



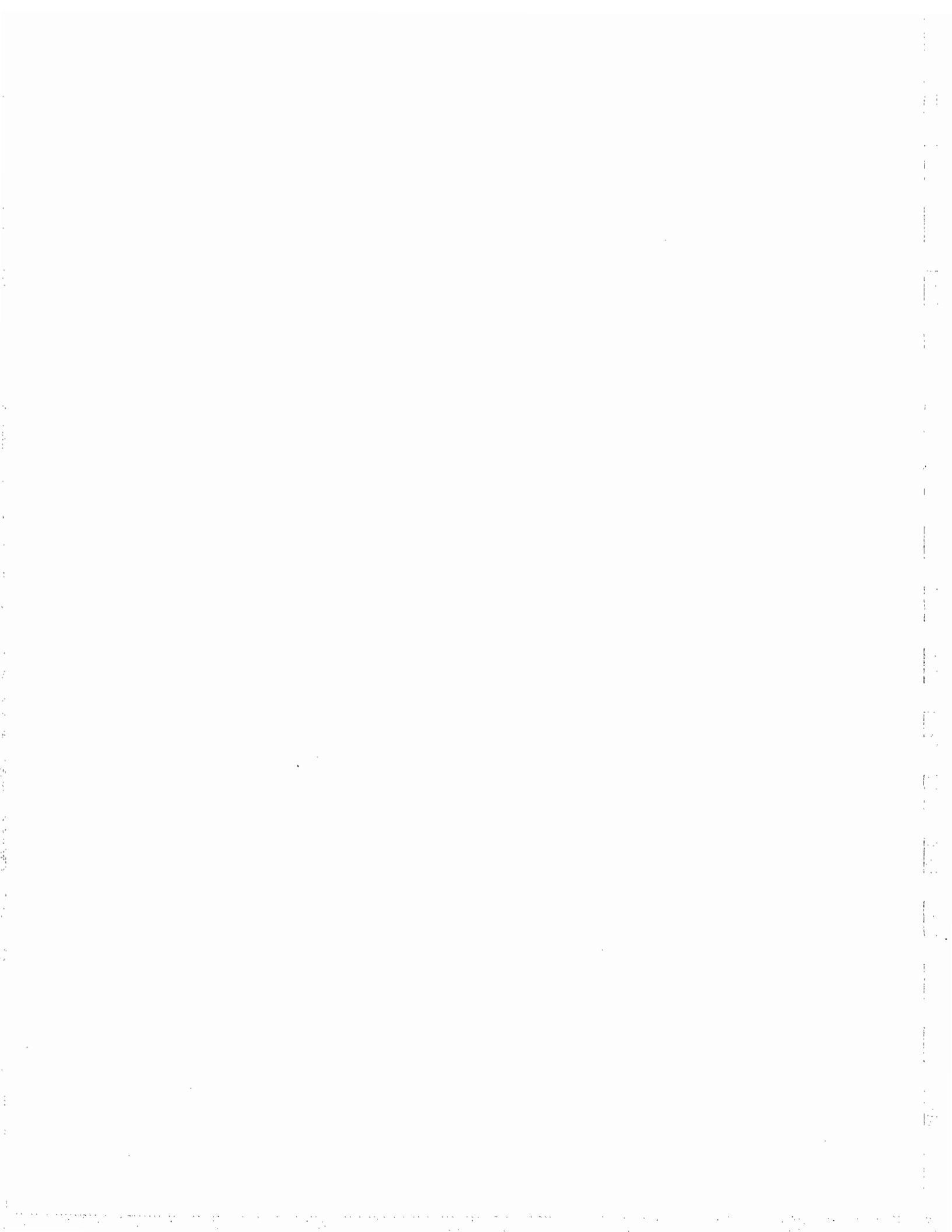
# 1984 OFFSHORE GEOTECHNICAL SITE INVESTIGATION

**GULF et al AMAULIGAK (I-65) SITE  
BEAUFORT SEA**

Submitted to

**GULF CANADA RESOURCES INC.  
CALGARY, ALBERTA**

**JANUARY, 1985**



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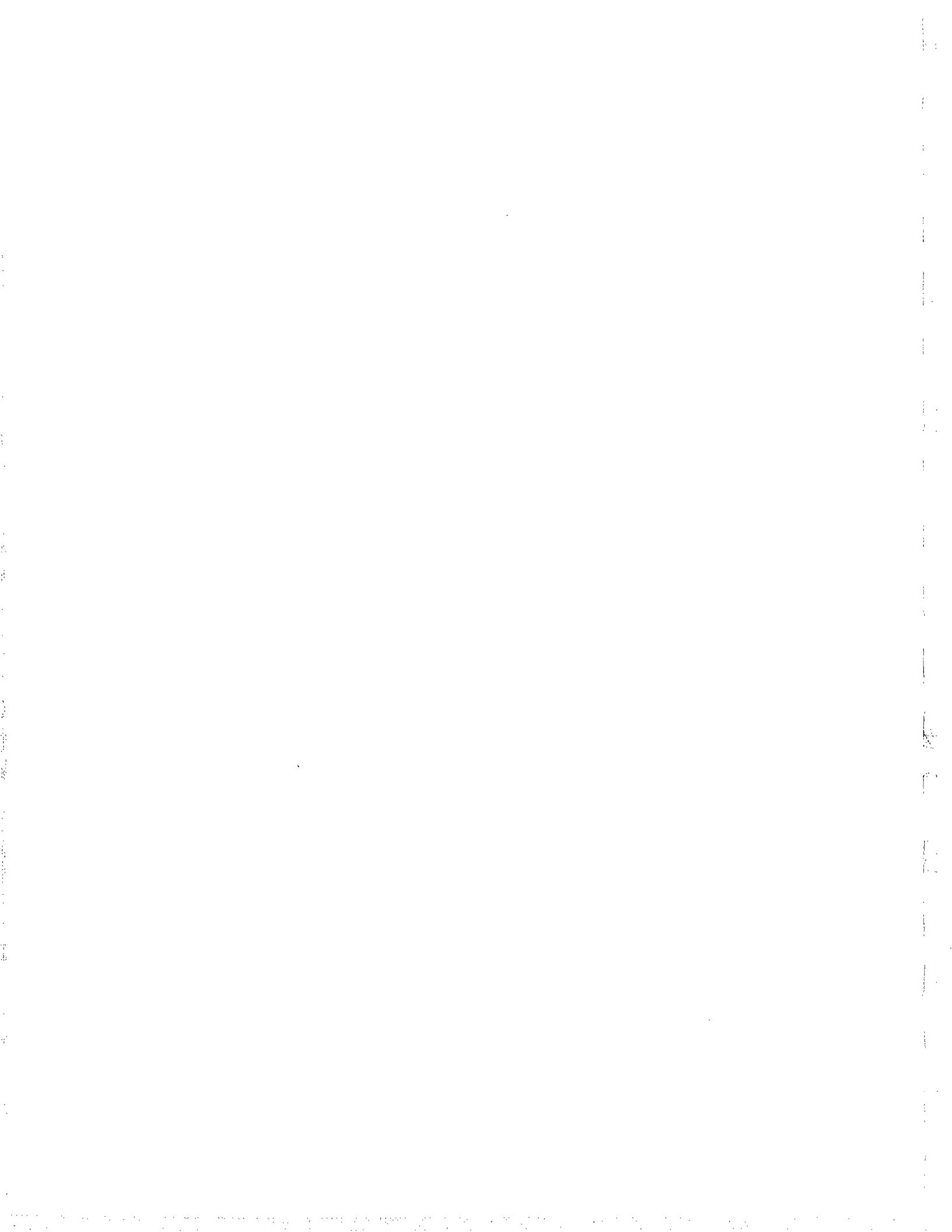




FIGURE 1 GENERAL LOCATION MAP

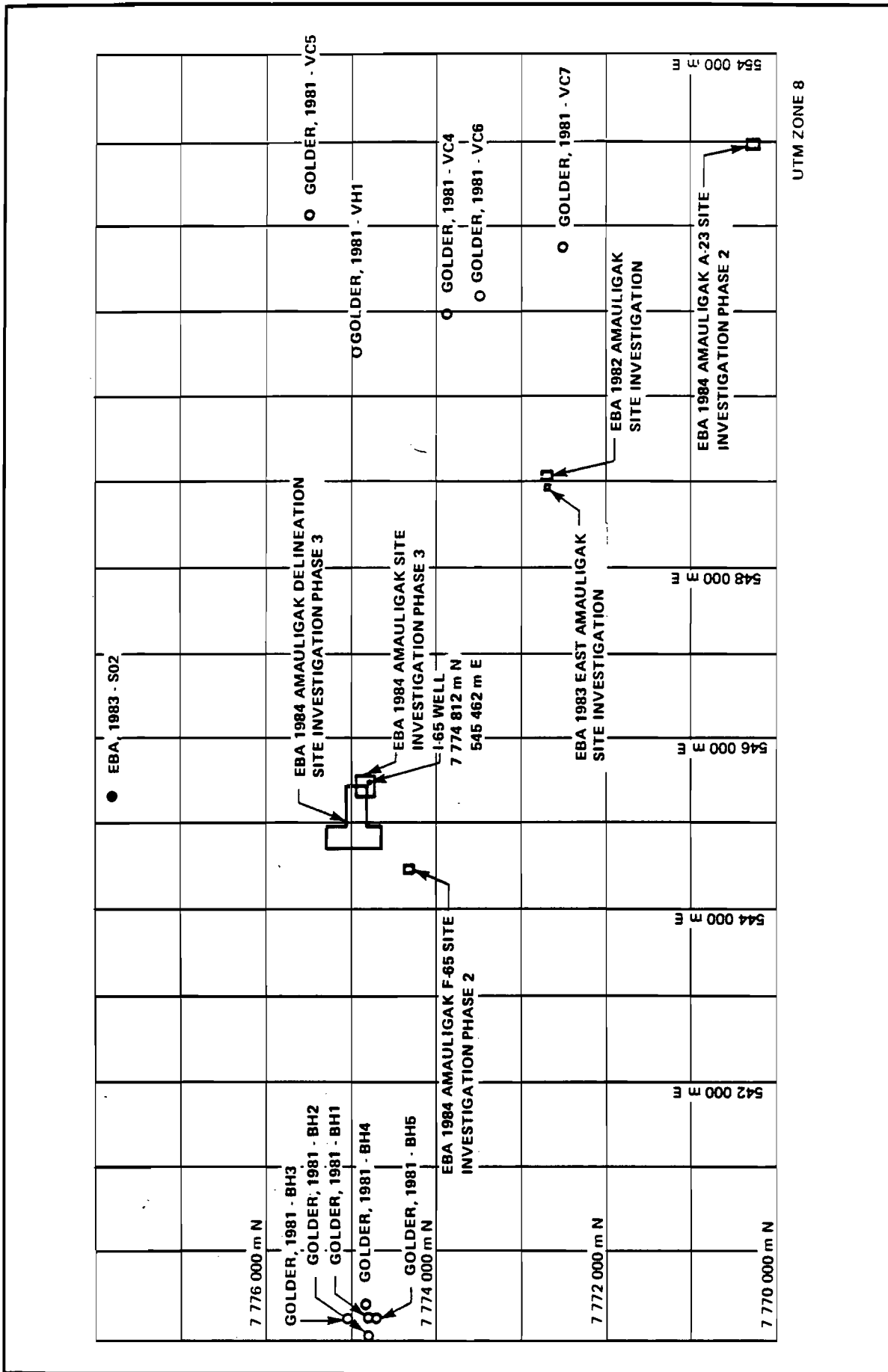


FIGURE 2 DETAILED BOREHOLE AND PROBEHOLE LOCATION MAP FOR ALL SITE INVESTIGATIONS ON THE AMAULIGAK BLOCK

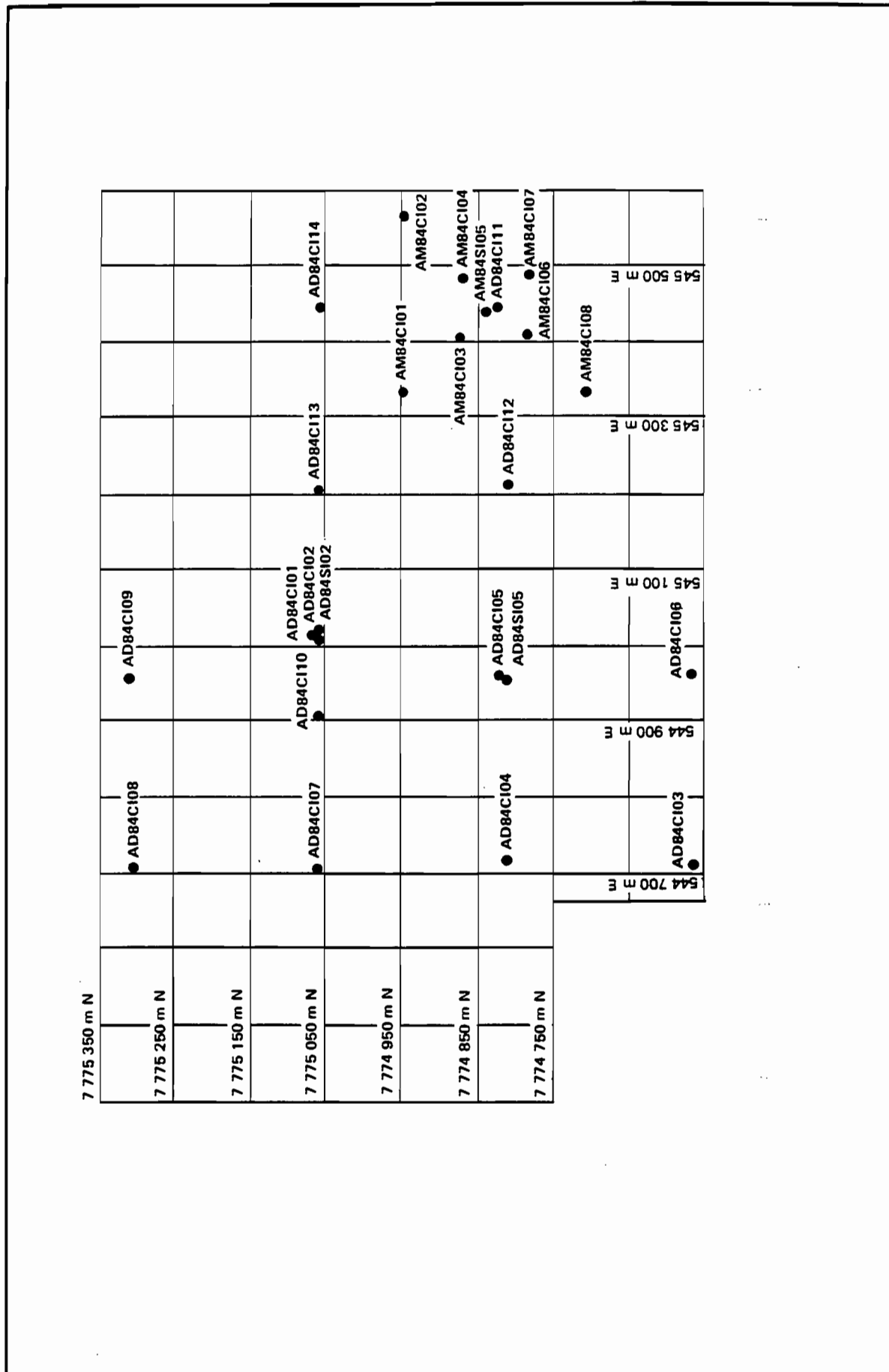
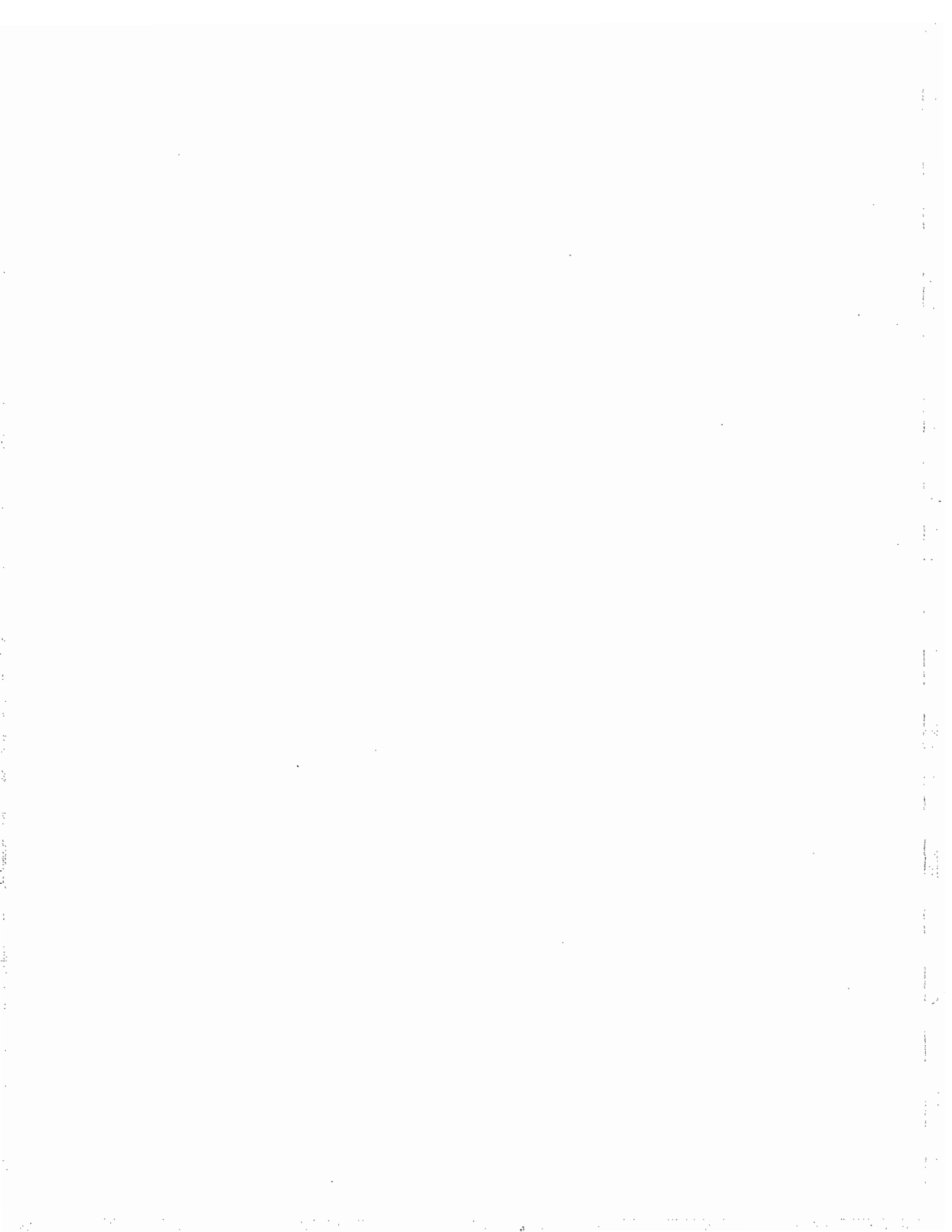


FIGURE 3 BOREHOLE AND PROBEHOLE LOCATION MAP FOR 1984 AMAULIGAK I-65 INVESTIGATION





Test Hole..... EAB2501 68  
 Depth..... 7.77-8.45 m  
 Test Number..... 3  
 Cell Pressure...(Kpa).. 445.4  
 Back Pressure...(Kpa).. 424.0  
 Parameter B..... .96

| Strn  | s1-s3 | Ipoore | Epoore | Para | VolCh | s1/s3 | s-s/2 | s+s/2 | INITIAL           |       | FINAL  |                       |       |       |                       |       |       |
|-------|-------|--------|--------|------|-------|-------|-------|-------|-------------------|-------|--------|-----------------------|-------|-------|-----------------------|-------|-------|
|       |       |        |        |      |       |       |       |       | Water Content (%) | 45.10 | 44.83  | Met Density (Ns/cu.m) | 1.75  | 1.74  | Dry Density (Ns/cu.m) | 1.20  | 1.20  |
| 0.00  | 0.0   | 423.9  | 0.00   | 0.00 | 0.0   | 1.00  | 0.0   | 21.5  | 19.52             | 26.3  | 420.6  | -3.40                 | -1.13 | 0.0   | 2.06                  | 13.2  | 38.0  |
| .21   | 9.0   | 424.7  | .85    | .08  | 0.0   | 1.38  | 4.0   | 24.7  | 19.98             | 26.5  | 420.5  | -3.47                 | -1.13 | 0.0   | 2.07                  | 13.3  | 38.1  |
| .68   | 11.3  | 425.2  | 1.16   | -10  | 0.0   | 1.56  | 5.7   | 25.9  | 20.43             | 26.7  | 420.5  | -3.46                 | -1.13 | 0.0   | 2.07                  | 13.3  | 38.2  |
| 1.03  | 12.8  | 425.4  | 1.45   | -11  | 0.0   | 1.64  | 6.4   | 26.4  | 20.89             | 27.1  | 420.5  | -3.53                 | -1.13 | 0.0   | 2.09                  | 13.6  | 38.5  |
| 1.63  | 13.9  | 425.7  | 1.55   | -12  | 0.0   | 1.70  | 6.9   | 26.8  | 21.35             | 27.5  | 420.4  | -3.62                 | -1.13 | 0.0   | 2.10                  | 13.8  | 38.8  |
| 2.15  | 14.5  | 425.1  | 1.20   | -08  | 0.0   | 1.72  | 7.3   | 27.5  | 21.80             | 27.7  | 420.3  | -3.67                 | -1.13 | 0.0   | 2.10                  | 13.8  | 38.9  |
| 2.66  | 15.2  | 424.7  | .68    | .04  | 0.0   | 1.73  | 7.6   | 28.3  | 0.00              | 0.0   | 0.0    | 0.00                  | 0.00  | 0.0   | 0.00                  | 0.0   | 0.0   |
| 3.17  | 16.2  | 424.3  | .34    | .02  | 0.0   | 1.77  | 8.1   | 28.2  | 21.80             | 27.7  | 423.7  | 3.67                  | .13   | 0.0   | 2.10                  | 13.8  | 38.9  |
| 3.66  | 17.6  | 424.1  | .13    | -.01 | 0.0   | 1.83  | 8.8   | 30.1  | 21.80             | 40.0  | 500.0  | 4.00                  | .14   | 0.0   | 4.00                  | 20.0  | 50.0  |
| 4.16  | 17.9  | 423.9  | -.12   | -.01 | 0.0   | 1.83  | 8.9   | 30.5  | Strn              | s1-s3 | Ipoore | Epoore                | Para  | VolCh | s1/s3                 | s-s/2 | s+s/2 |
| 4.66  | 18.6  | 423.7  | -.30   | -.02 | 0.0   | 1.90  | 9.8   | 31.5  |                   |       |        |                       |       |       |                       |       |       |
| 5.16  | 20.2  | 423.5  | -.49   | -.02 | 0.0   | 1.92  | 10.1  | 32.0  |                   |       |        |                       |       |       |                       |       |       |
| 5.85  | 21.5  | 423.3  | -.72   | -.03 | 0.0   | 1.97  | 10.8  | 32.8  |                   |       |        |                       |       |       |                       |       |       |
| 7.47  | 21.5  | 422.7  | -1.28  | -.06 | 0.0   | 1.85  | 10.7  | 33.4  |                   |       |        |                       |       |       |                       |       |       |
| 7.96  | 21.7  | 422.5  | -1.48  | -.07 | 0.0   | 1.85  | 10.9  | 33.7  |                   |       |        |                       |       |       |                       |       |       |
| 8.88  | 21.9  | 422.4  | -1.61  | -.07 | 0.0   | 1.95  | 10.9  | 33.9  |                   |       |        |                       |       |       |                       |       |       |
| 9.31  | 22.8  | 422.2  | -1.75  | -.08 | 0.0   | 1.98  | 11.4  | 34.5  |                   |       |        |                       |       |       |                       |       |       |
| 10.17 | 22.9  | 422.1  | -1.89  | -.08 | 0.0   | 1.98  | 11.5  | 34.7  |                   |       |        |                       |       |       |                       |       |       |
| 10.62 | 24.2  | 422.0  | -1.99  | -.08 | 0.0   | 2.03  | 12.1  | 35.5  |                   |       |        |                       |       |       |                       |       |       |
| 11.05 | 24.4  | 421.9  | -2.13  | -.09 | 0.0   | 2.04  | 12.2  | 35.7  |                   |       |        |                       |       |       |                       |       |       |
| 11.91 | 24.5  | 421.7  | -2.30  | -.09 | 0.0   | 2.03  | 12.2  | 35.9  |                   |       |        |                       |       |       |                       |       |       |
| 12.34 | 25.0  | 421.6  | -2.44  | -.10 | 0.0   | 2.05  | 12.5  | 36.4  |                   |       |        |                       |       |       |                       |       |       |
| 13.65 | 24.7  | 421.4  | -2.57  | -.10 | 0.0   | 2.03  | 12.3  | 36.3  |                   |       |        |                       |       |       |                       |       |       |
| 14.10 | 24.9  | 421.2  | -2.77  | -.11 | 0.0   | 2.03  | 12.4  | 36.6  |                   |       |        |                       |       |       |                       |       |       |
| 14.55 | 25.7  | 421.1  | -2.94  | -.11 | 0.0   | 2.06  | 12.8  | 37.2  |                   |       |        |                       |       |       |                       |       |       |
| 15.00 | 25.6  | 420.9  | -3.08  | -.12 | 0.0   | 2.04  | 12.8  | 37.3  |                   |       |        |                       |       |       |                       |       |       |
| 16.34 | 26.4  | 420.9  | -3.13  | -.12 | 0.0   | 2.08  | 13.2  | 37.7  |                   |       |        |                       |       |       |                       |       |       |
| 16.80 | 26.3  | 420.8  | -3.16  | -.12 | 0.0   | 2.07  | 13.1  | 37.7  |                   |       |        |                       |       |       |                       |       |       |
| 17.25 | 26.1  | 420.8  | -3.18  | -.12 | 0.0   | 2.06  | 13.1  | 37.7  |                   |       |        |                       |       |       |                       |       |       |
| 17.70 | 26.0  | 420.8  | -3.17  | -.12 | 0.0   | 2.06  | 13.0  | 37.6  |                   |       |        |                       |       |       |                       |       |       |
| 18.15 | 25.9  | 420.8  | -3.22  | -.12 | 0.0   | 2.05  | 12.9  | 37.6  |                   |       |        |                       |       |       |                       |       |       |
| 18.61 | 26.0  | 420.7  | -3.30  | -.13 | 0.0   | 2.05  | 13.0  | 37.7  |                   |       |        |                       |       |       |                       |       |       |
| 19.06 | 25.9  | 420.7  | -3.28  | -.13 | 0.0   | 2.05  | 12.9  | 37.6  |                   |       |        |                       |       |       |                       |       |       |

FIGURE D.7 UNCONSOLIDATED UNDRAINED TRIAXIAL TEST RESULTS  
EAST AMAULIGAK AREA.

Test no.

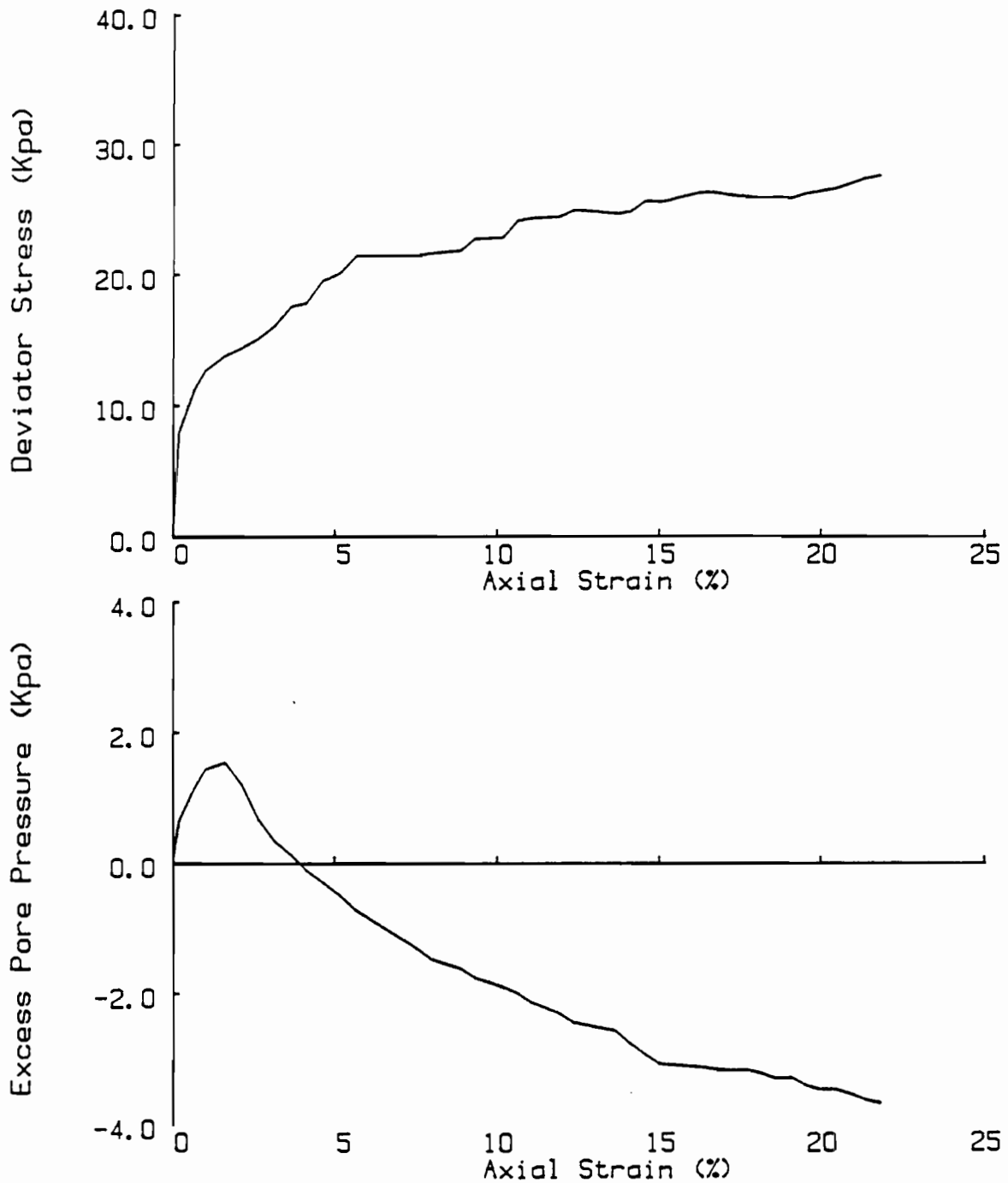
$\sigma'_{3c}$  (kPa)

Dry dens. (Mg/cu. m)

3

21.4

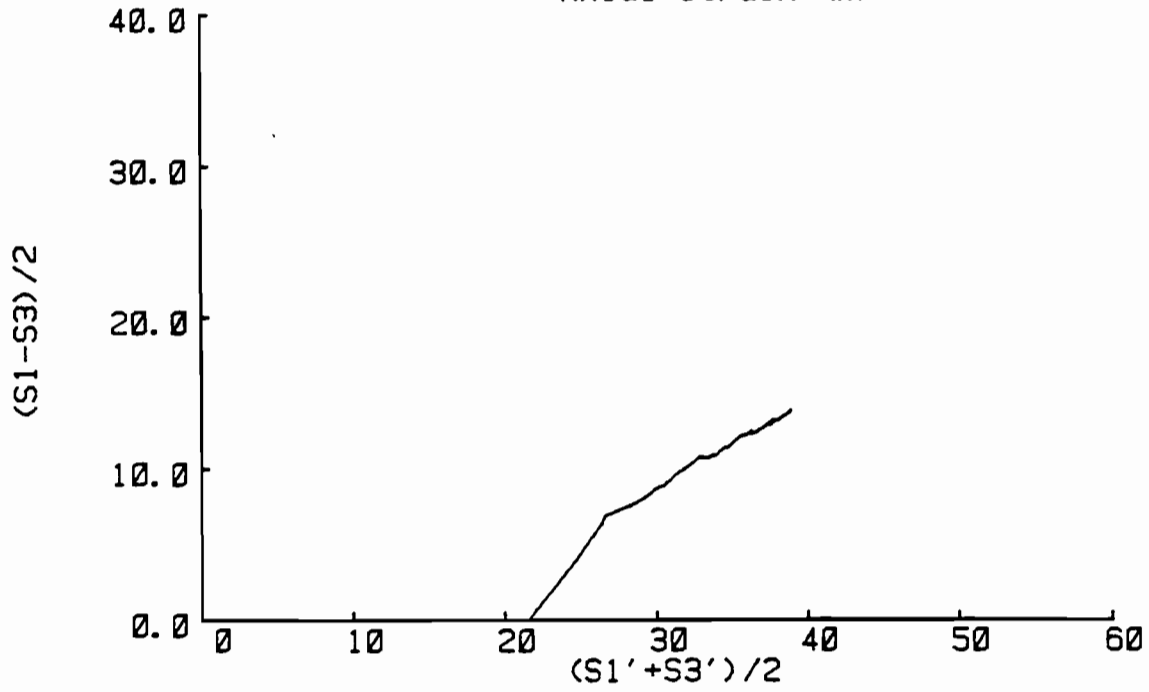
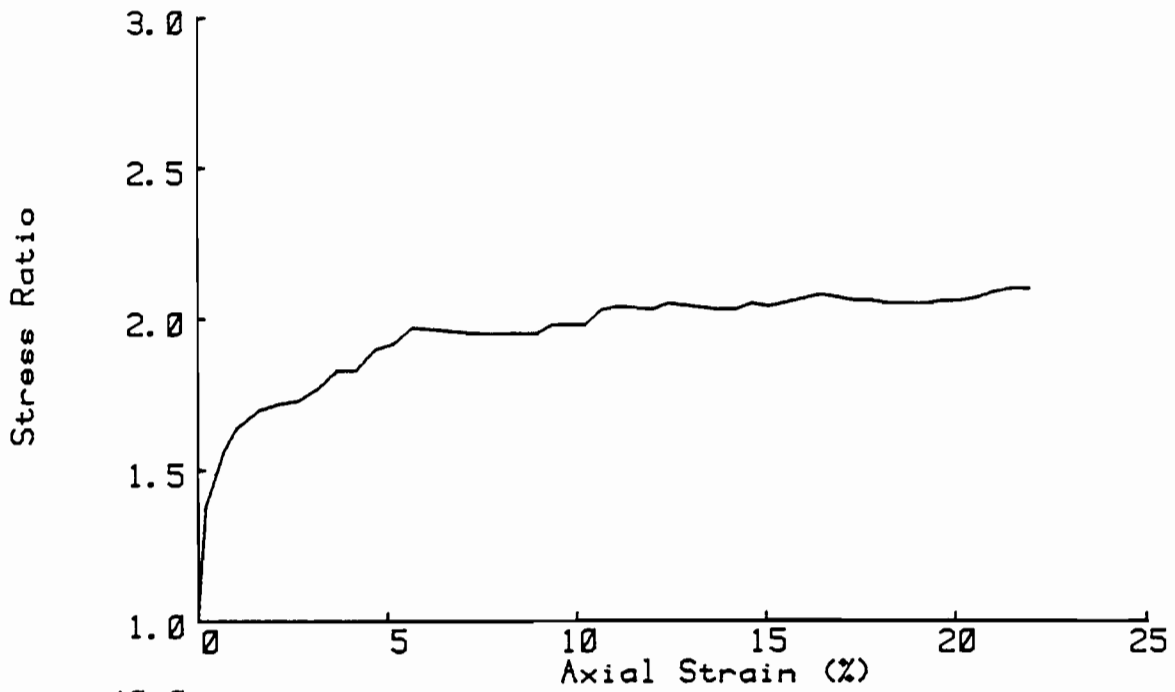
1.20



UNCONSOLIDATED UNDRAINED TRIAXIAL TEST  
WITH PORE WATER PRESSURE MEASUREMENTS

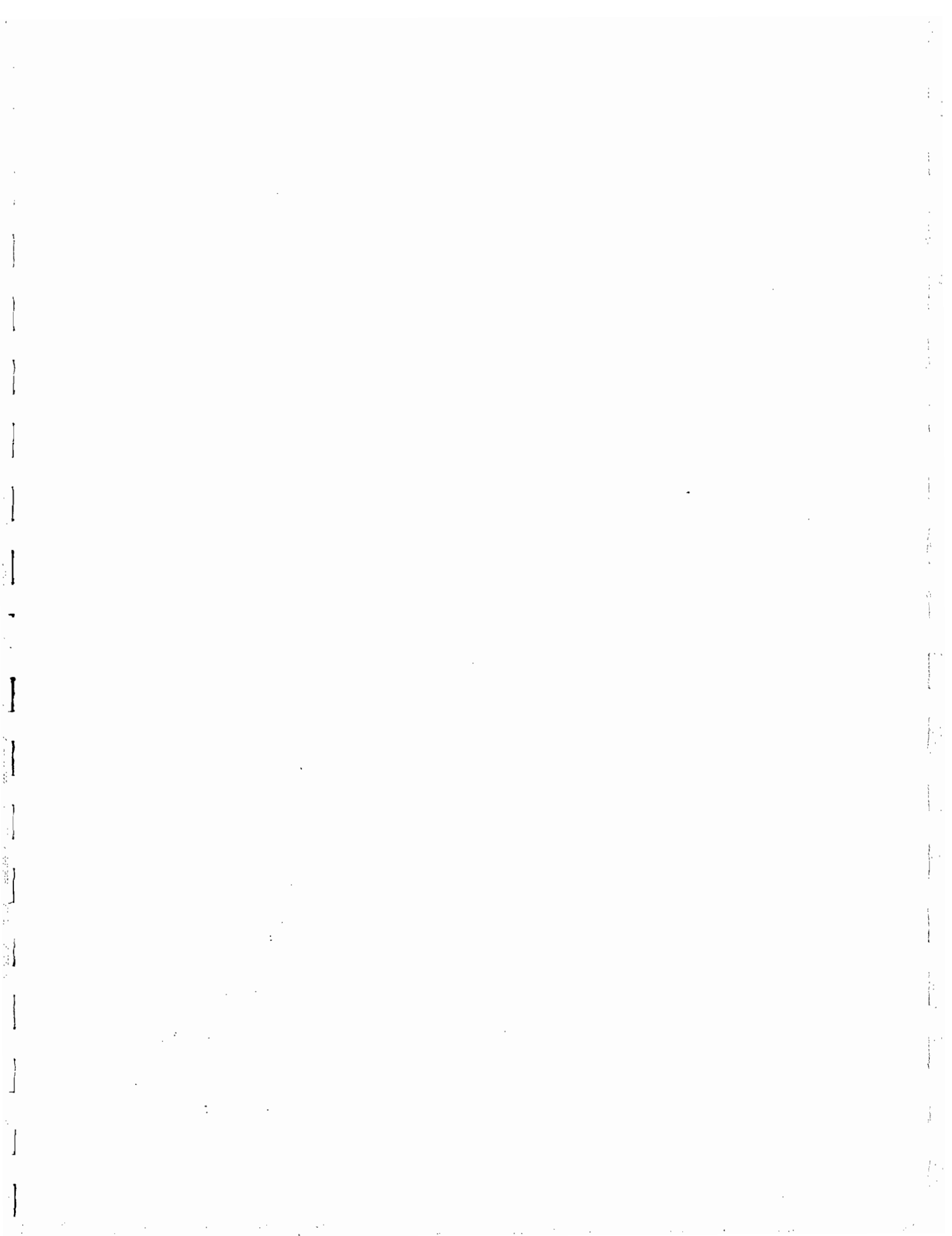
FIGURE  
D.8

|          |                      |                      |
|----------|----------------------|----------------------|
| Test no. | $\sigma'_{30}$ (kPa) | Dry dens. (Mg/cu. m) |
| 3        | 21.4                 | 1.20                 |



UNCONSOLIDATED UNDRAINED TRIAXIAL TEST  
WITH PORE WATER PRESSURE MEASUREMENTS

FIGURE  
D. 9



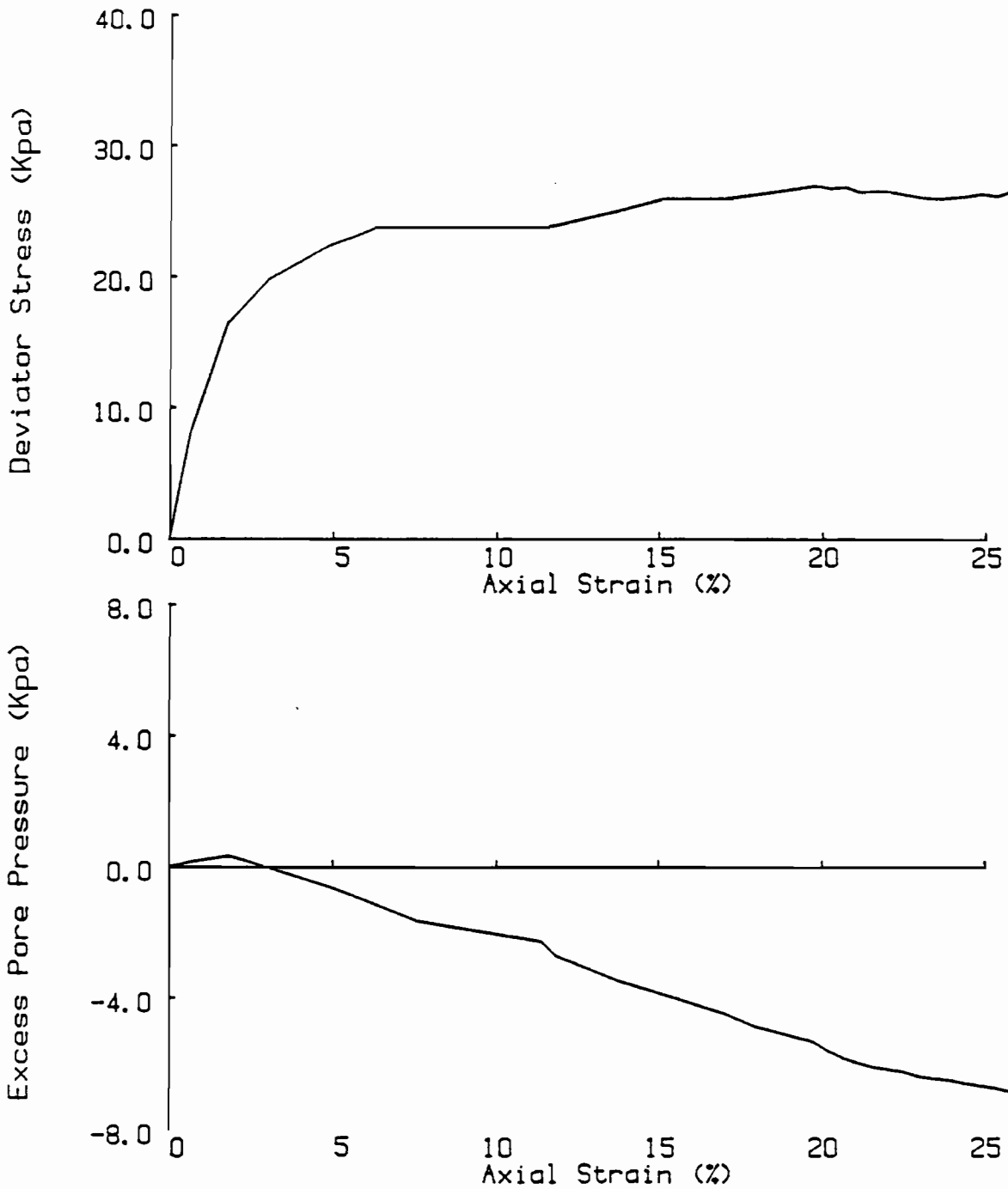
Test Hole..... EAB2501 7B  
 Depth..... 8.69-9.34 m  
 Test Number..... 4  
 Cell Pressure...(Kpa).. 458.5  
 Back Pressure...(Kpa).. 437.1  
 Parameter B..... .95

|                       | INITIAL | FINAL |
|-----------------------|---------|-------|
| Water Content (%)     | 43.03   | 42.74 |
| Wet Density (Ns/cu.m) | 1.71    | 1.70  |
| Dry Density (Ns/cu.m) | 1.19    | 1.19  |

| Strn  | sl-s3 | Frare | Epore | Para | Voich | sl/s3 | s-s/2 | s+s/2 |
|-------|-------|-------|-------|------|-------|-------|-------|-------|
| 0.00  | 0.0   | 437.0 | 0.00  | 0.00 | 0.0   | 1.00  | 0.0   | 21.5  |
| .67   | 8.2   | 437.3 | .16   | -.02 | 0.0   | 1.38  | 4.1   | 25.3  |
| 1.81  | 18.5  | 437.4 | -.35  | -.02 | 0.0   | 1.78  | 8.2   | 29.3  |
| 3.05  | 19.9  | 437.1 | -.02  | -.00 | 0.0   | 1.93  | 9.9   | 31.4  |
| 4.83  | 22.4  | 436.5 | -.58  | -.03 | 0.0   | 2.02  | 11.2  | 33.2  |
| 6.29  | 23.8  | 436.0 | -1.13 | -.05 | 0.0   | 2.05  | 11.9  | 34.4  |
| 7.54  | 23.8  | 435.5 | -1.63 | -.07 | 0.0   | 2.03  | 11.8  | 34.9  |
| 11.39 | 23.8  | 434.8 | -2.26 | -.09 | 0.0   | 2.01  | 11.9  | 35.6  |
| 11.84 | 24.0  | 434.4 | -2.70 | -.11 | 0.0   | 2.00  | 12.0  | 36.1  |
| 13.74 | 25.1  | 433.6 | -3.46 | -.14 | 0.0   | 2.01  | 12.5  | 37.4  |
| 15.14 | 26.0  | 433.2 | -3.88 | -.15 | 0.0   | 2.03  | 13.0  | 38.3  |
| 16.95 | 26.0  | 432.6 | -4.46 | -.17 | 0.0   | 2.01  | 13.0  | 38.9  |
| 17.87 | 26.3  | 432.2 | -4.86 | -.18 | 0.0   | 2.00  | 13.2  | 39.4  |
| 19.71 | 27.0  | 431.8 | -5.33 | -.20 | 0.0   | 2.01  | 13.5  | 40.2  |
| 20.17 | 26.8  | 431.5 | -5.61 | -.21 | 0.0   | 1.99  | 13.4  | 40.4  |
| 20.63 | 28.9  | 431.3 | -5.81 | -.22 | 0.0   | 1.99  | 13.5  | 40.7  |
| 21.10 | 26.5  | 431.1 | -5.88 | -.23 | 0.0   | 1.97  | 13.2  | 40.6  |
| 21.56 | 28.6  | 431.0 | -6.10 | -.23 | 0.0   | 1.97  | 13.3  | 40.8  |
| 22.03 | 26.5  | 430.9 | -6.17 | -.23 | 0.0   | 1.98  | 13.2  | 40.8  |
| 22.49 | 26.3  | 430.9 | -6.24 | -.24 | 0.0   | 1.95  | 13.2  | 40.8  |
| 22.96 | 28.1  | 430.7 | -6.38 | -.24 | 0.0   | 1.94  | 13.1  | 40.9  |
| 23.43 | 26.0  | 430.7 | -6.45 | -.25 | 0.0   | 1.93  | 13.0  | 40.8  |
| 23.89 | 28.1  | 430.6 | -6.49 | -.25 | 0.0   | 1.94  | 13.1  | 40.9  |
| 24.36 | 26.2  | 430.5 | -6.59 | -.25 | 0.0   | 1.94  | 13.1  | 41.1  |
| 24.82 | 26.4  | 430.4 | -6.67 | -.25 | 0.0   | 1.94  | 13.2  | 41.2  |
| 25.27 | 26.2  | 430.4 | -6.73 | -.26 | 0.0   | 1.93  | 13.1  | 41.2  |
| 25.73 | 26.6  | 430.3 | -6.83 | -.26 | 0.0   | 1.94  | 13.3  | 41.5  |
| 26.18 | 25.9  | 430.2 | -6.94 | -.27 | 0.0   | 1.91  | 12.9  | 41.3  |
| 0.00  | 0.0   | 0.0   | 0.00  | 0.00 | 0.0   | 0.00  | 0.0   | 0.0   |
| 19.71 | 27.0  | 437.4 | 6.94  | -.27 | 0.0   | 2.05  | 13.5  | 41.5  |
| 19.71 | 40.0  | 500.0 | 8.00  | .30  | 0.0   | 4.00  | 20.0  | 50.0  |
| Strn  | sl-s3 | Frare | Epore | Para | Voich | sl/s3 | s-s/2 | s+s/2 |

FIGURE D.10 UNCONSOLIDATED UNDRAINED TRIAXIAL TEST RESULTS - EAST AMAULIGAK AREA.

|          |                      |                      |
|----------|----------------------|----------------------|
| Test no. | $\sigma'_{3c}$ (kPa) | Dry dens. (Mg/cu. m) |
| 4        | 21.4                 | 1.19                 |



UNCONSOLIDATED UNDRAINED TRIAXIAL TEST  
WITH PORE WATER PRESSURE MEASUREMENTS

FIGURE  
D.11

CONSOLIDATION TEST DATA

Date Computed..... 2120 PM WED., 8 FEB., 1988

Date Tested..... 82 01 08

Job Number..... 101-8588

Test Hole..... EA 82801 33

Depth..... 3.88 - 4.72 m

Test Number..... 1

ROOT Fit

|               |           | INITIAL | FINAL            |
|---------------|-----------|---------|------------------|
| Height        | (mm)      | 25.50   | 23.74            |
| Water Content | (%)       | 46.82   | 38.40            |
| Wet Density   | (Mg/cu.m) | 1.77    | 1.67             |
| Dry Density   | (Mg/cu.m) | 1.21    | 1.33             |
| Void Ratio    |           | 1.2901  | 1.0538           |
| Saturation    | (%)       | 58.30   | 100.00 (Assumed) |

| Load (KPa) | Void ratio | CV (cm <sup>2</sup> /yr) | MV (cm <sup>2</sup> /MN) | K (m/s)  |
|------------|------------|--------------------------|--------------------------|----------|
| 0.00       | 1.2901     | .000E+00                 | .000E+00                 | .000E+00 |
| 3.20       | 1.2755     | .427E+00                 | .198E+01                 | .288E-08 |
| 3.50       | 1.2713     | .511E+00                 | .581E+00                 | .198E-08 |
| 12.30      | 1.2530     | .342E+00                 | .127E+01                 | .372E-08 |
| 3.20       | 1.2575     | .000E+00                 | .000E+00                 | .000E+00 |
| 4.30       | 1.2571     | .750E+02                 | .114E+00                 | .288E-08 |
| 7.30       | 1.2588     | .180E+02                 | .488E-01                 | .257E-08 |
| 10.30      | 1.2551     | .718E+01                 | .218E+00                 | .482E-08 |
| 15.10      | 1.2450     | .117E+01                 | .558E+00                 | .311E-08 |
| 24.20      | 1.2250     | .116E-01                 | .111E+01                 | .402E-08 |
| 35.00      | 1.1846     | .108E+01                 | .118E+01                 | .368E-08 |
| 54.40      | 1.1570     | .110E-01                 | .658E+00                 | .330E-08 |
| 88.30      | 1.1007     | .138E-01                 | .631E+00                 | .368E-08 |
| 133.50     | 1.0101     | .201E-01                 | .468E+00                 | .251E-08 |
| 357.00     | .8180      | .350E-01                 | .248E+00                 | .270E-08 |
| 48.40      | .6848      | .600E-00                 | .000E+00                 | .000E+00 |
| 10.30      | 1.0028     | .000E+00                 | .000E+00                 | .000E+00 |
| .25        | 1.0033     | .000E+00                 | .000E+00                 | .000E+00 |

FIGURE E.1 CONSOLIDATION TEST RESULTS EAST AMAULIGAK AREA

Project:  
Address:

Test No.: 1  
Borehole No.: EA82S01 3B  
Depth (m): 3.96-4.72 m  
Diameter (mm): 49.80  
Specific Gravity: 2.74

Project No.: 101-3685

Date Tested: 82-11-20

By: GB

1.350

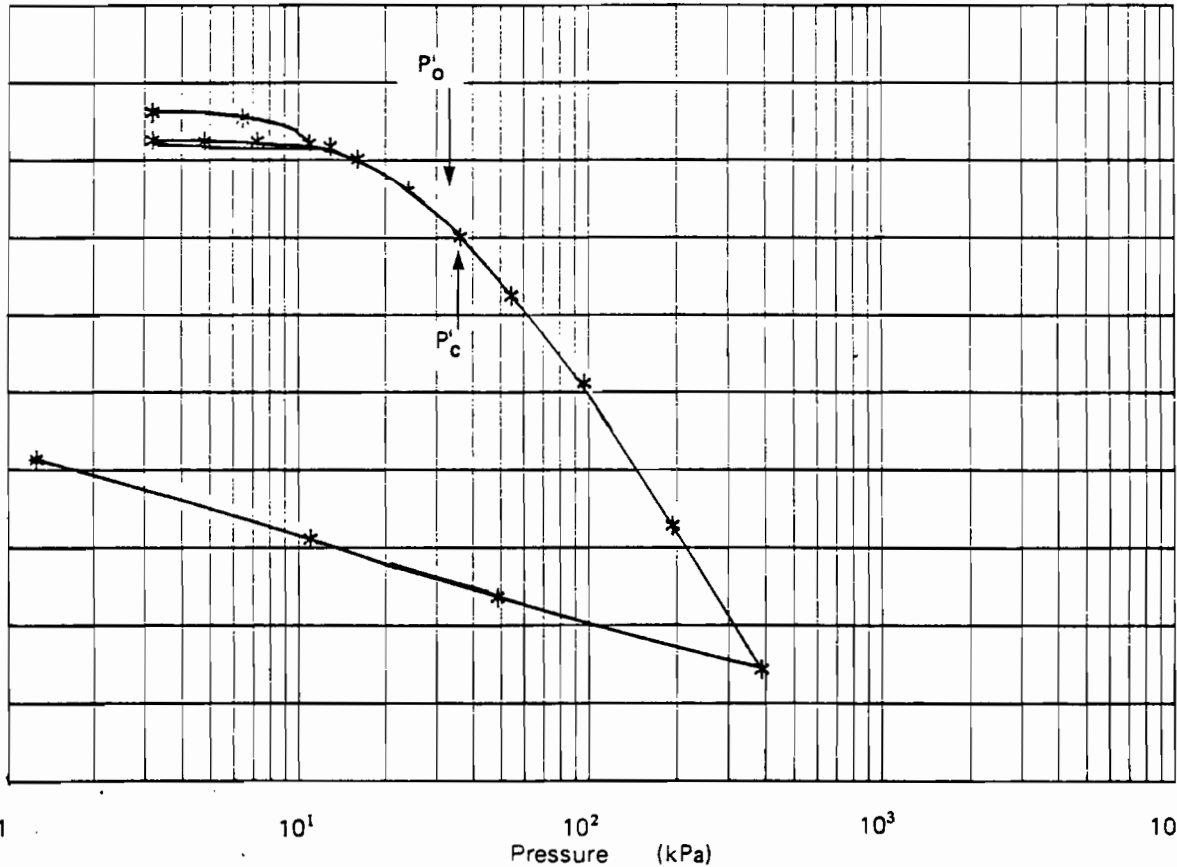
1.250

1.150

1.050

.950

.850



|                                   | INITIAL | FINAL  | Sample Description:        |                |      |     |
|-----------------------------------|---------|--------|----------------------------|----------------|------|-----|
| Height (mm):                      | 26.50   | 23.75  | Dark gray silty clay       |                |      |     |
| Water Content (%):                | 46.82   | 38.40  | Overburden Pressure        | P <sub>o</sub> | 33   | kPa |
| Wet Density (Mg/m <sup>3</sup> ): | 1.77    | 1.87   | Swelling Pressure          | P <sub>s</sub> |      | kPa |
| Dry Density (Mg/m <sup>3</sup> ): | 1.21    | 1.35   | Pre-Consolidation Pressure | P <sub>c</sub> | 35   | kPa |
| Void Ratio                        | 1.2899  | 1.0538 | Compression Index          | C <sub>c</sub> | 0.27 |     |
| Saturation (%):                   | 99.61   | 100.00 |                            |                |      |     |

Note: 1 kPa = 1.044 x 10<sup>-2</sup> T<sub>f</sub>/ft.<sup>2</sup>

FIGURE E.2

CONSOLIDATION TEST RESULTS  
EAST AMAULIGAK AREA



Date Computed..... 9:02 AM THU., 2 DEC., 1982

Date Tested.....82 11 15

Job Number.....101-3685

Test Hole.....EA 82501 SB

Depth.....7.77 - 8.45

Test Number.....2

ROOT Fit

|                       |      | INITIAL | FINAL            |
|-----------------------|------|---------|------------------|
| Height                | (mm) | 26.34   | 22.96            |
| Water Content         | (%)  | 43.84   | 31.52            |
| Wet Density (Ms/cu.m) |      | 1.80    | 1.89             |
| Dry Density (Ms/cu.m) |      | 1.25    | 1.44             |
| Void Ratio            |      | 1.1109  | .8383            |
| Saturation            | (%)  | 104.98  | 100.00 (Assumed) |

| Load (KPa) | Void ratio | CV(sq.m/yr) | MV(sq.m/MN) | K(m/s)   |
|------------|------------|-------------|-------------|----------|
| 0.00       | 1.1109     | .000E+00    | .000E+00    | .000E+00 |
| 9.70       | 1.0892     | .675E+00    | .107E+01    | .225E-09 |
| 20.20      | 1.0681     | .693E+00    | .969E+00    | .209E-09 |
| 40.30      | 1.0390     | .990E+00    | .712E+00    | .219E-09 |
| 9.70       | 1.0484     | .000E+00    | .000E+00    | .000E+00 |
| 14.50      | 1.0474     | .578E+01    | .102E+00    | .183E-09 |
| 21.80      | 1.0449     | .818E+01    | .168E+00    | .428E-09 |
| 32.30      | 1.0406     | .385E+01    | .202E+00    | .241E-09 |
| 48.40      | 1.0293     | .145E+01    | .346E+00    | .156E-09 |
| 72.60      | 1.0053     | .155E+01    | .496E+00    | .233E-09 |
| 112.90     | .9722      | .144E+01    | .416E+00    | .186E-09 |
| 225.80     | .9214      | .234E+01    | .234E+00    | .171E-09 |
| 451.60     | .8570      | .255E+01    | .154E+00    | .122E-09 |
| 903.20     | .7854      | .291E+01    | .888E-01    | .804E-10 |
| 1806.50    | .7094      | .295E+01    | .493E-01    | .452E-10 |
| 3612.90    | .6331      | .337E+01    | .259E-01    | .271E-10 |
| 225.80     | .6870      | .000E+00    | .000E+00    | .000E+00 |
| 21.80      | .7477      | .000E+00    | .000E+00    | .000E+00 |
| 1.25       | .8383      | .000E+00    | .000E+00    | .000E+00 |

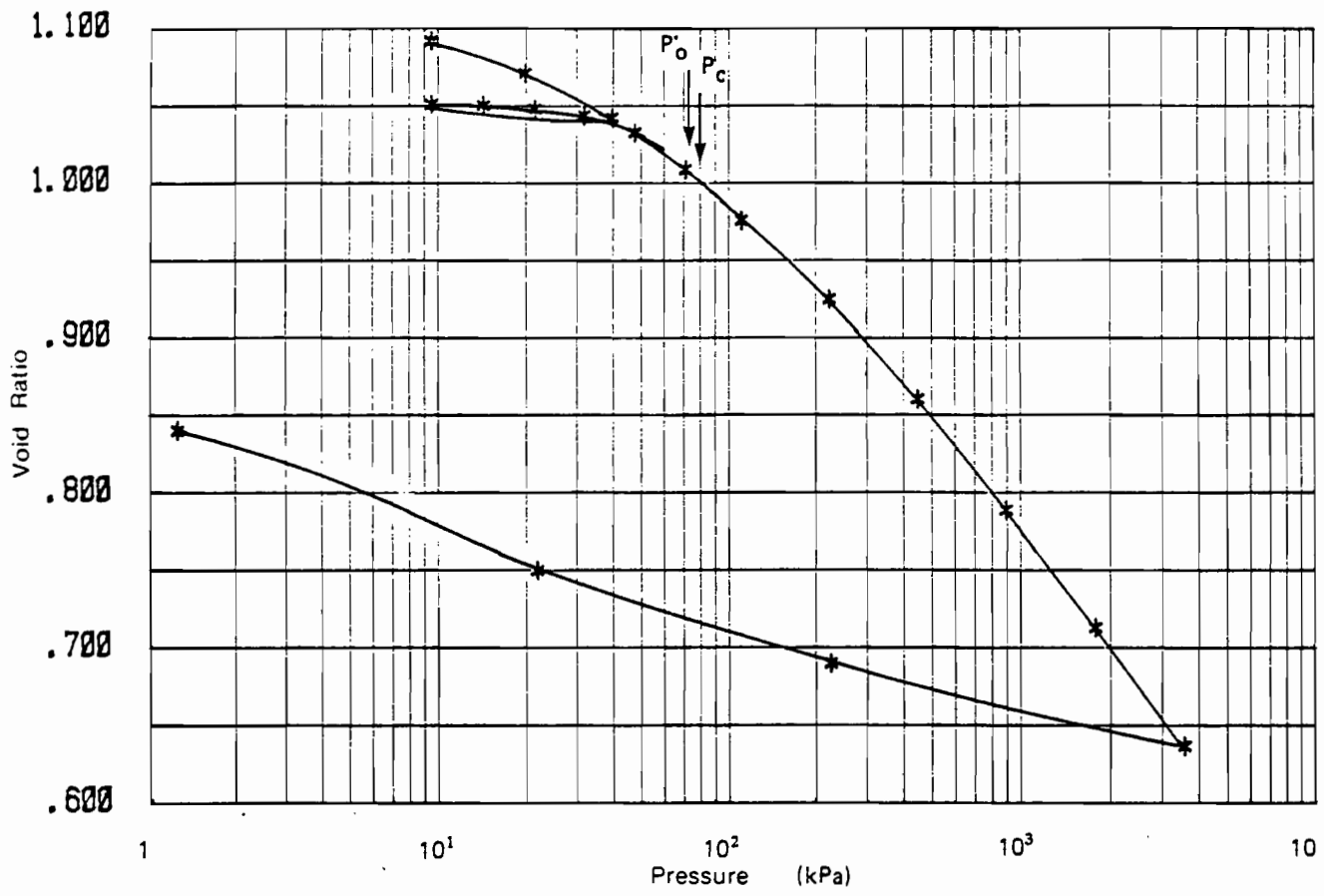
FIGURE E.3 CONSOLIDATION TEST RESULTS  
EAST AMAULIGAK AREA

Project:  
Address:

Test No.: 2  
Borehole No.: EA 82S01 6B  
Depth (m): 7.77 - 8.45  
Diameter (mm): 49.90  
Specific Gravity: 2.66

Project No.: 101-3685  
Date Tested: 82 11 15

By: GJB



|                                   | INITIAL | FINAL  |
|-----------------------------------|---------|--------|
| Height (mm):                      | 26.34   | 22.96  |
| Water Content (%):                | 43.84   | 31.52  |
| Wet Density (Mg/m <sup>3</sup> ): | 1.80    | 1.89   |
| Dry Density (Mg/m <sup>3</sup> ): | 1.25    | 1.44   |
| Void Ratio                        | 1.1109  | .8383  |
| Saturation (%):                   | 104.98  | 100.00 |

Sample Description: CLAY, dk gray, tr. silt, tr. organics

|                            |                |      |     |
|----------------------------|----------------|------|-----|
| Overburden Pressure        | P <sub>o</sub> | 72   | kPa |
| Swelling Pressure          | P <sub>s</sub> |      | kPa |
| Pre-Consolidation Pressure | P <sub>c</sub> | 80   | kPa |
| Compression Index          | C <sub>c</sub> | 0.25 |     |

Note: 1 kPa = 1.044 x 10<sup>-2</sup> T<sub>f</sub>/ft.<sup>2</sup>

FIGURE E.4 CONSOLIDATION TEST RESULTS EAST AMAULIGAK AREA

APPENDIX F

Subconsultants Results



REPORT ON  
HYDROCARBON GAS ANALYSES  
BOREHOLE EA82S01 - EAST AMAULIGAK

JOB 101-3685

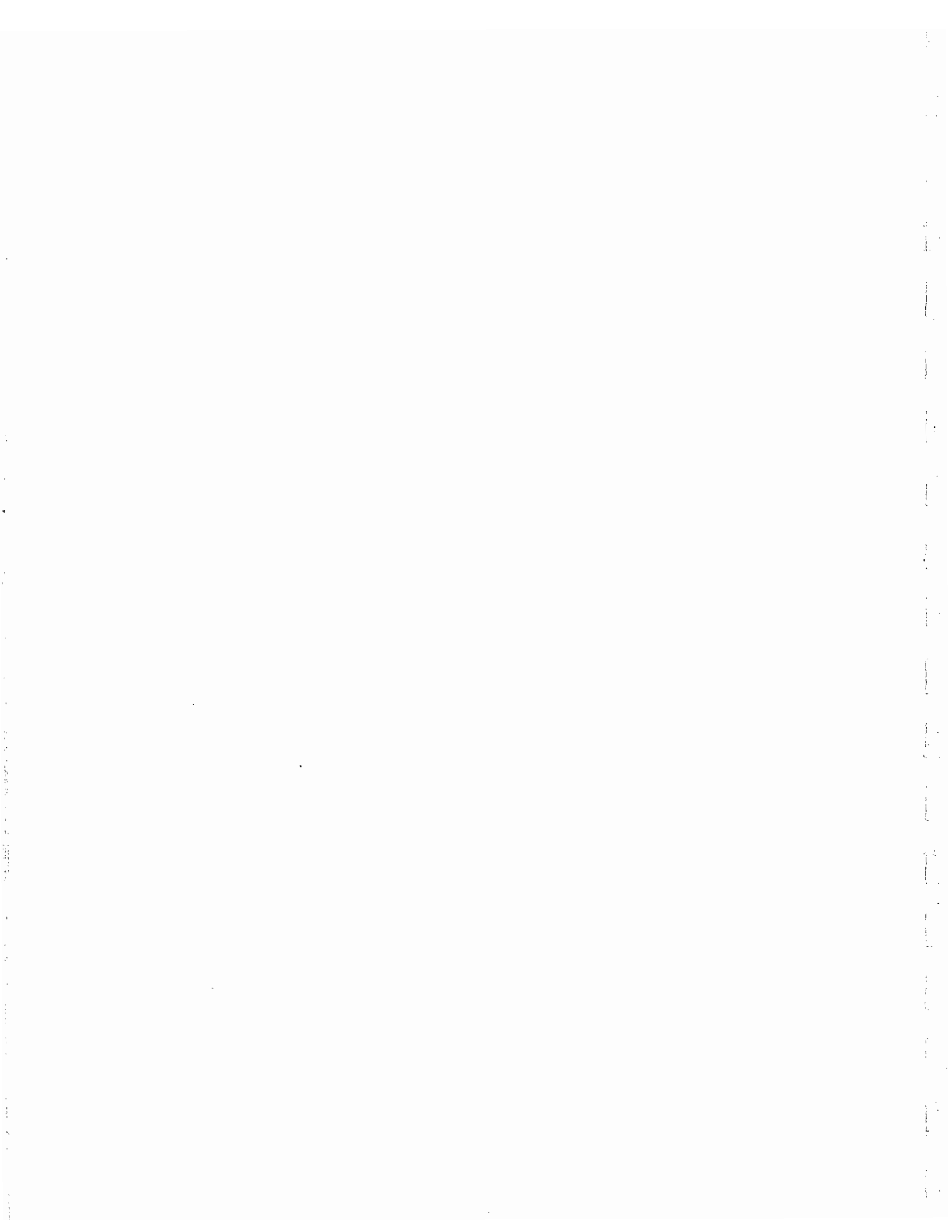
FOR

EBA ENGINEERING CONSULTANTS LTD.  
J.P. RUFFELL

PREPARED BY

Dr. J.F. BARKER  
DEPARTMENT OF EARTH SCIENCES  
UNIVERSITY OF WATERLOO

JANUARY 7, 1983



## METHODS

At the drill site, fresh core material is placed in cans with water so as to eliminate any head space. In the laboratory, 100 cm<sup>3</sup> of helium is added and 100 cm<sup>3</sup> of water withdrawn via gas-tight septa. The sediment/water/helium mixture is vigorously shaken so that hydrocarbon gases will be taken into the helium gas phase. A few microlitres of the gas phase is analyzed by gas chromatography for methane, ethane, ethylene, propane, and propylene. A commercial, analyzed gas mixture is used as standards. The concentration of each component is reported in parts per million (ppm) on a volume basis (v/v). That is, 10<sup>4</sup> ppm, v/v indicates that there is 1 cm<sup>3</sup> of that gas per 100 cm<sup>3</sup> of wet sediment. It is assumed that 100 cm<sup>3</sup> (100 ml) of wet sediment has been canned at the drill site. In addition, the sediment was dried and weighed so that the amount of gas per dry weight of sediment can be reported if the client wishes.

## RESULTS

Hydrocarbon gas analyses for the two core samples are as follows:

| SAMPLE | DEPTH<br>(m)  | GAS CONTENT (ppm, v/v) |        |
|--------|---------------|------------------------|--------|
|        |               | Methane                | Ethane |
| 5D     | 6.70 - 6.72   | 1.4 x 10 <sup>3</sup>  | —      |
| 9A*    | 10.79 - 10.89 | 6.6 x 10 <sup>3</sup>  | 2      |
| 9B*    | 10.89 - 10.93 | 2.7 x 10 <sup>4</sup>  | 5      |

Dashes indicate the component was not detected. Ethylene (ethene), propane and propylene also were not detected. The cans were rusted and the sample indicated by "\*" was obviously leaking and some gases could have been lost. The lack of significant petrogenic components (ethane and propane) and the total lack of biogenic components ethylene and propylene makes it difficult to identify the origin of the dominantly-methane gases. The very low levels of ethane would indicate only very minor contribution of petrogenic gas to dominantly-biogenic methane. Even the highest concentrations of methane are very unlikely to exceed the solubility of methane in the porewaters. The gases probably exist as dissolved components and are not contributing to pore pressure build-up.