

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY MINERAL RESOURCES DIVISION, HALIFAX, NOVA SCOTIA			
DRILLHOLE LOG			
DRILLHOLE NAME: LOWER MACCAN 80-1 (LM-80-1)	NTS: 21316	LOCATION: Lower Maccan, Cumberland County.	
CLIENT: Mineral Resources Division	OPERATOR: Drilling Section N.S.D.M.E.	DRILL RIG: LONGYEAR 38	
LOCATION: LAT. 45deg 45min 37.9655sec LONG. 64deg 16min 48.9078sec UTM. 6 deg (m) NORTHING: 5067248.75m EASTING: 517089.36m MTR. 3 deg (m) NORTHING: 506583.15m EASTING: 322000.73m			
ELEVATION: GROUND: 31.31m. FLOOR: approx. 32m. DATUM: ground TOTAL DEPTH: DRILLER: 434.3m. LOGGER: 436.08m. SPUD DATE: 28/3/1988 COMPLETION: 25/5/1988 STATUS: abandoned, cemented, HW casing cutoff & marked DEVIATION SURVEY: Topographical and Geophysical log, BH: 14.5 C LOGGED BY: R.C. BOEHNER; DATE: MAY, 1988.			
DRILLING FLUID: Fresh water/polymer, no overflows encountered, minor lost circulation at top of hole (near the bottom of the HW casing), minor traces of salt and salty water returns near bottom of hole. CASING: not cemented during drilling, HW surface to 7.6m at top of bedrock, HQ rods 0-253.2m, open hole 253.2-434.3m, all removed except HW during abandonment. CEMENT: neat Portland from TD at 434.3 to surface through the HW casing. CORE: 0 to 10.0m not cored, 10.06 to 253.2m HQ, 253.2 to 434.3m HQ.			
GEOLOGICAL LOGS: gamma; density; neutron; caliper; temperature; deviation; run by Century Geophysical Calgary, Alta. TOOLS: 9030A-004, gam-den-cal, 0-434.3m; 9055A-008, gam-neut-temp-dev, 0-434.3m; LOGGED THROUGH RODS 0-253.2m, OPEN HOLE: 253.2-434.3m.			
COMMENTS: STRATIGRAPHIC PICKS: Middleborough Formation, 7.32-244.0m, Lismore Brook Formation, 244.0-434.3m. PALYNOLOGY SAMPLES: 834-842 and 1039.5', Visean, AT-NS Zones. DEPTH VARIATION: Lithologic log based upon drillers tally (core markers) and geophysical logs vary as follows: the core depth is shallower by 0.4m at 251.9m, 1.5m at 253.2m (1.1m lost core?) and increase to a total mismatch in core depth in the range of 2.4m at TD. This mismatch may be attributed to a tall-ly lost core at the reduction point and perhaps to a systematic error in either the geophysical log measure or rod measure or both.			

LM88-1

COMMENTS	DEPTH (m)	LITHOLOGY/DESCRIPTION
DEPTHS IN METRES UNLESS OTHERWISE INDICATED CORE MARKERS ARE IN FEET. LOG HAS BEEN CONVERTED TO METRES	0.00	OVERBORED: Not recovered.
HW CASING-SEAT 7.60m	7.60	NO SAMPLE: Siltstone and sandstone, fine to very fine grained, red fractured and rubble, not recovered.
	10.00	SILTSTONE: Silt. and sand, f. to v. f. gr., med red to lt grey, irreg. lam. to thin bed. loc., and var. frac. bed. 60-70 CA. loc. ripple shed (NW), f. up sequ. p. dev., 35-45' SW rec., 55-80' aggr.
	20.00	SANDSTONE: Sandstone, fine grained, green-grey mottled.
	30.00	SILTSTONE: Same as 10.06-27.7m, 30-91'
	40.00	SILTSTONE: Siltstone, green mottled.
	50.00	SANDSTONE: Sandstone, med. to fine grained, light grey to grey-green, rippled.
	60.00	SILTSTONE: Same as 10.06-27.7m, 30-91'
	70.00	SILTSTONE: Same as 10.06-27.7m, 30-91'
	80.00	SANDSTONE: Sandstone, fine to med. grained, light grey-green with med chip log at base.
	90.00	SILTSTONE: Same as 10.06-27.7m, 30-91', dips 60 CA, var. rare 165-200', 280-374' wgs after palyn.
	100.00	SANDSTONE: Sandstone, fine to med. grained, grey to light grey-red, calcareous, soft sediment def., thin light grey med sandstone, d. 65 CA.

110.00	SANDSTONE: Sandstone, fine grained, grey-green, calcareous, mottled.
120.00	SANDSTONE: Sandstone and siltstone, as above, with scattered anhydrite gypsum nodules 1-3 cal dips 45 CA.
130.00	SANDSTONE: Sandstone, fine to medium grained, white to light grey, scattered lam red silt clasts, calcareous.
140.00	SANDSTONE: Sandstone and siltstone, same as 114.0-126.0m, 304-413.5'
150.00	SANDSTONE: Sandstone and siltstone, same as 126.03-126.15m, 413.5-414.0'
160.00	SANDSTONE: Sandstone and siltstone, same as 114.0-126.0m, 304-384', scattered light green mottled.
170.00	SANDSTONE: Sandstone and siltstone, same as 114.0-126.0m, 304-384'
180.00	SANDSTONE: Sandstone and siltstone, same as 10.06-27.7m, 30-91', ripple drift throughout.
190.00	SANDSTONE: Sandstone, white to light grey, medium to fine grained, very calcareous.
200.00	SANDSTONE: Sandstone and siltstone, same as 10.06-27.7m, 30-91', below 675' anhydrite nodules and gypsum concretions are present, dips 55-60 CA, 655-687' ripple drift common.
210.00	SANDSTONE: Sand and silt, med to f. gr., lt to med rd, var. calc, scatt. only nod w gyp rims, disc. gyp vein 50 to 10 CA, lam. rip. silt to mass, loc. calc. gyp mott.
220.00	SANDSTONE: Sandstone, med. to fine grained, light grey to grey-green, rippled.
230.00	SANDSTONE: Sandstone, fine to v. fine grained, grey to med mottled, red med chips.
240.00	SILTSTONE: Siltstone and sandstone, fine to v. fine grained, med. red, scatt. gypsum breccia fragments, 2-3% silt. par. gyp.
250.00	ANHYDRITE: Breccia, anhydrite and siltstone, red, clay, 10-15% ramifying gyp, 1 ft, minor selen. purple, silt is red.
260.00	SILTSTONE: Siltstone, green, grey mottled.
270.00	SILTSTONE: Siltstone, to v. fine sand, red.

280.00	ANHYDRITE: Anhydrite, nodular to nodular mosaic, interstit. red silt inclusions, trans. down into limestone.
290.00	ANHYDRITE: Anhydrite-limestone transition, nodular anhydrite in grey-green silty limestone, laminated, stratolitic.
300.00	LIMESTONE: Limestone, light to med. grey, coarse nodular and silty at top (1913-1918 9'), then coarse nod with only nod at base (1918 9-1920 2').
310.00	ANHYDRITE: Anhydrite, pinkish red, nodular mosaic.
320.00	SILTSTONE: Siltstone, med. with limestone nodules and minor anhydrite nodules.
330.00	LIMESTONE: Limestone and red silt, trans. up into red silt, limestone is light grey-brown, irreg. nod., with convoluted interstit. calciferous silt.
340.00	LIMESTONE: Limestone, light grey-brown, sharp base, irreg. wispy stringers and etylolites.
350.00	ANHYDRITE: Anhydrite, light grey, nodular to massive mosaic, dark grey at top, sharp base.
360.00	SILTSTONE: Siltstone, light grey, trans. down to red.
370.00	SILTSTONE: Siltstone, light to med. red, fine grained sand, rippled, dips 70-75 CA.
380.00	SANDSTONE: Sandstone, red, fine grained, focal red med chip.
390.00	SILTSTONE: Siltstone, same as 288.80-289.50m, 980.1-990.0', below 970.0' scatt. anhydrite nodules (1-2cal).
400.00	LIMESTONE: Limestone, light grey, with lam anhydrite nodules, abrupt trans. up to red silt.
410.00	LIMESTONE: Limestone, medium to light grey, coarse nodular to subvertical algal stromatolites (light grey).
420.00	LIMESTONE: Limestone, light grey, nodular with increasing anhydrite nodules towards the base.
430.00	LIMESTONE: Limestone-anhydrite transition, limestone above with 2-5cm anhydrite nodules.
440.00	ANHYDRITE: Anhydrite, nodular to nodular mosaic, interstit. limestone.
450.00	ANHYDRITE: Anhydrite-limestone transition, limestone near base has nodular texture (1-5'cal).
460.00	LIMESTONE: Limestone, light grey-brown, scatt. anhydrite nodules (1-5'cal increasing upwards).
470.00	LIMESTONE: Limestone, lt. gr., coarse lumpy nod (1-2cal) in med. dk. gy organic rich matrix, finely bioc. algal nod. distinct once (1-6cal) at base, dips 20 CA.
480.00	LIMESTONE: Limestone, med. grey, dense hard silty, top part has gray, calcareous texture, sharp base.
490.00	ANHYDRITE: Anhydrite, lt. gr., massive to massive mosaic, with grey calc. silt interstitial.
500.00	ANHYDRITE: Anhydrite, med. to med. mosaic with grey calc. silt.
510.00	ANHYDRITE: Anhydrite, med. to med. mosaic, minor grey calc. silt.
520.00	ANHYDRITE: Anhydrite, med. to med. mosaic, rare interst. stringers of lt. gr. in base.
530.00	ANHYDRITE: Anhydrite, med. mos., 5/4 interst. dolo, vague strat. rapid trans. of base a lge. red, sheared-slicked frac. of 1087.5' at 30' to parallel to CA.
540.00	DOLOMITE: Dolomite, lt. to med. gr. br., massive, trans. upward into red only.
550.00	LIMESTONE: Limestone, lt. gr., nodular to oncoiditic as in 1098.5-1102'.
560.00	LIMESTONE: Limestone, lt. gr., columnar algal strom. subvert., with planar strom. at base, mottled algal at top.
570.00	LIMESTONE: Limestone, lt. gr., nod to algal onc. (coarse), w med to dk. gy matrix, scatt. shell dolo, loc. shear part 40 CA, trans. dn to silty calc. gy silt.
580.00	SILTSTONE: Siltstone to sandstone, gr. gr., fine gr., loc. anhydrite, bottom 1.5' v. anhyd. silt.
590.00	SILTSTONE: Siltstone, lt. to med. red, scatt. fine only nod in thin beds, top 2' gy trans. base 2' is f. to med. gy sand, loc. cone bed. 55 CA.
600.00	ANHYDRITE: Anhydrite, lt. bl. gy, mass., vague wpy string., abrupt base.
610.00	DOLOMITE: Dolomite, lt. gr. br., top once to nod. lat. 2-6ca diam, lam. with interstit. only and red silt (10-15ca).
620.00	DOLOMITE: Dolomite, lt. gr. br., uncond., interstit. only.
630.00	DOLOMITE: Dolomite, lt. gr. br., mass., grad up into onc., vague nod. ghost shell foss. debris.
640.00	DOLOMITE: Dolomite, med. gr., shaly nod. 3-6ca nod. silt to above.
650.00	DOLOMITE: Dolomite, lt. gr. br., mass. wott, vague nod stringers, hollow algal? tube frags.
660.00	DOLOMITE: Dolomite, lt. gr. onc. to nod. 2-7ca, gyp gy silty dolo matrix, frags. at 5 CA at 1169', slicked.
670.00	DOLOMITE: Dolomite, lt. gr. br., wott algal, styl. nod, sharp base, dips 60 CA.
680.00	DOLOMITE: Dolomite, lt. gr. br., lam. mottled 65 CA.
690.00	ANHYDRITE: Anhydrite, lt. gr. br., mass. to mass. mosaic, sharp base.
700.00	SILTSTONE: Siltstone, lt. gr., reddish, pitted at top, scatt. only nod.
710.00	ANHYDRITE: Anhydrite, med. mosaic, trans. down to red only in dolo.
720.00	DOLOMITE: Dolomite, lt. to med. gr. br., mass. trans. zone, up to only and down to dolo.
730.00	DOLOMITE: Dolomite, lt. to med. gr. br., nod to wott algal, scatt. bioc. debris, loc. dk. org. shaly partings.
740.00	DOLOMITE: Dolomite, lt. to med. gr. br., mass.
750.00	ANHYDRITE: Anhydrite, lt. gr. br., nod. mosaic to mass. mosaic, sharp base and top.
760.00	SILTSTONE: Siltstone, lt. gr. gy, fine only nod at base.
770.00	SILTSTONE: Siltstone, lt. to med. red, v. fine sand, scatt. only nod 5-1ca, loc. variegated to mottled colouration, dips 60 CA.
780.00	ANHYDRITE: Anhydrite, var. colour of top, weak banding bedding 60 CA, gy silt to dolo silt, lam. at 1261-1266.5', dips 60-65 CA.
790.00	SILTSTONE: Siltstone, lt. gr. gy.
800.00	SILTSTONE: Siltstone, to v. fine sand, red.
810.00	SILTSTONE: Siltstone, as above, pitted conc. disc. silt, assoc. w. only nod and frags. gy wott-conc. int. 1267-1268.5', 1301-1303', 1360-1362.2', var. col. int. 1284-1285', 1384-1400' r. low zone, dips 70 CA.
820.00	SILTSTONE: Siltstone, lt. gr. gy.
830.00	SILTSTONE: Siltstone, as above, pitted conc. disc. silt, assoc. w. only nod and frags. gy wott-conc. int. 1267-1268.5', 1301-1303', 1360-1362.2', var. col. int. 1284-1285', 1384-1400' r. low zone, dips 70 CA.

TROP TEST at 233.2m, 4-1/2" x 6" / 8.8m

CASING-SEAT 253.2m
 HQ to HQ reduction 253.2m
 LM88-1-801-B-PCP, PALYN. SHIPP

6EOPH. LOG DEPTH-436.68m.