scope of Work	3
Objective	3
Scope of Work	4
Exploration Program	4
Geology	5
Geochemistry	10
Results	10
Conclusion	11
Appendix A - Statement of Qualifications	14
Appendix B - Statement of Costs	15
Appendix C - Drillhole Logs	16
Plate 1 Index Map	Pocket
Plate 2 Index Map	Pocket
Plate 3 Claim Map	Pocket
Plate 4 Digital Topographic Mapping	Pocket
Plate 5 Drillhole Site Location	Pocket

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

23,730

LOCATION

The VAR claims are located in the Nanaimo Mining Division on northern Vancouver Island, British Columbia. Latitude and longitude are 50° 34' N and 127° 31' W, respectively. It is found on NTS map sheet 92 L/12 E. (See Plate 1.)

The Varney Bay prospect is located on the eastern shore of Varney Bay near the mouth of Marble River on northern Vancouver Island, British Columbia. Varney Bay is situated in the southwest corner of Rupert Inlet whose outlet to the Pacific Ocean is through Quatsino Narrows and Quatsino Sound, respectively. The nearest large town is Port Hardy, about 19 road miles to the northeast. Almost directly across Rupert Inlet on its northern shore is the BHP Island Copper Mine. (See Plate 2.)

The Varney Bay Deposit is situated mostly on crown land administered by the Ministry of Lands and the Ministry of Forests. Ecowaste Industries, Ltd. staked mineral claims over the deposit in October, 1993 and controls the bulk of the limestone deposit.

ACCESS

Access is via provincial highway and logging haulage roads from Port Hardy, B.C., the largest town in the vicinity. The specific access route from Port Hardy is as follows: Provincial Highway 19 (Island Highway); Rupert Main; Port Hardy Main; Varney Main; and, Varney 510 logging road.

HISTORY

In July, 1993 surface sampling of the Varney Bay prospect was undertaken in the first phase of exploration for high-calcium limestone. Samples were collected from outcrops, road cuts and borrow pits. Subsequently, assaying of these samples demonstrated the potential for a high-calcium limestone deposit. As a result, the VAR 1 through VAR 8 claims were staked in October, 1993. (See Plate 3.)

ECONOMIC ASSESSMENT

Preliminary assays of surface samples collected prior to staking claims revealed the Quatsino Formation near Varney Bay had the potential to become a high-calcium limestone deposit. The limestone formation was estimated to be about 91.5 m (300 ft) thick with a strike length of 1000 m (3280 ft) and a width measured at 500 m (1640 ft). Using a conversion factor of 12.5 cu ft/ton, the estimated tonnage of high-calcium limestone possible is 117,363,636.4 tonnes (129,100,000 tons).

NEW WORK PERFORMED

As a result of the above information, a more rigorous investigation of the VAR claims limestone deposit was undertaken in 1994. Digital mapping and placement of control reference points were completed in the spring and summer of 1994. (See Plate 4.) A core drilling program was conducted on VAR 1 claim in May, 1994. (See Plate 5.) Eight holes were drilled for a total of 3520 feet (1073.3 m) of NQ size core:

<u>Hole Number</u>	<u>Total Depth</u>	
VB-94-1A	459 ft	(139.9 m)
VB-94-2	493 ft	(150.3 m)
VB-94-3	502 ft	(153.1 m)
VB-94-4	444 ft	(135.4 m)
VB-94-5	341 ft	(104.0 m)
VB-94-6	202 ft	(61.6 m)
VB-94-7	594 ft	(181.1 m)
VB-94-8	485 ft	(147.9 m)
Total	3520 ft	(1073.3 m)

OBJECTIVE AND SCOPE OF WORK

Objective: The objective of the 1994 diamond drillhole program was to delineate the dolomite and limestone intervals in the deposit.

Scope of Work: The major portion of the deposit is an elongate ridge which is located in the east/southeast portion of the VAR 1 claim. Therefore, most (6 of 8) holes were drilled there. (See Plate 5 for drillhole sites.) Two holes were drilled just to the north. All holes were drilled along pre-existing haulage roads. When drilling was completed, each hole was back-filled with loose soil debris and road metal. Drillhole sites were raked and cleared of all refuse.

EXPLORATION PROGRAM

Eight (8) holes were drilled ranging in depth from 202 ft (61.6 m) to 594 ft (181.1 m); the average depth was 440 ft (134.2 m) per hole. The total amount of core drilling was 3,520 ft (1073.2 m). Recovery rate was determined at 95.4%. Drill hole locations are shown on accompanying Plate 5.

Hole VB-94-1A was drilled at -60° inclination bearing 070° (N 70° E) which is perpendicular to bedding. Hole VB-94-2 was drilled at -45° inclination bearing 160° (S 20° E) which is parallel (?) to strike. VB-94-2 was drilled with the intention of intercepting any possible transverse dikes in the upper portion of the limestone block. All subsequent holes were drilled at -45° inclination (except VB-94-5 and VB-94-6 which had inclinations of -50°) bearing 070° (N 70° E). Holes were drilled perpendicular to the predominant

shear surface attitude (340° or N 20° W dipping 45° W) to give a more accurate picture of the limestone deposit.

Core was split using a portable brick saw. Samples were prepared at 5-foot (1.5 m) intervals and sent to the Continental Lime, Inc. central laboratory in Salt Lake City, Utah, for future assaying. The remainder of core is stored in Port Hardy, British Columbia.

GEOLOGY

The Varney Bay deposit can be separated into three large limestone blocks. The northern block is composed of a series of small hogbacks dissected by streams and/or dissolution channels. The central block is a 700 m (2296 ft) long north-south trending ridge with steep cliffs on the east and a more gentle slope on the western side. The southern block forms the broad, south-facing slope from the central block. Little is known about the southern block at this time.

The limestone of the Varney Bay prospect is the lower part of the Quatsino Formation (Triassic). The Quatsino at the Varney Bay deposit is composed of three major lithologies based on crystallinity. Type I is brownish gray cryptocrystalline fossiliferous oolitic mudstone, wackestone or packstone. Type II is brownish gray cryptocrystalline to

microcrystalline fossiliferous oolitic mudstone, wackestone or packstone. Type II may appear mottled from the differences in crystallinity. Type III is a brownish gray to dark gray microcrystalline fossiliferous oolitic mudstone, wackestone or packstone. With increasing crystallinity the fossil debris and ooids are more difficult to observe. Most fossils are composed either of unidentifiable fossil debris or crinoid columnals. An identifiable brachiopod or mollusk shell is rare. These rock types have a conchoidal to semiconchoidal fracture. All display a high degree of tenacity that resists fracturing. This is probably due to its high density and relative uniformity in crystallinity. Stylolites and thin veins (usually less than 1 mm) of calcite, and calcite and silica respectively, occur in varying degrees throughout the deposit. The veins typically are coated with iron oxide stain.

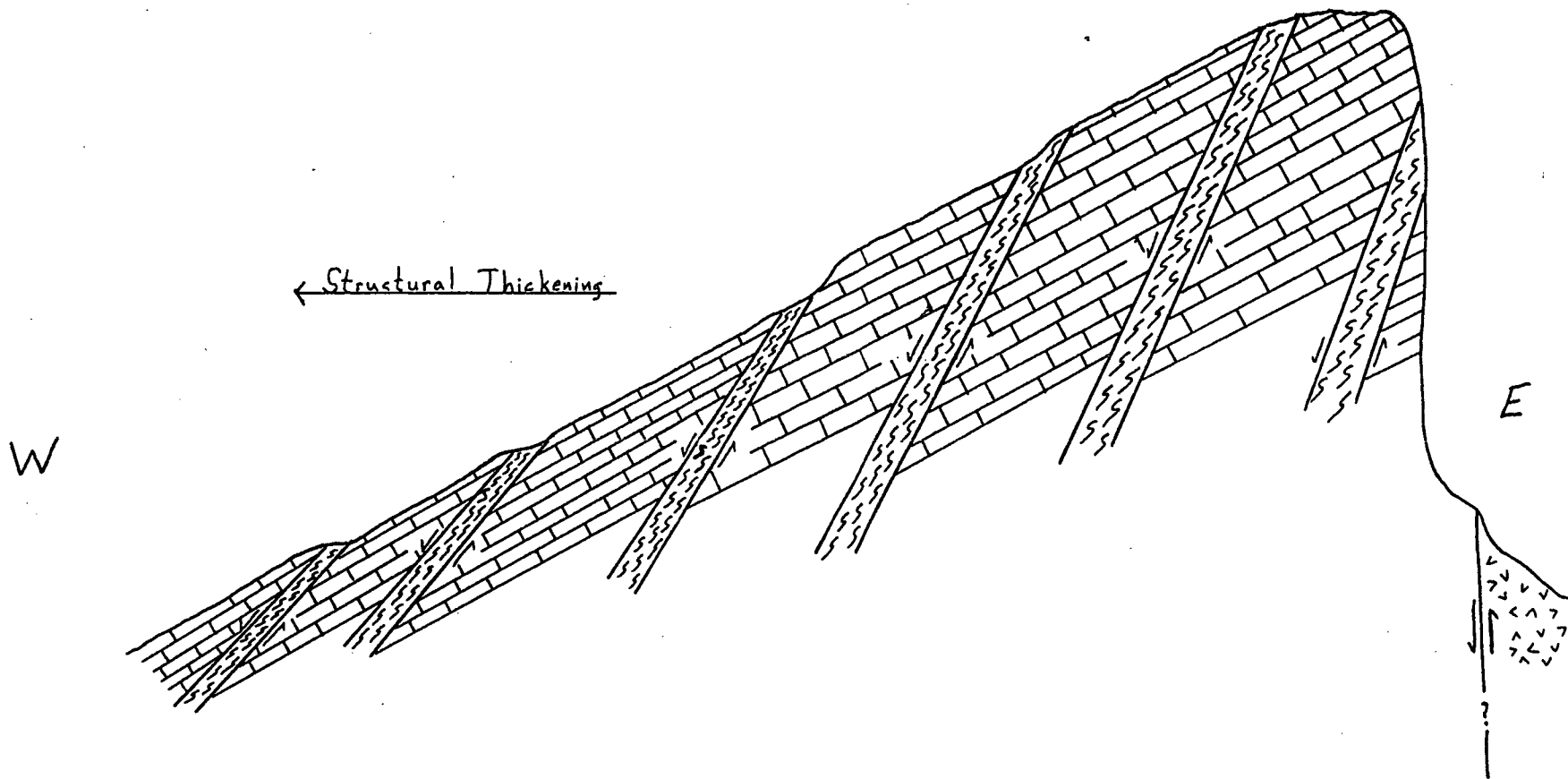
Dolomite may be considered a fourth rock type in the deposit. It is controlled by fracturing, faulting and shearing and coincidentally by bedding. The amount of dolomite varies. Limestone contamination ranges from dolomitic limestone to dolostone (sedimentary rock composed of the mineral dolomite).

Transverse faults (?) divide the deposit into a southern block, a central block and a northern block. The central

block is the most distinctive because it is the dominant topographic feature. It is a north-south ridge which is 700 m (2296 ft) long and has a maximum elevation of 202 m (663 ft). The northern block is distinctive for the presence of transverse faulting and the possible development of dissolution cavities. Little is known about the southern limestone block at present.

Conjugate sets of 45° shears bearing 340° (N 20° W) are most readily observed throughout the limestone deposit. The sets of shears dipping to the west predominate. Shearing may obfuscate bedding and may even be mistaken for bedding. The figure on the following page is a schematic illustration of this shearing. In addition, contamination by dolomite and silica is controlled by fluids migrating along shear surfaces. Incremental downward (westward) movement of limestone blocks along shear surfaces has caused a structural thickening of the deposit. (See schematic diagram.)

Dolomitization occurs along zones of shear and also occurs in association with faulting. Dolomitization which occurs along bedding is restricted to shear zones and fault zones. It appears that silica is present mostly as vein material. These veins are typically less than 1 mm thick. Veins are associated with shearing, faulting, and dike intrusion.



Schematic Diagram, Varney Bay Deposit. Limestone units of the lowermost Quatsino Formation have been sheared and consequently downdropped to the west resulting in structural thickening across the area. Dolomitization appears to be confined to zones of shearing. Karmutsen Formation volcanic rocks are situated below the limestone and also fault-bounded on the east.

The limestone in the Varney Bay deposit is a dense, uniform oolitic limestone which has undergone a complex diagenetic history. Its uniformity of crystallinity is a result of this diagenesis. The limestone has undergone several episodes of recrystallization, the last or most comprehensive of which has micritized (degrading neomorphism) the deposit. Evidence for this is the "healing" of faults and shear zones, micritized spar along erosional surfaces or unconformities, micritized matrixes in breccia zones, and a suspect high magnesium content without (?) the presence of crystallographic dolomite.

As a result of the uniform lithology, the deposit appears to have massive bedding. The massive bedded nature, however, is the result of diagenesis described above. Closer observation revealed the fossiliferous oolitic limestones probably were originally thinly bedded units which were laterally discontinuous, typical of ooid sand shoals. The combination of the massive nature of the limestone, its uniform lithology, and the conjugate shearing makes stratigraphic control impossible at this preliminary stage. Stratigraphic control may be achieved only by trace element geochemistry or biostratigraphy which presently are beyond the needs of Ecowaste Industries, Ltd.

GEOCHEMISTRY

In July, 1993 surface sampling of the Varney Bay prospect was performed. Samples 6812 through 6847 were collected mostly from road cuts and borrow pits. Plate 4 contains the approximate map locations of the surface samples. These sample analyses demonstrated the potential for a high calcium limestone deposit: relatively high values for calcium (generally greater than 53.22% CaO); low values for magnesium (less than 1.00% MgO); low values for silicon (less than 1.00% SiO₂). Samples 6835 through 6847 from the outcrops to the south were not favorable in terms of grade.

Every five feet (1.5 m) of core from the May, 1994 drilling program will be analyzed in the future for the following elements: calcium (Ca), magnesium (Mg), silicon (Si), iron (Fe), and aluminum (Al).

RESULTS

Core from the diamond drillhole project on the VAR claims was logged in order to determine intervals of limestone and contaminated limestone, that is, limestone with significant amounts of dolomite. Dolomitic zones were recognized by rock texture and fabric, hardness, and degree of effervescence when reacting with cold hydrochloric acid.

Major dolomitic zones are found in the following drillholes: VB-94-1A, VB-94-2, VB-94-5, VB-94-8. These are denoted in

the drillhole logs found in Appendix C. A portion of the drillhole log for VB-94-1A is lost.

Drillhole logs indicate "thicknesses" of limestone ranging from 5 ft (1.5 m) to 245 ft (74.7 m). Dolomitic zones range from 5 ft (1.5 m) to 85 ft (25.9 m) thick; typically 30 ft (9.2 m) thick. Drilling, particularly in the north end of the central block, shows two zones of limestone: one is 175 ft (53.4 m) thick; the other 210 ft (64 m) thick. These are inclined 45° to the west and are exposed at the surface.

CONCLUSION

The Varney Bay limestone deposit is composed of cryptocrystalline (micritic) to finely crystalline oolitic limestone. The limestone is tenacious and resists fracture and breakage. Dolomite is the major contaminant. The deposit consists of three distinct blocks: a northern block of low-lying hogbacks dissected by streams or dissolution channels; a 700 m (2296 ft) long north-south trending ridge 202 m (663 ft) in elevation; and, a southern block. The central block appears to have the best potential at the present time. Additional exploration is necessary in the northern and southern blocks.

Encouraging results from earlier surface sampling led to a core drilling program in May, 1994. The core drillhole program and subsequent logging of the core indicated that

the possibility exists for a high-calcium limestone deposit. Structural geologic conditions (namely the segregation of potential high-calcium limestone into blocks controlled by shear zones and/or fault zones inclined 45° to the west) control the high-calcium limestone distribution, any contamination in the deposit, and considerations in regard to mineability.

APPENDIX A

Statement of Qualifications

The following facts about the author/project manager are certified:

- Stanley T. Krukowski is a graduate of Purdue University (B.S., 1978) and New Mexico Institute of Mining and Technology (M.S., 1983; Ph.D., 1990) in Geology.
- Stanley T. Krukowski has practiced his profession as a geologist from 1990 to the present in the Lime Industry.
- Stanley T. Krukowski, Geologist, has been directly involved in and has knowledge of the work performed at the Ecowaste Industries, Ltd. Varney Bay limestone deposit as per this report.

Stanley T. Krukowski, Ph.D.
Geologist
Continental Lime Inc.
670 East 3900 South
Suite 205
Salt Lake City, Utah 84107
U.S.A.

APPENDIX B

Statement of Costs**Drillhole Costs**

3520 ft (1073 m) of NQ Core	\$ 78,932.94
-----------------------------	--------------

Core Storage	1,605.00
---------------------	----------

Topographic Base Maps

Ground Survey	6,250.00
---------------	----------

Topographic Mapping	4,950.00
---------------------	----------

Mapping Materials	185.50
-------------------	--------

Personnel

Project Manager @ \$332.50/day	
--------------------------------	--

45 Days Field Supervision	14,962.50
---------------------------	-----------

10 Days Report Preparation	3,325.00
----------------------------	----------

Consultant @ \$486.48/Day	
---------------------------	--

24 Days Logging Core	11,675.52
----------------------	-----------

Field Assistant @ \$270.00/Day	
--------------------------------	--

7 Days in Field	1,890.00
-----------------	----------

Food and Accommodations	6,445.07
--------------------------------	----------

Travel	2,608.46
---------------	----------

Vehicle Rental	1,471.33
-----------------------	----------

Equipment and Supplies	3,633.93
-------------------------------	----------

Work Space Rental	160.50
--------------------------	--------

Electrical Installation	91.67
--------------------------------	-------

Total	\$138,187.42
--------------	---------------------

APPENDIX C

Drillhole Logs

(See following pages)

HOLE NO: VB-94-1A	BEARING: N 70°E (070°)
COLLAR ELEV:	INCLINATION: -60°
LATITUDE:	DATE STARTED: 5/4/94
LONGITUDE:	COMPLETED: 5/6/94
DRILLER: Wayne Burwash	TOTAL DEPTH: 459'
LOGGED BY: S. Krutowski	SHEET OF

89
13
76
21
55

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
174-184		Dark brownish gray, fossiliferous oolitic packstone brecciated and highly fractured; fractures of extremely coarse, off-axis sandstone clay; other desert in situ stylolite at 176.2' + 180.25' across hole. Knife will not cut some of brecciated fragments ⇒ silica. Shear planes @ 70°	104"/120"				
184-192		Ditto 8" 31" (lost 11" stylolite). Dk gray clay unit is 8" then 6" brown clay. Next 16" Ditto ls. Next 4" brecciated ls and brn clay. Then 10" of ditto ls	84"/96"				
192-202		Ditto ls first 20" (lost 6" vugs); then 12" of ls fragments and brn clay then 64" of Ditto ls. Cc-filled vugs last 6" of core of extremely coarse xtl. Ls becomes microcrystalline (can still see oolitic texture)	106"/120"				
202-212		Solid core of dolomite, siliceous ditto ls. At 21" banded dolomite + silica (at 45' & trace). Multi directional cc veins range up to 5mm across.	114"/120"				
212-222		Ditto ls. for 1st 42"; 7" of fragmented ditto ls & brn clay in shear planes/fractures. Then 29" ditto ls, 11" of siliceous dolomite & iron oxide filling shear plane (⇒ fault). Last 31" ditto ls. after pick (still same there)	120"/120"				
222-224		Ditto ls.	29"/24"				
224-226		Mottled dk gray and brassy - fracturing and brecciation extreme. Cc and fracture min. fill. Brn clay too.	19"/24"				
226-234		Ditto on 1st 5". Next 84" Solid core of brnish gray fossiliferous oolitic wackestone/packstone. Stylolite Brn clay & cc xtl in shear planes. Shear planes still predominantly ~70°. Very effervescent in HCl. (85-75% dolomite)	89"/96"				
234-241		20-30% is fragmented ore. Brn gray ls. ool. wacke packstone, stylolitic w/ up to extremely coarse xtl cc up to 5mm across veins - multidir, irregular shear planes (70°) - Type I strom.	71"/84"				
241-245		Type I VB ls. Solid core was recovered.	43 1/2"/48"				

Wayne says each doesn't want to go up into tube.

Observations
 over siliceous stuff otherwise could also be dolomitic? it is dolomitic!
 Cc xtl in shear planes, rounded on 5mm scale
 Stylolite: have this attitude ⇒ bedding at 20° dip
 Solid core became lots of dolomite
 Ditto ls = brn. ls. ool. dolomite siliceous packstone & variable cc up to 1st long & 5mm across.
 Brown clay always found in shear planes - fracture surfaces
 Most Frz Os is after pick. Can see some in occasional piece w/ in shear plane or vein w/ ls. w/ calcite or brn clay

5/6/94

HOLE NO: VB-94-1A	BEARING: N 70° E (070°)
COLLAR ELEV:	INCLINATION: -60°
LATITUDE:	DATE STARTED: 5/4/94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Bucwash	TOTAL DEPTH:
LOGGED BY: S. Krutowski	SHEET OF

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
245-250		Type I VB Ls. First couple inches fragmented core. Very strong efferv. in HCl. Half solid core / half fragmented.	55'/60"				
250-260		Type I VB Ls. A tendency here to be muddy to microcrystalline. Fragmented core at ~26" to 36" of core. Little fragmenting thereafter. Fragmented at 100" of core	120'/120"				
260-264		Type I VB Ls. Fragmented core at 15" and 23". Reacts strongly to cold HCl - muddy to microcrystalline	48'/48"				
264-269		Type I VB Ls - suspect dolomitic at 36" from scratch test. All very strong effervescence. Last 2" fragmented. Muddy to microcrystalline	54'/60"				
269-279		Ditto for 264-269 - (May be dolomitic in places but passes all tests for calcite). This is dolomitic throughout - Pyrite in some shear planes as finely crystalline. Mottled brownish gray in places - most eff. strong in HCl.	113'/120"				
279-284		Same as 269-279. Mostly solid core.	60'/60"				
284-294		Same as 269-279-284. 1/4" gray clay seem at 46"	120'/120"				
294-301		Same as 284-294	92 1/2'/94"				
301-311		Same as 284-294 } Don't appear dolomitic! Harry's Test for 297.67'	120'/120"				
311-322		Type I rock but crystals to microcrystalline. Solid core to 92". Fragmented core	116 1/2'/132"				

110

263' for

Solid core so it must be full of mag!

56'
36'
92'
107

5/6/94

HOLE NO: VB-94-1A	BEARING: N70°E (670)
COLLAR ELEV:	INCLINATION: -6°
LATITUDE:	DATE STARTED: 5/4/94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH:
LOGGED BY: S. Krukowski	SHEET OF

Microcrystallinity increases w/ depth over cryptocrystalline section. Rock more gray when more microcrystalline.

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
		From 91 to 100%. Dolomitic at 61" of core					
322'	322-328	Fractures + shear surfaces filled w/ spar/ extremely coarse to microcrystalline up to 2% of total rock. Type II VB Ls. Crypto to microcrystalline. No dolomite detected. Calcite veining << 1%. 69/72"					Dolomitization occurs in a very spotty manner assoc. w/ minor stylolite etc. → random.
328'	328-331	Type II VB Ls; crypto-micro crystalline	36/36"				
331'	331-338	Solid core except last 6" which is partly fragmented last 3" dolomitic	79/84"				
338'	338-347 1/2	Type II VB Ls; crypto-micro crystalline calcite veining << 1% stylolites every 8-12". May be slightly dolomitic at mid pt. Solid core. Type II VB Ls; crypto-micro xtl. Siliceous at 36". May be siliceous in places (spotty) Fragmented core from 69"-81" Stylolites every 8-12".	109/114"				Stylolites both preserved down hole.
347'	347 1/2 - 358	Type II VB Ls. Crypto to microcr. First 1ft of core fragmented - rest solid last 1ft of core ~2-3% calcite veining. Clay-filled stylolite at middle of 347 1/2 - 358 interval	118/126"				Pyrite in fractures + shear throughout. Typically finely to microcr. Usually rare.
358'	358-365	Type II VB Ls. Crypto to microcr. At 35" gray-clay-filled stylolite. Calcite veining increases + is prominent at 1st 20" of core. Solid core, Siliceous in spots.	80/84"				
365'	365-374	Type II VB Ls; crypto to microcr. 1st 10" is fragmented core. Nature of calcite veining changes → filled with clay (usually in center) from veins on well. This increases downward with 1/2" to 1" vein. Calcite veining increases to up to 10% of rock - Solid core	108/108"				Shearing still mostly at ~70° Some at various other angles but 70° is predominant
374'	374-380	Same as 365-374 interval. Calcite veining increases to 50% mid length of core. Solid core. Core increasing siliceous downward. (This from scratch w/ lens)	69/72"				
380'	380-385	Same as 365-374 for 1st 10" of core which is 1/2 fragmented w/ brack filling. Remainder is Type II VB Ls. Detected no dolomite - siliceous from scratching but very spotty.	66/60"				
385'							

5/6/94 - 5/7/94

HOLE NO: VB-94-1A	BEARING: N 70° E (070°)
COLLAR ELEV:	INCLINATION: -60°
LATITUDE:	DATE STARTED: 5/4/94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH: 459
LOGGED BY: S. Krukowski	SHEET OF

mostly microcrystalline.

Typical to see C-silim. on shear planes through core.

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
385		Type I VBLs. Micro- to cryptocr.	75°/84"				
385-392		Sp. silia from scratch test. Heavy cc. in 1st 2' of core. Solid core except 1st 8" where fragmented + gray clay occur.					
392		Same as 385-392 but slight fragmenting at 6" of core. Cc. in 1st 2' of core.	75°/78"				
392-398							
398		Type II VBLs. Microcrystalline to cryptocrystalline. Last 2' fragmented core. It may be siliceous.	89°/102"				
398-406							
406		Type I VBLs. Cryptocrystalline to microcr.	93°/96"				
406-414		Muchly microcrystalline. Completely fragmented core. Evidence of silica via scratch test along entire interval although strong eff. w/HCl. Rock now showing cryptocrystalline character against brown again.					
414		Type I VBLs. Mostly fragmented core. Very strong reaction to HCl. Appears siliceous - tough to scratch w/ knife. Cc. 1% cc. veining but lots of brown + gray clay fracture fill.	96°/102"				
414-422.5		Same as 414-422.5. Zones of brecciation throughout length of core (not seen in 414-422.5). Fragmented core mostly	80°/65"				
422		Same as 422.5-428. All fragmented core. Has brown clay on every thing.	24°/36"				
422.5-428		Upper 2" is mostly brown clay almost like sand-dust - dust not smear/shear. Brecciated as above but also up to 10-15% cc. veining.	52°/60"				
428		Dolomitic and silicified Type I VBLs. Harry's test at 436'					
428-431		Same as 431-436 but no brown clay as the layer above.	82°/84"				
431		Same as 431-436 but increased cc. veining 2" of brown clay (15"-15"). Mostly brecciated siliceous ls as above with 42-49" of brown clay (last 2" of core)	49°/60"				
431-436		Same as 443-448 to 45° then	84°/84"				
436		Type I VBLs. Mostly solid core.					
436-443							
443							
443-448							
448							
448-455							
455							
455-459		Type I VBLs. In frag. mented 1/2 solid core. Last 1/2" of core is carbonaceous gray clay/shale.	41°/48"				

70% of shear predominates throughout core.

frag menting core → shear zone.

Carbon films on shear planes zones of breccia.

Brown clay now is really messy.

out of shear zone w/ Type I VBLs w/ cc. veining

459 = EOH

5/7/94

33665/3720
90.50%

HOLE NO: VB-94-2	BEARING: 340° 160°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 11 May 94 STARTED:
LONGITUDE:	COMPLETED: 12 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 493'
LOGGED BY: R. Cavalero	SHEET 1 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO ₂	Mn
0-10		Casing - Ls rubble collected @ collar					
10-14		0-51.3' Type I VB Ls, cryptotexture, ooids not euid	43/48°				
14-22		Hbrn-brn, mod. weath; mod fract w/ FeOx staining; rare py specks Contn as abv; cc occluding, pods (upto 7mm) 13.3-15' 92/96" cc cse xline, wte; Healed BX 15.7-16.6' defined by pale FeOx stained cse cc; fr. 16.6' bec darker brown, less weath, solid core; loc. dolomitized fr 15.7'					fr. 14', oolitic text loc. euid; crinoid ossicles v. rare
22-29	I	Contin as abv; persistent thin, random cc seams fractures, loc. ooids, sl. oxidized, cream-col w/ loc py specks to wte xline cc; rare dark seams, poss silice	91/84"				fr 29', seams, cracks persist, but moderate, tight; cse xline cc ooids less common; FeOx weak, confined to loc. stronger fractures; core gen. good w/ minor broken zones
29-39		Contin as abv.; (Type I VB Ls, cryptotexture) mod dk-brn (loc. sl. greyish-brn); fragmented zone: 33.2-34.4' v. homogeneous; loc. good ooids; minor 5m scale stylolites; fossil debris rare to absent	110/120"				
39-44		Contin. as abv; loc. irreg small dolomitic patches dev. along tight fractures, 43.5-44'	60/60"				
44-54		Contin as abv; then 51.3-69.1' Type II VB Ls; fr. 51.3' Greyish-brn (H) v str. oolitic Ls abundant ooids dominant in Type II microxtine matrix; mod, loc. str, random fractures persist; abrupt transition from Type I VB Ls abv	120/120"				
54-64	II	Contin str oolitic Ls to 58.2', then less abund, but str oolitic text in Type II VB Ls microxtine to cryptotexture; sands ill. col. bec. v small; Ls brn (mod. dk); decr ooids 61.7-64'; fractures (loc. dolomitic, carbon mud, minor FeOx) & cse cc veinlets persist	120/120"				
64-74		Contin Type II VB Ls; crypto-microxtine; oolitic, but not well-defined, to 69.1', 69.1-75.3' Type I VB Ls, brown, cryptotexture, ooids vague to absent; abrupt xition, poss bedding plane @ 85° core					

(72)

HOLE NO: VB-92-2	BEARING:
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 12 May 94 STARTED:
LONGITUDE:	COMPLETED: 12 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 493'
LOGGED BY: R. Cavalero	SHEET 2 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
72-74	I	Contin Type I VB Ls to 75.3'; then abrupt	120/120"				
74-84	I	Transition to Type II VB Ls 75.3-79'; dk brn, micro-crypto xtline, oolitic (vague); tiny shell debris + scat crinoid ossicles; slightly dolomitized (sm patches)					
84-94	I	79-86.2' Type I VB Ls (abrupt; xition, no etc evident) Contin. Type I as abv; med-ff brn, cryptoxtline, oids vague to absent; shell debris not evident; scat. stylolites; fracture pattern, cc veins to persist (moderate); good solid core;	120/120"				
94-101	II	@ 86.2' gradational change to Type II VB Ls, 86.2-104'; contin Type II med brn, cryptoxtline to microxtline (crystal gradation); ooids not evident; minor minute shell debris	84/84"				
101-104		Contin as abv; stylolites (fine, uniform @ 40°, cse irreg @ 30-40°); fr. 104', grades to	36/36"				
104-114	I	Type I VB Ls, 114 med brn, cryptoxtline, minor vague ooids; shell debris not evident; good solid core (dense fr. hrd to scratch for Ls)	120/120"				
114-124	I	fr. 113' broken core w/ FeOx on fractures and bec. dolomitic (patchy, mottled to crudely bndd); (113-113.4') Contin Type II VB Ls, dolomitic; oolitic, H gry- brn to tan; str. 40-70° fract pattern every 2-6" cut earlier seams, cc veins and healed fractures fr. 119' loc. str. fractured w/ cc/FeOx vein Bx, loc. muddy gouge and loc. fragmented core; loc. carb lined vugs in Bx zones;	109/120"				
124-130	DLS	Contin dolomitic Ls (Type II) crude mottled bndg, oolitic, H gry-brn to tan; str. fragmented zone, loc Bx, muddy fractures	64/72"				
130-140	DLS	Contin Type II dolomitic as abv; str. H gry, mottling 129.5-130.8' then faintly bndd @ 35° core & opp. main fractures (loft) @ 35-50°; better case, underspaced late fractures, less fragmented; shp etc @ 133.4' @ 25°; dk gry, well-bndd Dolomite (133.4-137.4') st. limy, hrd; pinkish dolomite bands and patches irreg cc doming at high to bndg; 2nd etc @ 137.4' dk gry clayey etc w/ rip-up clasts of lower Ls bed	120/120"				
140-144	DLS	137.4-144' Dolomitic Ls as abv (113-113.4') H gry-brn to tan, oolitic; loc pink-gry dolomite bndg; typical cc veining, patches; fr. 141.6' broken w/ cc lined fracture @ 15°, str. irreg patchy pinkish dolomite	48/48"				

stylolites
@ 35-40°

Fractures,
cse xtline
cc veins to
persist; loc
py grains,
smears common

stylolite @ 117.3
@ 50° opp fract
@ 50°; vague
dolomite mottled
banding // stylolite
(not fractures)
suggests stylolite

HOLE NO: VB-94-2	BEARING:
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 12 May 94. STARTED:
LONGITUDE:	COMPLETED: 12 May 97
DRILLER: Wayne Burwash	TOTAL DEPTH: 493'
LOGGED BY: R. Cavaterra	SHEET 3 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
144-154	D	144-148.2' Dolomite; pinkish to lt. brn to cream-col; 120/120" patchy to loc. may w/ irreg patches of brn dolomite ls; characteristic w/c spots; 2" dk grey clay layer @ 146' w/ Dolomite ls streaks then banded (40°), loc. may, cream-col dolomite; fr. 148.2' bec med. dk grey limy dolomite; f.g. granular					
154-164	D/LD	irreg to crudely bnd tan dolomite (softer than dark limy dolomite) fr. 150.3' zone of oxidized solution rx 151.6-155.2' well-bnd tan dolomite and dk grey limy dolomite bndg @ 150' // stylolites w bedding; shp 2nd etc (stylolites) 155.2-158.8' grey-brn, homogen limy dolomite as abv fr. 148.2-150.3' loc. fine; f.g. granular, w/c calcitic; grades to... 158.8-176.2' massive tan to cream-col, f.g. granular (and fine) Dolomite; loc. bnd 161.5-163.8', bndg shp @ 40' // stylolites, both loc. covered w/ core	120/120"				
164-172	D	176.2-179.2' dolomitic ls; dk greyish-brn; rel. cse v. fine dolomite (patches, bands, discs) in a grey-brn microcline ls matrix; well bnd to 176.3' @ 20' (1st etc @ 60' // oxid. fractures, related fr. 20' bndg) 2nd etc gradational to...	58/96"				loc. cavities in dolomite filled w/ tan mud recr in core loc. cse cc veins seams, and cracks random thru out of sequence
172-181	DLS	179.2-256' Type Z VBLs // greyish-brn, micro to cryptofine, vague ooids; mod fractured (50-60° dominant w/ FeO) later thin random coarser carb veins to, pale rare stylolites @ 30-40° app. main fractures	104/108"				Vuggy fracture zone 165-169.7' muddy oxidized gouge w/ consid. core loss py specks; seams; loc. thru out all lithologies; commonly assoc. w/ fracture surfaces, but also in veins and dissem in host matrix
181-191		Contn as abv; fr. 190' irreg. orthochoous filled fractures, seams contn to 196' (str. 195-196'); fr. 196' broken core w/ str. random (loc // core) FeOx fractures	120/120"				
191-201	II	Contn as abv; minor shell debris; v. slightly dolomitic; good calcitic test. fr. Acid Test	120/120"				
201-211		Contn as abv; v. homogeneous FeOx fracturing incr locally; random, often // to core; loc. good solid core w/ pieces separated by dominant 60° fractures	120/120"				
211-214		Contn. as abv; v. broken, loc. shattered (FeOx fractures)	34/36"				
214-224			119/120"				

Harry's Acid Test @ 176.3'

(Test spl 196')

FeOx fracture: consistently later than cse x-line cc veinlets and assoc. thin dk seams (incl. rare stylolites)

HOLE NO: VB-94-2	BEARING:
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 13 May 94 STARTED:
LONGITUDE:	COMPLETED: 12 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 493'
LOGGED BY: R. Cavalero	SHEET 4 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
216		Contin as abv; Type II VB Ls still oolitic (subtle), H-med brn, micro- cryptotexture; no obvious shell debris						Fractures (late FeOx type) persist 2-24" spaced w/ loc chiller zones; domin set remains at 60° gen. good core
224	224-234	Contin as abv	120/120"					
234	234-244	Contin as abv 1 1/2" x 1/2" cse w/ fine calcite-lined vug @ 247.4'	120/120"					Py specks v. minor, persist ent.
244	244-249 1/2	Contin as abv: Acid Test, non-dolomitic subtle ooids; poss. minute shell debris;	66/66"					
249 1/2	249 1/2-260	unusual dk spicules, \approx 1 mm long fr. 256' dk streaky bndg, sh. anastomosing but uniform orientation @ 40° core & loc v. finely stylolitic, ends at 267.5'; poss a bddg as bands are loc. offset by early cracks, seams & v. inlets which are cut by later FeOx fractures;	122/126"					
260	260-268	Interval 256-267.5 is Dolomitic Ls w/ dolomite as irreg patches not // bndg (nearly L); Ls matrix is microcline w/ hackley to subchordal surfaces; H-med brn, dolomitic zones lighter, but FeOx FeOx fractures mod; loc. stron: circa 266'; and 260-276' (low & 0-20" fractur = broken core) rel. good core where steep & 60° core & fractures dominant.	96/96"					
268	268-274	Silica seams & v. inlets offset each other and appear contemporaneous; oolitic text evident. 267.5-279' Type II VB Ls; H-brn, micro- cryptotexture; minor shell debris; ooids vague to absent	76/96"					
274	274-279	Same as 179.2-256' (sl. lighter brn); silica seams cut by v. inlets, no offset.						
279	279-289	Contin. as abv fr. 276' incr silica seams (bleached w/ FeOx) and cse cc v. inlets, pods 279-281.5' bedolomitic Ls; dolomite as irreg patches core harder, smoother; just 6" s/c cc veining + dolomite w/ vein Bx @ c/c, shp @ 45° 281.5-287' 6" nearly msy, pinkish Dolomite avy cc v. inlets (dk) and w/ lenticls, pods then Dolomitic Ls as prev w/ irreg lgc patches of sh. pinkish grey to tan dolomite in Type II Ls matrix; contain str silica and cc veining + irreg cse cc pods, lenses; dk cc seams often stylolitic, but random orientation, but then dolomite patches more typical stylolites in feet 3' (284-287') gen trend // 40° c/c's but highly irreg w/ multiple s-curling sets etc zone h/vly veined and brecciated; cse cc veining + brecciated tan dolomite veining loc dk silica-cc veining // fractures 8" x 12" fr. etc (py in vein shears) etc is oxidized flt Bx, tight (1" wide) core & 60° in same direction as irreg stylolites abv flt etc. Banding in dolomite below flt is 20° opposite sense and truncated at flt, incr to 30° away fr. flt 287-288.5' Banded Limy Dolomite; dolomite bndg pinkish to tan ending in a lgc patch of tan dolomite 288-2307' bec. Dolomitic Ls, w/ky bndd @ 30° w/ irreg stylolite trending 50° at 289'	120/120"					

HOLE NO: VB-94-2	BEARING:
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 14 May 94 STARTED:
LONGITUDE:	COMPLETED: 12 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 493'
LOGGED BY: R. Cavalero	SHEET 6 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
362-370 1/2	II	Contn as abv: but bec. H. brn, str oolitic (two sizes, 1/2-1mm dk brn, s/void, often coalescing and <1mm, round, var dk, H. brn, to clear) cse patchy dolomite 362.5-368.5', 370-376.5'	101/102"					mod fract., loc str; brkn core 367.5- 376.5'
370 1/2-374	II	Contn as abv: str cse patchy dolomite assoc. w/ 11 fract. 11" 12" then lg. pinkish dolomite patches (lgs) most 12"; v. minor sm. patches rest of interval	42/42"					cse xline cc veinlets persist but not abund.
374-384	DLS	374-380' Dolomitic Ls; juk bndg at 376.5' @ 40°; stylolite sub // at 35°; loc. cse dolomite patches (small) assoc. w/ loc fract. zones; core harder, polished, bluish grey on surface Dolomite disse thruout, H. brn finely granular text; oolitic	118/120"					stylolites rare to absent. fr. 375' incr fracturing, core more brkn 2-6" pieces w/ loc. fragmentation zones; loc good sections w/ 1-1 1/2" pieces; fractures often oxidized, but gen wk-mod.
384-394	III	380-460' Type III VB Ls; abrupt xition fr. dolomitic Ls; H. brn, subconchoidal to fine hackly surfaces, str oolitic; v. minor shell debris; dolomitic/non dolomitic xition at 30-40° w/ irreg silica-filled stylolites xline cc gash veinlets persist, mod to loc str; minor silica seams rare pyropecks;	116/120"					fr. 394' core str. fractured, brkn; numerous sub // oxidized fractures; few pieces exceed 6"
394-404		Contn of abv: H-v. H. brn; bec. finer-grd micro-crypto xline; str. oolitic	114/120"					fr. 424' core less fractured pieces 12-30"; len x (0-50°) Fault fractures persist
404-413		Contn of abv; v. H. brn, crypto-micro xline bec. more like Type II in grain size; str. oolitic	96/108"					
413-424	III	Contn of abv: H. brn, sl. coarser xline more like 384-394', oolitic stylolites v. rare; minor tiny shell debris	129/132"					
424-432		Contn of abv: str. patchy cse xline cc veining 426-432' fr. 432' bec v. pale brn to H. Tan to buff; remains Type III VB Ls, microxline, oolitic (strong)	120/120"					

Test Sample
@ 380'

HOLE NO: VB-94-2	BEARING:
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 14 May 94 STARTED:
LONGITUDE:	COMPLETED: 12 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 493'
LOGGED BY: R. Cavalero	SHEET 7 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
434 434-444	III	Contin of abv: H tan to buff, microcline, non-conchoidal surfaces; oolitic; minor crinoid ossicles and tiny shell debris; v. weak dis. dolomite (<1%); tiny silic spots @ 443.5' in acid test	120/120"				
444 444-454	III	Contin of abv: Fault at 443.7-445' 20° core ✕, pale orange silicized gouge for 6', then brecciated Ls frags in dk clay gouge; H. tan to buff Type III follows fault to interval bedding etc @ 448.5'; Ls is sh. dk brn @ c/c marked by stylolite @ 50° fall. by v. pale brn to tan Ls w/ c/c outline cc nodules ahead // c/c (elong. upto 4x6mm) fr. 456' Ls bec. med brn w/ no obvious ooids	120/120"				
454 454-464	III	460-480.8' Dolomitic Ls; abrupt x/cton no obvious c/c; pale pinkish patches of disseminated dolomite bec. finely dissem. throughout Ls; H-med brn to greyish-brn, oolitic; local faint bndg @ 30°	111/120"				
464 464-474	DLS	Contin as abv: med brn to grey-brn Dolomitic Ls, oolitic	84/120"				
474 474-484		Fault at 480.8' sh. 15' c/c @ 30° 1" of soft blk gouge w/ Dolomitic Ls fragments and fragmented c/c calcite veins preserved; then lt gry-grn and FeOx clay and oxidized sandy gouge; approx 4-5' core loss Poor recov to end of hole in brn to grey-brn Dolomitic Ls as before fault. (oolitic)	46/108"				
484 484-493	DLS						
493	End of Hole						

loc. stylolites
tight, linear
to v. irreg
@ ±45°

Test Sample
@ 464'

5562/5820

95.57%

HOLE NO: VB-94-3	BEARING: 070° (N70E)
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 14 May 94 STARTED: 12 May 94
LONGITUDE:	COMPLETED: 15 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 502'
LOGGED BY: R. Cavalero	SHEET 1 OF 7

lkg. N20W

struct: Litho

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS
				CaO MgO SiO2 Mn
0-10'	I	Casing Run: HX core recov for sample	N/A	
10-13		0-59.8' Type I VB Ls; lt. brn, cryptocrystalline to microcrystalline, oolitic (loc. good, gen. subtle coalescing shapes); minor calcified fossil debris; shell, esp. xthine cc oenolites, lentils (not a band);	32/36°	
13-20	I	within, dk cracks & seams, cc & silica, thruout;	84/84°	
20-24		Contin as abv: loc. bndd interval 17.4-19', lt brn/dk brn bndg @ uniform 75°; more oolitic, appears to be more fossiliferous; extr. wkly dolomitic	46/48°	
24-32 1/2	I	Contin as abv: fr. 30.2-38.7' bec	102/102°	
32 1/2-42 1/2		dk brn, hard (polished core) v. dense Ls; ghostly ooids; shell, crinoid oenolites; loc silica stylolites, irreg. to core & s; 2nd etc wkly bndd @ 55° (abdg?)	120/120°	
42 1/2-48	I	fr. 38.7', Contin lt brn type as abv (0-30.2')	120/120°	
48-54		str. well-def. ooids; shell, calcified fossil debris; streaky, dk. brn mottled texture; irreg w/ gen 75° trend; sub ll rare stylolites;	66/66°	
54-64	I	Contin as abv: shp etc @ 57.6', highly irreg stylolitized (trend 80°); then v. pale brn Ls; oolitic, thin bdd tow 2nd etc @ 75°	70/72°	
64-74		59.8-62.7' Dolomite; v shp 75° etc	120/120°	
74-80	I	disrupted by late, thin, minor FeOx fractures sub ll core; Dolomite well-bndd @ 75° // etc; Lmoy (mod reaction to acid)		
80-84		pale grayish-tan w/ pinkish tint; much esp xthine than the Ls; shp 2nd etc @ 75°		
84-90	I	62.7-65' Type I VB Ls, well-bdd (w/lt brn/brn) @ 75°;		
90-94		oolitic, shell debris; v. wkly dolomitic (4%)	120/120°	
94-100	I	65-71.8' Dolomite; loc. msv (pinkish tan to buff)		
100-102'		loc. bndd (lt pink gray-brn) @ 60°-75° down hole 1st etc shp @ 60°, 2nd etc shp @ 60°		
102-104'	I	71.8-76.9' Type I VB Ls; med sl. grayish-brn;		
104-106'		crypto-microcrystalline; finely oolitic; shell debris; thin bedded @ 17° etc, 60° // etc and add 2nd etc @ 70-80° (etc shp @ 80°)		
106-108'	I	non-bdd in central part of interval;		
108-110'		fr. 75° bec str. dolomitic, lge semi-msv lt tan (sl. pinkish) patches assoc w/ FeOx seams then diss and thinly bedded dolomite in the Ls tow. 2nd etc		

Minor FeOx lined fracture; v. loc. finely brecciated
rel fresh Ls near surface (not weathered like VB-94-1k)
core mod to str brkn to 32 1/2', then good solid core

muddy open fracture, 90° @ 38.8'

good solid core thru dolomite sequence; v. minor, tight FeOx fractures

Test Sample @ 30'

HOLE NO: VB-94-3	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 15 May 94 STARTED: 12 May 94
LONGITUDE:	COMPLETED: 15 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 502'
LOGGED BY: R. Cavallero	SHEET 2 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
74-84	I	76.9-79.7' Dolomite; med to tan @ etc grades to limy dolomite (non-bndd); shp 2nd etc at 80° (irreg, stylolitic)	114/120"					Fr 80' fract. zone @ 78.5' w/ 6" core loss
84-93 1/2		79.7-138' Type II VB LS; ll. greyish-brn dolomitic to 84'; dolomite as pale pinkish patches (fracture related) and finely disse; fr. 84' v. weakly dolomitic 24-30" then dec. non-dolomitic med-dk brn, micro-cryptocrystalline, vaguely oolitic; distinctive banding (= bddg?); bndg at 80°, but irreg, lensy, if dk brn mottled	108/114"					Fr 80' bec incr. fractured brkn core w/ loc. shattered zones; minor feat on fract.; random orient. sleep to ll core; core extn. brkn where fract sub; typical earlier cse cc veinlets if thin seams persist;
93 1/2-98 1/2		Contin as abv; bndg ends circa 94'; bec	59/60"					
98 1/2-103 1/2		H brn to greyish brn, loc. good ooids, single or clusters rare crinoid ossicles	60/60"					
103 1/2-110		contin as abv; str. ll fractures to 109'	78/78"					good recov. in brkn core, pieces 3-9" where not shattered
110-115 1/2		Fr. 110' sl. lighter brn; oolitic; abund shell debris, small crinoid ossicles	59/66"					fr. 110' mod. fractured
115 1/2-124 1/2		Contin. of abv decr. in evident ooids brkn to loc. fragmented, Feox fract. scall. thruout; but not abund.	105/108"					
124 1/2-134		Contin of abv: quite homogeneous; loc. silica seams	105/114"					
134-144	II	Contin of abv: much less fractured 138-148.4' Dolomitic LS	120/120"					Fr. 134' wk-mod fractured
140		Fr. 138-141' Patchy sandolomite (fracture-related) in prev Type II VB LS (oolitic)						1/2" cse xtine cc vein sub ll core 139-141'
144-152	DLS	Fr. 141' bec pervasively dolomitic (harder core, pinkish tint) loc. strong but generally, finely disse thruout the oolitic LS; v. weakly dolomitic last 6"	86/96"					

Test Sample @ 109 1/2'

HOLE NO: VB-94-3	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 15 May 94 STARTED: 12 May 94
LONGITUDE:	COMPLETED: 15 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 502'
LOGGED BY: R. Cavalero	SHEET 3 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
146	I	148.4 - 165.6' Type II VB LS; v. pale brn crypto-microxtline; ooids not evident; fr. 148.4' v. str. cse cc veining & local flooding; loc cse cc veins; loc vein Bx	75/84"				
152-159	II	scat str. muddy FeOx fractures; core brkn to fragmented; minor cc+silica seams					
159-164		Contin. as abv; str. local cc vein Bx	60/60"				
164-174	DLS	165.6 - 178' Dolomitic LS; lt brn oolitic, microxtline w/ irreg, pinkish-tan patchy dolomite and loc. finely disseminated dolomite only loc fract. controlled; gen pervasive;	111/120"				FeOx fractures persistent, moderate w/ loc. str. fract. Zones 2-12", gen tight 1-3/12"; fair to good core
174-183 1/2		178-180.5' Dark greyish-brn, microxtline, (cse, Type III) oolitic ls intercal; shp etc disrupted by low fract. 3rd etc gradat. w/ lenses of dkls in lighter ls (loc patchy fract-contr. dolomite @ etc)	105/114"				
183 1/2-193 1/2	III	180.5 - 217.5' Type II VB LS; lt. brn micro-cryptxtline; oolitic; cse xtline cc veinlets; rel. minor; thin sh oxidized cse silica seams; cracks thru out					
193 1/2-200 1/2	II	Contin. as abv; dec. v. lt. to pale brn incr. oolitic	120/120"				fr. 193 1/2' dec. str. fract. v. minor FeOx predom pale yellowish to buff clay v film on domin sub ll fracture: (fair to good recov)
200 1/2-210		Contin. as abv; pale brn, extr. oolitic both dk brown coalescing and a band v. sm dk grey to clear ooids; shell debris v minor to absent;	84/84"				
210-214		Contin. as abv	106/114"				
214-224		Contin. as abv	48/48"				
210-214		Contin. as abv to 217.5' ± gradesto...	114/120"				fr. 214' much less fractured w/ loc. str fragmented zones
218	III	Type III VB LS					

stylolites rare thruout sequence fr 148.4' gen. v. irreg

HOLE NO: VB-94-3	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 17 May 94 STARTED: 12 May 94
LONGITUDE:	COMPLETED: 15 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 502'
LOGGED BY: R. Cavaterra	SHEET 5 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
290		fr. 293' shp decr in cc veining, fracturing					
294-304	III	minor fracture-related dolomite patches to 294.5' Contin v. pale brn to buff Type III VB Ls, 117/120" oolitic;					
304-314	II	297.5-354.6' Gradational xition to... Type II VB Ls; lt brn micro-cryptoxline, oolitic; incr. irreg stylolitic seams (run L to R to core); 1" brecciated, dk clay-filled band @ 308' w/ cc veining + py; v shp cts @ 75 & 80° (local, healed fill, maybe depositional) minor cse veining; scott low FeOx fractures, fair to good core	120/120"				
314-324		Contin as abv: oolitic (ghostly); minor shell debris; stylolites as abv loc filled w/ silica as thin silica seams;	120/120"				
324-334	II	Contin as abv: homogeneous wk-mod cse xline cc veinlets; mod FeOx fractures	120/120"				
334-343 1/2		Contin as abv: bec. finer-grd crypto-microxtline; conchoidal to subconchoidal; remains oolitic, lt brn (str. fracturing (FeOx) loc. in run)	106/114				
343 1/2-354		contin as abv dk laminated 1/4-1/2" band cut by 1/2" cse xline cc vein (ll core); band @ ±80°, maybe bedding; stylolite follows 2nd etc also offset by thin cc & silica seams, cracks	123/126"				
354-363	II	fr. 350' bec. sl. dr (mod brn); lt. dusting of dolomite 353.5-354.6' 1/2" bdd cts @ 354.6' (60° undulating) v. shp; blk carbonaceous mud rimmed by sparry calcite	104/108"				
362		354.6-432' Type II VB Ls; v. lt. brn micro-cryptoxline, oolitic (ghostly)					

Test Sample @ 253'

v. minor sm. dolomite patches;
loc. str low FeOx fractures;
cse xline cc veining moderate;
stylolites minor, v. irreg (mainly stylolitic cracks, earlier than cc veining
& both earlier than the high & low FeOx open fracturing)

HOLE NO: VB-94-3	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 16 May 94 STARTED: 12 May 94
LONGITUDE:	COMPLETED: 15 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 502'
LOGGED BY: R. Cavalero	SHEET 6 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
363 363-373	II	Contin as abv: Imm vdk ls band @ 366.4'; undulating @ ±90° Cut by cc veins; poss. bddg.; similar bands @ 372 & 374' (fine laminae ill band internally at 374')	120/120"					Str. low & FeOx fractures 367-393'
373 373-384		Contin. as abv. loc. lighter col. (v. lt. brn), coarser (predom microcline and loc. mottled v. pale brn/lt-med brn; remains vaguely oolitic; shell debris minimal to absent cc veining; stylolitic cracks persist (mod. to loc. strong)	126/132"					
384 384-394	II	Contin as abv: homogeneous; loc. wk Bx related to dk cracks and seams add, cc veining or low & FeOx fractures	120/120"					Fr. 393' good solid core, minor fracturing (predom. high &, not str. oxidized)
394 394-404		Contin as abv; homogeneous	120/120"					
404 404-408	II	Contin as abv incr. in cc veining	48/48"					
408 408-418		Contin as abv oids rarely discernible	120/120"					
418 418-424		Contin as abv: str cse wite cc vein flooding assoc w/ 15° FeOx fractures fr. 421-424'	72/72"					
424 424-434	II	Contin. as abv: gry. clay fault gouge @ 429.7'; 15° etc 60°, 2-5" wide, 2nd etc curves fr. 60 to 20° downhole truncating stylolites @ 60° Ls dk gry, v. weakly silicified 10" adl dike etc (dte shp @ 60°) 432-437' Dike/Sill; Mchd, clay-altered chill margin for 9" pale grn, feldspathic; linedated suborbicular text., fig. non-porphyrific; Prob latite composition; minor thin shears, v. sm faults @ 40-50° 2nd etc shp @ irreg 80° (5° chill margin, ends @ 44" silicified fill)	114/120"					
434		DIKE						

HOLE NO: VB-94-3	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 17 May 94 STARTED: 12 May 94
LONGITUDE:	COMPLETED: 15 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 502'
LOGGED BY: R. Cavallero	SHEET 7 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
434	DIKE II	437-441' Type II VB Ls; dk sl. brownish-grey; oolitic; silicified (w/ dusting)	120/120"				
444		441-451.3' Dike/Sill; v. pale grn to loc. cream-col. 1 st etc @ 80°, sl. Bx w/ cse cc, FeOx, 12" chill margin	120/120"				
444	DIKE (Dacite)	2 nd etc @ 100° 70°, sl. Bx (dike frags in Ls) pv along etc of frags, feldspathic w/ amorph; leucocrone dusting; abund f.g. diss pv; loc. thin etc-pv veinlets; Prob. dacitic	120/120"				
454		451.3-460.1' Type III VB Ls; brownish-grv to dk grv; microcline (rel. cse); oolitic	115/120"				
454	III	loc. bddy evident, graded up hole (oolitic to non-oolitic); color contrast; etc. oolitic 453-455'					
464		460.1-501' Karmatsen Volcanics: etc is clayey, granulated over 2-3"; ±80°					
464	KV (Basalt)	Volcanics are a series of basalt flows w/ amygdalar tops and msv, calcareous (top flow) to variously hematitic, porphyritic, etc basal zones; Volcanics loc. fractured and sheared w/ fault gouge evident; main fractures, shears @ 30-60° core ±5	120/120"				
474		474-484	Top flow 14' thick fall by 5 others 8-10' thick	96/96"			
484	484-492						
492		492-502		100/120"			
502	end of core @ 501'						

5722/5904

96.92

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 17 May 94
LONGITUDE:	STARTED: 16 May 94
DRILLER: Wayne Burwash	COMPLETED:
LOGGED BY: P. Cavolera	TOTAL DEPTH: 444'
	SHEET 1 OF 7

LKg N20W

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
0-10'	I	Casing: HX core recov. for sample 0-45.5' Type I VB Ls; H. brn, cryptocrystalline (predom) to microcrystalline; gen. oolitic (saddle); minor shell debris;	N/A				
10-13		Contin. as abv: 12" of pebbles recov	12/36"				
13-23		Contin. as abv: core ground, unbraided poor recov. w/ new type bit; change bit to old type at 23'	80/120"				
23-34		Contin. as abv: random ccsylline, w/c cc veining; irreg dk stylolitic cracks; fr. 24' pale yellow low & late fractures w/ actively dissolved; sporadic, every 2-5'; core loc. shattered add. fractures.	121/132"				mod-str low & fract 0-30' fr. 24-40' (v. brkn 35-39')
34-44		Contin. as abv: fr. 40' lensy to mottled bndg; zone of rel. abund shell debris; v. H. dusting of dolomite (<10%); bndg @ ± 80°	120/120"				loc. low & fract 40-54' (dolomite assoc. str. low & fract zone 54-60' (dolomite along fractures)
44-54		Cont as abv (lensy bndg, shell debris, w/c dolomite dusting) 45.5-71.5' Dolomitic LS, H. brn w/ characteristic pinkish tan dolomite tint begins as irreg patches of tan dolomite along fractures & iner to hvv drusem dolomite in the hematrix; loc. silica seams	112/120"				loc. low & fract 60-71'
54-64		DLs contin. as irreg patchy dolomite w/ areas of clear, w/c oolitic LS, mottled and loc. crudely bndd @ 80°; distinct sl. pinkish tint to core fr. the dolomite csc tan dolomite patches persist loc. add. small fractures	119/120"				str. low & fract 71-81'
64-72		Contin. as abv; fr. 64.1' well bndd interval to 66.1' (bndg @ 70° = bddg?) loc. 1" Bx 11 bndg. dolomite does not follow bndg, gen pervasive w/ clear LS add. cc veins and ccsilica seams; fr. 66.1' dolomite bec	89/96"				fr. 81' persistent low & fracture periodic, but no major shatter zones FeOx minimal (gen. pale orange mud-filled) 45° fractures common, but much less abund.
72			more patchy as finely disseminated pinkish tan areas decreasing down hole (the massive to well laminated type dolomite w/ shp defined cics seen in VB-94-3 does not occur)				

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 18 May 94 STARTED: 16 May 94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH: 444'
LOGGED BY: R. Cavaleiro	SHEET 2 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
72-82		71.5-131.5' Type II VBLs, v. H. brn micro-cryptofine; vaguely oolitic; minor shell debris characterized by crudely bndd, dk brn mottling @ 70°; loc. cse patchy dolomite (fract. related) @ 75.5, 79'	119/120"				
82-94		fr. 77.5-79' unusual zone of lge, v. dk brn, sharply defined patches (irreg) in the v. H. brn Ls; textures diffic. to see in the dark patches; 138/144" crude, mottled bndg absent in this interval; fr. 79' contin Type II VBLs as abv sh. cse; oolitic (moderate); v. minor shell debris; bndd mottling absent; but wk dk brn mottles persist; bec. incr. oolitic downhole (sm., well-defined)	138/144"				fr. 100' str. low & fractures w/ FeOx; fr. 101.5' v. str cse cc veining and flooding, loc vein Bx; cse cc, dolomite plus silica pervades rock to 108' full. by cc veined Bx to 106'; contin low & FeOx Fract. to 108'
94-101		Contin as abv: v. sl. dolomite dusting 96.5-97.5'; loc. zones of calcite vein Bx; well-defined ooids persist	79/84"				fr. 108' shp decr. to sporadic low & fractures
101-111		Contin as abv: intense fracture zone, cc veining, vein Bx cc/dolomite/silica flooding to 106', fractures to 108' fr. 108' typical type II as abv: loc. 1/2" cse veins	120/120"				fr. 121-131' low & fracture zone; mod FeO, loc. brown mud- filled; loc lge cc veins, pods minor loc vein B.
111-121		Contin as abv: fr. 114-116.9; shp 70° 1st etc; intensely oolitic interval; abund sm dk to clear ooids and lge clusters contain 10-20 packed ooids scatt. shell debris; ls lighter colored; no visible gnd etc, but abrupt xition to typical Type II as previous	120/120"				fr. 131' good solid core to 143.5'
121-131		contin Type II as abv. bec. quite homogeneous; H brn mod oolitic; stylolites rare to absent (loc. irreg stylolitic seams, cracks) abrupt xition to....	120/120"				FeOx/muddy low & fracturing 143.5-146'
131-141		131.5-140.8' Type III VBLs, micaxtline, v. H. brn and str. oolitic (similar to 114-116.9 abv but not as oolitic); scatt. shell debris Highly textured, dk brn streaky lensing common @ 80° dk brn, irreg spotting in addition to ooids	120/120"				
141-149		Contin as abv	90/96"				

Test Sample @ 116'

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 18 May 94 STARTED: 16 May 94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH: 444'
LOGGED BY: R. Cavalero	SHEET 3 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
149-159		Contin as abv: Type III VB LS drill: macrocrystalline lithology H. brn, microxtline; str. oolitic scatt. shell debris	120/120"					good core 146-151' fr. 151' str. low & fracturing loc. FeOx (minor)
159-167	III	Contin as abv: stylolites remain rare to absent as do stylolitic cracks and seam typical of holes 1-3	93/96"					predom H. col sandy mud & calcite veins along fract. Surface S contin. to 171'
167-171		contin. as abv: cse xtline cc veinlets persist, not abund.	95/98"					(zone charact. by nearly ll fractures often filled w/ xtline cc and loc. vein Sx)
171-180		contin as abv: ref. shad. sm. shell debris: inct. scatt. crinoid ossicles	108/108"					fr. 171' less fractured, but persistent low & fracture: & FeOx; cse cc fract. encrust. minor to absent
180-187		Contin as abv	80/84"					bec. incr better core; only isolated tight fracture
187-194	dis DLs DLs	Contin as abv: fr. 188.8' sm. patches of dolomite (minor), bec. str @ 190' to ctc shp irreg ctc @ 190.8', 80-90° 190.8-198' Type III VB LS; v. pale brn to Tan, microxtline, oolitic (brown mottles w/ ooid clusters); @ ctc. 1/4-1" dolomite, then fine dusting and sm spots & patches of dolomite for 12" decr. downhole; str. oolitic w/ shell debris add. ctc.	82/84"					
194-204	DLs III	198-215.7' Dolomitic LS; Type III as abv w/ str. dusting of dolomite and 1/4" dolomite interbeds @ 75-80° dolomite decr to light dusting downhole; thin dk.	120/120"					
204-214	DLs	dolomite bed loc. to 202' w/ loc. ll stylolites @ 75-80° (stylolites contin. to 210'; fr. 210' irreg stylolitic seams) H. brn, microxtline, mod. oolitic, scatt. shell debris to 206.9', shp ctc @ 80° fr. 206.9 cse fragmental mosaic texture, oolitic w/ abund shell debris incl. crinoid stems, ossicles indiv. irreg mosaic frags oolitic; fr. 212' bec more uniform H. brn, str. oolitic (fine) w/ scatt	120/120"					
214-224		Shell debris and loc excellent crinoid ossicles; dolomite dusting thruout sequence; 1" dolomite bed at 215.7', shp 80° ctc's, somewhat sheared and granulated;	120/120"					

41

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 19 May 94 STARTED: 16 May 94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH: 444'
LOGGED BY: R. Cavalero	SHEET 4 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
216		215.7-251' Weakly Dolomitic Ls → v. weakly dolomitic					
		Type III, lt-med brn, microcrystine, vaguely oolitic; minor shell debris; v. light irreg dusting of dolomite; v. loc. dark, finely laminated					mud-filled fracture @ 219', 45°
224	224-232	clastic interbeds 1/4-1/2" wide (sm. along Ls clasts in a v. dk ls matrix), 75-80° core &; minor stylolites, some ill bddg, most irreg seams, loc w/ silica	93/96"				fall by incr in low & fractures; moderate, every 2-5', no fox, some clean breaks others w/ vuggy etine calcite
232	232-237	Contin as abv: fr. 235' bec. light brn w/ only a faint dusting of dolomite (v. fine, prob <1%), vaguely oolitic, scatt shell debris (loc. good crinoids); silica filled cracks rel. common; loc. streaky, dk brn mottled bddg @ 80°	60/60"				good solid core (minimal shattering adl. fractures)
237	237-244	Contin as abv: extr. light dolomite dusting rare irreg (L to R, stairstep) stylolites;	84/84"				
244	244-249 1/2	Contin as abv: extr. light dolomite dusting rare irreg (L to R, stairstep) stylolites;	66/66"				
249 1/2	249 1/2-260	251-275.5' Type II V.B. Ls v. dk brn, microcrystine, vaguely oolitic; v. minor shell debris; irreg, streaky dk brn mottled bddg common @ 70° stylolites rare to absent;	126/126"				str. fracture 261-270', muddy, oval lined low & fractures
260	260-269 1/2	Contin as abv: irregular, stitite var. iron	108/114"				fr. 270' less fractures but persistent (good core) fr. 274 fox bet. stronger on fractures
269 1/2	269 1/2-274	Contin as abv:	54/54"				
274	274-284	275.5-287' Dolomitic Ls; type II as abv w/ finely dissem. patchy dolomite H. brn, oolitic, micro-crystalline; dk gry-brn; str. dolomite 15-6" then patchy dusting; streaky lensing of bddg @ 70°; loc dk gry-brn bed w/ ll. col ls clasts (fragmen. al) @ 280.5' bed 1/2-1" wide, offset by late thin cracks subll core;	112-120"				fr. 281.5' shattered core, str. muddy FeO, in low & fractures; core fragments, irreg network of thin silica seams & cracks loc. where cracked
284	284-290	dolomite patches overlap bed and lenses (upper. late, poss fracture-related)	66/72"				

Test Sample @ 271'

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 19 May 94 STARTED: 16 May 94
LONGITUDE:	COMPLETED: 20 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 444'
LOGGED BY: R. Cavalero	SHEET 5 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
287-334'		Type I VB Ls: as previous					
290-300		Med brn, micro-cryptotextine, faintly oolitic (weak); scatt. shell debris; loc. streaky, dk brn mottling @ ±70°	114/120"				
300-307		Zone extr. broken Fr. 300' bec. w/ky dolomitic N-med brn, oolitic; abund. thin shell debris N. patchy dusting of dolomite	84/84"				
307-317		Fr. 302' non-dolomitic Type I VB Ls as previous; N-med brn, faintly oolitic; streaky, mottled bndg, leasng @ 70°; rather fig. crypto-microtextine approaching Type I; minor shell debris; hairline silica seams	106/120"				
317-325		Contin. as abv: loc. dk brn, wavy interbed (1/4") @ 324.5' @ 80° laminated, locally fragmental (elastic)	92/96"				
325-335		Contin. as abv: (brn, ground core) Fr. 332' bec. v. slightly dolomitic; < 1% as v. widely disp. grains Fr. 334-334.6' dk wavy bedding @ 70-80°; str. dolomitic interval 334.6-362' Type III VB Ls; to 335'; finely dashed dolomite; fr. 335' bec. extr. light	105/120"				
335-344		widely disp. grains (poss. silica); med brn, ooids not evident; minor shell debris; microtextine Fr. 329' bec. med-dk gry approaching fault (341-344')	78/108"				
344-350		hairline silica seams; v. light, fine dusting of silica and/or dolomite Fr. fault at 344', bec. lt-med brn, microtextine; ooids not evident; scatt. shell debris; dk brn wavy mottled bndg @ 70-80°; loc. dk gry 1/4-1/2" elastic interbeds, ±80°; extr. lt. silica and/or dolomite dusting persists;	68/72"				
350-360		352-413.7' shp 80° etc (silica stylolite along etc) Type III VB Ls med brn, sl. dk than prev w/ no mottled bndg; microtextine; ooids not evident; v. minor shell debris; silica hairline seams loc.;	120/120"				
360		v. light fine dusting persists (appears more like widely disp. granules of silica than dolomite); increasing pyrite (loc. grains, rare clots, and gen as py films on cracks and shear planes)					

Contin.
str. fractured
loc str FeOx
gen. w/ut;
muddy to sandy
fracture filling
loc. cso cc
veins and
encrustations
loc vein bx
on low %
fractures
fr. str. muddy
gouge @ 312'
zone of low %
fractures
w/str vein bx
dev of oxidized
patronage
calcite cement
(rot. solid core)
Fr. 329' rel.
solid core contin
w/abund. 1/4-1"
Vugs lined w/
cso siliceous
loc. oxidized
plus vein bx
as abv; contin
to 327' (ground
325-326')
Fr. 327'
mod to good
core; low %
light fractures
persist; but
less abund
Fr. 338'
broken core
low % fractures,
strong fault
gouge w/clay
& FeOx mud
341-344'
Fr. 347.5' good
solid core; low %
fractures; breccia
persist (well preserved);
1/4" clay fill gouge @ 353'; 20°
Core *

Test Sample
@ 351'

* core smooth, polished w/ minor scratch marks
relative to that further up hole.

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 20 May 94 STARTED: 16 May 94
LONGITUDE:	COMPLETED: 20 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 444'
LOGGED BY: R. Cavallero	SHEET 6 OF 7

28

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
360-370		fr. 8x shear @ 359', bec. sl. Hr. brn, reappearance of dk brn lensy mottling; fine dusting absent; ooids not evident; minor shell debris; stylolites minor (both subll bedding (280°) and as silica-filled, irreg cracks); cse cc veining rel. minor;	120/120"				
370-378		@ 360.9', 1/4" blk carbonaceous bed (80°) preceded by fragmental zone (4") of rdd to subangular Ls clasts in a dk Ls matrix	96/96"				
378-384		fr. 370' contin as abv; v. loc. thin dk interbeds, bddy stylolites @ ± 80°					
384-390		Contin as abv: Fr. 381.5-382.2' H. dolomite dusting (irreg, patchy) ends @ 1/4" blk carbonaceous bed (80°)	72/72"				
390-400		contin. as abv (389-381.5')	66/72"				
400-410		v. minor shell debris; no ooids evident					
410-414		Contin. as abv	120/120"				
414-424		fr. 396.5-399' pseudo fragmental texture from abund. irreg. coalescing stylolites;					
424-434		Contin. as abv: incr. shell debris incl crinoids; bec. vaguely oolitic	120/120"				
434-444		loc. dk to blk, rel hard patches @ 412' may be manganeseiferous v. loc. dk interbeds @ 70-80° (minor subll bedding stylolites)					
410-414		Contin. as abv: shp etc. @ 413.7', 85°	45/48"				
414-424		413.7-414.5' dk grey Limer Shale bed granulated ctes, but shp; 2nd etc shp, lency at 85°	120/120"				
424-434		414.5-417.7' Pyritic Black LS highly textured, fragmental-appearing from anastomosing blk py+silica stylolites (appears ripple-like) Ls is also dk grey; silica seams and v. widely dis. tiny silica granules					
434-444		417.7-427.9' Diabase Dike/Sill v shp etc @ 75-80° offset by thin silica fracture seam only 1/2-1" chill margin; dk, sl. yellowish green porphyritic w/ subrd pyroxene phenocrysts (ophitic text)	117/120"				

loc. light shear w/ str. 8x dev. on uphole side @ 359' (20°); good core contin. w/ minor loc. low & fract.; no FeOx (dk, thin clayey coating s)

Fault Bx and gouge @ 389' (8" core loss)

good core contin. after fault; minor light low & fractures. Excellent core fr. 390'

Test Sample @ 410'

in a fig. equigranular plagioclase-pyroxene ground mass; laced w/ carbonate seams, veinlets; v. minor disc. py. plagioclase Säussurized (loc. epidote) shp 2nd etc @ 85°; 1/2-1" chill margin (not porphyritic for 3" pyrite along etc)

HOLE NO: VB-94-4	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 20 May 94 STARTED: 16 May 94
LONGITUDE:	COMPLETED: 20 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 444'
LOGGED BY: R. Cavalero	SHEET 7 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
434-444	Py Ls	427.9-438.2' Dk gry Pyritic Ls minor dis py and str py + silica along fracture surfaces and apparent bedding planes @ 75-80°; massive; no fossils; no stromatolite debris; fr. 439-438' intensely polylitic bed; r. etc shp @ 70; etc shp; stylolitic @ 80°	120/120°				
444	Basalt	fr. 430.5-438' brkn w/ str. hwy FeOx fractures; 6" dk gry, muddy clay gouge @ 434.5'; shp etc w/ Basalt @ ±90° 1-2" rdd clasts of basalt in Ls add. etc					
	End of hole	438.2-444' TD Karmutsen Volcanics Eq. equigranular, str pyritic basalt add. etc; w/ in 6" bec c.g. equigranular w/ py decr. 12" fr. etc; calcite veined incr. hematite w/ dis py; fr. 441.5' bec. calcite amygdular ma. fig; alkly porphyritic groundmass;					

4979 / 5205
95.66%

HOLE NO: VB-94-5	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 21 May 94 STARTED: 20 May 94
LONGITUDE:	COMPLETED: 21 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 341'
LOGGED BY: R. Cavaleiro	SHEET 1 OF 5

LKg N20W

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
0-10'		Casing: HK core recov. for sample 0-±34' Type II VB Ls; H. brn, micro-cryptoxline; oolitic; scatt. shell debris late cse xline cc veining (loc. str); thin dk seams & cracks (loc. stylolitic)	N/A				
10-14		Broken, rubbly core (some caving fr. surface) @ 13' bddy etc, H. brn-dk brn; both v. str. oolitic; 80° shp, offset by cc seams, oolitic	30/48"				
14-24		Contin as abv: H-med brn; oolitic (sm. ovoid) decr. downhole; rel. abund. sm. shell debris loc. good conoids; sl. mottled (dk brn)	107/120"				
24-34		contin as abv; bec. mod-wk oolitic; irreg mottled, larger, more prominent; minor shell debris; loc. pale orange oxidized patches, irreg. (not dolomitic); minor silica seams, v. loc patchy silica rel. abrupt xtion to.....	95/120"				
34-44		±34-89.5' Type III VB Ls fr. 34' H. brn, str oolitic, highly textured w/irreg elongate to angular dk brn patches (var size, 1-2mm to 1", pseudo-fragmental, high energy zone); minor silica seams abund shell debris; subtle banding, st patch alignment @ 85° (mimics bddy)	111/120"				
44-54		fr. 42' bec more homogeneous, H. brn microcline, str oolitic w/ minor shell debris; fr. 44' bec. incr. lighter brn to tan, coarser-grained (highly textured) w/incr. shell debris; 2" str. dolomitic bed (bddy)	119/120"				
54-64		@ 50.1' (1st etc @ 80°, 2nd @ 85° app direction, both shp) fr. 50.25' bec. fine-grd, more homogen like 42-44' w/ dk brn mottling; str oolitic; minor shell debris fr. 59.8-80.5' cse bddy bed, str oolitic, abund. may shell debris v. wkly dis. dolomite (1st etc shp, 80°, 2nd etc gradat.)	117/120"				
64-74		fr. 60.5' bec. more uniform, v. H. brn; finely to microcline (rel. cse); abund sm. shell debris; mod. oolitic w/ loc dk brn rdd mottles w/ excell. ooid clusters; abund v. sm dk brn to clear rdd to angular shapes thruout the matrix (not ooids or typical shell fragments) may be stromatolitic;	120/120"				

0-34'
broken core,
low x (0-20')
fracture zone,
mod. oxidized
surfaces decr
downhole
(v. brkn, fract
28-34')
sl. better core
fr. 34' w/
persistent
low x fracture
but less
frequent

str. brkn
along low x
fractures
57-59'

str. low x
fractures;
muddy w/ minor
FeO₂, localized
encrusted
fr. 64-78 1/2

Test Sample
@ 39'

[stylolites not abund thruout sequence
occur locally and v. irregular;
cse w/te cc veining common, but not
as abund as previous holes]

HOLE NO: VB-94-5	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 21 May 94 STARTED: 20 May 94
LONGITUDE:	COMPLETED: 21 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 341'
LOGGED BY: R. Cavallero	SHEET 2 OF 5

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
74-84	III	Contin as abv: little variation fr. 60.5' on	112/120"					fr. 78 1/2' mod. brkn w/ loc str fracture zone: low x, minor FeOx
84-94	III	Contin as abv: little variation ant. l etc zone; last 3-4" v. wk diss. dolomite and abund v. H tan to buff subangular fragments (poss. dolomitized shell fragments) 89.5-93.4' Clastic LS (interclastal graystone, poss. subaerial; re: stan K.) etc sheared w/ muddy gouge; jointed w/ sh. cc; appears shp @ ±70°	120/120"					fr. 93' good Solid core w/ minor loc. low x fract.; bec. excellent core w/ minimal fracturing;
94-104	III	Subangular to subrd H-mod brn LS clasts in a cse w/ fine calcite matrix; loc. clasts are ooid clusters; others w/ concentric rims scat. rel lge shell fragments interstitial to the LS clasts; Var. matrix to clast supported (conglomeratic w/ 60% clast, 40% matrix); clasts: gen < 1/4" (loc. up to 1/2") 2nd cse v. shp, stylolitic, w. irreg. (loc. x)	120/120"					scat. well dev stylolites gen L core, but highly irreg
104-114	III DLS	93.4-110' Type III VB LS; v. H brn to tan; microcline; ooid frs; abund shell debris dk to clear redd. to angular shapes thruout as prev fr. 60.5-89.5' bc. excellent ooid clusters; sec. increasingly darker brn to med-brn down hole	120/120"					
114-124	III DLS	fr. 112' begins an extr. H. dolomite dusting incr. down hole as diss. + sm. patches; grades to.... 110-113' Dolomitic LS; med-dk brn, abund shell debris; ooids not evident; str. dissem dolomite, patchy to pervasive; ends 1/4" bed (75°); dk gry, clayey, laminated	120/120"					
124-134	III II (d)	113-117.6' Type III VB LS, Dolomitic; H brn, oolitic w/ H. dolomite dusting; similar to 93.4-110'; 1/4" laminated dolomite + cse elongated calcite bed @ 117.6', 70° 117.6-126.6' Dolomitic LS; med-dk brn; oolitic; abund shell debris; str. diss. cse dolomitic (patchy to pervasive); pinkish tint on core surface; shp irreg stylolitic bed etc	117/120"					70-90°
134-144	III d	126.6-163' Type II VB LS; H brn, micro-cryptocrystalline, ghost voids; minor shell debris; wk, patchy dolomite; grades sh. dk brn, coarser to Type III VB LS w/ incr dolomite; finally diss thruout (coarser than LS host); loc. patchy w/ clear zones add. seam, veinlets of calcite; Var. shell debris; ooids obscured by dolomite irreg stylolites v. loc. (gen. steep x)	120/120"					fr. 127.5' loc. low x fractures mod., wide- spaced w/ loc FeOx; good core
144		v. minor specks of py, but more common than seen up hole;						

HOLE NO: VB-94-5	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 22 May 94 STARTED: 20 May 94
LONGITUDE:	COMPLETED: 21 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 341'
LOGGED BY: R. Cavaterra	SHEET 3 OF 5

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
144 144-152½	d	Contin as abv: Type III VB dolomitic LS	102/102°					fr. 161' v. minor, loc low & fracture no FeOx, clean, excellent core
152½ 152½-162½	III d	Contin as abv; quite uniform thruout (minor cse striae cc veinlets thruout sequence; minor loc. stylolites (irreg cracks and h&v bedding type)) grades to.....	120/120°					
162½ 162½-168½	d	163-±203' Weakly Dolomitic Type II VB LS; loc. patches of v. finely dis. dolomite; micro-cryptotexture, H-brn;	72/72°					
168½ 168½-178½	II d	v. minor shell debris; ooids not evident wk. dk. brn, streaky mottling; fr. 168.5' ll. dolomite dusting persists; v. loc. ooids evident; loc. thin elastic bedding laminae at 80°; weak dk. brn, streaky mottling	120/120°					
178½ 178½-184	(d) II	fr. 178' dolomite dusting weaker (<1%) sh. dk. (H-med brn); ooids more prominent	66/66°					
184 184-194	(d) II d	shell debris v. minor; loc. soft, blk carbonaceous seams (2-3m), irreg; minor stylolites, cc veining; Contin as abv; incr. dolomite dusting pervasive (±5%) to irreg. stylolitic etc @ 188', shp fr. 188' wk dolomitic dusting (±1%) @ 194.9', 2" bed w/ fragmental texture (H-brn subrd to subangular clasts, ¼-2" w/loc. tip-up shapes in the H-brn Type II matrix;	120/120°					
194 194-204	(d) II d	shp stylolitic, dolomitic, hard, blk ¼" 2nd etc; Similar 1" bed @ 195.8' w/ clean, shp 2nd etc @ 80° (apparently not defined, clasts more rounded) @ 197.8', ¼" hard blk (Mn?) bed @ 85° foll. by 9" of similar fragmental texture w/ loc tip-ups (gradat. 2nd etc)	120/120°					
204 204-212	(d) II	@ 200' irreg ¼" laminated dolomite bed, ±70°; fr. 200' dolomite decr. gradually to <1%; ±203- Type II VB LS H-med brn; micro-cryptotexture; oolitic (ooids not prominent)	90/96°					fr. 204' mod-st low & fracture clean w/ H. mud along surfaces;
212 212-218½	(d)	v. minor shell debris; v. loc. wk dis dolomite in patchy areas add. to the loc. low & fractures cse cc veining minor, v. loc. stylolites (irreg.)	178°					

HOLE NO: VB-94-5	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 22 May 94 STARTED: 20 May 94
LONGITUDE:	COMPLETED: 21 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 341'
LOGGED BY: R. Cavalero	SHEET 4 OF 5

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
216							
218 1/2 - 224	(b) II	Contin as previous: loc. dk, streaky bddy laminae @ 70-80°; dislocated by thin fractures, veinlets and loc. stylolitic;	66/66"				
224 - 234	(c) III	contin as abv: faint hint of dolomite dusting (ca. 10%); fr. 231' crude fragmental texture w/ irreg. subangular to elongated (B bddy trend) "clasts" w/ ill-defined margins; lighter color, v. w. dky dolomite dusted in a dk brn, non-dolomitic matrix; loc. well-defined matrix ooids (gen vague to absent)	120/120"				
234 - 244	(d) III	fr. 234' abv texture bec. sl. stronger w/ incr dolomite dusting (1-20%) in both matrix and lighter "clasts"; loc. dk bddy laminae (1/4-1/2" bands), irreg. wavy, dislocated, ± 20°	120/120"				
244 - 254	III	Contin as abv; fragmental texture persists; loc. ending at bddy planes (± 80°), then reoccurring; w/ dolomite dusting to 245'; then non-dolomitic w/ unusual tiny, pale yell, recessive rhombohedra widely scatt throughout; clasts and matrix and no non-interclastic zones; ooids not evident; shell debris rare;	116/120"				
254 - 264	III	Contin as abv; fr. 254' ll. dolomite dusting recurs, confined to ll col. interclasts (@ 257.2', 1/2" pyrite pyritohedron in matrix) loc cse xtline calcite pods, patches w/ diss py	120/120"				
264 - 274	II	Fragmental texture ends 261' (abrupt); bec predom the lighter brn clast type w/ dk brn anastomosing bands as the remaining matrix material; - bec non-dolomitic, grading to H brn Type X VB Ls; ooids not evident; shell debris minor; loc. 1/4-1/2" ovoid, elongate (ll bddy) calcite nodules w/ a few, dense basal half and cse xtline cc filling the uphole half;	120/120"				
274 - 284	II	fr. 280.5', fragmental texture recurs; w/ dk developed w/ minimal dk matrix (anastomosing type as abv) locally absent fr. 282.5-284.5', then recurs as prev.	117/120"				
284 - 289	II	fr. 286.6-288.3' Fragmental texture well-developed; lge (upto 1") H brn clasts in 0 minimal dk brn finely clastic matrix (clast supported)	57/60"				

stylolitic ctes between clasts predom (stylolites loc. cut clasts)
 minor flat, arcuate rip up clasts (predom subrd to subangular)
 clasts quite homogeneous (no ooids, rare shell fragments)

* Fragmental texture appears to be a solution/rectification phenomena rather than an interclastal grainstone; clast elongation subll bedding trend @ ± 80°

fr. 222'
 v. minor, loc
 low fracture
 clean, anoxic

low fracture
 zone 242-254
 clean, anoxic

fr. 263'
 str. low
 fracture zone
 0-15° (predom
 subll w/ str
 muddy, FeOx
 encruste d;

Test Sample
 @ 247'

HOLE NO: VB-94-5	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 22 May 94 STARTED: 20 May 94
LONGITUDE:	COMPLETED: 21 May 94
DRILLER: Wayne Burwash...	TOTAL DEPTH: 341'
LOGGED BY: R. Cavalero...	SHEET 5 OF 5

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
289-295		fr. 289' fragmental texture recurs; wtkly developed as in 280.5-282.5' and 284.5-286.6'; fr. 290.6-292'; Fragmental texture well-developed as in 286.6-288.3', then weakens and dies out at 293'	72/72°					low & fracture zone 297-301.5 tight, clean 0-30°
295-304		fr. 293' med. brn Type II VB Ls as previous but sec. darker; microcline-cryptoclone, no ooids evident; rare shell fragments						well-defined stylolites gen sub ll bddy trend @ ± 80°
304-314		v. clear, uniform (No dolomite) 1/2" dolomite + blk, soft carbonaceous bed @ 303.2', 80° shp (sm silica patches in cc veinlet + foll. 2nd etc) 1/4" soft, blk carbonaceous bed @ 307.4', undulating ± 80° shp	120/120°					
314-323		fr. 308-312.1' Fragmental texture as previous; well-devel, gradually dies out downhole w/loc. well-defined clasts in dk matrix; predom sutured mosaic texture; Type III VB Ls grv-brn, fq. dk grey limy clay gouge, 1" @ 312.2'; rare frags. py in gouge; shp etc preserved @ 85°; dolomite + silica 2" below etc; then esp. silica patches and diss grains in grv-brn, oolitic Ls w/shell debris, Type III w/ lg diss py;	104/108°					diss py
323-331		313.5-321.6' Diabase dike/Sill; dk grn f.m.g. equigranular, subophitic text; minor diss. py; 7" thick chill margin @ 11" etc; 12" odd 2nd etc w/ 2" str (fox staining odd etc; both etc v. shp @ 80°; low & FeOx fractures in Ls foll. sill, extending into sill as beaded cc+py vein; diabase is leucoxene dusted and local w/ cc+epidote veinlets;	89/96°					± 12" core loss in fracture zone fr. 322.5-323.5'
331-341		321.6-337.6' Type III VB Ls grayish-brn microcline; oolitic; minor shell debris; minor diss py; fr. 329.6' sec cst-grd, str oolitic w/ abundant shell debris; silica patches, seams and v. th. f.g. diss silica, diss py wtk	120/120°					
		fr. 334.3' sec v. str. diss. silica, loc silica seams (maybe silica + dolomite) sh. incr in diss py; loc. sutured fragmental texture as abv fr. 336-337' 337.6-341' Karmutsen Volcanic dk grn, m.g. equigranular Basalt; shp 85° etc (sheared, gougy) w/ clasts of basalt in overlying Ls odd etc; basalt local w/ calcite-epidote veinlets; diss py thruout; (calcite omygdular for 6" odd. etc the epidote-calcite flooded next 6")						

Test Sample @ 326'

3787 / 3972
95.34%

3865 / 3972 ⇒ 97.31

HOLE NO: VB-94-6	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 24 May 94 STARTED: 22 May 94
LONGITUDE:	COMPLETED: 23 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 202'
LOGGED BY: R. Cavaterra	SHEET 1 OF 3

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
0-10'		Casing; HX core recov. for sample	N/A				
10-14	II	0-±15' Type II VB Ls H brn, micro-cryptoline; faintly oolitic; minor shell debris; loc. dk streaky bndg @ 75° grades to.....	41/48"				
14-24	III	±15-30.7' Type III VB Ls H-VH, brn microxtline (str. textured, rel cse); faintly oolitic w/ abund shell debris; charact. by "birdseye" texture (tiny dk spotting); loc silica seams; loc csextline cc veining (loc. vuggy and/or vein Bx developed)	118/120"				
24-34		Contin as abv: less shell debris; excell oolitic texture fr. 25' (lgt ooid clusters, loc.) str. dextline cc veining w/ vein Bx @ 28'	120/120"				
34-44	II	30.7-34.5' bed of blk soft carbonaceous shale and csextline dolomite Ls; laminated, drusy; v. shp; 80° cfs; // laminae; 34.5-51' Type II VB Ls; H brn; micro-cryptoline; ooids not evident; v. minor shell debris (similar to 0-15') fr. 47' H, v. lig. dusting of dolomite	120/120"				
44-54		51-54' Strong fracture w/ FoOx; core loss, rubble brecciated; 20° both sides of zone, planar; 54-±64' Dolomitic Ls; Type III VB Ls; H brn, microxtline, oolitic, soft shell debris lge. subangular patches (1-2") of fine drusem. dolomite (no pattern); minor silica seams; dolomite appears to be fracture-related	90/120"				
54-62	DLS II	±64-129.7' Type II VB Ls H brn micro-cryptoline; ooids not evident; minor loc. shell debris; v. loc fine-dusted dolomite patches adl. to low x fractures;	96/96"				
62-73 1/2	II	loc. dk brn streaky mottling; solid core between fractures; homogeneous	110/128"				

(stylolites not abund, irreg thruout abv sequence)

Excellent core for the top of the hole; loc. 60° fractures (no low x)

fr. 34' low x fracture. mod-loc str. (minor loc x film).

fr. 48' loc. v. str., bkn core w/ loc. rubble zones

(coarse core loss fr. 51-58.5') Major shear;

fr. 63' less low x fractures but still loc. strong; gen clean w/ surface mud filling and loc thin cc encrustations;

fr. 82' good solid core; minor loc low x fractures

Test Sample @ 25'

HOLE NO: VB-94-6	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 24 May 94 STARTED: 22 May 94
LONGITUDE:	COMPLETED: 23 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 202'
LOGGED BY: R. Cavaterra	SHEET 2 OF 3

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
73 1/2 - 83	I	Contin as previous fr. 82' bec. v. H-brn, non-mottled, no ooids evident, rare shell debris	114/114"				
83 - 90 1/2	II	Contin as abv: fr. 88', loc dk streaky mottling	90/90"				
90 1/2 - 94	I	Contin as abv	92/92"				
94 - 104	I	Contin as abv: homogeneous rel. non-descript (Good H.Cal lime)					
104 - 110	(U)	Contin as abv Fr. 105' abrupt transition to v. H. brn, sh. coarser Type II Ls w/ loc. well-defined ooid clusters; shell debris still v. minor	72/72"				
110 - 118 1/2	II		102/102"				
118 1/2 - 124		Contin as abv fr. 122' bec sh. dk, H-med grayish-brn	66/66"				
124 - 132		Contin as abv: 129.7-138' Dolomitic Ls fr. 129.7' w/ky dev, sutured fragmental texture seen near bottom of VB-94-5 Extr. H. lg. dolomite dusting incr downhole to patchy, finely disp dolomite;	96/96"				
132 - 138		fr. 134' loc dk bands, lenses of str. dolomite (lmy) @ 75-80° dolomite bec finely pervasive (dusting) w/ loc patches more concentrated than others; non-	72/72"				
138 - 140			22/24"				
140 - 150	II	dolomitic areas and loc. add to thin cc seams is similar to the previous Type II Ls; ooids not evident	104/120"				

Test Sample @ 102'

loc. fracture zone (low & ground core 90-97')

Fr. 115' low & fracture: resume; loc., wide-spaced

Fr. 138' shp increase in fracturing some low & but ± 80 feet, predom. core loc. shattered w/ rubble (Surface mud common along fractures)

HOLE NO: VB-94-6	BEARING: 070°
COLLAR ELEV:	INCLINATION: -50°
LATITUDE:	DATE 25 May 94 STARTED: 22 May 94
LONGITUDE:	COMPLETED: 23 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 202'
LOGGED BY: R. Cavalero	SHEET 3 OF 3

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
144		fr. 135' decreasing dolomite content to H. patchy dusting					
150	II	138-182.7' Type II VB LS med brn, loc. dk brn streaky mottling; micro-cryptotexture; oolitic (difficult to discern)	30/48"				Fracture/void zone 150.5-151
154	(a)	v. minor shell debris; loc grains of s.l.c.a, w/ly siliceous seams; fr. 154' minor, loc	59/84'				str low & fracture, core loss (surface mud) 155-157'
161	(a)	patches of H dusted dolomite along cracks H core (fracture-related); fr. 160'-170'					
172	(a)	loc zones of well-defined bedding laminae (dk brn) consistent @ 85°; rare bddy stylolites; loc. extr. H. dolomite dusting; @ 167.7', 2" fossil bed, abundant shell fragments, fine wavy bddy laminae (rippled w/ thin clay drapes) minor drapstone texture; thin, planar bedding laminae below @ 85°	121/132"				fr. 162' better core w/ loc. low & (sub) fractures
180	(a)	fr. 170' incl. patchy dolomite; finely drcem fr. 172' dolomite decr to extr. H., loc dusting, gone by 175'; Cont. in Type II LS loc dk brn to greyish-brn low dk brn; voids not evident; shell debris: minor to absent;	96/96"				
184	BIKE	fr. 178', characteristic irreg hard, blk, fairly pyritic laminae sub H bddy (maybe Mn)	48/48"				
190	II (a)	182.7-185' Altered Dike/Sill 15° etc shp 75-90° (irreg), cse cc along etc; 3-4" chill margin; cream-col, f.g. equigranular w/ small calcite dmgs dikes, minor f.g. diss. py; appar. blebd, altered basalt;	62/72"				
194		2nd etc irreg, shp @ 75-90° w/ f.c.c. calcite along etc 2" chill margin	10/48"				
202	End of Hole	185-188.4' Type II VB LS as abv greyish-brn, voids not evident; v.H., loc. dolomite dusting; 2" oxidized, clayey gouge @ 187' w/ associated cc vein material shp 2nd etc @ 70°; fall by str, v. cse xtlne cc veining @ 188.4' Has w/o xtlne calcite 188.4-(202') Fault Gouge cc veined Ls Bx fragments recov to ± 192' w/ surface mud; then H-med grn gouge w/ diss. py; totally altered and granulated Karmutsen Volcanics (prob. Basalt)	196"				

1901/2184
07.04

1997/2184
91.44

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 25 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavallero	SHEET 1 OF 9

Lkg. N20W

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
0-10'	I	Casing: HQ core recov for sample 0-±71' Type I VBLs lt-med brn, crypto-microxtline, conchoidal to subconchoidal, ooids ghostly to not discernible; minor shell debris; abund wte, xtline cc veinlets and dk, clear cc + silica seams (random orientation); fr. 14' scott 36/48"					
10-14		discreet low ± (0-80°) fractures and many					
14-24		healed fracture zones charact. by crackle Bx, vein Bx (core loc. broken, gen. fair to good); minor loc. sm patches of dolomite dusting; @ 24-25' primary fragmental texture (interclastal) mudstone clasts in a dk brn, streaky mottled matrix (relict bddy @ 75°)	111/120"				
24-31		fr. 25-32' bracciated, fractured, cc veined zone w/ dolomite as irreg patches devel. along the fractures and in Bx blocks; shp boundary between str dolomite and non-dolomitic areas; dolomite pale pinkish-grey to tan	79/84"				
31-41½		fr. 32' Type I VBLs as abv, lighter brn; veining less prominent; partially healed crackle Bx zones common, but less abund; ls bec v. lt brn to tan; sl. cc + low Type II (micro-cryptxtline)	119/126"				
41½-52		ooids ghostly, rarely discernible; tiny dk, clear spalling thruout (typical of prev. holes) open mud-filled fracture @ 41.5' fall. by 10° of Bx then core bec. more competent as fracture intensity decreases; loc. Bx add. to fractures persists, but gen. healed; loc. dolomite patches assoc, but minor;	119/126"				
52-62½		Contin as abv: str. mud filled fract/FH @ 58' (str. healed crackle Bx fall. to 61') (tan dolomite patch in loc Bx zone @ 57')	126/126"				
62½-73		Contin as abv: Type I, v. lt brn-tan tiny spalling absent; ooids rarely evident; scott. shell debris; crypto-microxtline fr. 64' primary textures common (bdng, lensing, comm w/ interclastal grainstone dev; bndg and clast mtrix darker brn	126/126"				
73							

fr. 38.3'
low ± fractures
(0-30°) bec.
v. local, wide-
spread (>10')
40-60° fracture
dominant; clean
breaks, loc. open
mud filled (surface
and commonly
w/ add. Bx

fr. 64'
crackle and
vein Bx assoc
w/ fractures
absent;
cc v. line cc
veinlets, pods
scott thruout
but not abund;
dk irreg cc +
silica seam,
cracks common
but not abund;
irreg. stylitic
seams bec. more
common

clasts lt brn equiv to the gen. Type I host) bndg = bddy trend @ ±75°
±71-±80' Dolomitic LS sl. cc, dk Type II (microxtline) (evident only from acid test)
lt. dusting grades to patchy to pervasive dusting (patches cc dolomite >10%,
interpatch areas e.g. w/ly dusted (1-5%); ooids not evident; shell debris rare to absent;
grades out as v. lt dusting to.....

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 26 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavaterra	SHEET 2 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
73-84	DLS	±80-86.2' Type I VBLs as previous v.H. brn-tan, crypto-microxtline; loc. good oord clusters, rarely discernible; loc. interclastic grainstone intervals (2-6") w/ v. sm to 1/4" clasts of v.H. brn mudstone in dk brn matrix; abund shell debris common; @81.8', unusual radiating spicule texture, sl. raised, abund in both clast and matrix (rough core surface w/ acid)	126/132"				
84-94	DLS	86.2-107.8' Type II VBLs, v.H. brn to tan; Wk. Dolomitic; micro-cryptoxline (csr. than previous, specular) ghostly ooids rarely discernible; minor shell debris;	120/120"				
94-104	DLS II	faint, patchy dolomite dusting (~1%); scath. v. irreg stylolites (often subll core); dk streaky mottling loc; finely dis. dolomite incr downhole to 5-10%; @104.5', dk gr, hard, finely fragmental (clasts) laminated. interbed 1/2" thick; str. undulating etc (trend 75°)	120/120"				
104-114	DLS I	107.8-112.7' Type I VBLs; v. pale brn to tan cryptoxtline; ooids not evident; no shell debris; charact v. hv dk spotting; loc. raised spicule texture (like 81.8' abv)					
114-124	DLS II	112.7-125.8' Type II VBLs; Dolomitic, 11-med brn, micro-cryptoxline; ooids not evident; rare shell debris; csc, dk brn, irreg mottling; fg. dis dolomite, wk 8-5%; loc hard, blk irreg bddy seam @ 123.5' (Mn?) last 8" thinly bedded @ 80°, indiv beds var. dolomitic, ends at irreg. stylolitic dolomite bands	120/120"				
124-133 1/2		125.8-138' Type II VBLs H. brn, homogen micro-cryptoxline; ooids not evident; v. minor shell debris; Fr. 129' bec clastic; H. brn, subangular clasts of mudstone as abv (125.8-129') in a dk brn matrix, clasts elongate // bddy @ 80°; v. loc. irreg dolomite bands @ 131.5' followed by v. wk	107/114"				Fr. 128-129' loc. str 40° fractures
133 1/2-140		dolomite dusting for approx 12"; then non-dolomitic, H. brn Type II w/ short clastic interbeds; str. fossilif. clastic bed ends in shp (75°) stylolitic etc w/ fg. H. brn mudstone @ 135.7'; interbedd clastic/homogen mudstone sequence ends abruptly @ 138'	78/78"				Fr. 137' str. fracture zone; both low & (0-20°) and 50-70°; core bkn to loc. fragments (recov. good)
140-144		138-154.1' Type III VBLs v.H. brn, microxtline; ooids not evident; v. minor shell debris	48/48"				

charact. tiny dk (clear) speckling throught a very homogen matrix
w/ minor sl. dk brn mottling (small), typical of the mottles w/ ooid clusters,
but no ooids seen; v. loc. short, clastic intervals fr. 141-142' (loc. of shell concentrations)
cc veining mod-wk; stylolites rare

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 27 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavaleri	SHEET 3 OF 4

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
144-154	II	Contin as abv: homogeneous	118/120"				
154-162	III	Contin as abv; ends at 159.1' at Fault 159.1-175.9' Type I VB LS v. pale brn to buff, cryptoxtaline, non-oolitic; v. minor shell debris; extr. homogeneous;	96/96"				
162-172	I	minor irreg stylolites (wkly silicic) fr. 173.4' bec. wkly dolomite-dusted (<1%) w/ 40-50° fractures, cc vein bx; ends at 175.9' w/ v shp irreg (80%) 1/2" med dolomite bed	120/120"				
172-182	II	175.9-205' Type II VB LS v. pale brn, cryptoxtaline @ etc, grades coarser and drk downhole to H. brn, micro-cryptoxtaline; ghostly oolitic (poorly defined); scall. shell debris	120/120"				
182-191 1/2	(b)	wk, fine drk brn streaky mottling; loc patches of extr. H. dolomite dusting (<1%); clastic interval @ 185' w/ shp bddy etc @ 185.1' @ 75°; fr. 185.1' bec. v. H. brn to tan, homogeneous; sl. finer-grd, non-mottled, non-dolomitic	114/114"				
191 1/2-200	II	oids not evident; v. minor shell debris; rare stylolites; charact. clear, dk tiny speckling minor cc veining little or no textural variations grades to	102/102"				
200-206		205-213.2' Type II Dolomitic LS fr. 205' bec. dolomitic; extr. H. dusting, grades to mod. dusted (rel. cse, pervasive), cc 1% → ±10%	72/72"				
206-214	II	dolomite ends abruptly @ 213.2' 213.2-240' shp rttion to sl. drk brn, highly textured LS (Type III VB LS, cse microxtaline) charact. by v. fine wavy, ripple-like laminae // bddy at 75° then str. fig. dk speckled texture ("Birds Eye Texture")	94/96"				
214-219 1/2	III	fr. 214' ripple-laminae dies out, but "birds eye" texture strong in clear matrix; <1-lum, ovoid to sl. elongate/ellipsoidal oids not evident; v. minor shell debris	60/66"				

2" dk, muddy, fault gouges @ 156 and 159.1' brecciation strong fr 1-2' on both sides of faults str cse cc veining adl. to 2nd flt; 1st flt, 2nd etc shp @ 35° app. direction to low 5° fracture minor following; 2nd flt shp diverging etc @ ±60°

40-60° fractures and wide-spaced low 5° fractures persist; loc bx assoc ± cc veining

fr 193' shp incr in low 5° fracture bec v. strong frequent fr. 204' (clean, polished surfaces;

Test Sample @ 169'

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 27 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavalero	SHEET 4 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
216							
219 1/2 - 228		Contin as previous fr. 224' "birdsEye" feature ends abruptly, bec. homogeneous Type III; med. brn. microxtline; no ooids evident; v. minor shell debris	102/102°				fr. 214-228' extr. strong low & fracture. (0-20°) clean, polished surfaces (good recov. despite this)
228 - 236		Contin as abv: cc veining minimal; stylolites rare to absent	96/96°				fr. 228' low & fractures weaken gradually
236 - 240		Contin as abv: circa 240' bec finer-grd (Type II) no cty, gradat.	48/48°				fr. 241' good solid core (out of fracture zone)
240 - 250		240-254.1' Type II VB Ls H-med brn micro-cryptxtline; no ooids evident, v. minor shell debris; sl. incr in cc veining; stylolites common (highly irreg, curved, random orientation w/ v. loc linear type subll bddg trend); bddg laminae @ 246.3'; v.f.g.; homogen abv; finely clastic w/ abundant shell debris below (downhole)	120/120°				
250 - 260		bddg @ 75°; loc offset by hairline cc seams; fr. 246.5' bec more fossiliferous, scatt shell debris incl. crinoids; loc. areas w/ "birdsEye" text; still no ooids evident; cc + silica loc. in hairline seams; grades coarser downhole to shp, stylolitized etc @ 254.1' (trend 80°)	120/120°				
260 - 270		v.f.g. mudstone (H. brn) below etc. grading csr to Type III. 254.1-265.5 Type III VB Ls med greyish-brn, microxtline; "birdsEye" texture; no ooids evident; v. minor shell debris; bedding laminae fr. 268-265.5' (90°-75°-80° downhole)	120/120°				
270 - 274		loc. shell horizons at bddg etc; loc beds w/ phosphate spicules; loc. pyritic beds, loc. crin. dal; grading, x-bddg evident;	48/48°				loc. 10° fracture: fr. 256-265' bec. strong in loc. fracture zone fr. 268- 274'
274 - 284		265.5-270.6' Type II VB Ls H. brn, micro- cryptxtline; no ooids evident, homogen w/ scatt well-defined crinoid ossicles; 270.6-271.8' thinly bdd, v. cse xtline dk brn LS; ctes shp // bddg @ 80° thin v. cse, shell debris layers, loc. x-bddg; faint hint of dolomite in H. brn laminae	120/120°				
284 - 288		271.8-277.3' Type III dk brn, cse xtline LS; crudely bdd w/ 2-5mm bands of finely clastic grainstone; no ooids; shell debris common; bddg = bddg @ 80°; v. shp, extr irreg stylolitic and etc. v. wk dolomite dusting tow etc; 277.3-278.9' Type II H. brn, micro-cryptxtline LS (dolomit. ic, wk dusting to patchy) scatt shell debris, no ooids; bec sl. csr, mottle downhole; v. shp, v. irreg stylolitic and etc	118/120°				

Test Sample @ 249'

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 28 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavalera	SHEET 5 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
288		278.9 - 301.7' Type I VBLs; v. lt. brn, crypto-microcline; homogeneous, no ooids evident;						loc. low & fracture zone 284-292'
294-304	I (d)	Scal shell debris (good crinoid ossicles) loc. intervals w/ clastic textures (med-lge v. lt. brn, f.g. clasts in a dk sl. car-grd matrix; loc. bddy ctes, irreg, stylolitic marked by color of grain size variation across cte; Extr. lt. dolomite sprinkling (ca. 1%) fr. 290'; loc. dk laminated bedding interval (2') @ 299.5' (35°); 2 nd etc v. shp @ 85°	116/120					str. low & fractures 303-311' (fragmented core)
304-310	I	801.7-302' limey, pyritic blk shale bed (laminated) w/ pyritic calcite fragments oxidation front and 2 nd etc (shp 85°); bed sheared (v. minor) 1/4" fr. 1 st etc						
310-320	II	302-308' Type II VBLs dk brn, micro-cryptocline non oolitic, shell debris rare to absent; str bddy laminae to 306' (H/dk alternating beds w/ abund shell debris, then dk brn, homogen w/o fossils)	60/72					
320-330	D	308-309' Type I VBLs v. pale, cream-col, dense, homogen; no ooids, no shell debris; ctes missing in fracture zone (appear shp to v. abrupt)						
330-340	I	309-310' Type II VBLs as in 302-308' 2 nd etc shp, irreg at 70°	120/120					
330-340	II	310-311.7' Banded Dolomite pale pinkish-cream to buff; limey; laminae at 70°						
330-340	II	311.7-314.2' Type I VBLs, well-bddy; lt brn/med brn bddy laminae non oolitic; abund shell debris along bddy 1 st etc shp @ 70°, bddy laminae @ 65°, 2 nd etc shp @ 55°	120/120					fr: 330' fractures increasing
340-350	II	314.2-330.1' Dolomite; v. pale pinkish-cream, msv; clastic w/ shell debris to 317.1' (scat sub bdy v. lt cream-col. (casts) br, yell-orange oxidized zone fr. 316.5-317.1'; fr. 317.1' v. str bddy @ 70° inc to 80° downhole, bec. inc. limey; fr. 320' w/ky bndd to msv, then str bddy @ 80° fr. 322.9-323.5' fr. 323.5' msv lt pinkish-grey limey dolomite shp, extr. irreg. 2 nd etc; minor lg. pyrite on and adl. cte in dolomite	118/120					loc. low & fractures w/ 40-60° fractures dominant in opposite directions; loc. thin gauge surface mud, and brecciated assoc.
350-360		330.1-370.7' Type II VBLs; med-dk brn, thinly bddy, crypto-cline (loc. finely clastic) to 332.1', then dk brn, non-bddy, finely clastic grainstone to 333.5', grades to more typical lt brn, micro-cryptocline Ls grading dk, car-grd downhole to shp, irreg etc @ 337.1'; fr. 337.1' v. lt brn @ cte bec med brn, micro-cryptocline; ooids not evident; scal. shell debris; Contin. as abv bec. lt brn, v. homogeneous	119/120					
360		fr. circa 350' (still no ooids evident, v. minor shell debris, v. wk, loc "Birds Eye" texture)						

Test Sample @ 339'

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 29 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavaterra	SHEET 6 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
360		Contin as prev. v. homogeneous;	44/48"				
364	II	minimally early coarsening, seams;					str. low & fractures
364		stylolites virtually absent;	96/96"				fr. 367-375
		fr. 365' bec. sl. dk brn w/ irreg dk brn mottling;					(loc. 40-60°
		loc. H brn, subangular "clasts" in a dk brn matrix;					cross fractures
372		more shell debris, still no ooids evident;					
372		abrupt xtion (70°) to.....	115/126"				
	DLs	370.7-380.8' Dolomitic LS grey-brn (pinkish hue on core surface)					fr. 379'
		slr. dusting (10-20%), pervasive w/ loc. clear zones of H brn LS as abv.					close-spaced
		loc. bndg @ 70°; scatt shell debris; dolomite incr downhole					60° fractures
		as lge irreg dolomite patches in the LS; shp 2nd etc @ 65°					core loss fr
382 1/2		380.8-389.5' Type II VB LS as previous	18/18"				381-382 1/2'
384	II	H. brn, micro-cryptotexture; ooids not evident	15/48				then ground
388		scatt shell debris; Contin thru major fracture zone fr. 381-388.5'					core in str.
388		fr. 388.5' bec. v. pale brn, then grades abruptly to.....	66/72"				cc veining
		389.5-446.6' Type III VB LS v. H. brn,					fr. 382 1/2-384
		csr: microxtline; str. oolitic, minor					contin to:
394		scatt shell debris; str. irreg csextline, wh.	60/84"				388 1/2'; fr
394		cc veining; loc vein bx in fracture zone; fractures are cse cc encrusted,					384.5-388.5'
401		loc. vuggy, and weakly oxidized; stylolites rare to absent;					<1' of rubble
401	III	contin as abv.	60/60"				plus 2' of
406							Surface mud
406		Contin as abv	87/96"				Copper, major
		homogeneous sequence					open fracture
414							to surface)
414		Contin as abv; bec. sl. finer xtline;	113/120"				solid core to
		ooids ghostly, but present; shell debris					394' then
		v. minor to absent;					extr. broken
		loc. 1/4" dk, finely clastic bedding plane @ 423' (70°)					(40-60° fractures
424		fr. 423' bec. csr. xtline, H brn; vague ooids					dominant) w/
424		w/ mod-str, v. fine "Birds Eye" texture; "eyes"	120/120"				brecciated,
	III	appear to form in the center of ooid ghosts, but					shatter zone
		subangular "eyes" occur where no ooids are evident; incr. shell debris					and surface mu.
432		@ 432.3' v. shp, extr. irreg stylolitic etc (faint 70° bddg lamination for 6" add etc in previous card)					circa 400'
		fr. 432.3', v. H brn, v. finely xtline add. etc bec incr csr xtline w/in 6" to					40-60° fracture
		H. brn, microxtline, oolitic similar to previous interval from 423-432.8'					persist (1-6"
		w/ v. wk, fine "birds eye" texture; instead charact. by scatt. <1-2mm dk brn					core pieces);
		mottles (ooid to streaky); v. minor shell debris; ooids ghostly					fragmentation
							plus core loss
							circa 413'
							fr. 419'
							less fracturing
							good core
							persistent
							40-60° fractures
							v. loc low &
							fractures

Test Sample
@ 420'

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 29 May 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavaterra	SHEET 7 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
434-444	III	Contin as abv fr. 1" gauge @ 439.5' bec v. wkly dolomitic (cstr. lt sprinkling, <10%) fr. str cc vein Bx zone @ 444-446.6' grades to	120/120°					fr. 439.5' incr. low & fractures (mod-good core) loc Bx where low & and 40-60° fractures intersect; v. thin 1/4" gauge at 439.5', 444', and 446.6' (all @ 70°); v. str oxidized cc vein Bx betw. last two fits;
444-454	(d) DLS	446.6 - 469.7' Dolomitic Ls H-med brn, Type II as abv w/ lt. dolomite dusting (loc. non-dolomitic areas, esp odd. late cc seams ± silica) incr downhole to pervasive (55% w/ loc patchy areas >10%) distinct pinkish hue to core surface;	120/120°					
454-464	II	fr. 452-456.8 str network of thin, dk cc seams (healed crackle Bx); ends in a 6" zone of v. str healed Bx bounded by dk, hard, pyritic bands w/ dolomitic Ls Bx fragments; dk bands @ 80° w/ v. th. brn, v. wkly dolomitic Ls w/ v. str healed Bx texture;	120/120°					fr. 454' good solid core w/ wide- spaced low & fractures
464-474	(d) D	fr. 455.5' v. str dolomitic w/ nearly msv patches; dolomite decr downhole bec. lt dusted fr. 467' in type II H. brn, non-oolitic Ls w/ minor shell debris and abund phosphate spicules (high relief and oxid); ctc @ 469.7', 1/2" blk pyritic shale bed w/ cse wte to clear, bluish-white cc clasts and irreg bands; ctc irreg, undulating @ ± 70°	120/120°					
474-482	(d) II	469.7 - 473.4' Dolomite msv, lt pinkish to gray-brn dolomite w/ lge areas (sharply defined) of non-dolomitic, dk brn Type II Ls (rel. fine, crypto-microxtline), oolitic, no fossils; no ooids evident in the dolomite non-dolomitic to wkly dusted Ls bec predom over msv dolomite areas, tow ctc.	96/96°					
482-492	DLS	ctc shp @ 70° marked by dk brn banding	120/120°					
492-502 1/2	d	473.4 - 492.7' Dolomitic Ls (Type II VB Ls) H. brn, oolitic, micro-cryptoxtline, but much cse w/ incr dolomite; minor shell debris abund dk stylolite, irreg, often curved, loc bd'g type, but domin set @ 40-50° core angle Dolomite wk, finely disse at ctc, incr downhole (3-5%); loc non-dolomitic interval 478-479.5' fr. 479.5' incr. gradually, finely disse (2-5%) to rel. cse, str. disse fr. 485' (10-20% w/ loc >20% patches); 1/4" blk, pyritic shale bed @ 488.5'; v. irreg, stylolitic; cse-grd, pyritic DLS abv ctc, fig. non-pyritic below (downhole); v. shp 75° ctc (dolomite/non-dolomite)	126/126°					
502 1/2 - 513	II	492.7 - 507' Type II VB Ls H brn micro-cryptoxtline; v. str oolitic at ctc contin oolitic, but incr. difficult to discern; minor shell debris; v. homogeneous w/ conspicuous fine "birds eye" texture (bec more prominent downhole as ooids bec. more ghostly);	126/126°					

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 1 June 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Carleton	SHEET 6 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
504		Contin as prev: fr. 507' grades abruptly to 507-594 EON Type III VB Ls H-brn, micro-finely x fine (rel. cse); str.						good solid core contin.
513-523		"birds eye" texture, brown spotting incr. to an intense "honeycomb" texture circa 512' w/ ooids, shell debris; highly textured down hole w/ incr to v. abund shell debris, ooids, spotting plus "birds eye" texture (only the ooids are round, others are subangular to oval);	120/120"					loc low & fractures (tight, clean minor vein B)
523-533		Contin as obv: excell. ooids with, and distinct from, the "birds eye" texture; less shell debris	126/126"					(typical cse w/ cc veins gash veins throughout and all thin stylolitic seams seams cut the cc veinlets cc gash veins, loc Bx later than both) loc. crackle Bx (healed) fr. 533-541'
533-543 1/2		Contin as obv	120/120"					
543 1/2-548 1/2		Contin as obv: Virtually no change in the highly textured sequence	126/126"					good core contin; fr. 554' minor, loc low & fractur.
553 1/2-564		Contin as obv: "birdseye" texture loc wk. circa 466'; dk brn streaky mottling; circa 571', loc dk brn, fine, wavy ripple-like lamellae; with dolomite dusting (last a hint) fr 571'; "birdseye" texture ends remains oolitic, sl. dk brn; not as highly textured w/ med-brn, ovoid mottles dominant; minor shell debris	120/120"					40-60° cross fracture. bec. dominant (v. tight, clean)
564-574								
574-584	(d)							

HOLE NO: VB-94-7	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 1 June 94 STARTED: 23 May 94
LONGITUDE:	COMPLETED: 27 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 594'
LOGGED BY: R. Cavolera	SHEET 9 OF 9

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
576	(d) III	@ 579.3' sh, irreg stylolitic etc, ±75°					
	(d) III	abund shell debris at top of following					
	III	sequence; v. lt brn, oolitic; shell debris downhole;					
584	(d) III	contin v. faint dolomite dusting (<10%);					
584-594	(d) III	@ 581', 1/4" tan dolomite bed w/	120/120"				
	d	Solution channelling; at 70°					
	III	fr. 581' v. lt brn, non-dolomitic					
	d	w/ ooids, str. "birds eye" texture					
594	End of hole	dk, thin stringers and loc. bedding stylolitic fr. 581-582' below etc					
		ends at thin dolomite bed (70°) at 584'					
		fr. 584' lt dusted, patchy dolomite					
		in lt. brn, whly mottled LS; dolomite					
		incr to pervasive, cse but whly dissem					
		downhole; v. strong shell debris in cse dissem					
		dolomitic LS at end of hole					

good solid
core contin
to end of
hole

6827/7008
97.42

HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 30 May 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: P. Cavalera	SHEET 1 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO ₂	Mn
0	LK9 N20W	0-30.8' Overburden Cobbles, boulders of Karautsen Volcanics (basalt) and VB Ls Prob rubble filling sinkhole					
10	Ob						
20							
30							
30-34	D	30.8-35.3' Dolomite; pinkish-gr, 38/48"					
34	D	Hsv, finely xtlne, limy; fr. 32.7-33.2' well-budd to cst. clastic texture 1st dip 70°, 2nd shp 85°, 3rd @ 80°; then 106/120° msv pinkish-gry - tan as prev.; 2nd cte missing (brn core)					
34-44		35.8-69' Type I VB Ls to ± 36' H brn, abund shell debris; shp 80° cte, stylolitic, offset by fractures fr. 36' v H brn, oolitic, v. minor shell debris; cryptoxline grades to v pale brn to cream-col Ls; oolitic; dense, 120/120"					
44	I	homogeneous (± 39.5-42.6'); then grades to H brn cryptoxline, oolitic w/ minor shell debris; stylolites rare; abund wtr, see xtlne cc veinlets (gash type) and hairline, bleached (cream-col) cte lined cracks, seams (loc crackle Bx where v. abund); 108/120°					
54		fr. 54' bec v. pale brn, extr. homogeneous w/ ghostly ooids barely discernible; rare shell frags; finely crackled (gen. healed)					
54-64							
64		Contin as abv; abrupt xrtion (no cte) to.... 120/120° 69-85.5' Dolomitic Type I VB Ls w/ fragmental appearance; wk patchy dissen dolomite loc. zones w/ H brn subangular "clasts" in dk brn matrix, xrtional to dk brn, streaky					
72		nothing in a H brn matrix ("clasts" ill-defined, irreg); dolomite patches transgress "clasts" and dk brn matrix; no ooids evident; scatt shell debris. (loc good crinoid ossicles); fr. 73' bec more homogeneous ("clasts" absent), v. wkly dolomitic					

fr. 30' core
gen. brn
(cgs) rel. str
low % fractures:
10-30' bc
bx, shearing
along fracture
surfaces;
40-60'
cross fractures
common (thin
clear calc. to
film on surfaces,
loc. solution
cavities;
core improving
fr. 64';
less frequent
low % fractures
(3-4/20')

str vein bx
@ 74' foll by
str veining;
shear w/ gauge
@ 76.8' foll by
contin str veining and
vein Bx to
79.2'

Test Sample
661'

HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 30 May 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED:
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: R. Cavallero	SHEET 2 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO2	Mn	
74-84	I (d)	fr. 74.6' abrupt xition (±80°, concave obscures etc) to v. lt. brn, ghostly oolitic ls w/ lt. dissem dolomitic patches (irreg); minor shell debris; mod. dk brn, streaky mottling; dolomite 1-3%	117/120"					fr. 82-102' v. str brkn str. low x fractures w/ FeOx and abund surface mud; loc gang and vein BK; core loc. fragmented where h x x-fracture (40-70') also occur; (stropen fract. fr. 85 1/2 - ±87' w/ ccveining, brecciation and abund surface mud) (Similar zone fr. 97-99')
84-94	I	Contin as abv; dolomite incr to 5-10%, dis., nearly pervasive fr. 82' 85.5 - ±87' Open Fracture, rubble, brecciated fragments and surface mud ±87-102' Type I VB LS v. H brn, crypto-microcline; ooids not evident; shell debris not seen; str. brkn in fracture zone; loc str ccveining, vein breccia;	101/120"					fr. 102' good solid core (minor v. loc. low x fractures)
94-100	I	str crackle bx thruout (healed by rextlized calcite); fr. open fracture @ 97-99', bec v. dk brn, homogenous abv. etc missing at end of str. fracture zone;	53/72"					loc solution cavities fr. 117.1 - 117.8'
100-106		102-120.2' Dolomitic LS; lt. gry-brn w/ pinkish hue; finely dissem dolomite (pervasive w/ stronger patchy zones) 10-20%, ooids texture in ls matrix; loc. msv cream-col patch @ 110.2'	96/96"					
106-114	DL II	fr 111' dolomite decr to v. finely dusted (pervasive, not patchy), 3-5%; host ls is type II VBLs v. lt brn, micro-cryptocline; ghostly oolitic; no shell debris evident; fr. 118' fragmental texture w/ H brn, large "clasts" in a v. dk brn matrix; "clasts" oolitic w/ shell debris, weakly dolomitic; matrix w/o ooids, shell debris, non-dolomitic	120/120"					
114-124		abrupt xition on stylolite to..... 120.2 - ±191' Type II VBLs	85/90"					
124-131 1/2	II	lt. brn, micro-cryptocline, oolitic, scottshell debris; bec v. str. "Birds Eye" texture down hole w/ excell. ooids distinct fr. the "birds eye" spotting; texture weakens down hole, finer, more localized	24/36"					ground core 1' @ 131.5' (low x fracture, Zone fr 138' bec. v strong fr. 147'
131 1/2-134 1/2		fr. 141' bec homogeneous; "birds eye" text. absent, ooids indistinct, v. minor shell debris	78/78"					
134 1/2-141			31/36"					
141-144								

Test Sample @ 129'

HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 31 May 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED: 31 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: R. Cavatone	SHEET 3 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
144							
144-154		Contin as abv v. homogeneous loc. v. fine "birds eye" text. loc faint bndg @ 80°	108/120"				
154							
154-161 1/2		scatt dk stylolites; v. irreg, both fracture-related and eddy type, loc sh. silicic;	77/90"				
161 1/2							
161 1/2-168		Contin as abv	78/78"				
168							
168-174 1/2		Contin as abv: loc. wk "birds eye" texture loc. str. ooid clusters	63/78"				
174 1/2							
174 1/2-184		Contin as abv	103/114"				
184							
184-190		Contin as abv	63/72"				
190							
190-196		abrupt xition (c/c zone missing, core loss, rubble) to... ± 191-213' Type III VB Ls v. pale brn, micro-finely xthne; textures remain as abv; oolitic (loc. good cluster)	56/72"				
196							
196-204		fine, loc. "birds eye" texture; scatt. shell debris; mainly lighter color w/ incr grain size;	92/96"				
204							
204-210		Contin as abv	67/72"				
210							
210-216		Contin as abv; shp 80° c/c @ 213' w/ minor solution channel along c/c	88/96"				
216							

Contin v str
low & fracture
zone (core loss
loc vein BK,
consid surface
mud;
fractures
spaced a few
inches to loc.
3';

Contin
fractured
as abv.

fr. 197'
slightly less
fractured
(core rarely
exceeds 6")
loc. fragmented
zones; contin
core loss

Test Sample
@ 203'

DLS

HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 31 May 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED: 31 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: R. Cavalero	SHEET 4 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS				
				CaO	MgO	SiO ₂	Mn	
216		213 - 236.3' Dolomitic Ls						Fr. 218' better core less frequent, tight fracture (low #) typical of the dolomitic zone 40-60° fracture more prominent.
218		218-224 med-dk brn, rel. cse pervasive dissem dolomite; (±20%); host appears to be finer than previous Ls	72/72"					
224		(Type II); masked by dolomite; ooids not evident; scoll. shell debris; dk brn spotting and minor streaky mottling; fr. 220.5-228' cream-col. nearly msu dolomite; fr. 227' dolomite decr. bec v. lightly dust w/stronger patchy zones vague ooids; fine "birds eye" texture now evident	120/120"					Fr. 236' core brkn; loc. low # fracture str 40-60° cross fracture.
224-234	DLS (II)	234-240 patchy, wk dusting (3-5%) contin to shp, irreg, stylolitic etc @ 236.3' (str. shell debris add. etc at base of the DLS;	68/72"					
240		240-249 236.3-237.3' Type III VB Ls v. pale brn similar to previous (191-213'); grades to 237.3-270.8' Dolomitic Ls (Type III)	96/108"					Fr. 255' sl. less fract. (better core)
249		249-255 similar to abv fr 213-236.3'; H-med brn, less dolomitic than prev.; loc. str cse patches to 240', then H. dusted, irreg patches (3-10%); Ls oolitic (indistinct); dk brn spotting; v. fine	72/72"					
255		255-262 rel. wk "birds eye" texture; minor shell debris v. loc. H brn dolomite bdg (anastomosing 1/2-1" zones) @ 60°; minor, irreg thin, dk stylolites (fracture type); loc. cse py grains; fr. circa 260' shp incr in	84/84"					Fr. 268 1/2' good solid core loc. low # fractures w/ 40-60° cross fracture.
262		262-270 shell debris; "birds eye" texture v. wk to absent; ooids not discernible; dolomite in v.f.g. lightly (1-3%) dusted patches (v. irreg shapes); 2nd etc v. shp @ 70° dissem. dolomitic banding add. and // etc;	93/96"					
270		270-273 1/2 270.8-298.2' Type II VB Ls	42/42"					Test Sample @ 280'
273 1/2		273 1/2-284 pale brn, micro-cryptoxline; ooids not evident; minor shell debris; homogeneous w/ minor streaky, dk brn mottling; minor cc veining, minor stylolitic seams (bdg type stylolites rare to absent)	126/126"					
284		284-291 Contin as abv	81/84"					

288

HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 31 May 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED: 31 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: R. Cavender	SHEET 5 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
288							
291-296	II	Contin as previous: slt etc @ 298.2'	60/60°				
		1/2" irreg., undulating bed of interbedd med dolomite and blk, carbonaceous shale (wk py);					
296-303	III	298.2-312' MK Dolomitic LS (Type III)	84/84°				
		extr. th. dusting of dolomite in H-med brn; microxtline LS; no ooids evident; scath shell debris;					
303-313	dLS (III)	py common in dk stylolitic cracks; 1/2"x1/2"	120/120°				
		v. cse w/xtline cc podrimmed by py 4" fr. etc;					
		2nd laminated dolomite/carbon. shale layer 6" fr. 1st etc;					
		Ext. irreg stylolitic carbon. shale/dolomite seam @ 300.2'					
		Dolomite incr sl. down hole (gen pervasive w/ loc.					
313-320	I	non-dolomitic areas gen odd. cc seam @ around lge 72/84° fossil frags; 1-3% dolomite; fr. 308' bec v. th dusted					
		grade imperceptually circa 312' to.....					
320-330		312-347' Type I VB LS					
		H.brn, crypto-microxtline; ooids not evident;	116/120°				
		shell debris rare to absent; v. minor dk brn streaky mottling;					
		Ext. homogeneous; cse w/xtline cc veining minor;					
		dk cc seams minor; stylolites rare to absent;					
330-335		Contin as abv; sl. incr. in shell debris	59/60°				
335-341	I	Contin as abv	62/72°				
341-345 1/2		Contin as abv	45/54°				
345 1/2-350		fr. 347' abrupt sition to.....	44/54°				
		347-360.6' Type III VB LS med-dk brn.					
		microxtline; vaguely oolitic; scath. shell debris;					
350-360		str. dk brn streaky bndd w/ loc thin elastic layers	120/120°				
		(in H-med brn clasts in dk brn matrix); fr. 350'					
		bec. v str. cse fragmental text.; H.brn, subangular w/rd edges clasts (2 1/4"-2") in dk brn matrix					
		(loc. H.brn dk brn bndd where clasts are not well-developed); bddy, clast elongation @ 70-80°;					
		clasts finer-grd than matrix and more homogeneous (matrix faintly bndd, more detrital in appearance (prob. microxtline cse. material); dk bddy stylolites common, loc w/ silica; too thin, hard					
		dark stylolitic seams su all bddy frand;					
		fr. 358' bec dolomitic; H.brn clasts w/rel. cse dissem dolomite (3-5%); dk brn matrix					
		v. finely dusted to loc non-dolomitic (±1%)					

fr. 328' bec fractured low & w/ cross fracture (40-60) core broken, loc. fragmented

fr. 350' good solid core, minor H & cross fractures, tight, v. local low & fractures

HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE 1 June 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED: 31 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: R. Cavaterra	SHEET 6 OF 7

INTERVAL (FT.)	GRAPHIC LOG	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
360							
360-369	(d)	str. fragmental interval ends @ sm flt bx @ 360.6' (±90° core);	105/108"				
		360.6-380.2' Type II VB Ls lt-med brn sl. finer than previous, micro-cryptotexture;					
369-374	II (d)	oids not evident; scall shell debris; dk brn streaky bndg, mottling thruout; loc. 1/4-1" intercrystal layers (clasts lt brn in dk brn matrix, < 1/4" ave)	60/60"				
374-380	(d)	H. v. lg. dolomite dusting decr. gradually downhole to ext. H. mainly confined to H brn phase; fr. 379'; dolomite occur loc. add to low x fractures; stylolites common (bdg type of ll low x fractures);	72/72"				
380-390	(d)	fr. 373' abrupt v. iron to str. fragmental zone; 120/120" clasts as previous, but ave < 1/2" (well-defined); some clasts w/ sprinkling of csc dolomite, others non-dolomitic; thin bdg stylolites common between clastic and thin, non-clastic layers					
	III	fr. 375.5' clast size incr to > 1"; 1" msv dolomite / blk carbonaceous shale @ 376.5'; irreg at 70°					
390-398	(d)	str. clastic interval follows (1/8-1") to 377'; fr. 377' dk, streaky bndg @ ±80° w/ loc. ± 1/2" finely clastic interbeds; clasts and lt. brn phase w/ky dolomitic (patchy, fracture-controlled; abund shell debris; no ooids	96/96"				
	(d)	shp stylolitic etc @ 380.2'; 80°					
398-404	II (d)	380.2-399' Type III VB Ls; med-dk grayish-brn microxtline; no ooids evident; scall. shell debris; 172° widely dis. f.g. pyrite; minor cc veinlets often w/ py; thin cc seams and cracks (loc. stylolitic) commonly w/ silica;					
404-414	(d)	v. fine, v. lt. dusting of dolomite and/or silica; 120/120" bdg laminae common at 70-80°; hard, blk (An?) band at 392.9' (25) dolomite along upper etc, py along base, foll by 1" clastic bed; local dense, homogeneous interval circa 399' w/ sm dendritic patches of pyroclastic; 2-8" clastic interval follows; dk brn, wavy laminae persists downhole (±75°); dolomite dusting v. wk thruout (±10%);					
414-424	(d)	(stylolites filled w/ hard, blk, flaky material 120/120" fr. 402' on (high relief in acid test));					
		fr. dense, homogeneous interval described abv @ 398.5-399' , loc finer xtline fo...					
		399-431.3' Type II VB Ls ; similar to previous, but finer and mostly dolomitic @ 410', 1" healed bx band (shp 80° etc) w/ angular Ls fragment cemented by hard, blk, flaky mineral and dolomite; 6" abv band is extr.	120/120"				
424-434	II	dense, homogen Ls, v. finely foliated w/ thin dolomite seams // etc and sm silica pods loc. abv etc seams and bx band w/ disc py; fr. 406' non-dolomitic;					
434-485	(d)	fr. 411.6-417.9' v. str. fragmental interval 1st etc abrupt, indistinct; and etc v. shp, v. irreg. stylolitic; minimal matrix, clast-supported; clasts H brn, extr. homogeneous (no ooids, fossils, mollus, etc) non-dolomitic; matrix is dk brn, also clear fr. 417.9' Ls is lt brn, extr. homogeneous (like abv clasts) no hint of ooids; rare shell debris; v. wk sl. dk brn streaks and mollus irreg hard, blk stylolites common ± py; v. minor cc veining; rare thin blk, hard bands // bdg @ 80°					

fr. 350' str. low x fracture zone loc. 1 1/2" high ± flt bx @ 360. cats low x fracture;

fr. 374' mod-good core; loc low x fracture.

fr. 414' good solid core

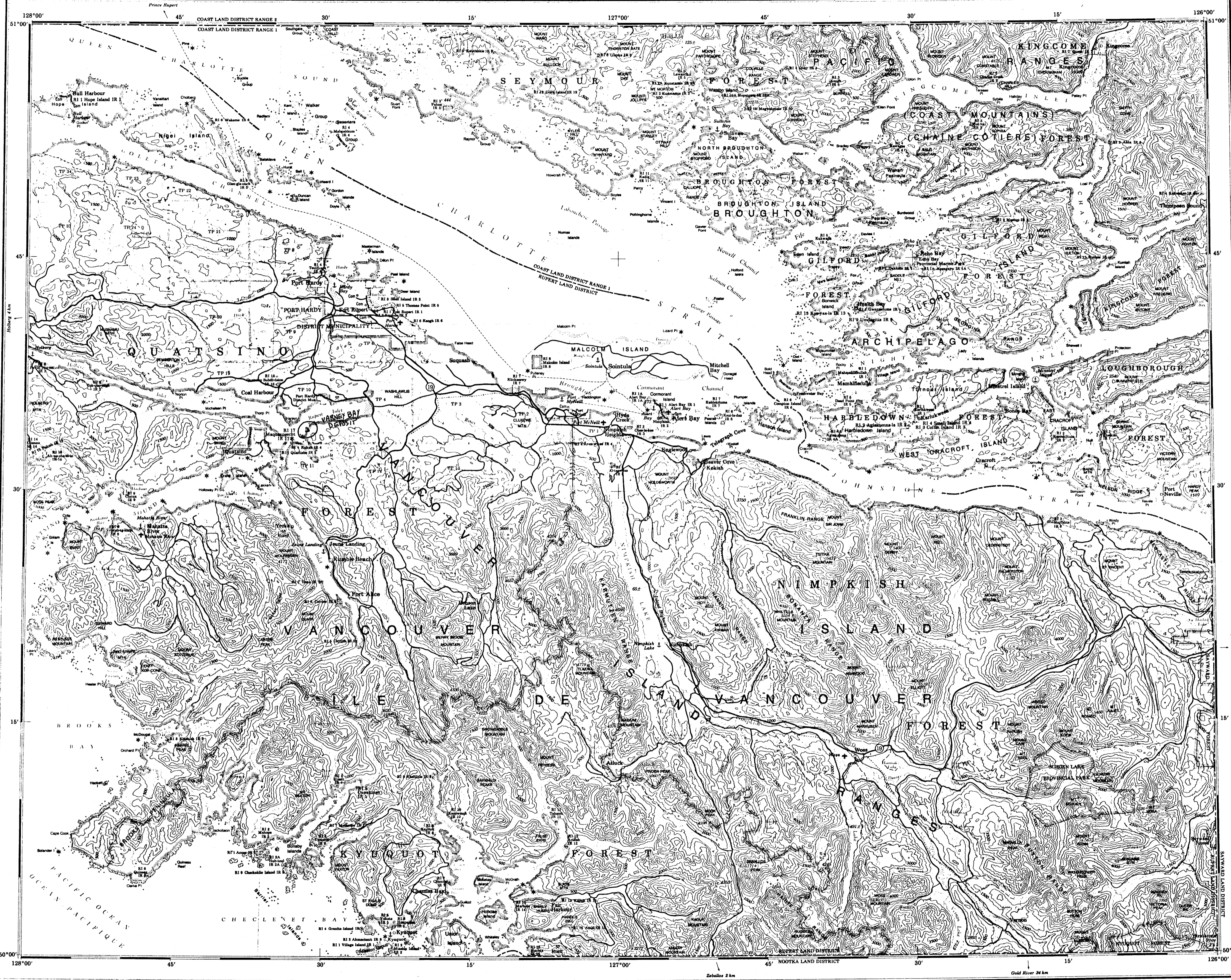
HOLE NO: VB-94-8	BEARING: 070°
COLLAR ELEV:	INCLINATION: -45°
LATITUDE:	DATE June 94 STARTED: 28 May 94
LONGITUDE:	COMPLETED: 31 May 94
DRILLER: Wayne Burwash	TOTAL DEPTH: 485'
LOGGED BY: R. Cavaleri	SHEET 7 OF 7

INTERVAL (FT.)	GRAPHIC LOG like	DESCRIPTIVE LOG	%REC'D	ANALYSIS			
				CaO	MgO	SiO2	Mn
434		fr. 429' ls bec greyish-llbrn, slicer					
434-445 1/2		@dike etc, ls is cse, reworked w/ diss py	110/114"				
		431.3-432.4' Dike/Sill					
	II	ctcs extr. shp, undulating @ ±80°; py, cse w/ xthine cc along pctcs;					
		dike is slch'd nearly w/te, altered; fig. granular					
443 1/2	443 1/2-452	feldspathic w/ minor diss py; v. thin chill	102/102"				
		margins; w/ky, bndd flctcs; v. w/ky calcareous					
		Prob. altered basalt;					
		432.4-466.6' Type II VB Ls as abv (sl. dkr)					
		greyish-brn; microcline; v. loc. hint of					
452	452-462	ooids, gen not evident; scath. shell debris	110/120"				
	II	(loc good crinoid ossicles); 1/4" black shaley					
		bed @ 403.5', 80°; thin, blk bdy stylolites common					
		w/ minor silica, diss. py; loc. cse fragmental					
		interval 441-443' (Similar to abv); subangular					
462	462-464	clasts (llbrn) 0.06 ± 1/2" and dominant over	24/24"				
464	464-468	the dkr brn matrix; 1st cte gradat., 2nd cte	27/48"				
		shp, stylolitic (v. irreg.); fr. 443' contin as					
468	468-475	previous, homogeneous; bec incr dkr	84/84"				
		gry-brn; fr. 456' bec. brecciated (partially healed cracks)					
		abund dk seams (soft, blk, recessive w/ acid					
475	475-485	suggest calcareous mud) oriented sub ll bddy	116/120"				
	Kv	in a reticulated mosaic pattern cut by					
	(basalt)	later low * fractures; ls remains homogeneous					
		w/ no ooids, minor scath shell debris; diss py minor;					
485	End of hole	466.6-473.8' Fault Gouge (ctcs shp @ 85°)					
		Green clay w/ abund lge pyrite clusters;					
		gouge derived from volcanics (basalt)					
		473.8-485' EOH Karmutsen Volcanics					
		Basalt blue-grn, clay-altered add fault					
		bec lt brownish-gry altered w/ large py clusters to 474 1/2' (shp etc w/ opalite below)					
		fig. granular gry basalt to 477', then ckt to amygdular					
		flow top grades to f-m.g. equigranular basalt. shp etc then					
		fr. 482.6', 2nd amygd flow top					

fr. 450'
incr in low
* fracture

Ground core
@ 452'

5084/5460
93.11
5156/5460
94.439.

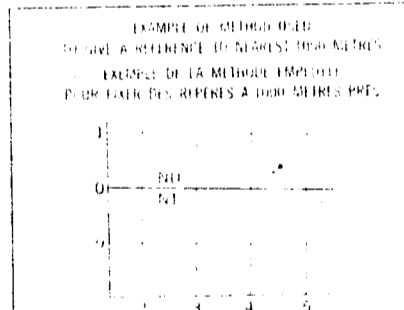


Military users refer to this map as Reference to this map as pour usage militaire

SERIES A 502
MAP 92 L
EDITION 2 MCE

TEN THOUSAND METRE
UNIVERSAL TRANSVERSE MERCATOR
ZONE 9
QUARANTE MILLE MÈTRES
UNIVERSAL TRANSVERSE MÉRIDIEN
DE DIX MILLE MÈTRES

Scale 1:250,000	Scale 1:250,000
Scale 1:250,000	Scale 1:250,000



PRODUCTION AND PUBLICATION INFORMATION
Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES, Ottawa, or any thereof, not later than 1977.
Produced by the BUREAU DE LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES, Ottawa, ou de l'un de ces organismes, au plus tard le 1977.

PRODUCTION AND PUBLICATION INFORMATION
Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES, Ottawa, or any thereof, not later than 1977.
Produced by the BUREAU DE LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES, Ottawa, ou de l'un de ces organismes, au plus tard le 1977.

GEOLOGICAL BRANCH ASSESSMENT REPORT

23,730

INDEX MAP
ALERT BAY
92 L
EDITION 2

Energy, Mines and Resources Canada / Énergie, Mines et Ressources Canada

1978	1977
1974	1963

Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES, Ottawa, or any thereof, not later than 1977.
Produced by the BUREAU DE LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES, Ottawa, ou de l'un de ces organismes, au plus tard le 1977.

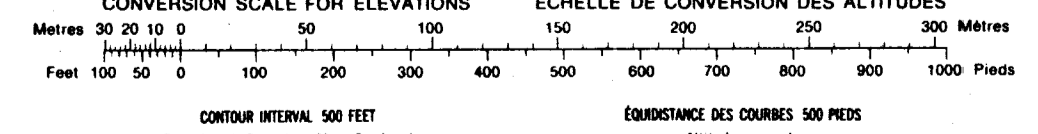
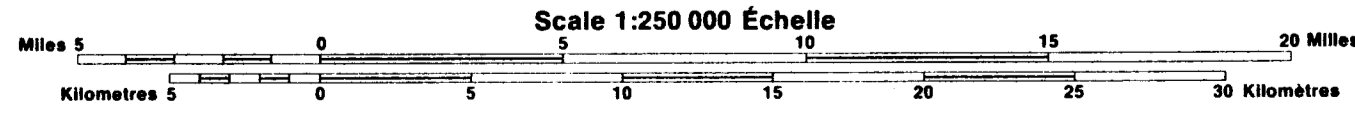
Scale 1:250 000 Échelle

CONVERSION SCALE FOR ELEVATIONS
ÉCHELLE DE CONVERSION DES ALTITUDES

Contours interval 500 feet
Contour interval 150 mètres

Magnetic declination 1986 varies from 22°31' easterly at centre of west edge to 22°22' easterly at centre of east edge. Mean annual change decreasing 11.9'.

ES 1986, la déclinaison magnétique varie vers l'est de 22°31' au centre du bord ouest à 22°22' au centre du bord est. La variation annuelle moyenne décroît de 11,9'.



102 P	92 M	92 N
102 I	92 L	92 K
	92 E	92 F



PROVINCE OF
BRITISH COLUMBIA
MINISTRY OF
ENERGY, MINES AND
PETROLEUM RESOURCES

MINERAL TITLES REFERRED TO
MAP 092L12E
U.T.M. ZONE 09
LAST MAP UPDATE: 1994 JUN 23

ORIGINAL PRODUCED AT 1:31650
METRES
500 0 500 1000 1500 2000

ADMINISTRATIVE AREAS
MINING DIVISIONS: NANAIMO

LAND DISTRICTS:

ALIENATIONS
NO STAKING AREAS
NO STAKING RESERVES
PARKS
ECOLOGICAL RESERVES
RECREATION AREAS
INDIAN RESERVES

CONDITIONAL AREAS
SUBJECT TO CONDITIONS RESERVE:
SECTION 19 RECREATION AREAS
POST CLAIM AREAS
AREAS SUBJECT TO
URANIUM / THORIUM
REGULATIONS

MINERAL TENURE
MINERAL CLAIM
MINERAL LEASE
INDUSTRIAL MINERAL
CLAIM
CLAIM NAME #XAMF
TITLE NUMBER 34567
OLD TITLE NUMBER #2456
TAG NUMBER 1000
LEGAL POST
WITNESS POST
FORFEITED TENURE
VERIFIED
SURVEYED
REVERTED C.G. REV CG OR
MINERAL CLAIM
CROWN GRANTED C
OPEN FOR STAKING D.F.

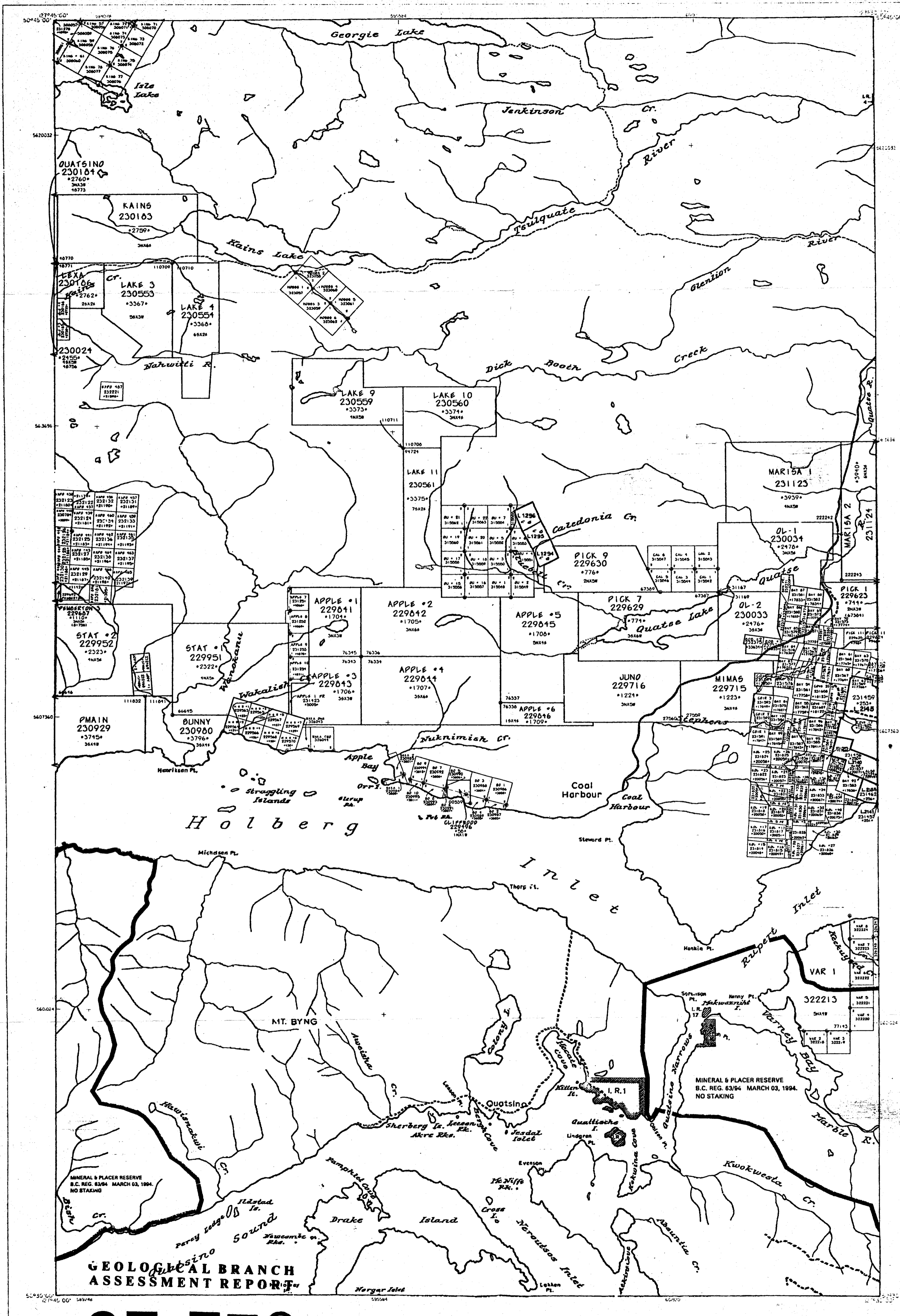
UNIT 2 POST CLAIM 3 OLD
611.42 642.42 600
75 75 600
7.75 6.75 600
32.5 30 612

THIS MAP IS PREPARED ONLY AS A GUIDE
TO THE LOCATION OF MINERAL TENURE
AS SHOWN ON THE LOCATOR'S SKETCHES.
FOR CURRENT OR MORE SPECIFIC
INFORMATION, APPLICATION SHOULD BE
MADE TO THE MINING DIVISION CONCERNED.

092L12E	092L13E	092L14E
092L12E	092L13E	092L14E
092L12E	092L13E	092L14E

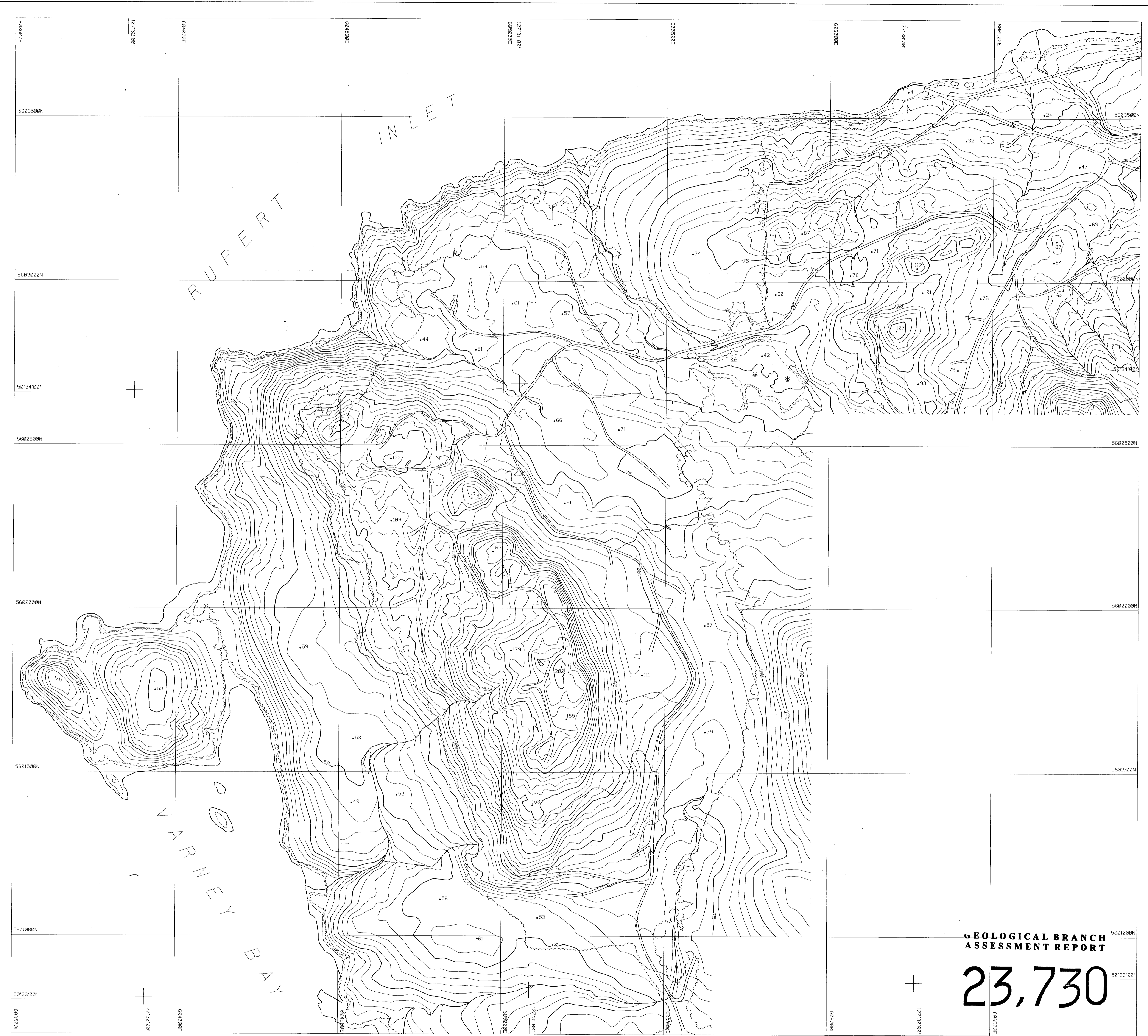
INDEX TO ADJOINING MAPS

092L12E
CLAIM MAP
PLATE 3



GEOLOGICAL BRANCH
ASSESSMENT REPORT

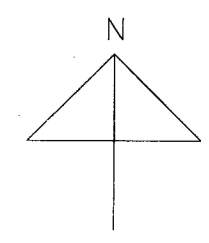
23,730



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,730

McElhanney
McElhanney Consulting Services Ltd.
100-780 Beatty St.
Vancouver, B.C. V6B 2M1
Tel 604 683-8521 Fax 604 683-4350
Ref. No. 2113-003423-0

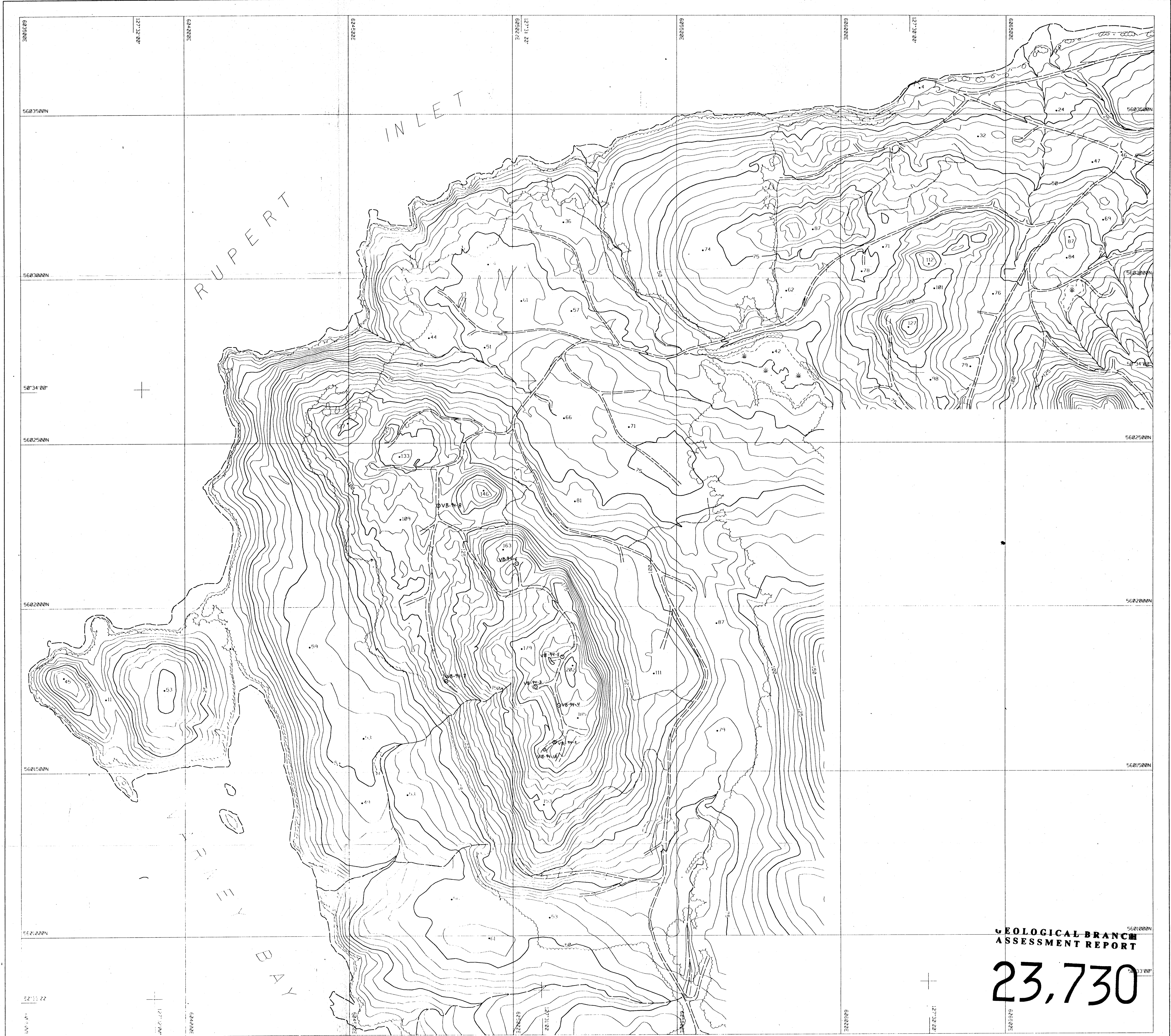


NOTES: DIGITAL TOPOGRAPHICAL MAPPING
PRELIMINARY RECONNAISSANCE TYPE MAPPING.
SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL.

PRODUCED IN JUNE 1994 FROM 1:15000 SCALE PHOTOGRAPHY, TAKEN IN AUGUST 1988			
MAP SCALE	1:5000	CONTOUR INTERVAL	5.0 METRE
MAP DATUM	UTM, NAD 83	SHEET NO.	1 OF 1
DIGITAL DATA FORMAT(S): MCMAP, AUTOCAD, MICROSTATION			

CONTINENTAL LIME INCORPORATED
VARNEY CLAIMS

PLATE 4

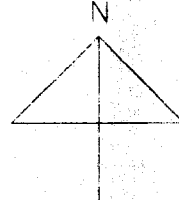


GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,730



DRILLHOLE LOCATION MAP



NOTES:
PRELIMINARY RECONNAISSANCE TYPE MAPPING.
SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL.

PRODUCED IN JUNE 1994 FROM 1:5000 SCALE PHOTOGRAPHY, TAKEN IN AUGUST 1988

MAP SCALE	1:5000	CONTOUR INTERVAL	5.0 METRE
MAP DATUM	UTM, NAD 83	SHEET NO.	1 OF 1
DIGITAL DATA FORMAT(S): MCMAP, A-11-CAD, MICROSTATION			

CONTINENTAL LIME INCORPORATED

VARNEY CLAIMS

PLATE 5