R-008-101.1

2226

# K-65 WEEKLY REPORT MAY 23, 1991

05-23-91

DOE/USEPA
23
REPORT

[redacted]

# K-65 AREA WEEKLY REPORT
## MAY 23, 1991

2226

**SLANT BORINGS:**

The groundwater encountered on boring #1 and #3 is scheduled to be pumped and sent to IT Laboratory for analysis on May 23, 1991. A sample of the groundwater from both borings will also be analyzed in the on-site WMCO Laboratory.

Borings under the Decant Sump will be initiated upon receipt of the casing. The casing is scheduled for delivery on May 28, 1991.

**BERM SAMPLING:**

The northwest samples (3-10′ sections) were successfully removed and shipped off-site for analysis on May 23, 1991. Sampling activities on west side of silos are now complete. Sampling activities on the east side of silo #1 will be initiated May 27, 1991.

**RADON TREATMENT SYSTEM:**

All equipment is now on-site and construction activities will begin early next week.

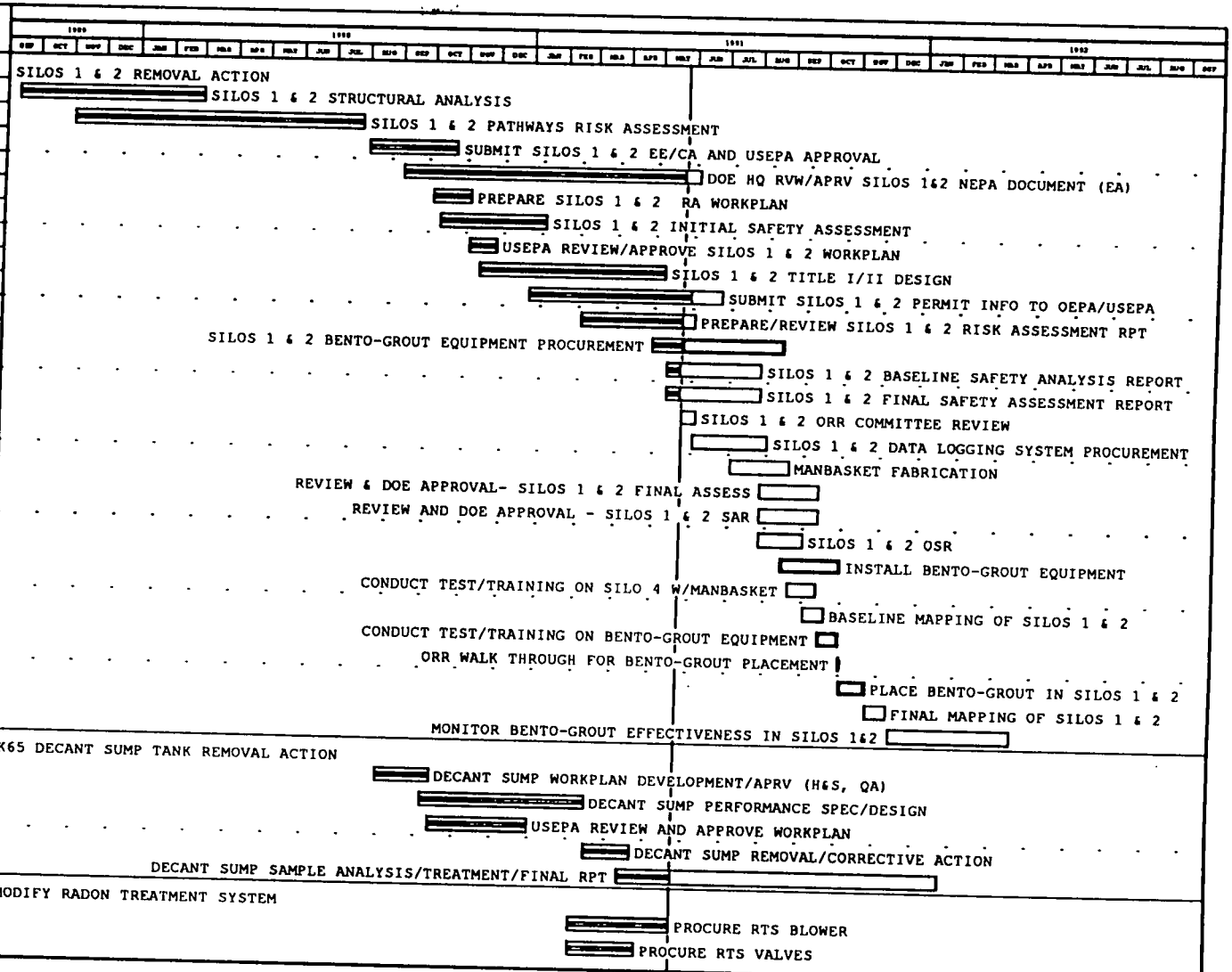
**DECANT SUMP:**

Sludge sampling is scheduled to be initiated on May 28, 1991.

2226

2

| ACTIVITY ID | REM DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| **SILOS 1 & 2 REMOVAL ACTION** | | | |
| Y404151001 | 0 | 12SEP89A | 28FEB90A |
| Y404110001 | 0 | 2NOV89A | 26JUL90A |
| Y404031001 | 0 | 1AUG90A | 22OCT90A |
| Y404191001 | 9 | 3SEP90A | 5JUN91 |
| Y404031002 | 0 | 10CT90A | 5NOV90A |
| Y404121002 | 0 | 8OCT90A | 14JAN91A |
| Y404046005 | 0 | 5NOV90A | 30NOV90A |
| Y404051001 | 0 | 15NOV90A | 6MAY91A |
| Y404311001 | 26 | 31DEC90A | 28JUN91 |
| Y404095000 | 8 | 18FEB91A | 4JUN91 |
| Y404096000 | 67 | 26APR91A | 26AUG91 |
| Y404121001 | 52 | 10MAY91A | 5AUG91 |
| Y404121003 | 52 | 10MAY91A | 5AUG91 |
| Y404095001 | 10 | 24MAY91 | 6JUN91 |
| Y404096200 | 50 | 4JUN91 | 12AUG91 |
| Y404096300 | 56 | 9JUL91 | 2SEP91 |
| Y404091005 | 40 | 6AUG91 | 30SEP91 |
| Y404120004 | 40 | 6AUG91 | 30SEP91 |
| Y404121004 | 30 | 6AUG91 | 16SEP91 |
| Y404097000 | 56 | 27AUG91 | 21OCT91 |
| Y404097005 | 27 | 3SEP91 | 29SEP91 |
| Y404097001 | 20 | 18SEP91 | 7OCT91 |
| Y404097002 | 20 | 20CT91 | 21OCT91 |
| Y404097003 | 1 | 22OCT91 | 22OCT91 |
| Y404098000 | 25 | 23OCT91 | 16NOV91 |
| Y404097004 | 20 | 17NOV91 | 6DEC91 |
| Y404099000 | 81 | 9DEC91 | 30MAR92 |
| **K65 DECANT SUMP TANK REMOVAL ACTION** | | | |
| Y406031001 | 0 | 21AUG90A | 10OCT90A |
| Y406051002 | 0 | 20CT90A | 3MAR91A |
| Y406031002 | 0 | 10OCT90A | 10JAN91A |
| Y406091003 | 0 | 4MAR91A | 16APR91A |
| Y406141004 | 177 | 5APR91A | 27JAN92 |
| **MODIFY RADON TREATMENT SYSTEM** | | | |
| Y407091001 | 1 | 19FEB91A | 24MAY91 |
| Y407091002 | 0 | 19FEB91A | 22APR91A |




Activity Bar/Early Dates
Critical Activity
Progress Bar

Primavera Systems, Inc. 1984-1991

Project Start : 18SEP89
Project Finish: 10AUG92

WESTINGHOUSE MATERIALS CO. OF OHIO
OU4 INTEGRATED PROJECT SCHEDULE
LEVEL IV DETAIL SCHEDULE

Sheet 1 of 3

Data Date: 24MAY91
Plot Date: 24MAY91

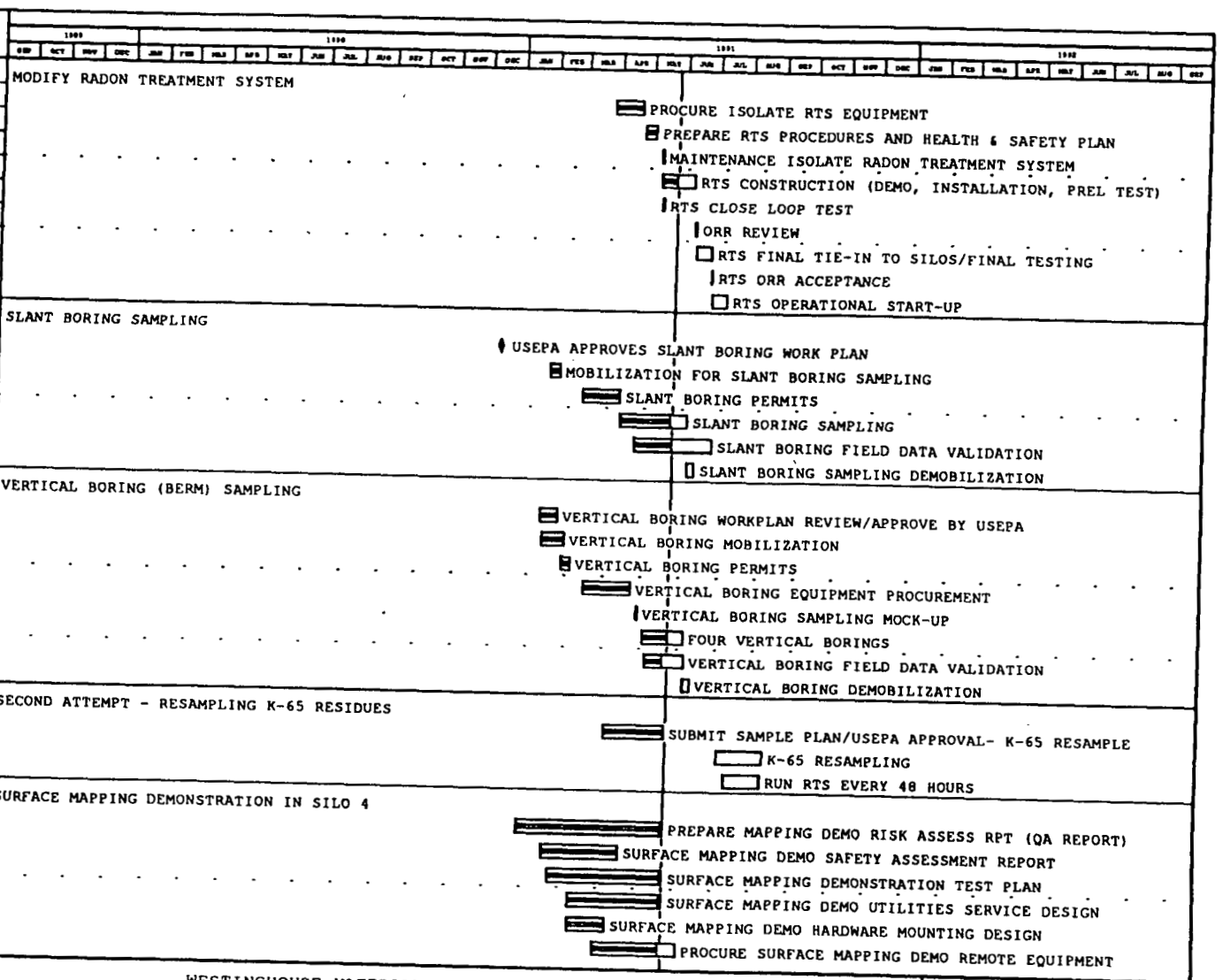
Prepared by Control Planning and Integration

| Date | Revisions | Checked | Approved |
|---|---|---|---|

2226

3

| ACTIVITY ID | REM DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| **MODIFY RADON TREATMENT SYSTEM** | | | |
| Y407091003 | 0 | 25MAR91A | 19APR91A |
| Y407091010 | 0 | 22APR91A | 2MAY91A |
| Y407091008 | 0 | 8MAY91A | 9MAY91A |
| Y407091004 | 16 | 9MAY91A | 8JUN91 |
| Y407091009 | 0 | 10MAY91A | 11MAY91A |
| Y407091011 | 2 | 10JUN91 | 11JUN91 |
| Y407091005 | 14 | 12JUN91 | 25JUN91 |
| Y407091007 | 1 | 26JUN91 | 26JUN91 |
| Y407091006 | 14 | 27JUN91 | 10JUL91 |
| **SLANT BORING SAMPLING** | | | |
| Y408095050 | 0 | 14DEC90A | 14DEC90A |
| Y408095040 | 0 | 29JAN91A | 7FEB91A |
| Y408095051 | 0 | 1MAR91A | 4APR91A |
| Y408095044 | 14 | 5APR91A | 6JUN91 |
| Y408095047 | 37 | 18APR91A | 29JUN91 |
| Y408095048 | 7 | 7JUN91 | 13JUN91 |
| **VERTICAL BORING (BERM) SAMPLING** | | | |
| Y409095041 | 0 | 22JAN91A | 7FEB91A |
| Y409095042 | 0 | 24JAN91A | 14FEB91A |
| Y409095050 | 0 | 12FEB91A | 20FEB91A |
| Y409095043 | 0 | 5MAR91A | 18APR91A |
| Y409095051 | 0 | 24APR91A | 25APR91A |
| Y409095044 | 15 | 30APR91A | 7JUN91 |
| Y409095047 | 16 | 3MAY91A | 8JUN91 |
| Y409095048 | 7 | 8JUN91 | 14JUN91 |
| **SECOND ATTEMPT - RESAMPLING K-65 RESIDUES** | | | |
| Y410091001 | 0 | 27MAR91A | 22MAY91A |
| Y410091002 | 43 | 11JUL91 | 22AUG91 |
| Y410091004 | 34 | 18JUL91 | 20AUG91 |
| **SURFACE MAPPING DEMONSTRATION IN SILO 4** | | | |
| Y411091001 | 1 | 7JAN91A | 24MAY91 |
| Y411331000 | 0 | 31JAN91A | 12APR91A |
| Y411061000 | 1 | 6FEB91A | 24MAY91 |
| Y411071000 | 1 | 25FEB91A | 24MAY91 |
| Y411081000 | 0 | 25FEB91A | 1APR91A |
| Y411091002 | 11 | 21MAR91A | 7JUN91 |




Activity Bar/Early Dates
Critical Activity
Progress Bar

Primavera Systems, Inc. 1986-1991

WESTINGHOUSE MATERIALS CO. OF OHIO
OU4 INTEGRATED PROJECT SCHEDULE
LEVEL IV DETAIL SCHEDULE

Project Start : 18SEP89
Project Finish: 10AUG92

Sheet 2 of 3

Data Date: 24MAY91
Plot Date: 24MAY91

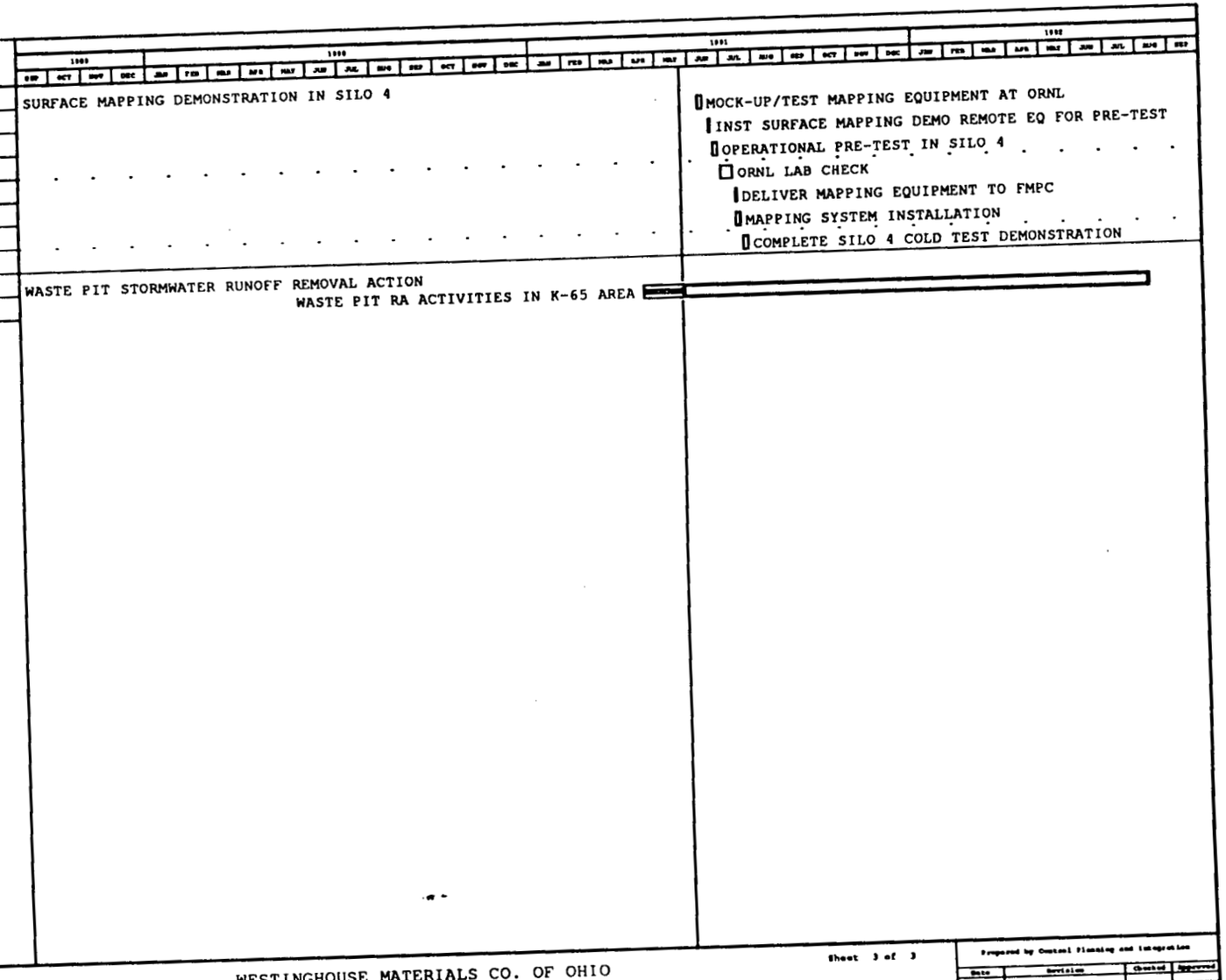
Prepared by Control Planning and Integration

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

2226

4

| ACTIVITY ID | REM DUR | EARLY START | EARLY FINISH |
|---|---|---|---|
| Y411091010 | 5 | 10JUN91 | 14JUN91 |
| Y411091003 | 2 | 20JUN91 | 21JUN91 |
| Y411091004 | 5 | 24JUN91 | 28JUN91 |
| Y411091012 | 10 | 1JUL91 | 12JUL91 |
| Y411091011 | 2 | 15JUL91 | 16JUL91 |
| Y411091013 | 5 | 15JUL91 | 19JUL91 |
| Y411091014 | 5 | 22JUL91 | 26JUL91 |
| Y510091001 | 445 | 17APR91A | 10AUG92 |




Activity Bar/Early Dates
Critical Activity
Progress Bar

Primavera Systems, Inc. 1984-1991

WESTINGHOUSE MATERIALS CO. OF OHIO
OU4 INTEGRATED PROJECT SCHEDULE
LEVEL IV DETAIL SCHEDULE

Project Start : 18SEP89
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Sheet 3 of 3

Data Date: 24MAY91
Plot Date: 24MAY91

Prepared by Control Planning and Integration

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

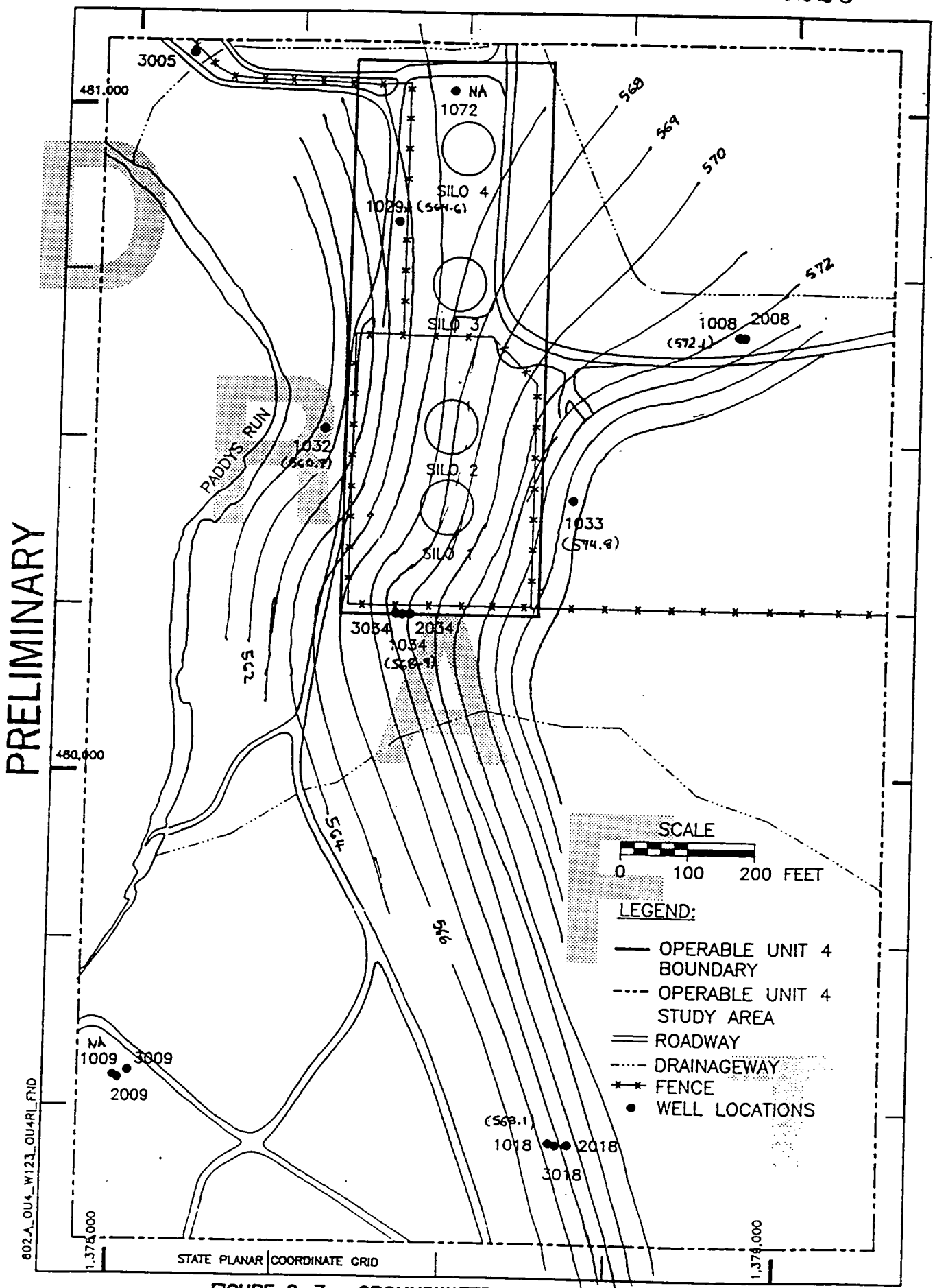


FIGURE 2–7. GROUNDWATER SAMPLING LOCATIONS AND TYPICAL WATER TABLE CONTOURS 1000 SERIES WELLS APRIL 02-90

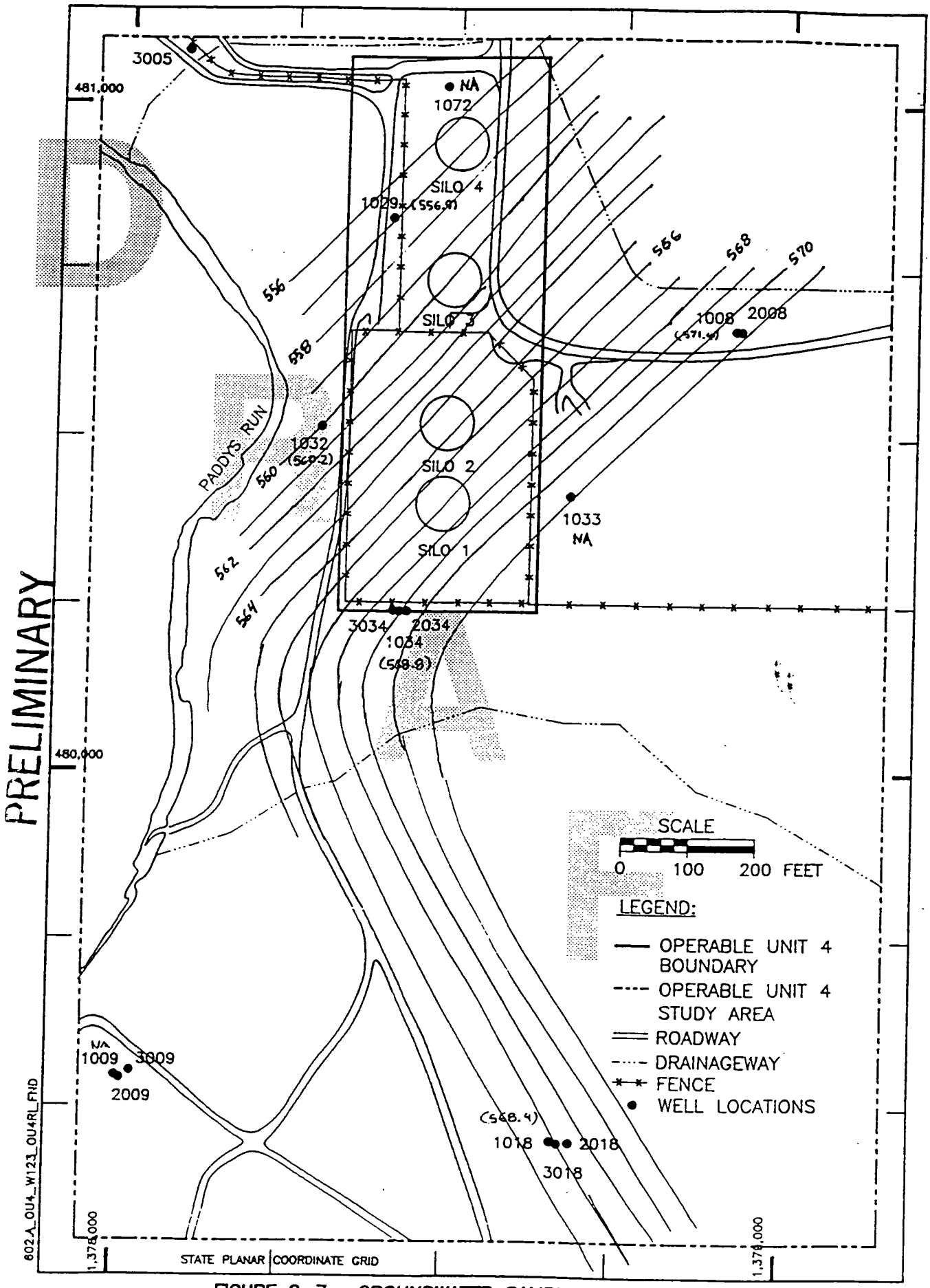


FIGURE 2-7. GROUNDWATER SAMPLING LOCATIONS AND TYPICAL WATER TABLE CONTOURS 1000 SERIES WELLS APRIL-21-90

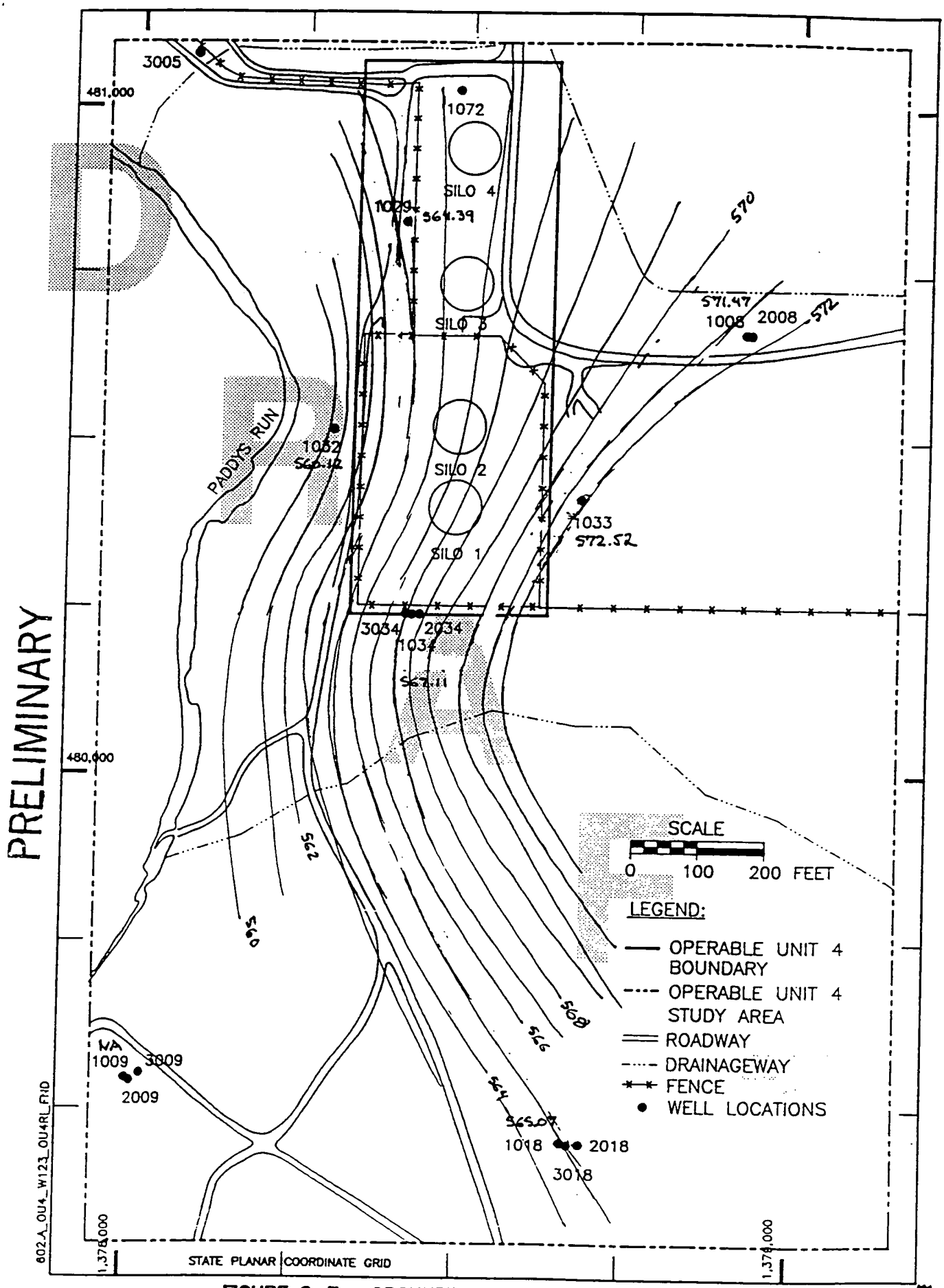


FIGURE 2-7. GROUNDWATER SAMPLING LOCATIONS AND TYPICAL WATER TABLE CONTOURS 1000 SERIES WELLS JULY-20-90

NOTE: These contours were drawn on the assumption that the groundwater is continuous across the contoured area.

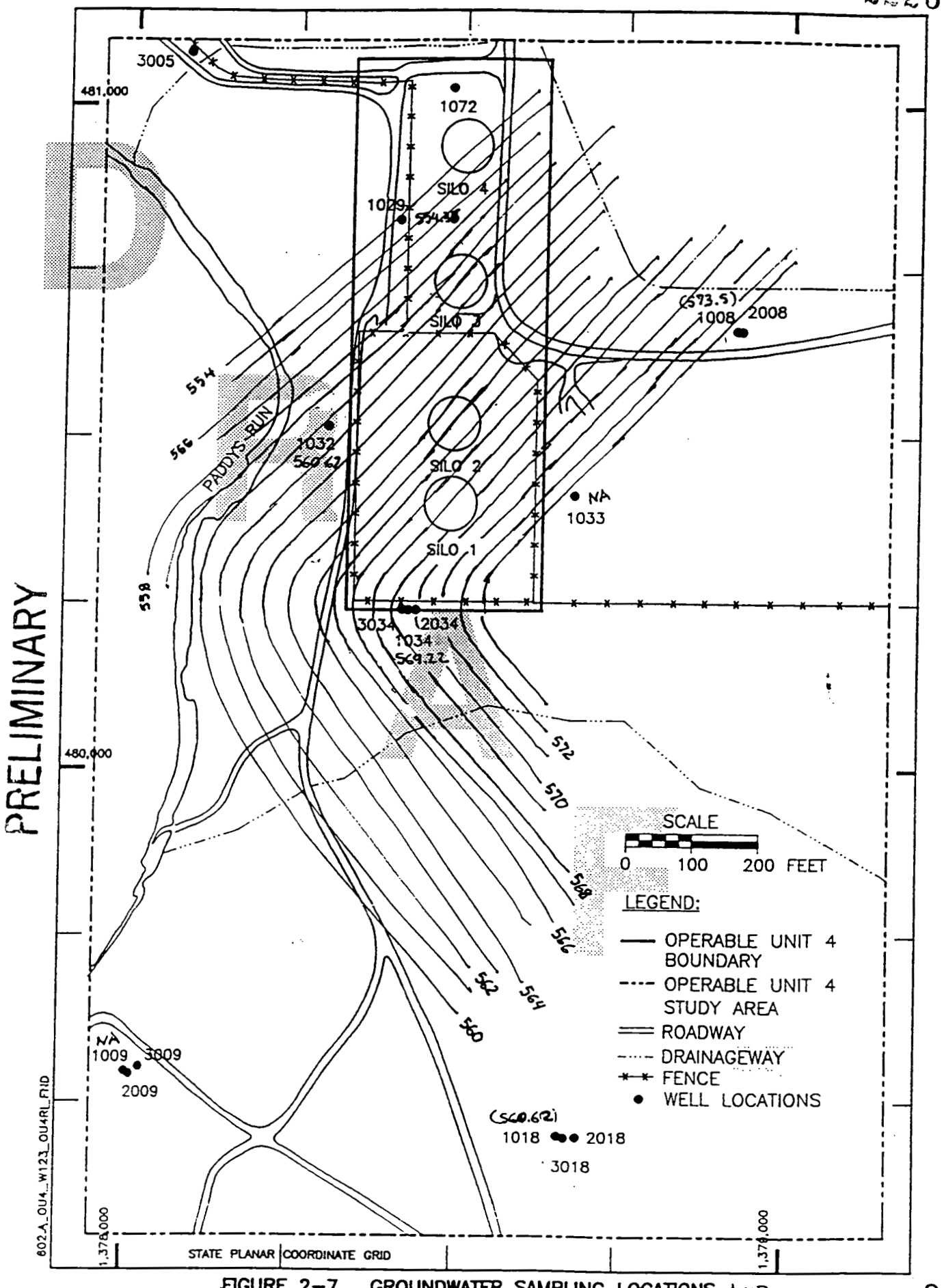


FIGURE 2-7. GROUNDWATER SAMPLING LOCATIONS AND TYPICAL WATER TABLE CONTOURS 1000 SERIES WELLS OCTOBER-21-90

NOTE: These contours were drawn on the assumption that the groundwater is continuous across the contoured area

PRELIMINARY

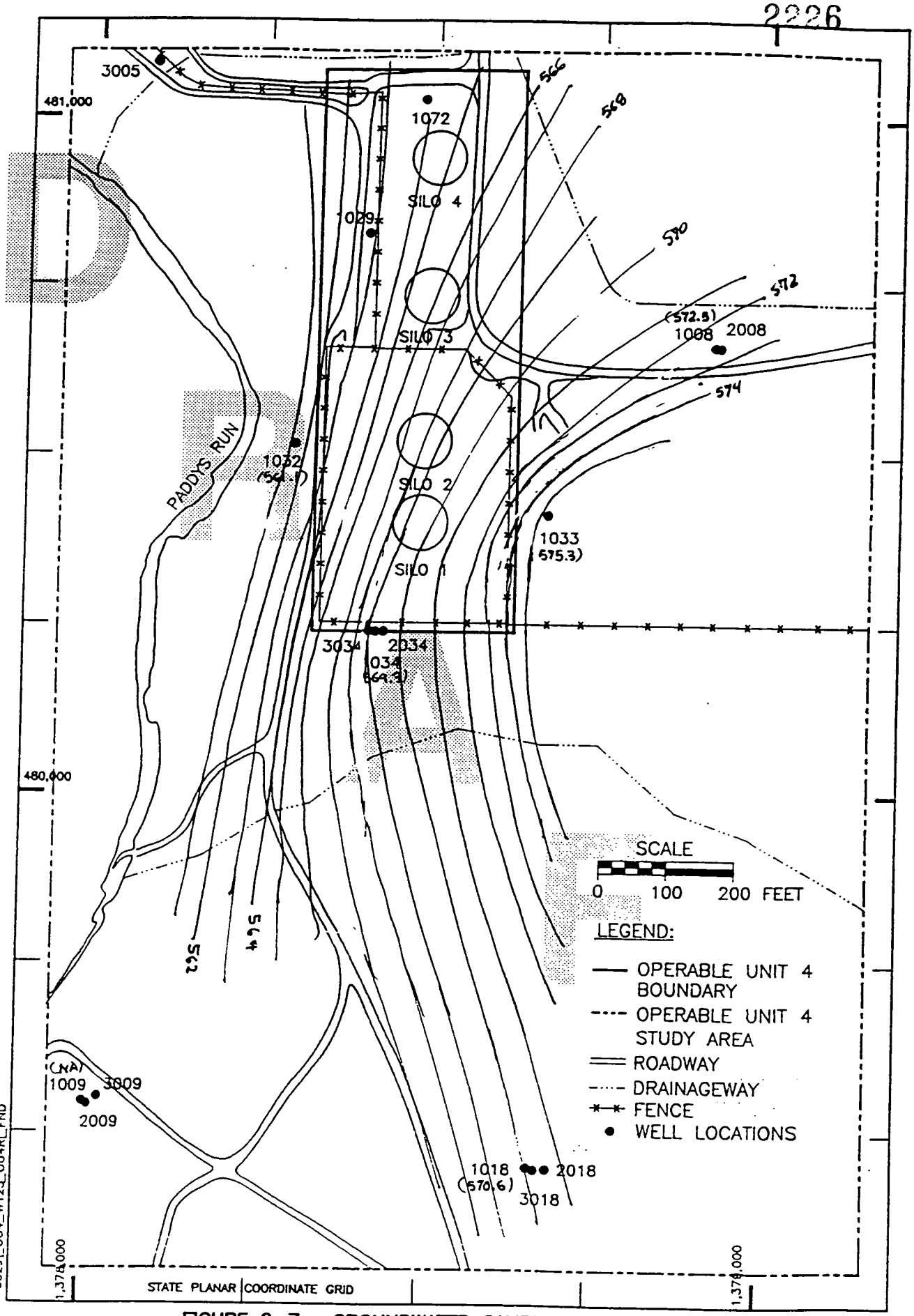


FIGURE 2-7. GROUNDWATER SAMPLING LOCATIONS AND TYPICAL WATER TABLE CONTOURS 1000 SERIES WELLS JANUARY-17-91

NOTE: These contours were drawn on the assumption that the groundwater is continuous across the contoured area.

2226

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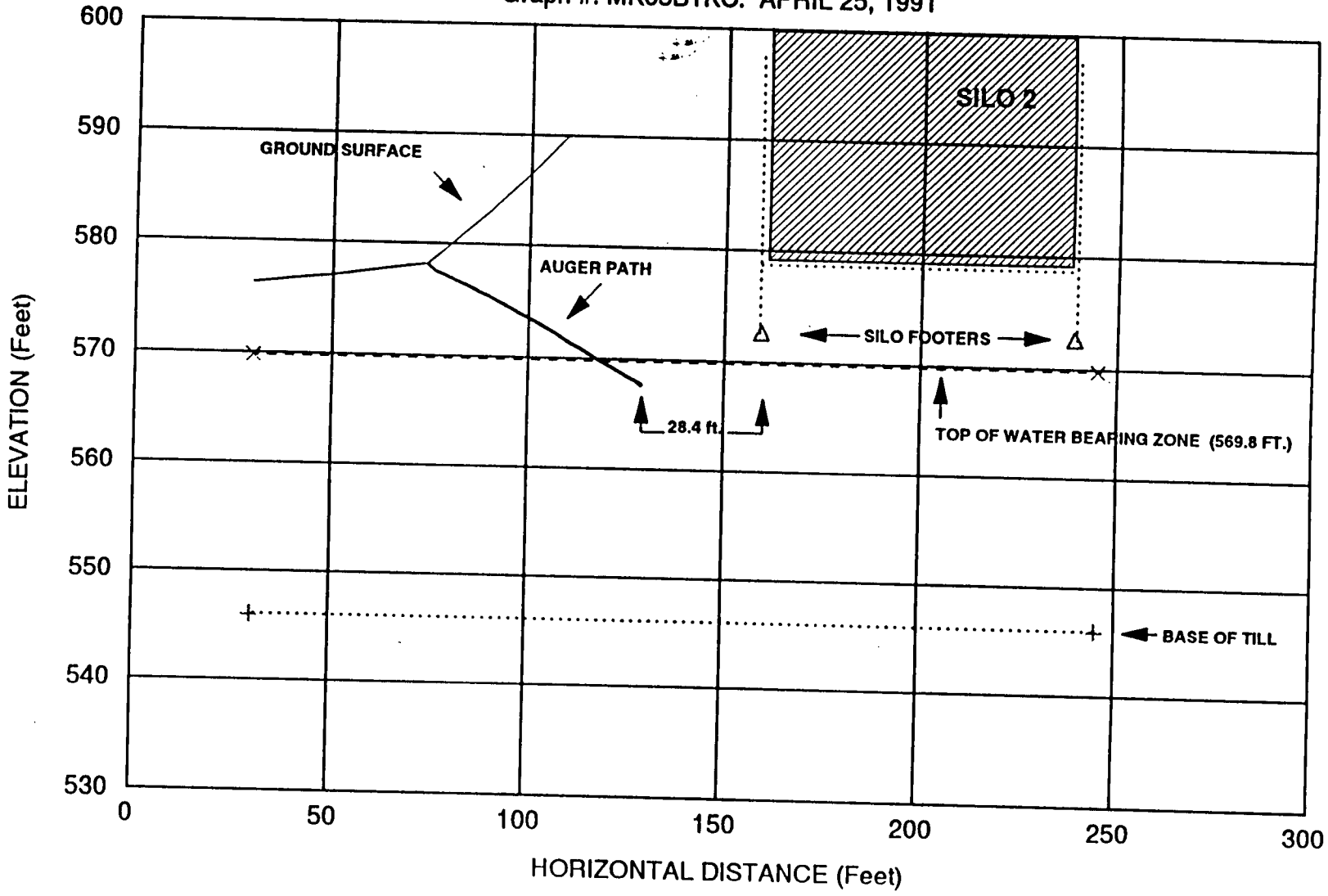
**FIGURE 1**

**SLANT BORING 1615 (No.1) AT K65 SILOS**

Graph #: MK65B1KC. APRIL 25, 1991



DATA #:MK65B1J. APRIL 25, 1991
GRAPH #: MK65B1KC
DATA FOR RUN No. 11

11

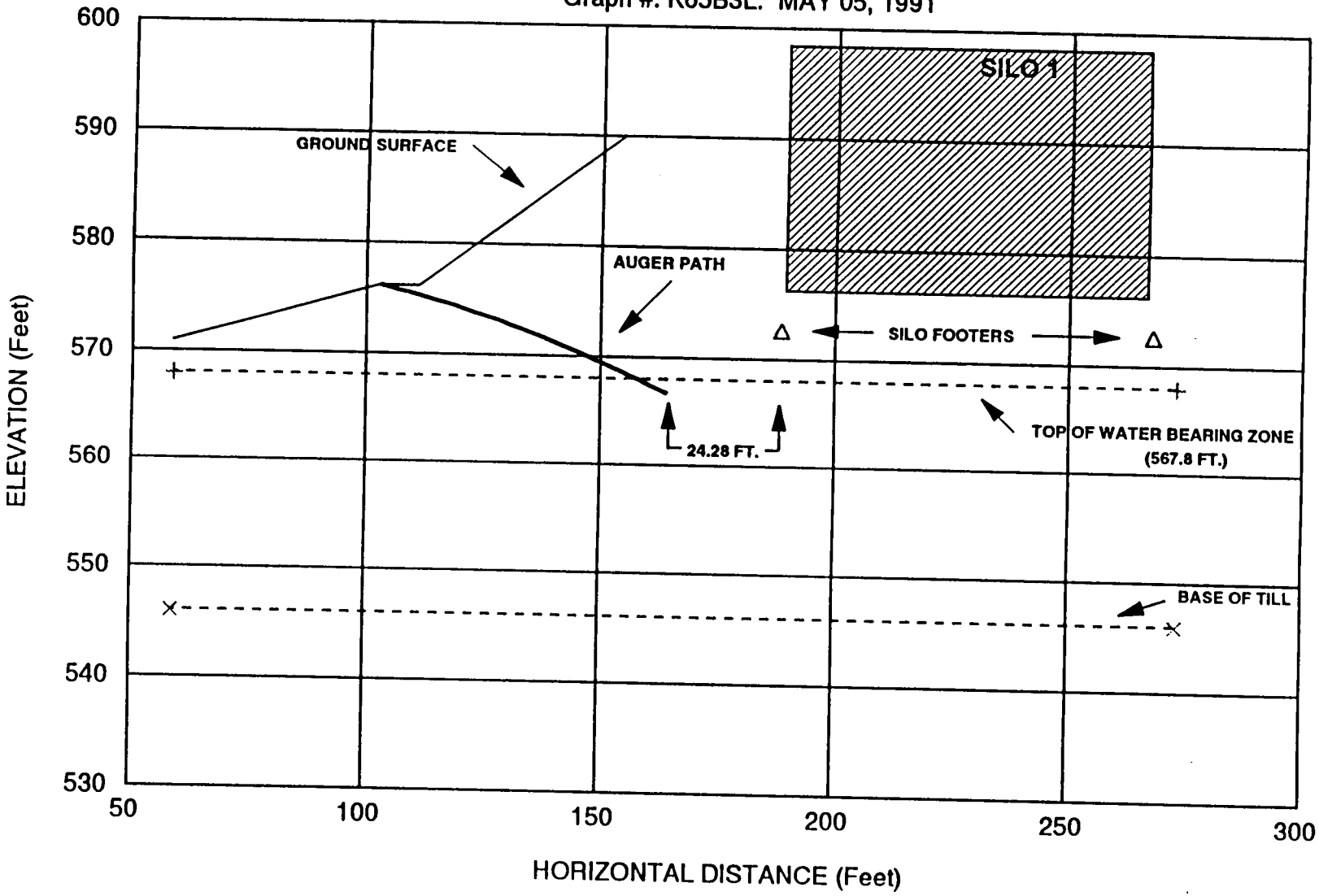
2226

| Depth casing | A+ | A- | Check sum | Inital diff. | Angle at X point | Avg angle X+Xn | Change | Depth from Hztl. (feet) From O point | In elevation | Hztl. dist.(feet) From O point |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 578.20 | 0.00 |
| 2.00 | 3228.00 | -3217.00 | 11.00 | 6445.00 | 9.27 | 9.27 | 12715.00 | 0.64 | 577.56 | 1.90 |
| 4.00 | 3142.00 | -3128.00 | 14.00 | 6270.00 | 9.02 | 9.15 | 18947.00 | 0.95 | 577.25 | 3.89 |
| 6.00 | 3122.00 | -3110.00 | 12.00 | 6232.00 | 8.96 | 9.08 | 25036.00 | 1.25 | 576.95 | 5.87 |
| 8.00 | 3052.00 | -3037.00 | 15.00 | 6089.00 | 8.76 | 9.00 | 31340.00 | 1.57 | 576.63 | 7.85 |
| 10.00 | 3168.00 | -3136.00 | 32.00 | 6304.00 | 9.07 | 9.02 | 37826.00 | 1.89 | 576.31 | 9.82 |
| 12.00 | 3245.00 | -3241.00 | 4.00 | 6486.00 | 9.33 | 9.07 | 44223.00 | 2.21 | 575.99 | 11.79 |
| 14.00 | 3206.00 | -3191.00 | 15.00 | 6397.00 | 9.20 | 9.09 | 50793.00 | 2.54 | 575.66 | 13.77 |
| 16.00 | 3293.00 | -3277.00 | 16.00 | 6570.00 | 9.45 | 9.13 | 57329.00 | 2.87 | 575.33 | 15.74 |
| 18.00 | 3277.00 | -3259.00 | 18.00 | 6536.00 | 9.40 | 9.16 | 64338.00 | 3.22 | 574.98 | 17.71 |
| 20.00 | 3515.00 | -3494.00 | 21.00 | 7009.00 | 10.09 | 9.26 | 71744.00 | 3.59 | 574.61 | 19.68 |
| 22.00 | 3709.00 | -3697.00 | 12.00 | 7406.00 | 10.67 | 9.38 | 79012.00 | 3.95 | 574.25 | 21.64 |
| 24.00 | 3644.00 | -3624.00 | 20.00 | 7268.00 | 10.47 | 9.47 | 86266.00 | 4.31 | 573.89 | 23.61 |
| 26.00 | 3637.00 | -3617.00 | 20.00 | 7254.00 | 10.45 | 9.55 | 93344.00 | 4.67 | 573.53 | 25.58 |
| 28.00 | 3553.00 | -3525.00 | 28.00 | 7078.00 | 10.19 | 9.60 | 100497.00 | 5.02 | 573.18 | 27.55 |
| 30.00 | 3582.00 | -3571.00 | 11.00 | 7153.00 | 10.30 | 9.64 | 107968.00 | 5.40 | 572.80 | 29.51 |
| 32.00 | 3748.00 | -3723.00 | 25.00 | 7471.00 | 10.76 | 9.71 | 115711.00 | 5.79 | 572.41 | 31.47 |
| 34.00 | 3882.00 | -3861.00 | 21.00 | 7743.00 | 11.16 | 9.80 | 123635.00 | 6.18 | 572.02 | 33.43 |
| 36.00 | 3971.00 | -3953.00 | 18.00 | 7924.00 | 11.43 | 9.89 | 131766.00 | 6.59 | 571.61 | 35.39 |
| 38.00 | 4081.00 | -4050.00 | 31.00 | 8131.00 | 11.73 | 9.99 | 139738.00 | 6.99 | 571.21 | 37.35 |
| 40.00 | 3994.00 | -3978.00 | 16.00 | 7972.00 | 11.50 | 10.06 | 147478.00 | 7.37 | 570.83 | 39.31 |
| 42.00 | 3873.00 | -3867.00 | 6.00 | 7740.00 | 11.16 | 10.11 | 155197.00 | 7.76 | 570.44 | 41.28 |
| 44.00 | 3864.00 | -3855.00 | 9.00 | 7719.00 | 11.13 | 10.16 | 162940.00 | 8.15 | 570.05 | 43.24 |
| 46.00 | 3878.00 | -3865.00 | 13.00 | 7743.00 | 11.16 | 10.20 | 170678.00 | 8.53 | 569.67 | 45.20 |
| 48.00 | 3874.00 | -3864.00 | 10.00 | 7738.00 | 11.15 | 10.24 | 178301.00 | 8.92 | 569.28 | 47.16 |
| 50.00 | 3822.00 | -3801.00 | 21.00 | 7623.00 | 10.99 | 10.27 | 186016.00 | 9.30 | 568.90 | 49.13 |
| 52.00 | 3863.00 | -3852.00 | 11.00 | 7715.00 | 11.12 | 10.30 | 193893.00 | 9.69 | 568.51 | 51.09 |
| 54.00 | 3948.00 | -3929.00 | 19.00 | 7877.00 | 11.36 | 10.34 | 201862.00 | 10.09 | 568.11 | 53.05 |
| 56.00 | 3992.00 | -3977.00 | 15.00 | 7969.00 | 11.49 | 10.38 | 209907.00 | 10.50 | 567.70 | 55.01 |
| 58.00 | 4042.00 | -4003.00 | 39.00 | 8045.00 | 11.60 | 10.43 | 209907.00 | 10.50 | 567.70 | 57.04 |

**FIGURE 2**

**SLANT BORING 1617 (No.3) AT K65 SILOS**

Graph #: K65B3L. MAY 05, 1991



OU4 SLANT BORINGS AT K65 SILOS – BORING 1617 (No 3)
DATA #:K65B3L. MAY 06, 1991
GRAPH #: K65B3I
DATA FOR RUN No. 11

2226

13

| Depth casing | A+ | A– | Check sum | Inital diff. | Angle at X point | Avg angle X+Xn | Change | Depth from Hztl. (feet) From O point | In elevation |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 576.17 |
| 2.00 | 2204.00 | −2188.00 | 16.00 | 4392.00 | 6.30 | 6.30 | 4287.00 | 0.21 | 575.96 |
| 4.00 | 2149.00 | −2138.00 | 11.00 | 4287.00 | 6.15 | 6.23 | 8479.00 | 0.42 | 575.75 |
| 6.00 | 2110.00 | −2082.00 | 28.00 | 4192.00 | 6.02 | 6.16 | 13073.00 | 0.65 | 575.52 |
| 8.00 | 2305.00 | −2289.00 | 16.00 | 4594.00 | 6.59 | 6.27 | 17474.00 | 0.87 | 575.30 |
| 10.00 | 2209.00 | −2192.00 | 17.00 | 4401.00 | 6.32 | 6.28 | 21933.00 | 1.10 | 575.07 |
| 12.00 | 2240.00 | −2219.00 | 21.00 | 4459.00 | 6.40 | 6.30 | 26447.00 | 1.32 | 574.85 |
| 14.00 | 2270.00 | −2244.00 | 26.00 | 4514.00 | 6.48 | 6.32 | 30864.00 | 1.54 | 574.63 |
| 16.00 | 2220.00 | −2197.00 | 23.00 | 4417.00 | 6.34 | 6.33 | 35989.00 | 1.80 | 574.37 |
| 18.00 | 2570.00 | −2555.00 | 15.00 | 5125.00 | 7.36 | 6.44 | 41041.00 | 2.05 | 574.12 |
| 20.00 | 2533.00 | −2519.00 | 14.00 | 5052.00 | 7.26 | 6.52 | 46298.00 | 2.31 | 573.86 |
| 22.00 | 2633.00 | −2624.00 | 9.00 | 5257.00 | 7.55 | 6.62 | 51630.00 | 2.58 | 573.59 |
| 24.00 | 2678.00 | −2654.00 | 24.00 | 5332.00 | 7.66 | 6.70 | 56863.00 | 2.84 | 573.33 |
| 26.00 | 2626.00 | −2607.00 | 19.00 | 5233.00 | 7.52 | 6.77 | 62970.00 | 3.15 | 573.02 |
| 28.00 | 3059.00 | −3048.00 | 11.00 | 6107.00 | 8.78 | 6.91 | 68967.00 | 3.45 | 572.72 |
| 30.00 | 3005.00 | −2992.00 | 13.00 | 5997.00 | 8.62 | 7.02 | 75143.00 | 3.76 | 572.41 |
| 32.00 | 3100.00 | −3076.00 | 24.00 | 6176.00 | 8.88 | 7.14 | 81377.00 | 4.07 | 572.10 |
| 34.00 | 3126.00 | −3108.00 | 18.00 | 6234.00 | 8.97 | 7.25 | 87549.00 | 4.38 | 571.79 |
| 36.00 | 3096.00 | −3076.00 | 20.00 | 6172.00 | 8.88 | 7.34 | 94358.00 | 4.72 | 571.45 |
| 38.00 | 3410.00 | −3399.00 | 11.00 | 6809.00 | 9.80 | 7.47 | 101032.00 | 5.05 | 571.12 |
| 40.00 | 3346.00 | −3328.00 | 18.00 | 6674.00 | 9.60 | 7.57 | 107766.00 | 5.39 | 570.78 |
| 42.00 | 3381.00 | −3353.00 | 28.00 | 6734.00 | 9.69 | 7.68 | 114553.00 | 5.73 | 570.44 |
| 44.00 | 3406.00 | −3381.00 | 25.00 | 6787.00 | 9.77 | 7.77 | 121294.00 | 6.06 | 570.11 |
| 46.00 | 3383.00 | −3358.00 | 25.00 | 6741.00 | 9.70 | 7.85 | 128733.00 | 6.44 | 569.73 |
| 48.00 | 3727.00 | −3712.00 | 15.00 | 7439.00 | 10.72 | 7.97 | 136088.00 | 6.80 | 569.37 |
| 50.00 | 3685.00 | −3670.00 | 15.00 | 7355.00 | 10.60 | 8.08 | 143534.00 | 7.18 | 568.99 |
| 52.00 | 3731.00 | −3715.00 | 16.00 | 7446.00 | 10.73 | 8.18 | 151029.00 | 7.55 | 568.62 |
| 54.00 | 3757.00 | −3738.00 | 19.00 | 7495.00 | 10.80 | 8.28 | 158454.00 | 7.92 | 568.25 |
| 56.00 | 3726.00 | −3699.00 | 27.00 | 7425.00 | 10.70 | 8.36 | 165988.00 | 8.30 | 567.87 |
| 58.00 | 3791.00 | −3743.00 | 48.00 | 7534.00 | 10.86 | 8.45 | 173658.00 | 8.68 | 567.49 |
| 60.00 | 3865.00 | −3805.00 | 60.00 | 7670.00 | 11.05 | 8.54 | 181459.00 | 9.07 | 567.10 |
| 62.00 | 3905.00 | −3896.00 | 9.00 | 7801.00 | 11.25 | 8.62 | 189508.00 | 9.48 | 566.69 |

565 H2O 2

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( R-65 Slant Borings ) | |
| BORING NUMBER: 1615 | COORDINATES: N.480,617.01 E.1378404.87 | DATE 4/7/91 |
| ELEVATION: 578 ft | GWL: Depth Date/Time | DATE STARTED: 4/7/91 |
| ENGINEER/GEOLOGIST: G. M. and K. M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 1 OF |

| DEPTH DRILLED AT 8° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| 1.5 | 66953 4/7/91 1450 Sequence No. 1 | | 2.4 | Dark grayish brown (10YR, 4/2) stiff CLAYEY SILT with some sand and fine gravel, Damp with low plasticity, A few grass and root fragments | ML | 2.0 | Top Hnu: 1.0 ppm, γ: 900 cpm, α: N/A cpm; Bottom Hnu: 0.2 ppm, γ: 900 cpm, α: 0 cpm |
| 2.4 | | | | Dark grayish brown (10YR, 4/2) stiff CLAYEY SILT with some sand and fine gravel, Damp with low plasticity | ML | 2.0 | |
| 3 | | | | No Recovery | | | |
| 4.8 | 66954 4/7/91 1530 Sequence No. 2 | | 1.8 | Brown (10YR, 4/3) stiff CLAY with a little silt, sand, and root fragments; trace cobbles, moist with medium plasticity | CL | 1.0 | Top Hnu: 0.4 ppm, γ: N/A cpm, α: N/A cpm; Bottom Hnu: 0.2 ppm, γ: 900 cpm, α: 0 cpm. A cobble was lodged in the shoe of the spoon |
| | | | | No Recovery | | | |
| 8.2 | | | | Continued on next page | | | |

NOTES
- Borings sampled concinuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson, Bob Ford, Vern Berger

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | A01344 | 0.2 ppm |
| BETA-GAMMA | 73937 | 900 cpm |
| ALPHA | 67626 | 0 cpm |



PRELIMINARY

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1615 | COORDINATES: N480617.01 E. 1378404.87 | DATE 4/10/91 |
| ELEVATION: 578 ft. | GWL: Depth Date/Time | DATE STARTED: 4/7/91 |
| ENGINEER/GEOLOGIST: K. M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 2 OF |

| DEPTH DRILLED AT 8° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66955 4/10/91 1054 Sequence No 3 | | 4.4 | olive brown (2.5 Y, 4/3) medium stiff SILTY CLAY with a few root fragments, and trace subrounded gravel and sand, saturated, medium plasticity | CL | .75 | Top: Hnu: 3.0 ppm, γ: N/A cpm, α: N/A cpm; Bottom: Hnu: 3.0 ppm, γ: 1000 cpm, α: 0 cpm. Sample was saturated due to rain water entering bore hole. pH of water was 7 |
| 9.9 | | | | Dark olive brown (2.5 Y, 3/3) very stiff SILTY CLAY with trace root fragments, weathered wood fragments, sand and fine gravel, moist with medium plasticity | CL | 2.5 | Top: Hnu: 3.0 ppm, γ: 1000 cpm, α: 0 cpm; Bottom: Hnu: 3.0 ppm, γ: 1000 cpm, α: 0 cpm |
| 12.6 | | | | No Recovery | | | |
| 13.2 | 66956 4/10/91 1415 sequence No. 4 | | 4.3 Full Recovery | olive brown (2.5 Y, 4/4) stiff SILTY CLAY with trace sand, fine gravel, limestone cobbles, root fragments, and weathered wood fragments, moist with medium plasticity | CL | 2.0 | Top: Hnu: 4.0 ppm, γ: 1200 cpm, α: N/A cpm; Bottom: Hnu: 9.4 ppm, γ: 1200 cpm, α: 0 cpm. Top: Hnu: 4.4 ppm, γ: 1800 cpm, α: 0 cpm; Bottom: Hnu: 6.0 ppm, γ: 1800 cpm, α: 0 cpm |
| 17.5 | | | | Continued on next page | | | Top: Hnu: ppm, γ: cpm, α: cpm; Bottom: Hnu: ppm, γ: cpm, α: cpm. Top: Hnu: ppm, γ: cpm, α: cpm; Bottom: Hnu: ppm, γ: cpm, α: cpm |

NOTES
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistance: Bob Jensen, Bob Ford,

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | 711083 | Morning: 4.0; afternoon: 4.0 ppm |
| BETA-GAMMA | 75247 | Morning: 1000; afternoon: 1200 cpm |
| ALPHA | 50747 | 0 cpm |

PRELIMINARY

FERNALD
RI/FS

2226

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1615 | COORDINATES: N.980617.01 E.1378464.87 | DATE 4/18/91 |
| ELEVATION: 578 ft. | GWL: Depth Date/Time | DATE STARTED: 4/7/91 |
| ENGINEER/GEOLOGIST: K.M. and G.M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 3 OF |

| DEPTH DRILLED AT 8° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66957<br>66958<br>66959<br>66960<br>66961<br>66962 | | 5.0 | Olive (5Y, 4/3) soft CLAY, wet with high plasticity, trace organics and fine gravel | CH | .25 | Top: Hnu: 2.0 ppm, βγ: 1100 cpm, α: 0 cpm<br>Bottom: Hnu: 2.0 ppm, βγ: 1100 cpm, α: 0 cpm<br>Wet, due to berm water entering bore hole |
| 20.1 | 4/18/91<br>1100<br>Sequence No. 5 | | | Olive (5Y, 4/3) medium stiff CLAY with trace organics, moist with high plasticity | CH | .75 | Top: Hnu: 2.0 ppm, βγ: 1100 cpm, α: 0 cpm<br>Bottom: Hnu: 2.0 ppm, βγ: 1100 cpm, α: 0 cpm |
| 22.5 | 66963<br>4/20/91<br>0955 | | 4.0 | Pale olive (5Y, 6/4) soft SILTY CLAY, wet with medium plasticity | CL | 2.5 | Top: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm<br>Bottom: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm<br>Wet due to rain |
| 23.8 | Sequence No. 6 | | | Pale olive (5Y, 6/4) very stiff SILTY CLAY, moist with medium plasticity | CL | 2.5 | Top: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm<br>Bottom: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm |
| 26.5 | | | | No Recovery | | | |
| 27.5 | 66964<br>4/20/91<br>0955 | | 5.0 | Olive (5Y, 5/4) medium stiff SILTY CLAY with light gray (2.5, 7/1) mottling, moist with medium plasticity | CL | 1.0 | Top: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm<br>Bottom: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm |
| 29.8 | Sequence No. 7 | | | Olive (5Y, 5/4) very stiff SILTY CLAY with light gray (2.5Y, 7/1) mottling, moist with medium plasticity | CL | 1.75 | Top: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm<br>Bottom: Hnu: 0 ppm, βγ: 1200 cpm, α: 0 cpm |

NOTES:
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson, Bob Ford

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | 711083<br>4/30: AC1344 | 2.0<br>0 ppm |
| BETA-GAMMA | 73737<br>4/20: | 1100<br>1200 cpm |
| ALPHA | 50747 | 0 cpm |

PRELIMINARY

FERNALD
RI/FS

2226

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1615 | COORDINATES: N 420617.01 E 1378464.87 | DATE 4/20/91 |
| ELEVATION: 578 ft. | GWL: Depth Date/Time | DATE STARTED: 4/7/91 |
| ENGINEER/GEOLOGIST: G.M. and K.M | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 4 OF |

| DEPTH DRILLED AT 8° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66965 4/20/91 1645 Sequence No: 8 | | 5.0 | Light olive brown (2.5Y, 5/4) SILTY CLAY, with light gray (5Y, 7/1) mottling, moist with high plasticity. The first .3 ft. of sample is wet | CL | 1.25 | Top Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; Bottom Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; wet sample has a pH = 7 |
| 36.0 | | | | Light olive brown (2.5Y, 5/4) SANDY CLAY with some gravel and light gray (5Y, 7/1) mottling, moist with ~~low~~ medium plasticity | ML | 2.5 | Top Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; Bottom Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm |
| 37.5 | 66966 66967 66968 66969 66970 66971 4/20/91 1455 Sequence No. 9 | | 5.0 | Light Yellowish brown (2.5Y, 6/4) very soft SANDY CLAY with light gray (5Y, 7/1) mottling, saturated with high plasticity | CH | < .25 | Top Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; Bottom Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; pH = 7 |
| 39.5 | | | | Light olive brown (2.5Y, 5/4) stiff CLAY with light gray (5Y, 7/1) mottling, wet with high plasticity | CH | 2.0 | Top Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; Bottom Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm |
| 42.5 | 66972 4/20/91 1045 Sequence No. 10 | | 5.0 | Light yellowish brown (10YR, 6/4) medium stiff clay with light gray (5Y, 7/1) mottling, trace silt, sand, and fossil fragments saturated with high plasticity | CH | 1.0 | Top Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; pH = 7; Bottom Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm |
| 45.5 | | | | Brown (10YR, 5/3) loose ~~sandy~~ CLAYEY SAND, saturated ~~plastic~~ | SC | N/A | Top Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm; pH = 7; Bottom Hnu: 3.0 ppm, γ: 1200 cpm, α: 0 cpm |

NOTES
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson, Bob Ford

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | A01344 | 0 |
| | 711083 | 3.0 ppm |
| BETA-GAMMA | 73937 | 1200 cpm |
| ALPHA | 50747 | 0 cpm |

PRELIMINARY

FERNALD
RI/FS

2226

# VISUAL CLASSIFICATION OF SOILS

| | | | |
|---|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | | |
| BORING NUMBER: 1615 | COORDINATES: | | DATE 4/22/91 |
| ELEVATION: 578 ft. | GWL: Depth | Date/Time | DATE STARTED: 4/7/91 |
| ENGINEER/GEOLOGIST: K.M and G.M. | Depth | Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | | PAGE 5 OF |

| DEPTH DRILLED AT 8° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| 48.5 | 66973 4/22/91 1040 Sequence No 11 | | 5.0 | Yellowish brown (10YR, 5/4) loose CLAYEY SAND, saturated ~~and low plasticity~~ | SC | loose | Top Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm, pH is 7 / Bottom Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm |
| | | | | Light yellowish brown (2.5Y, 6/4) very stiff CLAY with a little light gray (10YR, 7/1) mottling, moist and medium plasticity | CL | 2.5 | Top Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm / Bottom Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm |
| 52.5 | 66975 4/22/91 1718 Sequence No. 12 | | 5.0 | Light olive brown (2.5Y, 5/3) very stiff CLAY with light gray (10YR, 6/1) mottling, moist and medium plasticity | CL | 2.75 | Top Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm / Bottom Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm; 66974 was a Full Rad. sample from 17.1–17.5 ft. |
| 55 | | | | Light olive brown (2.5Y, 5/4) loose CLAYEY SAND and a little gravel, ~~low plasticity and~~ saturated | SC | loose | Top Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm, pH is 7 / Bottom Hnu: .1 ppm, βγ: 1200 cpm, α: 0 cpm |
| 57.5 | 66976 66977 66978 66979 66980 66981 4/ A11 Sequence No. 13 | | | | | | Top Hnu: ppm, βγ: cpm, α: cpm / Bottom Hnu: ppm, βγ: cpm, α: cpm; Top Hnu: ppm, βγ: cpm, α: cpm / Bottom Hnu: ppm, βγ: cpm, α: cpm |

NOTES
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson, Bob Ford

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | A01344 | .1 ppm |
| BETA-GAMMA | 73937 | 1200 cpm |
| ALPHA | 50747 | 0 cpm |

PRELIMINARY



402-11-44

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1617 | COORDINATES: N 480309.27 E 1378393.47 | DATE 5/2/91 |
| ELEVATION: 576 ft. above sea level | GWL: Depth Date/Time | DATE STARTED: 4/30/91 |
| ENGINEER/GEOLOGIST: GM and K.M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 1 OF |

| DEPTH DRILLED AT 6° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| 1.5 | 66976 5/2/91 0920 Sequence No. 1 | | 1.5 * | Brown (10YR, 4/3) soft CLAY, with some root fragments, leaves, root stems, and wild onions, damp, medium plasticity | CL | .5 | Top Hnu: 2.0 ppm, γ: N/A cpm, α: N/A cpm; Bottom Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm |
| 4.9 | 66977 5/2/91 1025 Sequence No. 2 | | 3.4 | Light olive brown (2.5Y, 5/4) very stiff CLAY with a little sand, trace root fragments, and fine gravel, damp, low plasticity | CL | 3.0 | Top Hnu: 2.0 ppm, γ: N/A cpm, α: N/A cpm; Bottom Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm |
| 6.5 | | | | No Recovery | | | Top Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm; Bottom Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm |
| 7.3 | 66978 5/2/91 1105 Sequence No. 3 | | 3.1 | Light olive brown (2.5Y, 5/4) very stiff CLAY with some sand and trace fine gravel, trace strong brown (7.5YR, 5/8) weathered staining, damp, low plasticity | CL | 2.5 | Top Hnu: 2.0 ppm, γ: N/A cpm, α: N/A cpm; Bottom Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm |
| | | | | olive brown (2.5Y, 4/3) stiff CLAY, low plasticity, moist | CL | 1.5 | |
| 9.6 | | | | No Recovery | | | Top Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm; Bottom Hnu: 2.0 ppm, γ: 700 cpm, α: 0 cpm |
| 11.5 | | | | Continued on next page | | | |

NOTES:
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson
* A total of 3.2 ft. of soil was collected. The additional 1.7 ft. of soil comes from where the sampler skidded across the ground surface in front of the start of the bore hole.

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | 711083 | 2.0 ppm |
| BETA-GAMMA | 77194 | 700 cpm |
| ALPHA | 50740 | 0 cpm |

PRELIMINARY

FERNALD
RI/FS

2226

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1617 | COORDINATES: N480309.27 E1378393.47 | DATE 5/2/91 |
| ELEVATION: 576 ft. above sea level | GWL: Depth Date/Time | DATE STARTED: 4/30/91 |
| ENGINEER/GEOLOGIST: G.M. and K.M | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 3 OF |

| DEPTH DRILLED AT 6° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66987 5/2/91 1752 | | 4.9 | Dark Yellowish brown (10YR, 4/4) very stiff CLAY, damp, low plasticity | CL | 2.0 | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm; Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm |
| 29.5 | Sequence NO. 7 | | | Light Yellowish brown (2.5Y, 6/4) ~~very stiff~~ medium dense CLAYEY FINE SAND with light gray (10YR, 7/2) mottling, damp, non plastic | SC | N/A | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm; Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm |
| 31.4 31.5 | | | | No Recovery | | | |
| 32.9 | 66988 5/3/91 1600 | | 4.1 | Light olive brown (2.5Y, 5/4) loose CLAYEY SAND with light gray (2.5Y, 7/2) mottling, moist | SC | N/A | Top Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm; Bottom Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm |
| | Sequence NO. 8 | | | Light olive brown (2.5Y, 5/4) soft sandy, silty, CLAY; moist, high plasticity | CL | .25 | Top Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm; Bottom Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm |
| 36.5 | 66989 66990 66991 66992 66993 5/3/91 1702 | | 3.7 | Light Yellowish brown (2.5Y, 6/4) loose CLAYEY SAND and CLAY with light gray (2.5Y, 7/1) mottling | SC | N/A | Top Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm; Bottom Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm |
| 39.3 | | | | Yellowish brown (10YR, 5/8) to light olive brown (2.5Y, 5/6) medium stiff SANDY CLAY with weathered black organics, moist, medium plasticity | CL ↙ | 1.0 ↙ | Top Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm; Bottom Hnu: 1.2 ppm, βγ: 700 cpm, α: 0 cpm |
| 40.2 | Sequence NO. 9 | | | No Recovery | ~~CL~~ | ~~1.0~~ | |

NOTES
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Enu | 711083 5/3: | 1.0 1.2 ppm |
| BETA-GAMMA | 77194 5/3: 23937 | 800 700 cpm |
| ALPHA | 50740 | 0 cpm |

PRELIMINARY

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1617 | COORDINATES: N 480309.27 E 1378393.47 | DATE 5/2/91 |
| ELEVATION: 576 ft. above sea level | GWL: Depth Date/Time | DATE STARTED: 4/30/91 |
| ENGINEER/GEOLOGIST: G.M. and K.M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 2 OF |

| DEPTH DRILLED AT 6° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66979<br>5/2/91<br>1439<br>sequence NO. 4 | | 3.2 | Dark yellowish brown (10YR, 4/4) stiff CLAY, moist, medium plasticity | CL | 2.0 | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm<br>Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm |
| 14.7 | | | | No Recovery | | | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm<br>Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm<br>Depth is strapped here and is equal to 16.5 ft. |
| 16.5 | 66980<br>66981<br>66982<br>66983<br>66984<br>5/2/91<br>1535<br>sequence NO. 5 | | 3.7 | Yellowish brown (10YR, 5/4) stiff CLAY, damp, medium plasticity | CL | 2.0 | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm<br>Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm |
| 20.2 | | | | No Recovery | | | Top Hnu: 1.0 ppm, βγ: cpm, α: cpm<br>Bottom Hnu: 1.0 ppm, βγ: cpm, α: cpm |
| 21.5 | 66985<br>66986<br>5/2/91<br>1715 | | 3.5 | Yellowish brown (10YR, 5/4) stiff CLAY, damp, medium plasticity | CL | 2.0 | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm<br>Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm |
| 24.0 | sequence NO. 6 | | | Yellowish brown (10YR, 5/4) very stiff CLAY, damp, medium plasticity | CL | 3.25 | Top Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm<br>Bottom Hnu: 1.0 ppm, βγ: 800 cpm, α: 0 cpm |
| 25.0 | | | | No Recovery | | | |

NOTES:
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | 711083 | 1.0 ppm |
| BETA-GAMMA | 77194 | 800 cpm |
| ALPHA | 50740 | 0 cpm |



PRELIMINARY

FERNALD
RI/FS

2226

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1617 | COORDINATES: N 480309.27 E 1378393.47 | DATE 5/4/91 |
| ELEVATION: 576 ft. above sea level | GWL: Depth Date/Time | DATE STARTED: 4/30/91 |
| ENGINEER/GEOLOGIST: G.M. and K.M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 4 OF |

| DEPTH DRILLED AT 6° ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66994<br>66995<br>5/4/91<br>0900<br>Sequence No. 10 | | 4.7 | Light olive brown (2.5Y, 5/4) loose CLAYEY SAND with trace weathered black organics, wet | SC | N/A | Top: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm, pH=7<br>Bottom: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm<br>Top: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm, pH=7<br>Bottom: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm |
| 46.2<br>46.5 | | | | No Recovery | | | |
| | 66996<br>5/4/91<br>0952<br>Sequence No. 11 | | 4.0 | Light olive brown (2.5Y, 5/4) loose CLAYEY SAND, Saturated | SC | N/A | Top: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm, pH=7<br>Bottom: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm<br>Top: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm, pH=7<br>Bottom: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm |
| 50.5<br>51.5 | | | | No Recovery | | | |
| | 66997<br>5/4/91<br>1030<br>Sequence No. 12 | | 5.0 | Light Yellowish brown (2.5Y, 6/4) very loose CLAYEY SAND, Saturated | SC | ~~very loose~~ N/A | Top: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm, pH=7<br>Bottom: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm<br>Top: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm, pH=7<br>Bottom: Hnu: 2.0 ppm, βγ: 600 cpm, α: 0 cpm |
| | | | | Yellowish brown (10YR, 5/6) loose CLAYEY SAND with trace gravel, wet | SC | N/A | |

NOTES
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | 711083 | 2.0 ppm |
| BETA-GAMMA | 73937 | 600 cpm |
| ALPHA | 50740 | 0 cpm |



PRELIMINARY

FERNALD
RI/FS

2226

# VISUAL CLASSIFICATION OF SOILS

| | | |
|---|---|---|
| PROJECT NUMBER: 602.3.19 | PROJECT NAME: FMPC RI/FS ( K-65 Slant Borings ) | |
| BORING NUMBER: 1617 | COORDINATES: N 480309.27 E 378393.47 | DATE 5/4/91 |
| ELEVATION: 576 ft. above sea level | GWL: Depth Date/Time | DATE STARTED: 4/30/91 |
| ENGINEER/GEOLOGIST: G.M. and K.M. | Depth Date/Time | DATE COMPLETED: |
| DRILLING METHODS: Horizontal drill machine with 8 ¼ inch augers | | PAGE 5 OF |

| DEPTH DRILLED AT ANGLE | SAMPLE TYPE & NO | DEPTH FROM HORIZONTAL (ft) | RECOVERY (ft) | DESCRIPTION | USCS SYMBOL | MEASURED CONSISTENCY (TSF) | REMARKS |
|---|---|---|---|---|---|---|---|
| | 66998<br>66999<br>67000<br>67001<br>67002<br>67003<br>5/4/91<br>Sequence<br>No. 13 | | 3.7 | Light olive brown (2.5 Y, 5/6) loose CLAYEY SAND with some gravel and limestone cobbles, moist to damp | SC | ~~loose~~ N/A | Top Hnu: ppm, βγ: cpm, α: cpm; Bottom Hnu: ppm, βγ: cpm, α: cpm<br>The hole was stopped at 63.5 ft. corrected starting depth from 56.5 to 58.5 ft.<br>Top Hnu: ppm, βγ: cpm, α: cpm; Bottom Hnu: ppm, βγ: cpm, α: cpm |
| 62.2 | | | | No Recovery | | | |
| 63.5 | 67004<br>5/4/91<br>1620 | | 4.9 | Light olive brown (2.5Y, 5/4) CLAY, loose SAND, and GRAVEL mixture, trace limestone cobbles, saturated | GC | ~~loose~~ N/A | Top Hnu: 1.3 ppm, βγ: 800 cpm, α: 0 cpm; Bottom Hnu: 1.3 ppm, βγ: 800 cpm, α: 0 cpm |
| 65.8 | Sequence<br>No. 14 | | | Light brownish gray (2.5Y, 6/2) medium dense CLAYEY SAND with some gravel, | SC | ~~loose~~ ~~medium~~ ~~dense~~ N/A | Top Hnu: 1.3 ppm, βγ: 800 cpm, α: 0 cpm; Bottom Hnu: 1.3 ppm, βγ: 800 cpm, α: 0 cpm |
| 68.4<br>58.5 | | | | No Recovery | | | |
| | | | | | | | Top Hnu: ppm, βγ: cpm, α: cpm; Bottom Hnu: ppm, βγ: cpm, α: cpm<br>Top Hnu: ppm, βγ: cpm, α: cpm; Bottom Hnu: ppm, βγ: cpm, α: cpm |

NOTES
- Borings sampled continuous using a 5.0 sampler
- Boring angle checked every 2 ft. using a slope indicator

Drilling Co: Pennsylvania Drilling
Driller: Dave Newman
Assistants: Bob Johnson

| INSTRUMENT | SERIAL NO. | BACKGROUND READINGS |
|---|---|---|
| Hnu | 711083 | 1.3 ppm |
| BETA-GAMMA | 73937 | 800 cpm |
| ALPHA | 50740 | 0 cpm |



PRELIMINARY