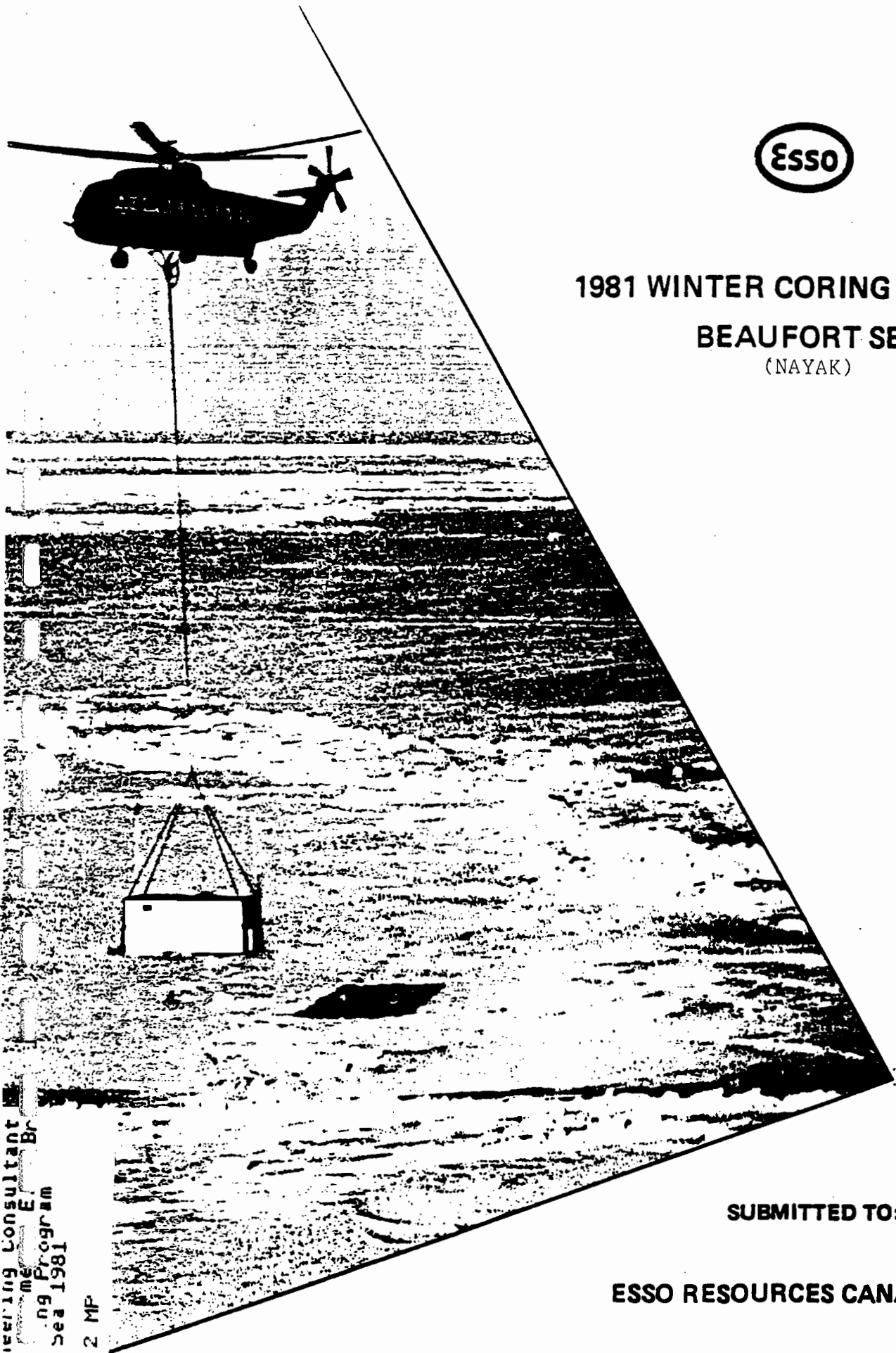




1981 WINTER CORING PROGRAM
BEAUFORT SEA
(NAYAK)



SUBMITTED TO:

ESSO RESOURCES CANADA LTD.

EBA Engineering Consultant
5000 17th Avenue, E.
Edmonton, Alberta
Inter-Corrig Program
Beaufort Sea 1981

UUF C. 2 MP

EBA Engineering Consultants Ltd.
Arctic Group



THE UNIVERSITY OF CHICAGO

LIST OF FIGURES

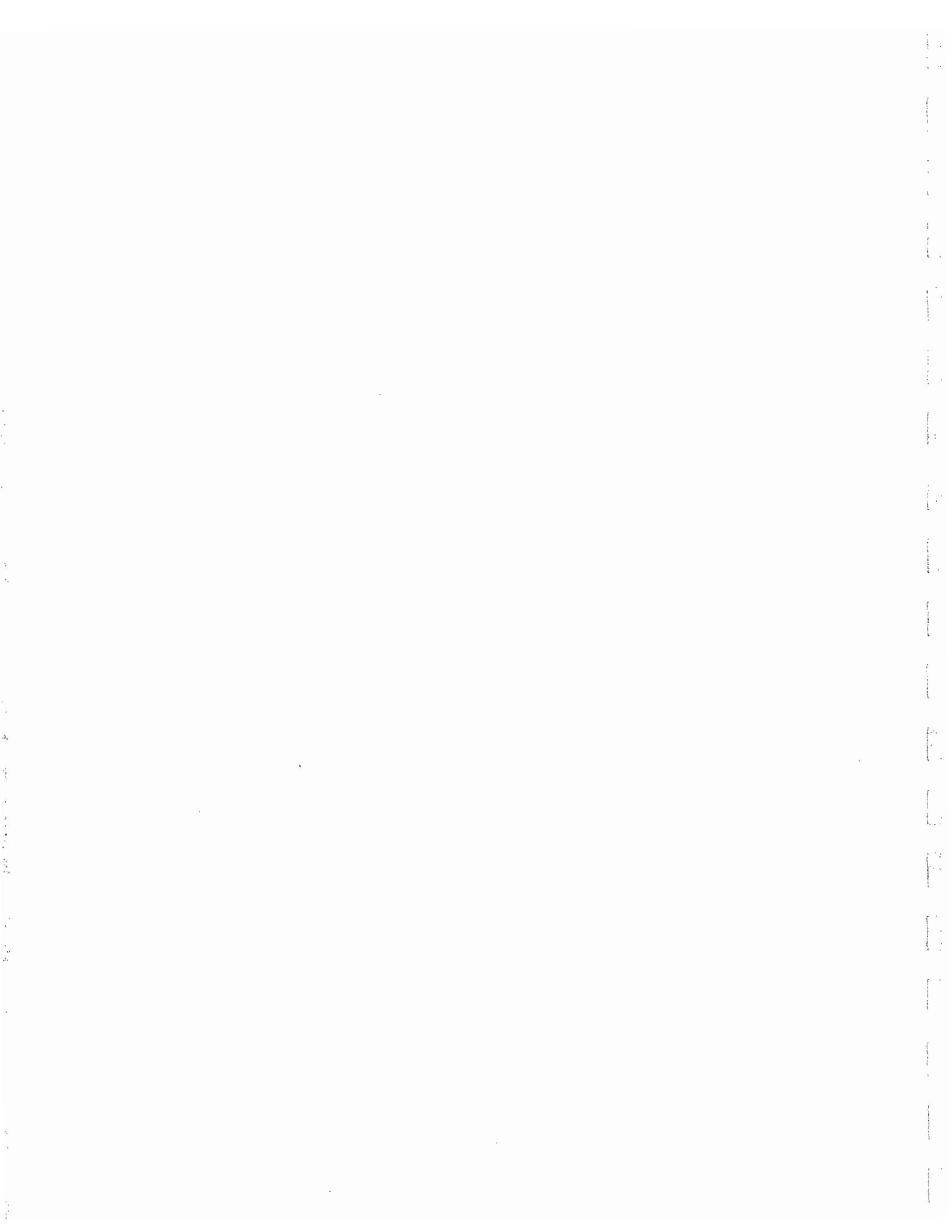
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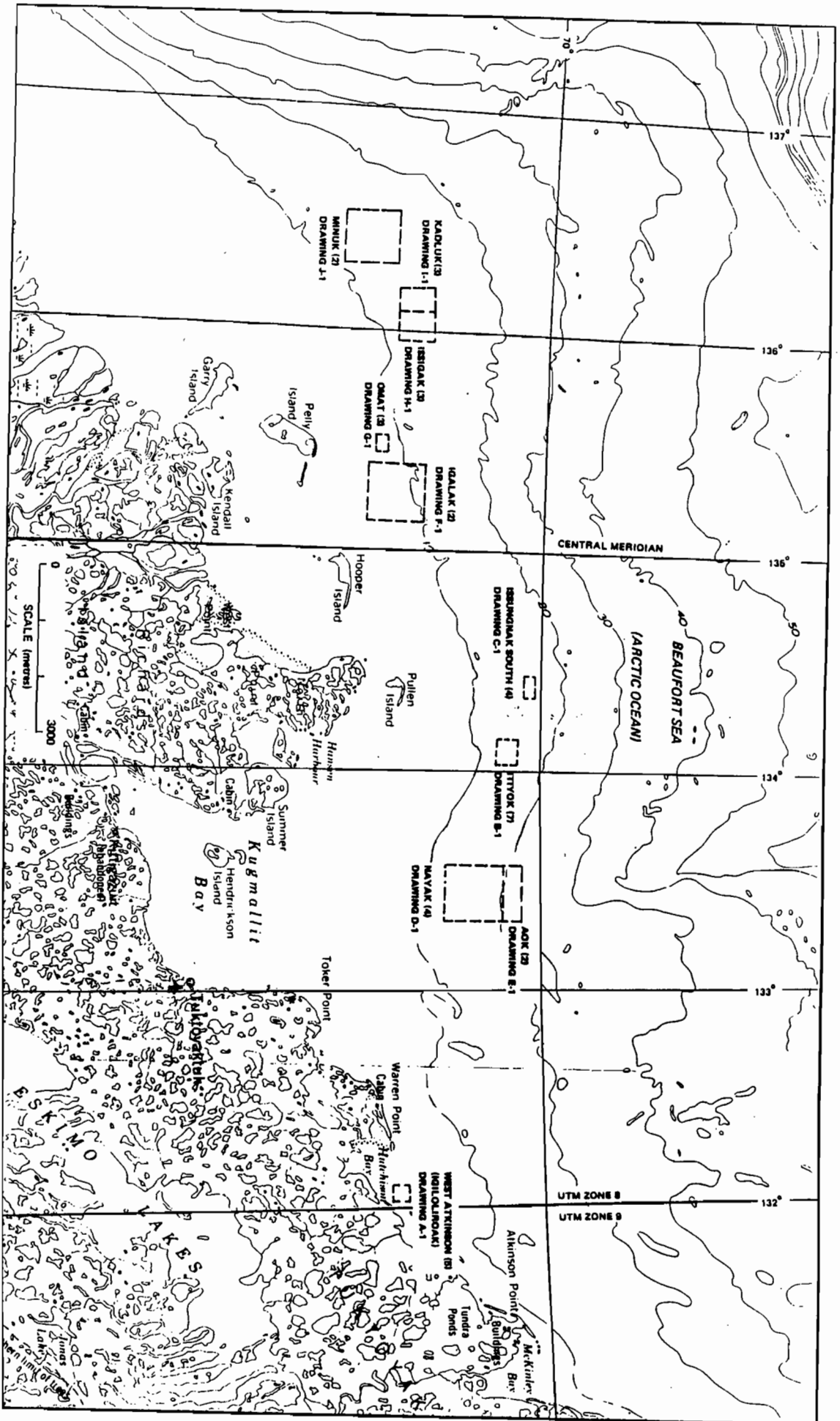
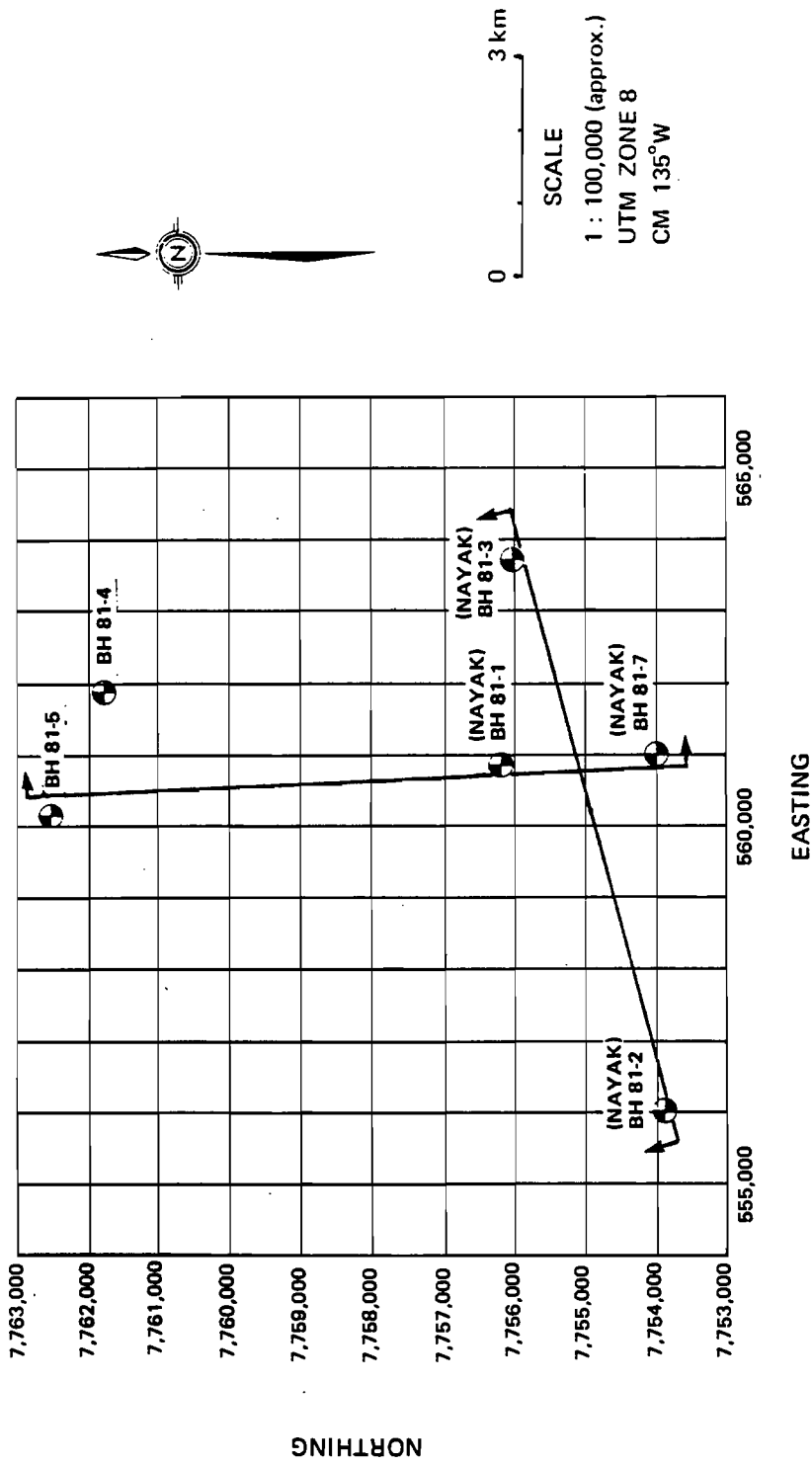


FIGURE 1 GENERAL LOCATION PLAN



EDR Engineering Consultants (td.)	
JOB NO.: 101-3097	DATE: 81/6/22
DRAWN BY: E.B.R.	DRAWING NO.:
REVIEWED BY:	D-1

LOCATION MAP, AOK AND NAYAK

FIGURE 2

TABLE 1
SUMMARY OF BOREHOLE COORDINATES

BH No.	Location	Date drilled	Final depth metres below mudline	UTM Coordinates		Geographic Coordinates	
				Northing CM 135° Zone 8	Easting	LONGITUDE	LATITUDE
81-1	West Atkinson	22:03:81	30.5	7742956	612553	132°04'57"	69°46'19"
81-2	West Atkinson	23:03:81	30.2	7742953	612990	132°04'16"	69°46'18"
81-4	West Atkinson	24:03:81	45.4	7743436	612772	132°04'34"	69°46'34"
81-4A	West Atkinson	25:03:81	38.4	7743433	612772	132°04'34"	69°46'34"
81-5	West Atkinson	25:03:81	29.3	7743242	613257	132°03'50"	69°46'27"
#81-3	not drilled						
81-3	Issigak	28:03:81	25.6	7741373	462321	135°58'36"	69°46'45"
81-1	Issigak	29:03:81	12.2	7743456	462107	135°58'59"	69°47'52"
81-2	Kadluk	30:03:81	24.5	7743532	454892	136°10'13"	69°47'51"
81-1	Kadluk	31:03:81	15.9	7745135	457181	136°06'42"	69°48'44"
81-4	Kadluk	01:04:81	27.8	7742670	456658	136°07'27"	69°47'24"
81-4	Issigak	02:04:81	25.3	7741806	459621	136°02'49"	69°46'58"
#81-3	Kadluk & 81-2 Issigak not drilled						
81-3	Nayak	04:04:81	26.5	7756081	563690	133°20'20"	69°54'22"
81-2	Nayak	07:04:81	29.6	7753935	556004	133°32'26"	69°53'19"
81-1	Nayak	08:04:81	25.6	7756186	560851	133°24'46"	69°54'27"
81-7	Nayak	08:04:81	25.3	7753970	561003	133°24'37"	69°53'16"
81-4	Aok	09:04:81	21.3	7761749	561729	133°23'10"	69°57'26"
81-5	Aok	09:04:81	20.7	7762536	560103	133°25'41"	69°57'53"
#81-6	not drilled						
81-6	Iliyok	11:04:81	30.8	7760142	535365	134°04'33"	69°56'52"
81-1	Iliyok	12:04:81	30.8	7760141	534353	134°06'08"	69°56'52"
81-5	Iliyok	13:04:81	30.0	7761497	535366	134°04'31"	69°57'36"
81-2	Iliyok	14:04:81	27.8	7759766	536595	134°02'38"	69°56'39"
81-3	Iliyok	14:04:81	32.0	7758671	533823	134°07'00"	69°56'05"
81-7	Iliyok	15:04:81	27.4	7759561	533796	134°07'01"	69°56'34"
81-8	Iliyok	16:04:81	27.8	7759578	534641	134°05'42"	69°56'34"
#81-4, 81-9, 81-10 & 81-11	not drilled						
81-3	Omat	18:04:81	36.0	7736812	481076	135°29'23"	69°44'25"
81-4	Omat	19:04:81	36.0	7737632	482330	135°27'27"	69°44'52"
81-5	Omat	19:04:81	31.7	7738012	480195	135°30'46"	69°45'04"
#81-1 & 81-2	not drilled						
81-4	Issungnak South	21:04:81	26.6	7763203	524553	134°21'27"	69°58'35"
81-5	Issungnak South	21:04:81	23.8	7763194	523918	134°22'27"	69°58'35"
81-6	Issungnak South	08:05:81	20.8	7763315	523270	134°23'28"	69°58'39"
81-7	Issungnak South	10:05:81	10.6	7763903	522228	134°25'05"	69°58'59"
#81-1, 81-2 & 81-3	not drilled						
81-1	Igalak	23:04:81	30.8	7737854	491622	135°13'01"	69°45'01"
81-2	Igalak	24:04:81	22.2	7742502	489378	135°16'32"	69°47'30"
81-3	Minuk	25:04:81	23.5	7733597	443684	136°27'18"	69°42'22"
81-2	Minuk	25:04:81	21.1	7734576	443747	136°27'14"	69°42'54"

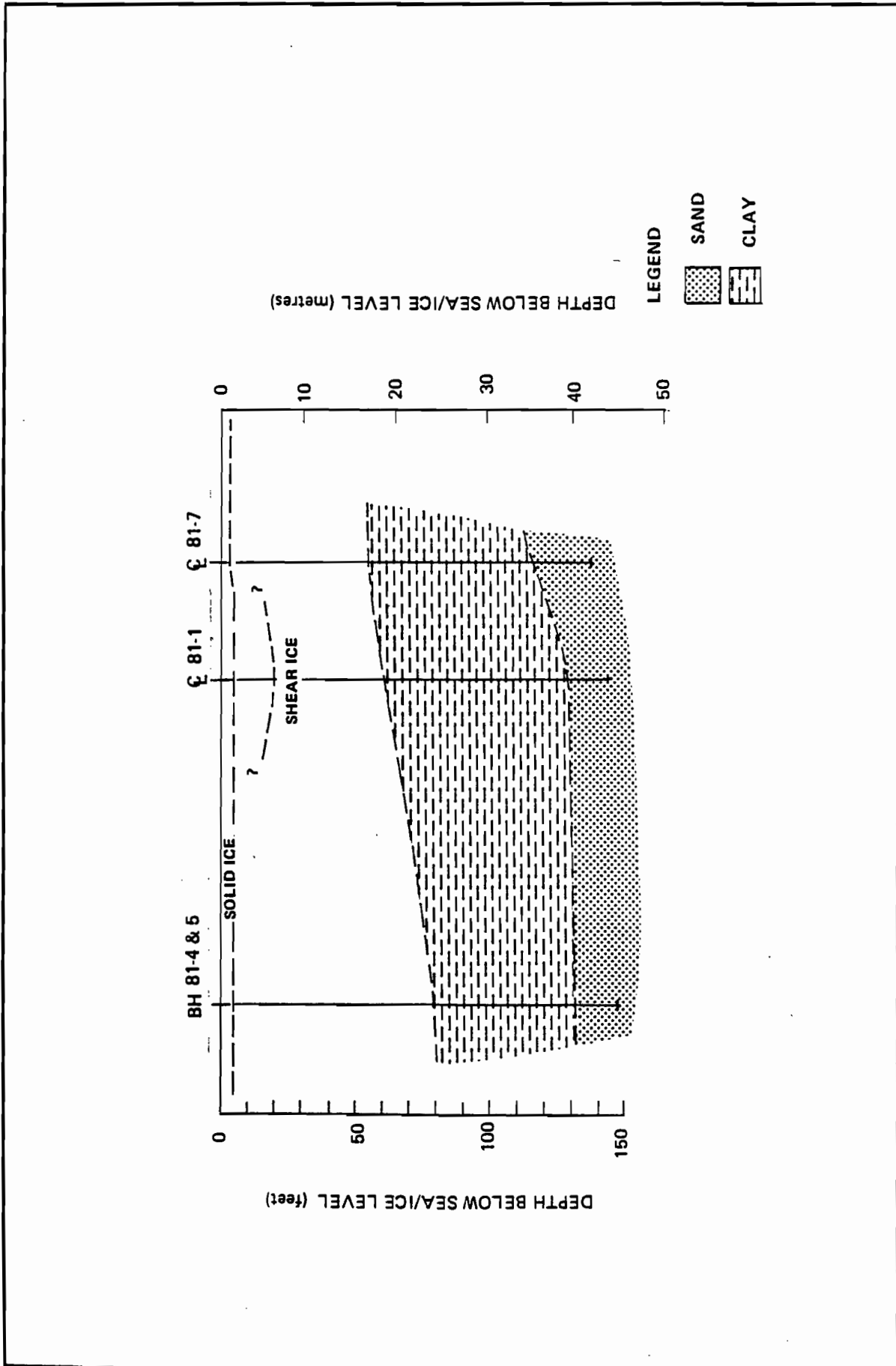


FIGURE 3 APPROXIMATED SECTION THROUGH THE NAYAK AREA (NORTH-SOUTH)

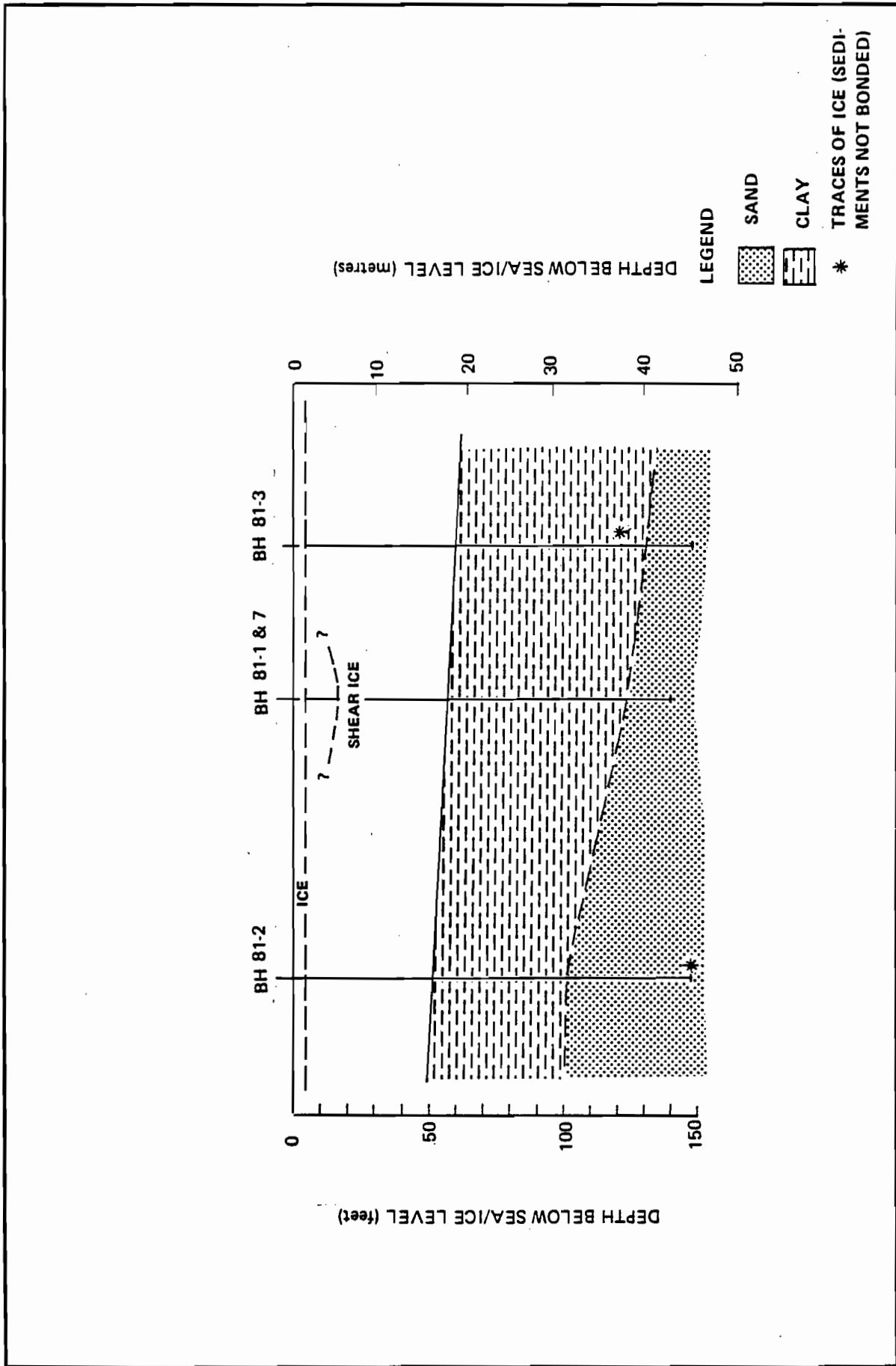


FIGURE 4 APPROXIMATED SECTION THROUGH THE NAYAK AREA (WEST-EAST)

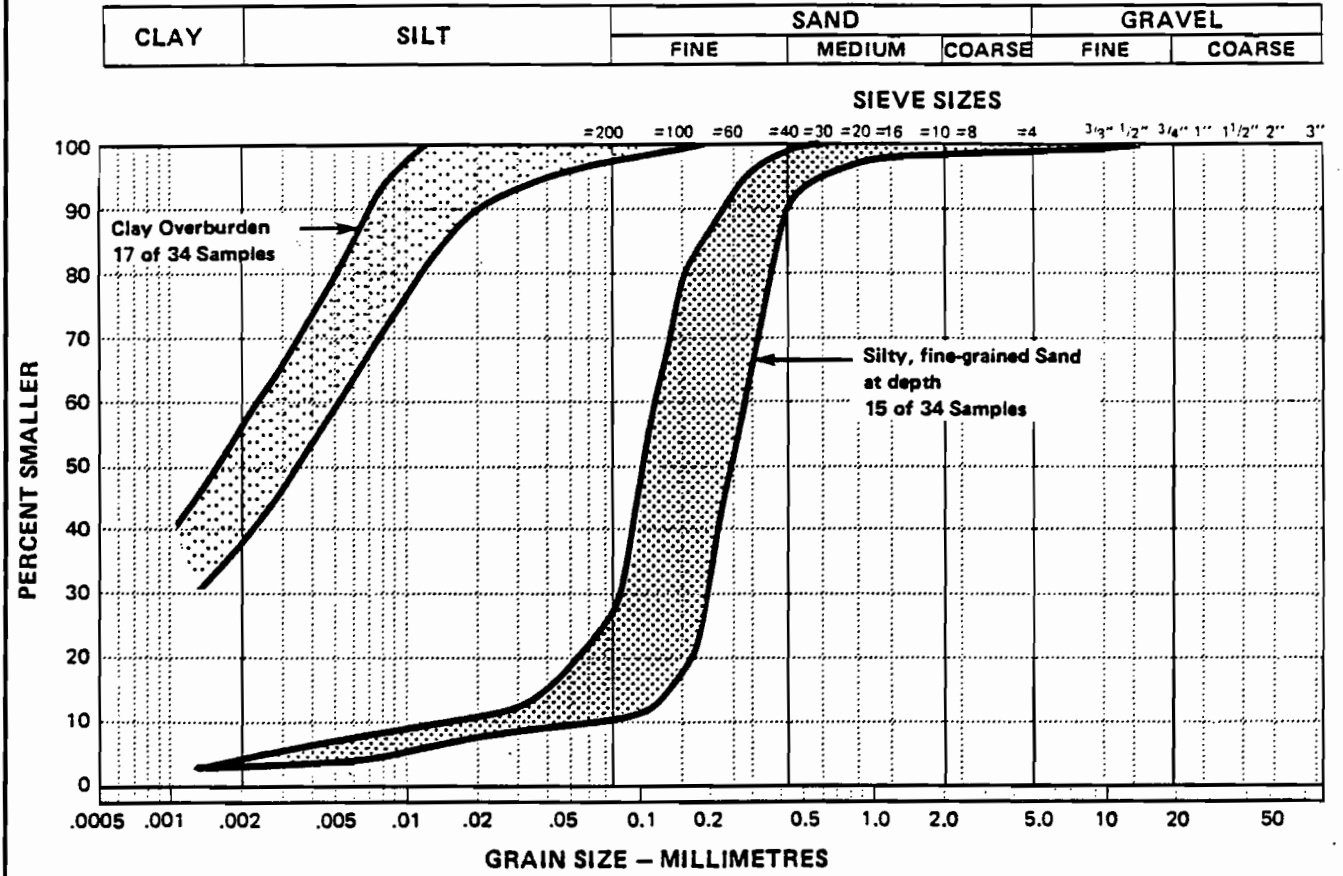

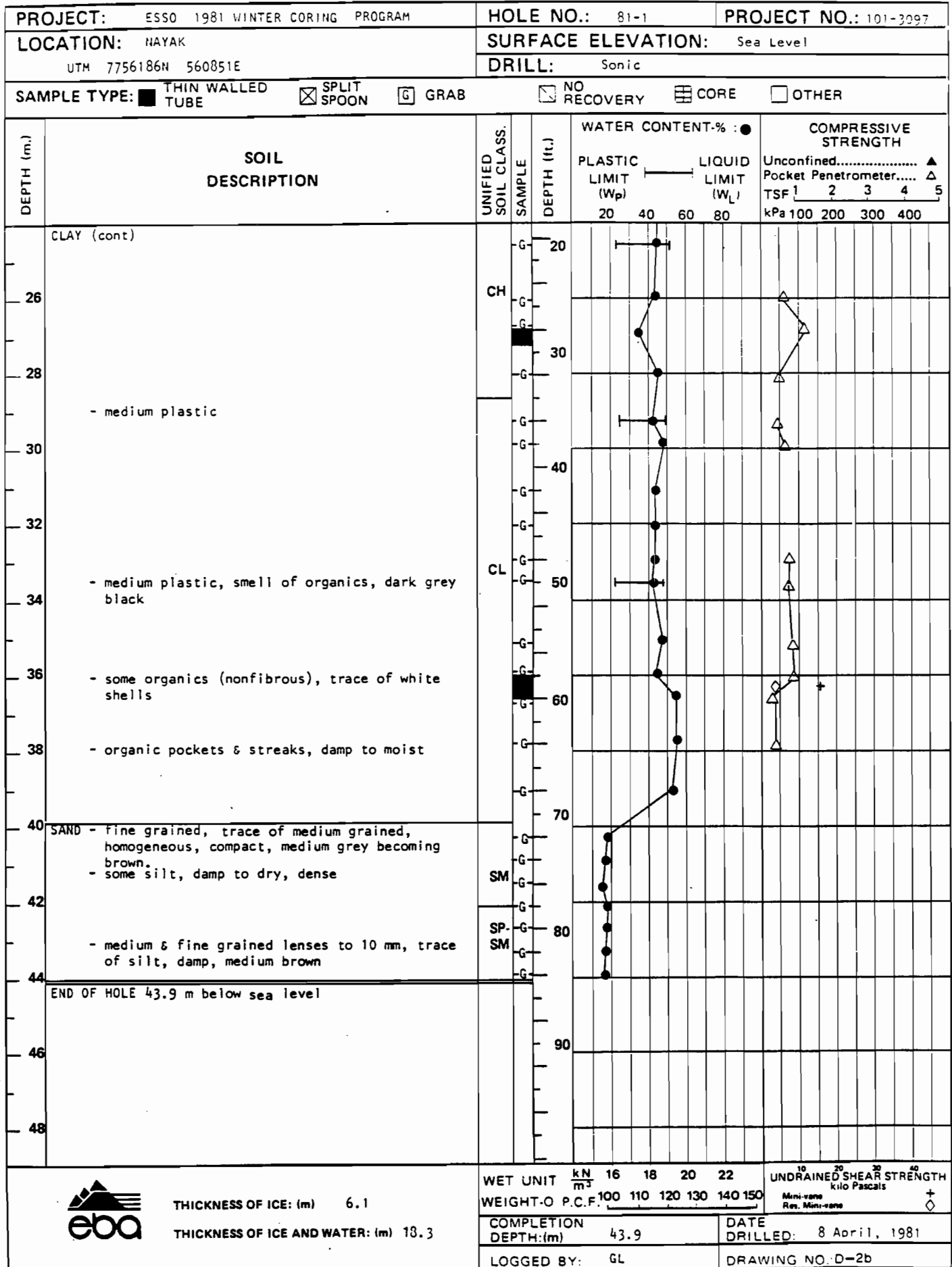


FIGURE 5 GRADATION RANGE FOR NAYAK AND AOK AREAS


APPENDIX 1
BOREHOLE LOGS AND GRAIN SIZE CURVES

PROJECT: ESSO 1981 WINTER CORING PROGRAM		HOLE NO.: 81-1		PROJECT NO.: 101-3097								
LOCATION: HAYAK UTM 7756186N 560851E		SURFACE ELEVATION: Sea Level										
SAMPLE TYPE: <input type="checkbox"/> THIN WALLED TUBE		<input checked="" type="checkbox"/> SPLIT SPOON		<input type="checkbox"/> NO RECOVERY								
		<input type="checkbox"/> GRAB		<input checked="" type="checkbox"/> CORE								
				<input type="checkbox"/> OTHER								
DEPTH (m.)	SOIL DESCRIPTION	UNIFIED SOIL CLASS.	SAMPLE DEPTH (ft.)	WATER CONTENT-% ●		COMPRESSIVE STRENGTH						
				PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... Δ TSF 1 2 3 4 5 kPa 100 200 300 400						
2	ICE (compact)											
2	ICE (shear)											
4												
6												
8	WATER											
10												
12												
14												
16												
18	NOTE: No ice or ice bonded sediments encountered											
20	CLAY - silty, trace of organic streaks, faintly laminated, high plastic, moist, dark grey											
20	- damp	CH										
22												
24	- uniform, firm											
		THICKNESS OF ICE: (m) 6.1		WET UNIT $\frac{kN}{m^3}$ 16 18 20 22		UNDRAINED SHEAR STRENGTH kilo Pascals						
THICKNESS OF ICE AND WATER: (m) 18.3				WEIGHT-O P.C.F. 100 110 120 130 140 150		Mini-rane Res. Mini-rane						
				COMPLETION DEPTH:(m) 43.9		DATE DRILLED: 8 April, 1981						
				LOGGED BY: GL		DRAWING NO. D-2a						

This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.



This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing at samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.

PROJECT: ESSO 1981 WINTER CORING PROGRAM		HOLE NO.: 81-2		PROJECT NO.: 101-3097											
LOCATION: NAYAK		SURFACE ELEVATION: Sea Level													
UTM 7753935N 556004E		DRILL: Sonic													
SAMPLE TYPE: <input type="checkbox"/> THIN WALLED TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input checked="" type="checkbox"/> GRAB <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE <input type="checkbox"/> OTHER															
DEPTH (m.)	SOIL DESCRIPTION	GROUND ICE DESCRIPTION	UNIFIED SOIL CLASS.	SAMPLE DEPTH (ft.)	WATER CONTENT-%		COMPRESSIVE STRENGTH								
					PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... Δ TSF 1 2 3 4 5 kPa 100 200 300 400								
2	ICE														
4	WATER														
6															
8															
10															
12															
14	NOTE: Sediments unbonded even when ice present														
16	CLAY - silty, traces of shells, organic pockets & streaks, laminated, medium plastic, damp, dark brownish grey	UNFROZEN		0											
18				10											
20			CL	20											
22				30											
24	- silty														
		THICKNESS OF ICE: (m) 1.7		WET UNIT $\frac{kN}{m^3}$ 16 18 20 22		10 20 30 40									
		THICKNESS OF ICE AND WATER: (m) 15.5		WEIGHT-O P.C.F. 100 110 120 130 140 150		Dynamic Cone: Nc - □		Standard Penetration: N - ■							
				COMPLETION DEPTH: (m) 45.1		DATE DRILLED: 7 April, 1981									
				LOGGED BY: GL		DRAWING NO. D-3a									

This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.


PROJECT: ESSO 1981 WINTER CORING PROGRAM		HOLE NO.: 81-2		PROJECT NO.: 101-3097											
LOCATION: NAYAK		SURFACE ELEVATION: Sea Level													
UTM 7753935N 556004E		DRILL: Sonic													
SAMPLE TYPE: <input checked="" type="checkbox"/> THIN WALLED TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE <input type="checkbox"/> OTHER															
DEPTH (m.)	SOIL DESCRIPTION	GROUND ICE DESCRIPTION	UNIFIED SOIL CLASS. SAMPLE	DEPTH (ft.)	WATER CONTENT-%		COMPRESSIVE STRENGTH								
					PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... △ TSF 1 2 3 4 5 kPa 100 200 300 400								
26	CLAY (cont) -medium plastic, moist, soft to firm, dark brownish grey	UNFROZEN	CL	30	40	80									
28				40	80										
30				40	80										
32				SAND - trace of silt & clay, fine grained homogeneous, damp, medium brownish grey - trace of shells - trace of silt, damp, grey	UNFROZEN	SP-SM	50	40	80						
34							50	80							
36				- trace of silt pockets, dark greyish brown	UNFROZEN	SM-SC	60	40	80						
38				- silty, trace of clay & organics, fine grained, damp to moist, compact to dense, dark greyish brown - moist to wet			60	80							
40				- trace of shells - becoming medium grained with silt stringers, homogeneous	UNFROZEN	SM	80	40	80						
42				- organics & wood fragments - some silt, fine grained, trace of medium grained, moist to damp, medium dark brown			80	80							
44					Trace of Vs		90	40	80						
46	END OF HOLE 45.1 m below ice level			100	40	80									
48															




THICKNESS OF ICE: (m) 1.7
THICKNESS OF ICE AND WATER: (m) 15.5

WET UNIT $\frac{kN}{m^3}$ 16 18 20 22
WEIGHT-O P.C.F. 100 110 120 130 140 150
Dynamic Cone: 10 20 30 40 Nc
Standard Penetration: N
COMPLETION DATE
DEPTH (m) 45.1 DRILLED: 7 April, 1981
LOGGED BY: GL DRAWING NO. D-3b


This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.

PROJECT: ESSO 1981 WINTER CORING PROGRAM			HOLE NO.: 81-3		PROJECT NO.: 101-3097												
LOCATION: NAYAK UTM 7756081N 563690E			SURFACE ELEVATION: Sea Level		DRILL: Sonic												
SAMPLE TYPE: <input checked="" type="checkbox"/> THIN WALLED TUBE <input checked="" type="checkbox"/> SPLIT SPOON <input checked="" type="checkbox"/> GRAB <input checked="" type="checkbox"/> NO RECOVERY <input type="checkbox"/> CORE <input type="checkbox"/> OTHER																	
DEPTH (m.)	SOIL DESCRIPTION	GROUND ICE DESCRIPTION	UNIFIED SOIL CLASS. SAMPLE	DEPTH (ft.)	WATER CONTENT-% : ●		COMPRESSIVE STRENGTH										
					PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... ▲ TSF 1 2 3 4 5 kPa 100 200 300 400										
0-2	ICE																
2-18	WATER																
18-20	NOTE: Sediments unbonded even when ice present																
20-24	CLAY - silty, trace of black organic pockets, uniform, medium plastic, moist, very soft, dark brownish grey - increasing organics	UNFROZEN	CL	0 6 10 18 30													
		THICKNESS OF ICE: (m) 1.2		WET UNIT $\frac{kN}{m^3}$ 16 18 20 22		10 20 30 40											
		THICKNESS OF ICE AND WATER: (m) 18.6		WEIGHT-O P.C.F. 100 110 120 130 140 150		Dynamic Cone: Nc - <input type="checkbox"/>		Standard Penetration: N - <input type="checkbox"/>									
				COMPLETION DEPTH:(m) 45.1		DATE DRILLED: 4 April, 1981											
				LOGGED BY: GL		DRAWING NO. D-4a											


This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.

PROJECT: ESSO 1981 WINTER CORING PROGRAM		HOLE NO.: 81-3		PROJECT NO.: 101-3097											
LOCATION: NAYAK UTM 7756081N 563690E		SURFACE ELEVATION: Sea Level		DRILL: Sonic											
SAMPLE TYPE: <input checked="" type="checkbox"/> THIN WALLED TUBE		<input checked="" type="checkbox"/> SPLIT SPOON		<input checked="" type="checkbox"/> GRAB											
		<input type="checkbox"/> NO RECOVERY		<input type="checkbox"/> CORE											
		<input type="checkbox"/> OTHER													
DEPTH (m.)	SOIL DESCRIPTION	GROUND ICE DESCRIPTION	UNIFIED SOIL CLASS.	SAMPLE DEPTH (ft.)	WATER CONTENT-%		COMPRESSIVE STRENGTH								
					PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... △ TSF 1 2 3 4 5 kPa 100 200 300 400								
26	CLAY (cont) - soft to firm	UNFROZEN	CL	30											
28				40											
30	- high plastic, soft to firm			45											
32				50											
34	- occasional fine laminations, light grey		CH	55											
36				60											
38	- increase in organics	INFERRED ICE <15%V _r V _s ⁺		65											
40	- silty, trace of fine grained sand - lens of sand, trace of organics	UNFROZEN		70											
42	ORGANICS- damp to dry, H ₂ S smell, medium to light brown SAND - trace of clay & silt, fine grained, trace of medium grained, homogeneous, damp, compact to dense, light grey - predominantly fine grained, medium brown		PT	75											
44	- fine grained		SM-SC	80											
46	END OF HOLE 45.1 m below ice level		SP-SM	85											
48				90											
				95											
				100											
		THICKNESS OF ICE: (m) 1.2		WET UNIT $\frac{KN}{m^3}$ 16 18 20 22		10 20 30 40		Dynamic Cone: Nc <input type="checkbox"/>							
THICKNESS OF ICE AND WATER: (m) 18.6				WEIGHT-O P.C.F. 100 110 120 130 140 150		Standard Penetration: N <input checked="" type="checkbox"/>									
				COMPLETION DEPTH: (m) 45.1		DATE DRILLED: 4 April, 1981									
				LOGGED BY: GL		DRAWING NO. D-4b									

This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.

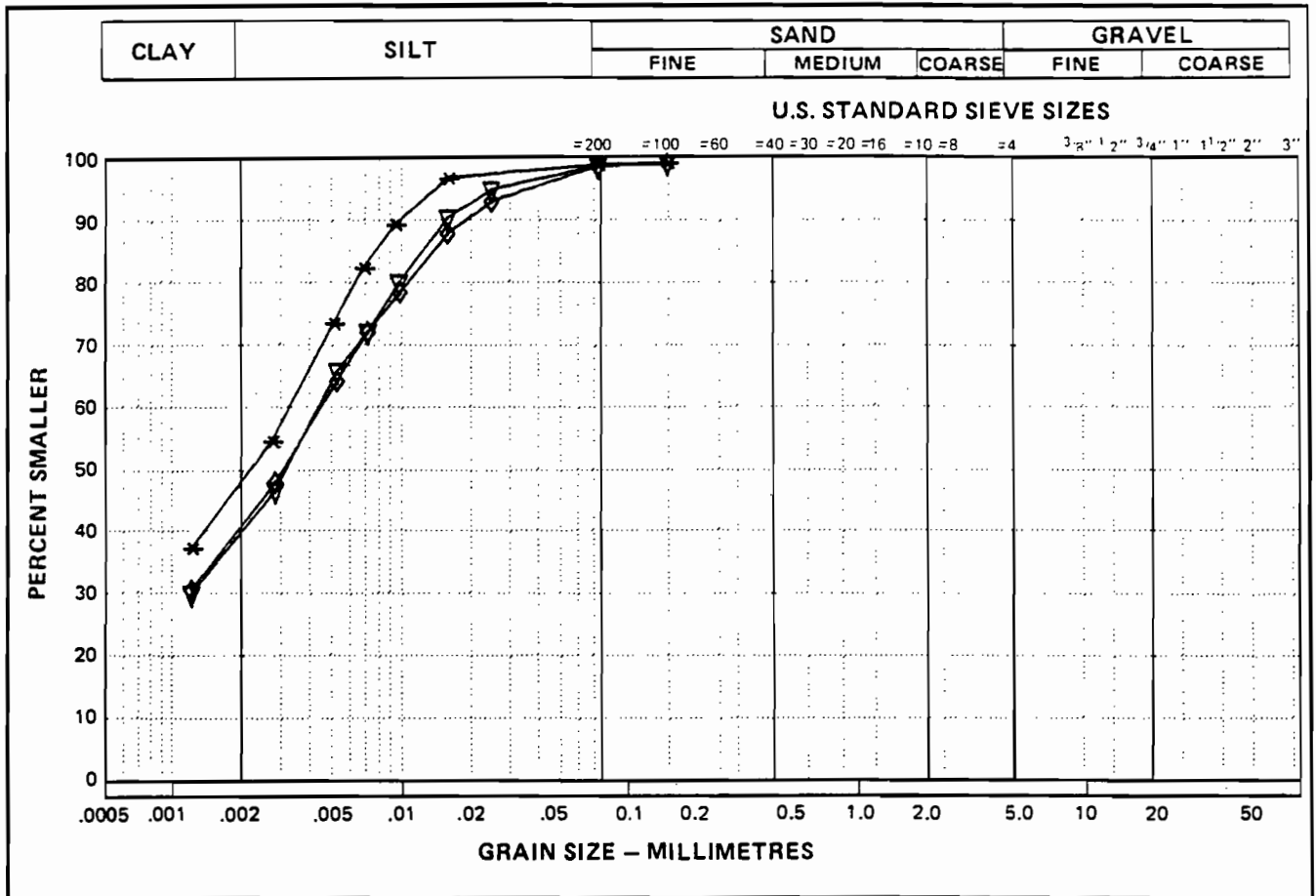
PROJECT: ESSO 1981 WINTER CORING PROGRAM		HOLE NO.: 81-7		PROJECT NO.: 101-3097								
LOCATION: MAYAK		SURFACE ELEVATION: Sea Level										
UTM 7753970N 561003E		DRILL: Sonic										
SAMPLE TYPE: <input checked="" type="checkbox"/> THIN WALLED TUBE		<input checked="" type="checkbox"/> SPLIT SPOON		<input type="checkbox"/> GRAB								
		<input type="checkbox"/> NO RECOVERY		<input type="checkbox"/> CORE <input type="checkbox"/> OTHER								
DEPTH (m.)	SOIL DESCRIPTION	UNIFIED SOIL CLASS.	SAMPLE DEPTH (ft.)	WATER CONTENT-% : ●		COMPRESSIVE STRENGTH						
				PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... Δ TSF 1 2 3 4 5 kPa 100 200 300 400						
2	ICE											
2	WATER											
4												
6												
8												
10												
12												
14												
16	NOTE: No ice or ice bonded sediments encountered											
18	CLAY - silty, trace of shells, organic streaks and pockets, high plastic, moist, dark greenish grey	CH										
20												
22	- siltier, faintly laminated, medium to high plastic (bivalve shell to 7 mm)											
24												
		THICKNESS OF ICE: (m) 1.2		WET UNIT $\frac{kN}{m^3}$ 16 18 20 22		UNDRAINED SHEAR STRENGTH						
THICKNESS OF ICE AND WATER: (m) 16.8				WEIGHT-O P.C.F. 100 110 120 130 140 150		kilo Pascals						
				COMPLETION DEPTH:(m) 42.1		DATE DRILLED: 8 April, 1981						
				LOGGED BY: GL		DRAWING NO D-5a						

This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.

PROJECT: ESSO 1981 WINTER CORING PROGRAM		HOLE NO.: 31-7		PROJECT NO.: 101-3097								
LOCATION: HAYAK		SURFACE ELEVATION: Sea Level										
UTM 7753970 561003E		DRILL: Sonic										
SAMPLE TYPE: <input checked="" type="checkbox"/> THIN WALLED TUBE		<input checked="" type="checkbox"/> SPLIT SPOON		<input type="checkbox"/> GRAB								
		<input type="checkbox"/> NO RECOVERY		<input type="checkbox"/> CORE								
				<input type="checkbox"/> OTHER								
DEPTH (m.)	SOIL DESCRIPTION	UNIFIED SOIL CLASS.	SAMPLE DEPTH (ft.)	WATER CONTENT-%		COMPRESSIVE STRENGTH						
				PLASTIC LIMIT (W _p)	LIQUID LIMIT (W _L)	Unconfined..... ▲ Pocket Penetrometer..... Δ TSF 1 2 3 4 5 kPa 100 200 300 400						
26	CLAY (cont) - interlaminated organics to 3 mm, black	CH	30									
28			40	40	60							
30			50									
32	- trace of hard black organics (coal)		60									
34	- shells to 5 mm, trace of nonfibrous organic streaks	SP	60									
36	SAND - trace of silt, fine grained, trace of medium grained, damp to moist, compact, dark grey - homogeneous, medium greyish brown		70									
38	- uniform, dense to very dense, damp, light brown		80									
40												
42	- organic streaks to 3 mm - silty											
42	END OF HOLE 42.1 m below ice level											
44												
46												
48												
 THICKNESS OF ICE: (m) 1.2 THICKNESS OF ICE AND WATER: (m) 16.8		WET UNIT $\frac{kN}{m^3}$		16 18 20 22		UNDRAINED SHEAR STRENGTH kilo Pascals		+				
		WEIGHT-O P.C.F.		100 110 120 130 140 150		Mini-vane		Res. Mini-vane		◇		
		COMPLETION DEPTH (m)		42.1		DATE DRILLED: 8 April, 1981						
		LOGGED BY: GL				DRAWING NO.: D-5b						

This log is a compilation of subsurface conditions and soil or rock classification obtained from the field as well as from laboratory testing of samples from the borehole. Soil zones have been interpreted according to commonly accepted practice. The change from one zone to another, as indicated on the log, may be transitional and approximate in nature. Groundwater conditions refer only to those observed at the times and places indicated and they may vary with time, geologic conditions, and construction activity.

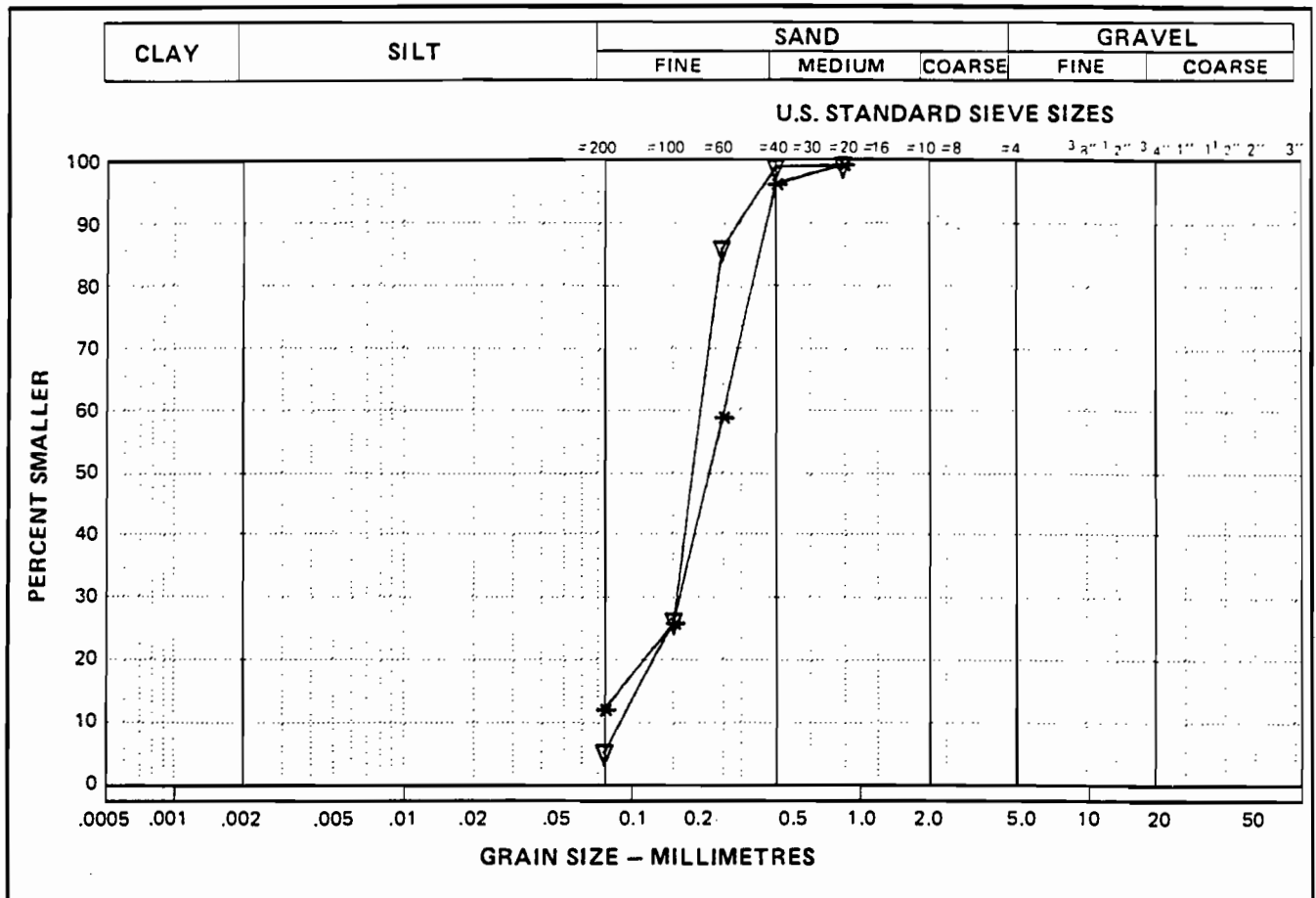
PARTICLE - SIZE ANALYSIS OF SOILS



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C.
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)			
—*—	NAYAK 1	24.40 - 24.40	49	51	0	0	-	-	CH
—▽—	NAYAK 1	29.30 - 29.30	41	59	0	0	-	-	CL
—◇—	NAYAK 1	33.50 - 33.50	42	58	0	0	-	-	CL

JOB NO. 101-3097 DATE 81-6-18

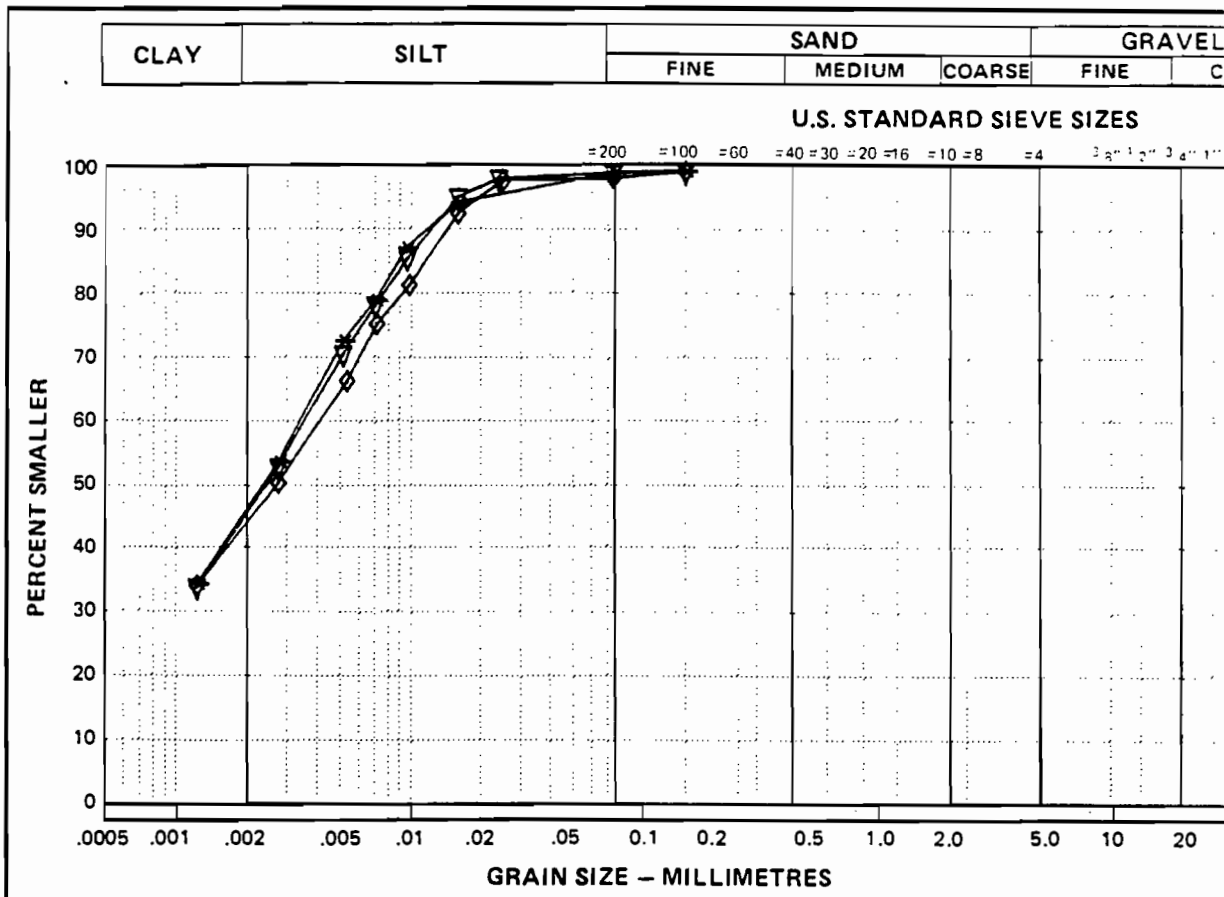
PARTICLE - SIZE ANALYSIS OF SOILS



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C.
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)			
★	NAYAK 1	40.30- 40.30	-	13	87	0	-	-	SM
▽	NAYAK 1	43.30- 43.30	-	6	94	0	2.3	1.4	SP-SM

JOB NO. 101-3097 **DATE** 81- 6-18

PARTICLE - SIZE ANALYSIS OF SOILS



PERCENT SMALLER

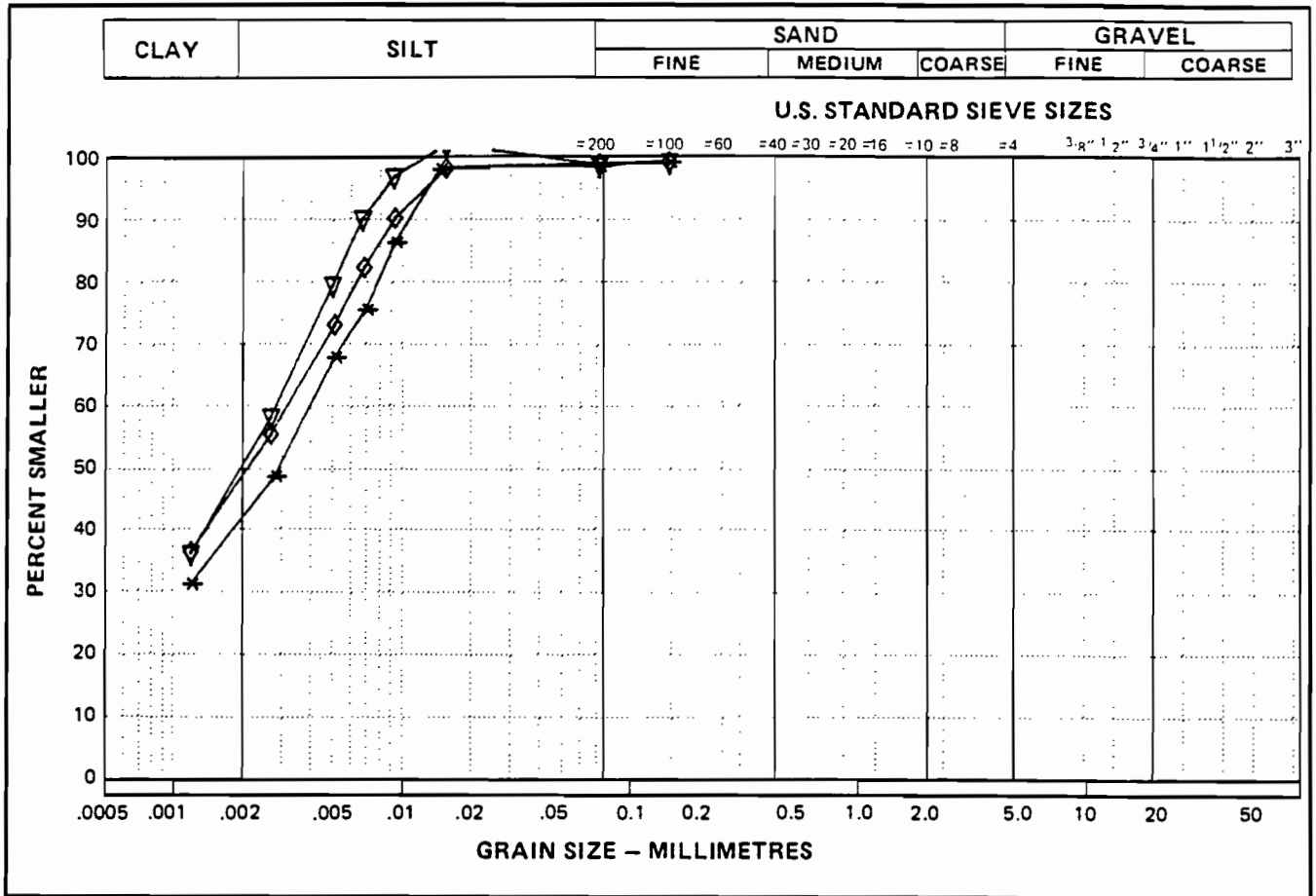
SYMB

- * —
- ▽ —
- ◇ —
- ▲ —

SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)		
— * —	NAYAK 2	16.80 - 16.80	48	52	0	0	-	-
— ▽ —	NAYAK 2	24.40 - 24.40	47	53	0	0	-	-
— ◇ —	NAYAK 2	29.90 - 29.90	45	54	1	0	-	-

JOB NO. 101-3097 DATE 81-6-18

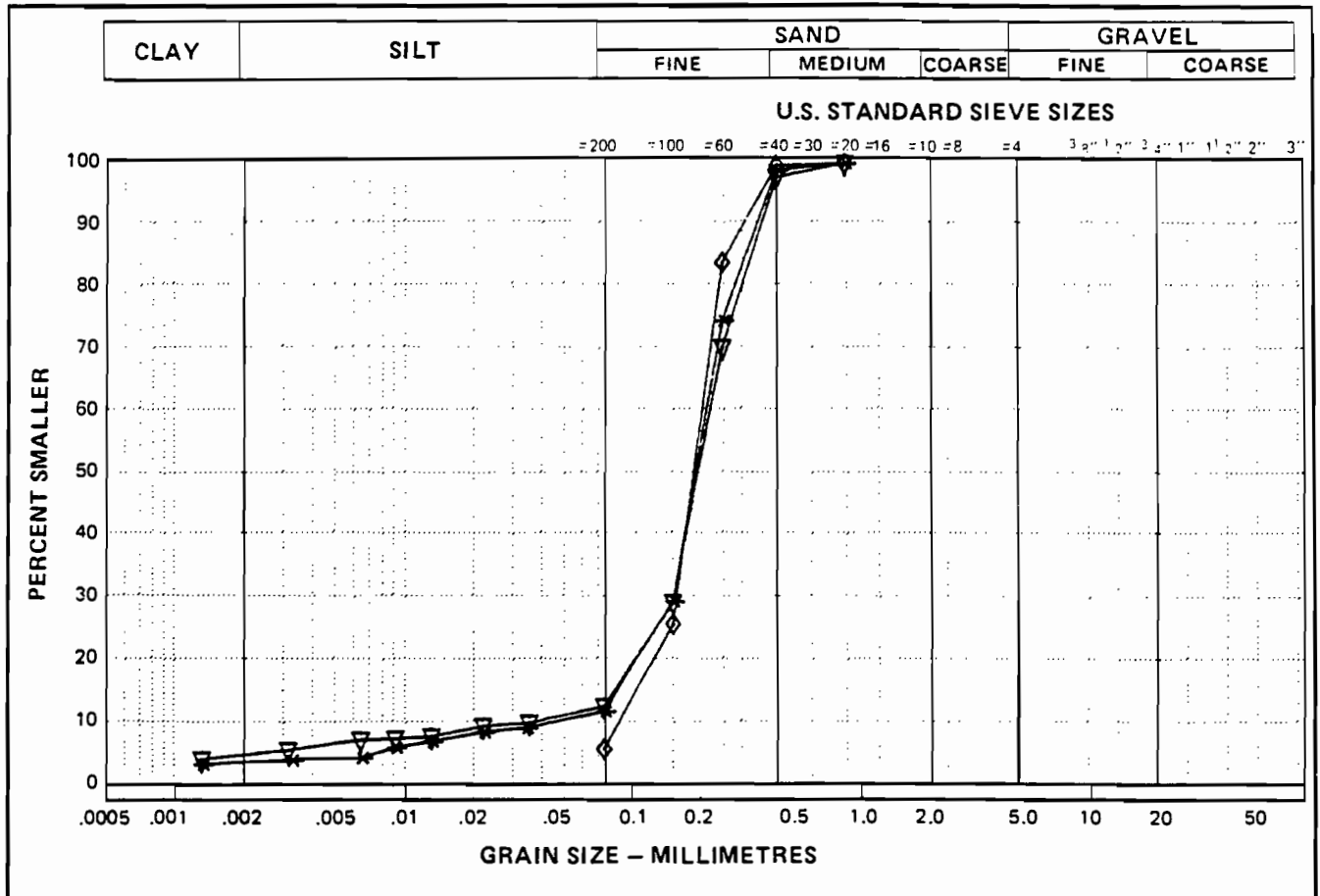
PARTICLE - SIZE ANALYSIS OF SOILS



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C.
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)			
—*—	NAYAK 3	19.90- 19.90	43	56	1	0	-	-	CL
—▽—	NAYAK 3	29.00- 29.00	51	49	0	0	-	-	CH
—◇—	NAYAK 3	38.10- 38.10	50	50	0	0	-	-	CH

JOB NO. 101-3097 **DATE** 81- 6-18

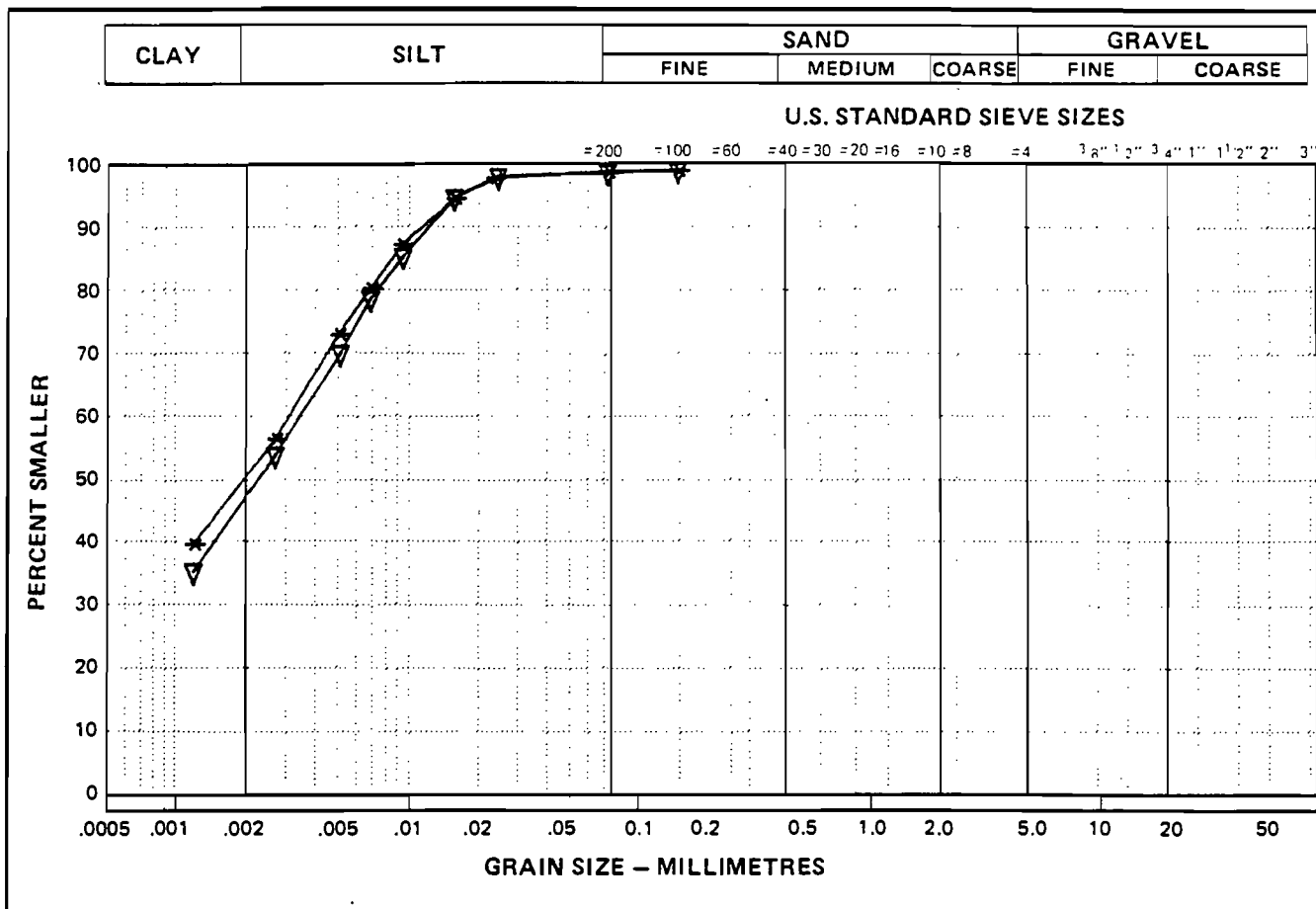
PARTICLE - SIZE ANALYSIS OF SOILS



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C.
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)			
—x—	NAYAK 3	41.20- 41.20	4	8	88	0	5.4	2.7	SM
—▽—	NAYAK 3	42.10- 42.10	8	7	87	0	8.7	4.1	SM-SC
—◇—	NAYAK 3	44.50- 44.50	-	6	94	0	2.4	1.4	SP-SM

JOB NO. 101-3097 DATE 81-6-18

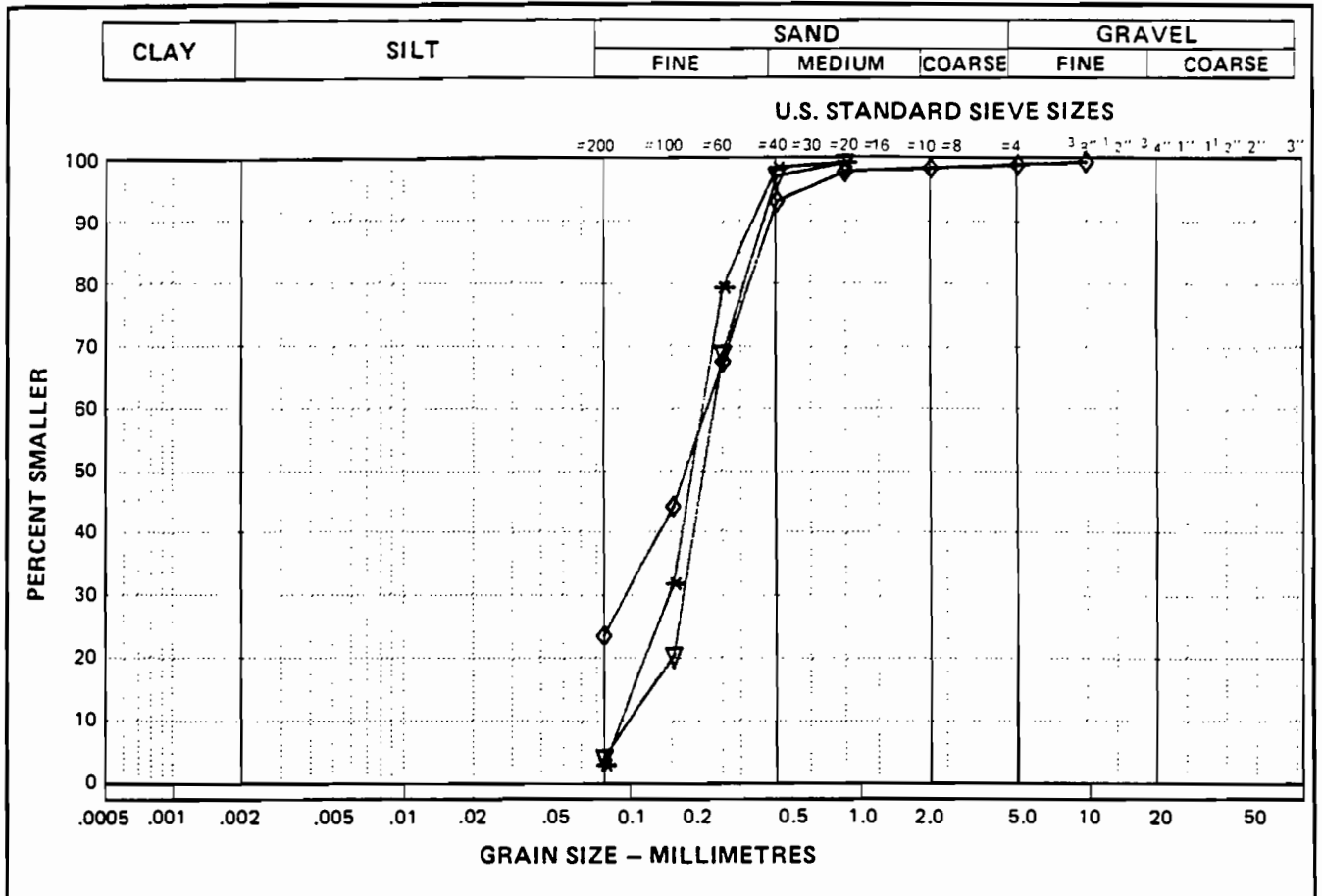
PARTICLE - SIZE ANALYSIS OF SOILS



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C.
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)			
✱	NAYAK 7	19.20 - 19.20	52	48	0	0	-	-	CH
▽	NAYAK 7	29.00 - 29.00	48	52	0	0	-	-	CH

JOB NO. 101-3097 DATE 81-6-18

PARTICLE - SIZE ANALYSIS OF SOILS



SYMBOL	BOREHOLE NUMBER	DEPTH (m)	DESCRIPTION				Cu	Cc	U.S.C.
			CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)			
—*	NAYAK 7	36.60- 36.60	-	3	97	Ø	2.3	1.1	SP
—▽	NAYAK 7	40.30- 40.30	-	5	95	Ø	2.4	1.3	SP-SM
—◇	NAYAK 7	42.10- 42.10	-	24	76	Ø	-	-	SM

JOB NO. 101-3097 DATE 81-6-18

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: ESSO 1981 WINTER CORING PROGRAM PROJECT No.: 101-3097 DATE: _____

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS				GRAIN SIZE DISTRIBUTION				DESCRIPTION	
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)			
81-1	19.8	50.0										
NAYAK	21.3	47.1										
	24.4	43.8	51	24	27	49	51	0	0			CLAY (CH)
	25.9	43.8										
	26.8	36.3										
	28.0	45.3										
	29.3	41.9	49	25	24	41	59	0	0			CLAY (CL)
	29.9	49.8										
	31.1	43.8										
	32.0	44.2										
	32.9	43.9										
	33.5	42.6	48	24	24	42	58	0	0			CLAY (CL)
	35.0	47.0										
	36.0	43.5										
	36.6	54.6										
	37.8	55.8										
	39.0	52.2										
	40.3	17.6				-	13	87	0			SAND (SM)
	40.8	17.2										
	41.4	16.8										

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: ESSO 1981 WINTER CORING PROGRAM

PROJECT No.: 101-3097

DATE: _____

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS				GRAIN SIZE DISTRIBUTION				DESCRIPTION		
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)				
81-1	42.1	19.2											
NAYAK	42.7	18.1				-				6	94	0	SAND (SP-SM)
	43.3	17.6											
	43.9	15.7											

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: ESSO 1981 WINTER CORING PROGRAM PROJECT No.: 101-3097 DATE:

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			GRAIN SIZE DISTRIBUTION				DESCRIPTION	
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)		
81-2	16.3	48.7									
NAYAK	16.8	41.6	46	24	22	48	52	0	0		CLAY (CL)
	18.3	37.9									
	19.8	41.9									
	21.3	39.4									
	22.9	38.6									
	23.8	38.3									
	24.4	40.3	48	22	26	47	53	0	0		CLAY (CL)
	25.3	42.0									
	25.9	36.3									
	26.8	38.6									
	27.4	39.5									
	28.3	40.2									
	29.9	39.0	43	22	21	45	54	1	0		CLAY (CL)
	30.5	36.6									
	31.4	16.0									
	33.0	22.4				-	8	92	0		SAND (SP-SM)
	33.5	16.5									
	35.0	17.5									
	36.6	17.0									

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: ESSO 1981 WINTER CORING PROGRAM PROJECT No.: 101-3097 DATE: _____

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS				GRAIN SIZE DISTRIBUTION				DESCRIPTION	
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)			
81-2	37.5	19.0										
NAYAK	37.8	19.6										
	38.8	22.2				8	41	51	0			SAND (SM-SC)
	39.6	19.3										
	40.5	20.8										
	41.2	17.8				5	22	73	0			SAND (SM-SC)
	42.1	18.8										
	43.3	20.4										
	43.9	18.2										
	44.5	29.1				4	12	84	0			SAND (SM)
	45.1	20.3										

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: ESSO 1981 WINTER CORING PROGRAM PROJECT No.: 101-3097 DATE: _____

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS				GRAIN SIZE DISTRIBUTION				DESCRIPTION
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)		
81-3	19.8	47.6	45	23	22	43	56	1	0	CLAY (CL)	
NAYAK	21.3	48.4									
	22.9	44.0									
	24.4	47.5									
	25.9	44.9									
	27.4	46.5									
	29.0	44.2	53	26	27	51	49	0	0	CLAY (CH)	
	29.9	46.6									
	30.5	47.3									
	31.4	45.4									
	32.0	45.8									
	33.5	48.4									
	35.0	51.4									
	36.0	55.3									
	36.6	43.2									
	38.1	53.1				50	50	0	0	CLAY (CH)	
	39.0	55.9									
	38.6	33.0									
	40.5	99.6								ORGANIC CONTENT = 14.1%	
	41.2	16.7				4	8	88	0	SAND (SM)	

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: **ESSO 1981 WINTER CORING PROGRAM** PROJECT No.: **101-3097** DATE: _____

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS				GRAIN SIZE DISTRIBUTION				DESCRIPTION
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)		
81-3	42.1	15.7				6	7	87	0		SAND (SM-SC)
NAYAK	42.7	18.5									
	43.3	17.9									
	43.9	17.3									
	44.6	17.9				-	6	94	0		SAND (SP-SM)
	45.1	18.3									

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SUMMARY OF LABORATORY TEST RESULTS

PROJECT: ESSO 1981 WINTER CORING PROGRAM

PROJECT No.: 101-3097

DATE:

BOREHOLE	DEPTH (m)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			GRAIN SIZE DISTRIBUTION				DESCRIPTION	
			LL (%)	PL (%)	PI (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)		
81-7	17.7	58.8									
NAYAK	19.2	50.4	54	28	26	52	48	0	0		CLAY (CH)
	19.8	47.8									
	21.3	44.8									
	22.2	46.6									
	23.8	43.3									
	24.4	40.3									
	26.2	40.0									
	29.0	40.1	52	24	28	48	52	0	0		CLAY (CH)
	32.0	44.5									
	35.0	46.5									
	36.6	21.1						3	97	0	SAND (SP)
	38.1	17.9									
	39.6	18.0									
	40.3	17.8						5	95	0	SAND (SP-SM)
	40.8	18.3									
	41.4	15.2									
	42.1	14.7						24	76	0	SAND (SM)