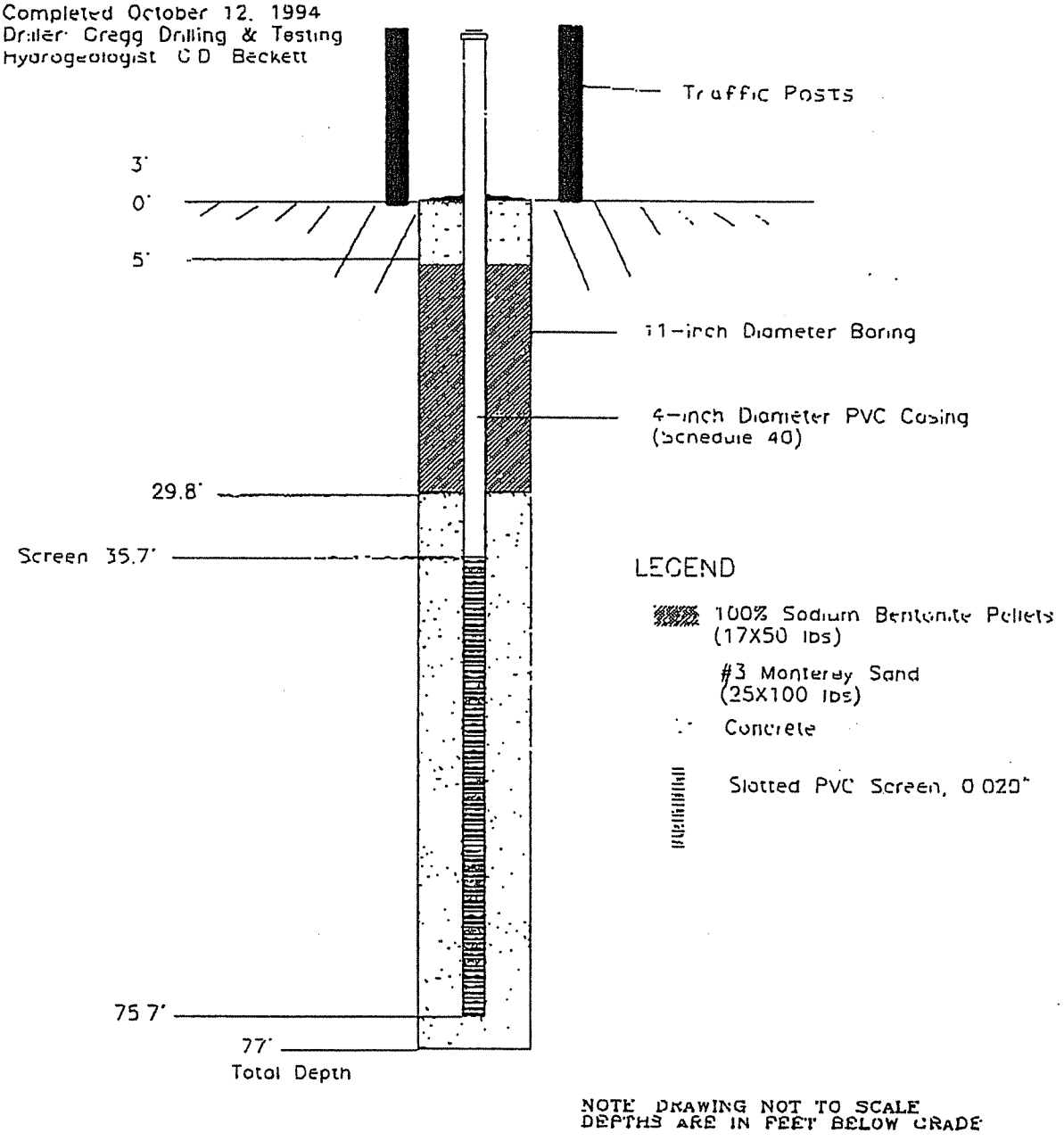
# APPENDIX D

Typical Drilling Logs, Well Completion Information and Recent Gauging Data

# MONITORING WELL CONSTRUCTION
## MW-59

Unocal Carson Refinery
Well MW-59, LAX Pad
Completed October 12, 1994
Driller: Gregg Drilling & Testing
Hydrogeologist C D Beckett




NOTE: DRAWING NOT TO SCALE
DEPTHS ARE IN FEET BELOW GRADE

**AQUI-VER**
*Quantitative Environmental Hydrogeology*

| | | | |
|---|---|---|---|
| PROJECT:UNOCAL CARSON REF | DATE 10/12/94 | PROJ #:10100022 | TASK # 2.2 |
| DRILL METHOD:HSA | DRILLER:GREGG DRILLING | RIG.MOBIL B-61HD | BORING # MW59 |
| BORING DIAMETER:8"/11" | CASING:4" | SCREEN:0 02" | FILTER:#3 SAND |
| SAMPLE METHOD: GRAB/DRIVE | MAP & ELEVATION:NA | | PAGE. 1/3 |

| DEPTH (ft) | LITHOLOGY | BLOWS/6" | SNIFFER ppm | LITHOLOGIC DESCRIPTION | % GRAVEL | %SAND | %FINES | USCS | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | fill, dusky yl brn 5y6/4, silty graded SAND | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | change to olive grey m-grd SAND, likely fill | | 100 | | SP | |
| 7 | | | | based on past operations | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | 10 | m-grd, grey SAND | | 100 | | SP | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | contact CLAY, gry olive grn 5gy3/2 | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | SILTY CLAY, as above | | | | | |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | 200 | lt olive brn, f-m grd mus SAND | | 100 | | SP | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |

**AQUI-VER**
*Quantitative Environmental Hydrogeology*

PROJECT:UNOCAL CARSON REF DATE:10/12/94 BORING #:MW-59 PAGE #: 2/3

| DEPTH (ft) | LITHOLOGY | BLOWS/6" | SNIFFER | LITHOLOGIC DESCRIPTION | % GRAVEL | %SAND | %FINES | USCS | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 26 | | | | | | | | | |
| 27 | | | | | | | | | |
| 28 | | | | as above, color chg to gry olive 10y 4/2 | | 100 | | SP | |
| 29 | | | | | | | | | |
| 30 | | | | | | | | | |
| 31 | | | | | | | | | |
| 32 | | | | | | | | | |
| 33 | | | | | | | | | |
| 34 | | | | | | | | | |
| 35 | | | | | | | | | |
| 36 | | | | | | | | | |
| 37 | | | | | | | | | |
| 38 | | | | | | | | | |
| 39 | | | 100 | f-med mica SAND, as above, grey | | | | | |
| 40 | | 9/11 | | | | 100 | | SP | |
| 41 | | 15/14 | | ol. gry 5y3/2 interbedded silt and f-m SAND | | 100 | | SP | |
| 42 | | 25/35 | | SAND lens 25%, SILT 75%, root and animal casts | | 25 | 75 | ML | |
| 43 | | 18/16 | 100 | grades to primarily gy. ol. 10y4/2 f-m SAND | | 100 | | SP | |
| 44 | | 30/17 | | as above, may be slightly SILTY, bedding is laminated | | 95 | 5 | SP | |
| 45 | | 30/42 | | w/micro structure, bio turb, oases | | | | | |
| 46 | | 30/50 | 4000 | Primarily f-m mica SAND, more massive, less bedding. | | 100 | | SP | |
| 47 | | 30/40 | | bioturbated w/rip clasts of fine sed | | | | | |
| 48 | | 16/20 | | as above, rip ups, no bioturbation, iron banding, med grey | | 100 | | SP | |
| 49 | | 23/32 | 7000 | chg to laminated SANDs, predominatly f-grd, w/v. fine interbeds of SILT/CLAY appear to be progressing into lower energy dep | | 100 | | SP | |
| 50 | | 50/05 | | as above, but chg back from laminated to more massive, channel or higher flow dep. migrates back | | 100 | | SP | |
| 51 | | 20/50 | 700 | yl gry 5y7/2, moist, f-m grd SANDS, m grd dominant, mica, qtz dom mineral Even higher dep. energy, may be near shoreface? | | 100 | | SP | |
| 52 | | 50/45 | | | | | | | |

**AQUI-VER**
*Quantitative Environmental Hydrogeology*

**PROJECT:UNOCAL CARSON REF** **DATE:10/12/94** **BORING #:MW-59** **PAGE # 3/3**

| DEPTH (ft) | LITHOLOGY | BLOWS/6" | SNIFFER | LITHOLOGIC DESCRIPTION | % GRAVEL | %SAND | %FINES | USCS | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| 53 | | 50/50 | 1000 | we appear to be in water table, m-grd SAND as above, color chgs darker w/depth to lt ol gry 5Y5/2 | | 100 | | SP | |
| 54 | | | | as above, gry ol 10 y 4/2, m-grd SAND strong odor | | 100 | | SP | |
| 55 | | | | as above | | | | | |
| 56 | | | 10000 | as above, stronger HC odor | | 100 | | SP | |
| 57 | | | 10000 | as above, but graded seq M-grd sand at 58, c-SAND at 57.5 ft, and upper section of f-grd SAND w/np clast | | 100 | | SP | |
| 58 | | | | | | | | | |
| 59 | | | 10000 | as above, qtz dom m c grd SAND, dk grey, soil qtz dom w/mica, well rounded & well sorted | | | | | Last photo #13 |
| 60 | | | | slough is falling into auger, we'll stop driving & grab sample | | | | | |
| 61 | | | | | | | | | |
| 62 | | | | | | | | | |
| 63 | | | | | | | | | |
| 64 | | | | | | | | | |
| 65 | | | | cuttings appear as above | | | | | |
| 66 | | | | | | | | | |
| 67 | | | | | | | | | |
| 68 | | | | | | | | | |
| 69 | | | | | | | | | |
| 70 | | | | | | | | | |
| 71 | | | | | | | | | |
| 72 | | | | | | | | | |
| 73 | | | | | | | | | |
| 74 | | | | cuttings as above | | 100 | | SP | |
| 75 | | | | | | | | | |
| 76 | | | | | | | | | |
| 77 | | | | TD 77 fgb | | | | | final photo seq #13 |
| 78 | | | | | | | | | |

Owner's Copy

# WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 446787

Page 1 of 1

Owner's Well No. MW-59

Date Work Began 10/12/94, Ended 10/12/94

Local Permit Agency Los Angeles Dept of Health Services

Permit No. _____ Permit Date _____

STATE WELL NO / STATION NO

LATITUDE LONGITUDE

APN/TRS/OTHER

## GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER _____ (Ft) BELOW SURFACE

| DEPTH FROM SURFACE Ft | to Ft | DESCRIPTION Describe material, grain size, color, etc |
|---|---|---|

TOTAL DEPTH OF BORING 77 (Feet)

TOTAL DEPTH OF COMPLETED WELL 75.7 (Feet)

## WELL OWNER

Name Unocal Carson Refinery

Mailing Address 1520 E. Sepulveda

Carson CA 90745

CITY STATE ZIP

## WELL LOCATION

Address Same

City

County Los Angeles

APN Book _____ Page _____ Parcel _____

Township T45 Range R13 Section _____

Latitude _____ DEG. MIN. SEC. NORTH Longitude _____ DEG MIN. SEC. WEST

## LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc

PLEASE BE ACCURATE & COMPLETE

## ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR

___ Deepen

___ Other (Specify)

___ DESTROY (Describe Procedures and Materials under "GEOLOGIC LOG")

## PLANNED USE(S) (✓)

✓ MONITORING

WATER SUPPLY

___ Domestic

___ Public

___ Irrigation

___ Industrial

___ TEST WELL

___ CATHODIC PROTECTION

___ OTHER (Specify)

DRILLING METHOD Hollow Stem Auger FLUID _____

## WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL _____ (Ft) & DATE MEASURED _____

ESTIMATED YIELD* _____ (GPM) & TEST TYPE _____

TEST LENGTH _____ (Hrs) TOTAL DRAWDOWN _____ (Ft)

* May not be representative of a well's long-term yield

## CASING(S)

| DEPTH FROM SURFACE Ft | to Ft | BORE-HOLE DIA (inches) | TYPE (✓) BLANK | SCREEN | CONDUCTOR | FILL PIPE | MATERIAL/GRADE | INTERNAL DIAMETER (inches) | GAUGE OR WALL THICKNESS | SLOT SIZE IF ANY (inches) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 35.7 | 11 | ✓ | | | | PVC | 4 | Sch 40 | |
| 35.7 | 75.7 | 11 | | ✓ | | | PVC | 4 | Sch 40 | 020 |

## ANNULAR MATERIAL

| DEPTH FROM SURFACE Ft. | to Ft. | TYPE CEMENT (✓) | BENTONITE (✓) | FILL (✓) | FILTER PACK (TYPE/SIZE) |
|---|---|---|---|---|---|
| 77 | 29.8 | | | ✓ | #3 Sand |
| 29.8 | 5 | | ✓ | | Pellets |
| 5 | 0 | ✓ | | | Concrete |

## ATTACHMENTS (✓)

___ Geologic Log

✓ Well Construction Diagram

___ Geophysical Log(s)

___ Soil/Water Chemical Analyses

___ Other _____

ATTACH ADDITIONAL INFORMATION IF IT EXISTS

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

NAME GREGG DRILLING & TESTING, INC (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 2475 Cerritos Avenue Signal Hill CA 90806 CITY STATE ZIP

Signed _____ WELL DRILLER/AUTHORIZED REPRESENTATIVE 01 25 95 DATE SIGNED C57485165 (C57) LICENSE NUMBER

DWR 188 REV 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

LOCATION MAP

# SHELL OIL COMPANY — WELL LOG



| | | | |
|---|---|---|---|
| WELL NUMBER | OBS 38 | LOCATION | Adjacent to Control House |
| DATE | 11-26-85 | WEATHER | Overcast |
| LOGGED BY | Lynn Thompson | DRILLED BY | Kleinfelder |
| DRILLING METHOD | Hollow Stem Auger | SAMPLING METHOD | Split Spoon |
| GRAVEL PACK | Monterey #3 | SEAL | Bentonite |

ELEVATION

CASING TYPE PVC DIAMETER 4" LENGTH 70' HOLE DIA 10"

SCREEN TYPE PVC SLOT 20 DIAMETER 4" LENGTH 20' TOTAL DEPTH 90'

| TIME | BORING | DENSITY | PID NO READING (UNITS) | SAMPLE NO | DEPTH | SAMPLE RECOVERY | PENETRATION RESISTANCE | LITHOLOGY/REMARKS | WELL COMPLETION |
|---|---|---|---|---|---|---|---|---|---|
| 12:31 | | | | | 0 | | | | |
| | | | | | 1 | | | | |
| | | | | | 2 | 20 | | Fill dark brown, damp, hard, contains a few small pebbles, silt | |
| | | | 4 | | 3 | | | | |
| | | | | | 4 | | | | |
| 12:47 | | | 6 | | 5 | 20 | | Fill, same as above | |
| | | | | | 6 | | | | |
| | | | | | 7 | | | | |
| | | | | | 8 | | | | |
| | | | | | 9 | | | | |
| 1:14 | | | 60 | | 10 | 20 | 12 15 | Sand (SP) with some silt, brown, damp, moderately dense, black mottling, gasoline odor, fine | Grout |
| | | | | | 11 | | | | |
| | | | | | 12 | | | | |
| | | | | | 13 | | | | |
| | | | | | 14 | | | | |
| 1:38 | | | 70 | | 15 | | 18 22 | Sand SP light brown, damp, loose, micaceous, gasoline odor | Blank |
| | | | | | 16 | | | | |
| | | | | | 17 | | | | |
| | | | | | 18 | | | | |
| | | | | | 19 | | | | |

ATION MAP

# SHELL OIL COMPANY — WELL LOG

PAGE 2 OF 5

| | | | |
|---|---|---|---|
| WELL NUMBER | OBS 38 | LOCATION | Adjacent to Control House |
| DATE | 11-26-85 | WEATHER | Overcast, cool |
| LOGGED BY | Lynn Thompson | DRILLED BY | Kleinfelder |
| DRILLING METHOD | Hollow Stem Auger | SAMPLING METHOD | Split Spoon |
| GRAVEL PACK | Monterey #3 | SEAL | Bentonite |

VATION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NG | TYPE PVC | | DIAMETER 4" | LENGTH 70' | HOLE DIA 10" |
| EN | TYPE PVC | SLOT 20 | DIAMETER 4" | LENGTH 20' | TOTAL DEPTH 90' |

| | SORTING | DENSITY | BLOWS READING (UNITS) | SAMPLE NO | DEPTH | SAMPLE RECOVERY | PENETRATION RESISTANCE | LITHOLOGY/REMARKS | WELL COMPLETION |
|---|---|---|---|---|---|---|---|---|---|
| : | 56 | | 12 | | 20 | 20 | 12, 16 | Sand (SP) light brown, damp, fine, loose, gas odor | Grout / Blank |
| : | 15 | | 7 | | 25 | 20 | 15, 16 | Sand (SP) light brown, damp, fine, loose, gasoline odor, shell fragments | |
| 2: | 35 | | 10 | | 30 | 20 | 10, 19 | Clay (CL) sandy, brown, damp, hard, gasoline odor | |
| 3: | 10 | | 11 | | 35 | 20 | 16, 22 | Clay (CL) brown, damp, hard, gasoline odor | |

(2788 17-85)

LOCATION MAP

# SHELL OIL COMPANY — WELL LOG

PAGE 3 OF 5

| | | | |
|---|---|---|---|
| WELL NUMBER | OBS 38 | LOCATION | Adjacent to Control House |
| DATE | 11-26-85 | WEATHER | |
| LOGGED BY | Lynn Thompson | DRILLED BY | Kleinfelder |
| DRILLING METHOD | Hollow Stem Auger | SAMPLING METHOD | Split Spoon |
| GRAVEL PACK | Monterey #3 | SEAL | Bentonite |

ELEVATION

CASING TYPE PVC DIAMETER 4" LENGTH 70' HOLE DIA 10"

SCREEN TYPE PVC SLOT 20 DIAMETER 4" LENGTH 20' TOTAL DEPTH 90'

| TIME | BORTUID | DENSITY | H-NU READING (UNITS) | SAMPLE NO. | DEPTH | SAMPLE RECOVERY | PENETRATION RESISTANCE | LITHOLOGY/REMARKS | WELL COMPLETION |
|---|---|---|---|---|---|---|---|---|---|
| 3: | 45 | | 4 | | 4 0 | 20 | 20 | Sand (SP) tan, damp, fine, loose gas odor | Grout / Blank |
| | | | | | 1 | | 29 | | |
| | | | | | 2 | | | | |
| | | | | | 3 | | | | |
| | | | | | 4 | | | | |
| 4: | 30 | | 2 | | 4 5 | 20 | 35 | Sand (SP) tan, damp, fine, slight gas odor | |
| | | | | | 6 | | 50 | | |
| | | | | | 7 | | | | |
| | | | | | 8 | | | | |
| | | | | | 9 | | | | |
| 4: | 55 | | 1 | | 5 0 | 20 | | Same as above | |
| | | | | | 1 | | 28 | | |
| | | | | | | | 50 | | |
| | | | | | 2 | | | | |
| | | | | | 3 | | | | |
| | | | | | 4 | | | | |
| 5: | 10 | | 2 | | 5 5 | 20 | | Sand (SP) tan, damp, some silt, no odor | |
| | | | | | 6 | | 25 | | |
| | | | | | | | 42 | | |
| | | | | | 7 | | | | |
| | | | | | 8 | | | | |

S-12738 (1-85)

LOCATION MAP

# SHELL OIL COMPANY — WELL LOG

PAGE 3 OF 5

| | | | |
|---|---|---|---|
| WELL NUMBER | OBS 38 | LOCATION | Adjacent to Control House |
| DATE | 11-26-85 | WEATHER | |
| LOGGED BY | Lynn Thompson | DRILLED BY | Kleinfelder |
| DRILLING METHOD | Hollow Stem Auger | SAMPLING METHOD | Split Spoon |
| GRAVEL PACK | Monterey #3 | SEAL | Bentonite |

ELEVATION

CASING TYPE PVC DIAMETER 4" LENGTH 70' HOLE DIA 10"

SCREEN TYPE PVC SLOT 20 DIAMETER 4" LENGTH 20' TOTAL DEPTH 90'

| TIME | SORTING | DENSITY | HI NO READING (UNITS) | SAMPLE NO | DEPTH | SAMPLE RECOVERY | PENETRATION RESISTANCE | LITHOLOGY/REMARKS | WELL COMPLETION |
|---|---|---|---|---|---|---|---|---|---|
| 3: | 45 | | 4 | | 4 0 | 20 | 20 29 | Sand (SP) tan, damp, fine, loose gas odor | Grout / Blank |
| 4: | 30 | | 2 | | 4 5 | 20 | 35 50 | Sand (SP) tan, damp, fine, slight gas odor | |
| 4: | 55 | | 1 | | 5 0 | 20 | 28 50 | Same as above | |
| 5: | 10 | | 2 | | 5 5 | 20 | 25 42 | Sand (SP) tan, damp, some silt, no odor | |

# SHELL OIL COMPANY — WELL LOG



| | | | |
|---|---|---|---|
| WELL NUMBER | OBS 38 | LOCATION | Adjacent to Control House |
| DATE | 11-26-85 | WEATHER | Overcast, cool |
| LOGGED BY | Lynn Thompson | DRILLED BY | Kleinfelder |
| DRILLING METHOD | Hollow Stem Auger | SAMPLING METHOD | Split Spoon |
| GRAVEL PACK | Monterey #3 | SEAL | Bentonite |

ATION MAP

VATION

NG TYPE PVC DIAMETER 4" LENGTH 70' HOLE DIA 10"

EEN TYPE PVC SLOT 20 DIAMETER 4" LENGTH 20' TOTAL DEPTH 90'

| BORING | DENSITY | BLOW COUNTS (BLOWS/FOOT) | SAMPLE NO | DEPTH | SAMPLE RECOVERY | PENETRATION RESISTANCE | LITHOLOGY/REMARKS | WELL COMPLETION |
|---|---|---|---|---|---|---|---|---|
| | | 6 | | 6 0 | | | Sand (SP), light grey, damp, loose, fine grained, large areas of red brown oxidation stains, sour odor | Grout |
| | | | | 1 | | 28 32 | | |
| | | | | 2 | | | | |
| | | | | 3 | | | | |
| | | | | 4 | | | | Blank |
| 59 | | 9 | | 6 5 | | 26 50 | Sand (SP), blue-grey, damp, loose, fine to medium grained, small areas of oxidation stains sour odor | Bentonite |
| | | | | 6 | | | | |
| | | | | 7 | | | | |
| | | | | 8 | | | | |
| | | | | 9 | | | | |
| 12 | | 90 | | 7 0 | | 28 50 | Sand (SP), same as above, gasoline odor | |
| | | | | 1 | | | | Monterey #3 |
| | | | | 2 | | | | |
| | | | | 3 | | | | |
| | | | | 4 | | | | Screen |
| | | 140 | | 5 | | | Sand (SP), blue-grey, very damp, loose, medium grained, some oxidation stains, gasoline odor | |
| | | | | 6 | | | | |
| | | | | 7 | | | | |
| | | | | 8 | | | First water | |
| | | | | 9 | | | | |

# SHELL OIL COMPANY — WELL LOG

PAGE 5 OF 5

| | | | |
|---|---|---|---|
| WELL NUMBER | OBS 38 | LOCATION | Adjacent to Control House |
| DATE | 11-27-85 | WEATHER | Overcast, cool |
| LOGGED BY | Lynn Thompson | DRILLED BY | Kleinfelder |
| DRILLING METHOD | Hollow Stem Auger | SAMPLING METHOD | Split Spoon |
| GRAVEL PACK | Monterey #3 | SEAL | Bentonite |

LOCATION MAP

ELEVATION

CASING TYPE PVC DIAMETER 4" LENGTH 70' HOLE DIA 10"

SCREEN TYPE PVC SLOT 20 DIAMETER 4" LENGTH 20' TOTAL DEPTH 90'

| TIME | BORING | DENSITY | H-NU READING (UNITS) | SAMPLE NO. | DEPTH | SAMPLE RECOVERY | PENETRATION RESISTANCE | LITHOLOGY/REMARKS | WELL COMPLETION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 80 | | | Sand (SP), grey, wet, loose, micaceous, fine to medium grained, strong gasoline odor | Monterey #3 / Screen |
| 10: | 32 | | | | 85 | | 32 / 50 | Sand (SP), grey, wet, loose, medium grained, micaceous, small patches of brown oxidation stains, gasoline odor, small amount of thin-walled shell fragments | |
| | | | | | 90 | | | | End Cap |
| | | | | | | | | | Caved |
| | | | | | 3 | | | End of hole | |

**Table 4-2**
**Summary of Well Gauging Data**
**ConocoPhillips LAR, Carson Plant**
**Fall 2005**

| Well Number | Date Gauged | Well Diameter (inches) | Top of Casing Elevation (feet msl) | Top of Screen Elevation (feet msl) | Total Depth (feet) | Depth to LNAPL (feet bgs) | Depth to Water (feet bgs) | LNAPL Thickness (feet) | Groundwater Elevation (feet msl) | LNAPL Specific Gravity | LNAPL Elevation (feet msl) | Type | Corrected Ground-Water Elevation (feet msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-2 | 11-Oct-05 | 4 | 34.77 | -17.23 | 69.37 | | 47.52 | | -12.75 | | | WT | -12.75 |
| MW-3 | 11-Oct-05 | 4 | 29.39 | -16.61 | 65.67 | | 46.25 | | -16.86 | | | WT | -16.86 |
| MW-4 | 11-Oct-05 | 4 | 37.51 | NA | 69.83 | 56.09 | 56.09 | TRACE | -18.58 | 0.8299 | -18.58 | WT | -18.58 |
| MW-5 | 11-Oct-05 | 4 | 35.76 | NA | 81.04 | | 57.39 | | -21.63 | | | WT | -21.63 |
| MW-6 | 11-Oct-05 | 4 | 41.68 | NA | 75.90 | | 60.21 | | -18.53 | | | P | -18.53 |
| MW-7 | 12-Oct-05 | 4 | 41.96 | NA | 92.40 | 64.50 | 64.50 | SHEEN | -22.54 | 0.7749 | -22.54 | WT | -22.54 |
| MW-8 | 12-Oct-05 | 4 | 41.39 | NA | 84.60 | 65.76 | 65.96 | 0.20 | -24.57 | 0.9117 | -24.37 | WT | -24.39 |
| MW-9 | 12-Oct-05 | 4 | 45.67 | NA | 87.90 | 70.41 | 70.41 | SHEEN | -24.74 | 0.9111 | -24.74 | WT | -24.74 |
| MW-13 | 12-Oct-05 | 4 | 39.11 | NA | 88.75 | NA | NA | NA | NA | NA | NA | WT | NA |
| MW-17 | 12-Oct-05 | 4 | 38.31 | -23.90 | 82.50 | 56.53 | 56.56 | 0.03 | -18.25 | 0.7467 | -18.25 | WT | -18.23 |
| MW-19 | 11-Oct-05 | 4 | 34.99 | NA | 82.35 | 56.54 | 56.60 | 0.04 | -21.61 | 0.7264 | -21.61 | WT | -21.58 |
| MW-20 | 12-Oct-05 | 4 | 28.80 | NA | 78.35 | 48.23 | 48.41 | 0.18 | -19.61 | 0.8086 | -19.61 | WT | -19.46 |
| MW-21 | 12-Oct-05 | 4 | 36.84 | NA | 57.35 | 49.61 | 49.68 | 0.07 | -12.84 | 0.8612 | -12.77 | P | -12.78 |
| MW-22 | 11-Oct-05 | 4 | 37.25 | -21.75 | 77.12 | | 50.87 | | -13.62 | | | WT | -13.62 |
| MW-23 | 12-Oct-05 | 4 | 34.91 | -25.09 | 73.40 | 47.44 | 47.44 | SHEEN | -12.53 | 0.7580* | -12.53 | WT | -12.53 |
| MW-24 | 12-Oct-05 | 4 | 26.57 | NA | 69.60 | 41.85 | 41.97 | 0.12 | -15.40 | 0.8519 | -15.28 | WT | -15.30 |
| MW-25 | 11-Oct-05 | 4 | 34.71 | NA | 77.72 | | 49.97 | | -15.26 | 0.7818 | | WT | -15.26 |
| MW-26 | 11-Oct-05 | 4 | 34.19 | -18.77 | 75.18 | | 47.87 | | -13.68 | | | WT | -13.68 |
| MW-27 | 12-Oct-05 | 4 | 39.44 | NA | 89.80 | 62.20 | 64.70 | 2.50 | -25.26 | | -22.76 | WT | -22.76 |
| MW-28 | 11-Oct-05 | 4 | 42.67 | NA | 82.30 | 67.27 | 67.59 | 0.32 | -24.92 | 0.8894 | -24.92 | WT | -24.64 |
| MW-29 | 11-Oct-05 | 4 | 31.19 | -25.01 | 76.90 | 51.52 | 51.52 | TRACE | -20.33 | 0.8894 | -20.33 | WT | -20.33 |
| MW-30 | 11-Oct-05 | 4 | 29.42 | NA | 53.04 | | 43.55 | | -14.13 | | | P | -14.13 |
| MW-31 | 12-Oct-05 | 4 | 33.47 | NA | 62.40 | 49.78 | 49.78 | SHEEN | -16.31 | 0.7783 | -16.31 | WT | -16.31 |
| MW-32 | 11-Oct-05 | 4 | 32.13 | -7.87 | 57.20 | | 42.18 | | -10.05 | | | P | -10.05 |
| MW-34 | 12-Oct-05 | 4 | 40.60 | NA | 89.20 | 62.76 | 63.10 | 0.34 | -22.50 | 0.8383 | -22.16 | WT | -22.21 |
| MW-35 | 11-Oct-05 | 4 | 33.90 | -27.90 | 71.90 | | 48.26 | | -14.36 | | | WT | -14.36 |
| MW-36 | 12-Oct-05 | 4 | 39.02 | -37.20 | 94.25 | 63.63 | 71.25 | 7.62 | -32.23 | 0.8970 | -24.61 | WT | -25.39 |
| MW-37 | 12-Oct-05 | 4 | 39.49 | -37.00 | 87.25 | 62.26 | 62.28 | 0.02 | -22.79 | 0.7455 | -22.77 | WT | -22.78 |
| MW-38 | 12-Oct-05 | 4 | 39.71 | -31.70 | 86.65 | 61.46 | 61.74 | 0.28 | -22.03 | 0.7690 | -21.75 | WT | -21.81 |
| MW-39 | 12-Oct-05 | 4 | 37.86 | -36.60 | 85.20 | 59.79 | 59.91 | 0.12 | -22.05 | 0.7753 | -21.93 | WT | -21.96 |
| MW-40 | 11-Oct-05 | 4 | 39.32 | -14.70 | 69.95 | 60.70 | 60.74 | 0.04 | -21.42 | 0.9123 | -21.42 | P | -21.38 |
| MW-41 | 11-Oct-05 | 4 | 39.39 | -34.10 | 92.82 | | 64.40 | | -25.01 | | | WT | -25.01 |
| MW-42 | 12-Oct-05 | 4 | 41.03 | -31.70 | 88.50 | 64.51 | 64.90 | 0.39 | -23.87 | 0.8031 | -23.48 | WT | -23.56 |
| MW-43 | 12-Oct-05 | 4 | 37.80 | -34.70 | 90.65 | 62.99 | 63.71 | 0.72 | -25.91 | 0.9200 | -25.19 | WT | -25.25 |
| MW-44 | 12-Oct-05 | 4 | 38.45 | -36.40 | 91.50 | 63.34 | 66.10 | 2.76 | -27.65 | 0.9273 | -24.89 | WT | -25.09 |
| MW-45 | 11-Oct-05 | 4 | 43.06 | -34.80 | 89.55 | | 66.27 | | -23.21 | | | WT | -23.21 |
| MW-46 | 11-Oct-05 | 4 | 41.42 | -25.60 | 84.40 | | 63.27 | | -21.85 | | | WT | -21.85 |

Table 4-2
Summary of Well Gauging Data
ConocoPhillips LAR, Carson Plant
Fall 2005

| Well Number | Date Gauged | Well Diameter (inches) | Top of Casing Elevation (feet msl) | Top of Screen Elevation (feet msl) | Total Depth (feet) | Depth to LNAPL (feet bgs) | Depth to Water (feet bgs) | LNAPL Thickness (feet) | Groundwater Elevation (feet msl) | LNAPL Specific Gravity | LNAPL Elevation (feet msl) | Type | Corrected Ground-Water Elevation (feet msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-47 | 11-Oct-05 | 4 | 37.43 | -25.10 | 92.20 | 57.09 | 57.09 | TRACE | -19.66 | | -19.66 | WT | -19.66 |
| MW-48 | 11-Oct-05 | 4 | 39.68 | -29.80 | 90.21 | | 64.71 | | -25.03 | | | WT | -25.03 |
| MW-49 | 12-Oct-05 | 4 | 40.88 | -31.80 | 93.60 | 65.18 | 65.43 | 0.25 | -24.55 | 0.9188 | -24.30 | WT | -24.32 |
| MW-50 | 11-Oct-05 | 4 | 40.56 | -41.70 | 96.05 | | 62.92 | | -22.36 | | | WT | -22.36 |
| MW-51 | 11-Oct-05 | 4 | 36.10 | -20.70 | 75.85 | 53.74 | 53.80 | 0.06 | -17.70 | 0.7333 | -17.70 | WT | -17.66 |
| MW-52 | 12-Oct-05 | 4 | 36.46 | -21.10 | 79.40 | 54.46 | 58.95 | 4.49 | -22.49 | 0.8299 | -18.00 | WT | -18.76 |
| MW-54 | 12-Oct-05 | 4 | 38.07 | -21.50 | 91.85 | 59.75 | 59.75 | SHEEN | -21.68 | 0.7264* | -21.68 | WT | -21.68 |
| MW-55 | 11-Oct-05 | 4 | 26.42 | -17.30 | 70.90 | | 39.42 | | -13.00 | | | WT | -13.00 |
| MW-56 | 28-Oct-05 | 4 | 34.90 | -5.61 | 64.25 | 52.43 | 52.60 | 0.17 | -17.70 | 0.7567 | -17.53 | WT | -17.57 |
| MW-57 | 12-Oct-05 | 4 | 38.73 | -9.70 | 88.05 | 61.89 | 69.90 | 8.01 | -31.17 | 0.8031 | -23.16 | WT | -24.74 |
| MW-58 | 12-Oct-05 | 4 | 43.75 | -11.31 | 95.20 | 68.22 | 68.54 | 0.32 | -24.79 | 0.9188 | -24.47 | WT | -24.50 |
| MW-59 | 12-Oct-05 | 4 | 29.71 | -8.70 | 79.20 | 49.50 | 49.50 | TRACE | -19.79 | 0.8086 | -19.79 | WT | -19.79 |
| WD-1 | 11-Oct-05 | 5 | 39.21 | -129.00 | 192.20 | | 61.52 | | -22.31 | | | C | -22.31 |
| WD-2 | 11-Oct-05 | 5 | 38.06 | -123.70 | 187.18 | | 54.69 | | -16.63 | | | C | -16.63 |
| WD-3 | 11-Oct-05 | 5 | 38.12 | -125.10 | 186.50 | | 51.29 | | -13.17 | | | C | -13.17 |
| R-4 | 12-Oct-05 | 10 | 40.91 | NA | 93.70 | 67.90 | 67.90 | SHEEN | -26.99 | 0.8270 | -26.99 | WT | -26.99 |
| R-5 | 12-Oct-05 | 10 | 30.45 | -21.80 | 94.90 | 49.77 | 51.10 | 1.33 | -20.65 | 0.8086 | -19.32 | WT | -19.57 |
| R-6 | 12-Oct-05 | 10 | 27.99 | -22.10 | 94.00 | 46.61 | 50.02 | 3.41 | -22.03 | 0.8086 | -18.62 | WT | -19.27 |
| R-7 | 12-Oct-05 | 10 | 36.81 | -31.90 | 102.45 | 52.10 | 52.10 | SHEEN | -15.29 | 0.7440 | -15.29 | WT | -15.29 |
| R-8 | 12-Oct-05 | 10 | 41.76 | -24.30 | 97.70 | 66.14 | 67.20 | 1.06 | -25.44 | 0.8450 | -24.38 | WT | -24.54 |
| R-9 | 12-Oct-05 | 10 | 42.08 | -29.80 | 102.90 | 84.47 | 84.91 | 0.44 | -42.83 | 0.8031 | -42.83 | WT | -42.48 |
| R-10 | 12-Oct-05 | 10 | 38.93 | -27.30 | 109.70 | 61.27 | 61.50 | 0.23 | -22.57 | 0.7640 | -22.57 | WT | -22.39 |
| R-11 | 12-Oct-05 | 10 | 39.65 | -28.60 | 111.95 | 58.85 | 63.10 | 4.25 | -23.45 | 0.8383 | -19.20 | WT | -19.89 |
| R-12 | 12-Oct-05 | 10 | 41.89 | -15.80 | 102.35 | 64.29 | 64.29 | SHEEN | -22.40 | 0.8383 | -22.40 | WT | -22.40 |
| R-13 | 12-Oct-05 | 10 | 40.02 | -17.80 | 108.14 | 59.10 | 65.08 | 5.98 | -25.06 | 0.8050 | -19.08 | WT | -20.25 |
| R-14 | 12-Oct-05 | 10 | 40.88 | -15.10 | 105.00 | 63.56 | 63.60 | 0.04 | -22.72 | 0.8270 | -22.68 | WT | -22.69 |
| R-15 | 11-Oct-05 | 10 | 37.54 | -17.70 | 99.75 | 56.14 | 56.16 | 0.02 | -18.62 | 0.8270 | -18.60 | WT | -18.60 |
| R-16 | 11-Oct-05 | 10 | 37.51 | -19.40 | 107.74 | | 56.07 | | -18.56 | | | WT | -18.56 |
| R-17 | 12-Oct-05 | 10 | 34.44 | -22.30 | 89.50 | 53.72 | 54.60 | 0.88 | -20.16 | 0.8304 | -19.28 | WT | -19.43 |
| R-18 | 12-Oct-05 | 10 | 38.42 | -17.60 | 99.50 | 55.81 | 57.80 | 1.99 | -19.38 | 0.7580 | -17.39 | WT | -17.87 |
| R-19 | 12-Oct-05 | 10 | 36.70 | -26.50 | 106.45 | 52.71 | 52.72 | 0.01 | -16.02 | 0.7580 | -16.02 | WT | -16.01 |
| R-20 | 12-Oct-05 | 10 | 37.40 | -21.90 | 101.97 | 56.18 | 56.26 | 0.08 | -18.86 | 0.7612 | -18.78 | WT | -18.80 |
| R-21 | 11-Oct-05 | 10 | 35.05 | -20.40 | 98.52 | | 52.12 | | -17.07 | | | WT | -17.07 |
| R-22 | 11-Oct-05 | 10 | 27.67 | -16.70 | 110.10 | | 43.47 | | -15.80 | | | WT | -15.80 |
| R-23 | 12-Oct-05 | 10 | 36.14 | -19.10 | 99.75 | 52.11 | 55.15 | 3.04 | -19.01 | 0.7580 | -15.97 | WT | -16.71 |
| R-24 | 12-Oct-05 | 10 | 36.65 | -8.10 | 100.10 | 50.00 | 52.48 | 2.48 | -15.83 | 0.8690 | -15.83 | WT | -13.67 |
| R-25 | 11-Oct-05 | 10 | 43.73 | -27.20 | 110.00 | | 67.05 | | -23.32 | 0.8008 | | WT | -23.32 |
| R-26 | 11-Oct-05 | 10 | 44.34 | -24.20 | 112.05 | | 67.80 | | -23.46 | | | WT | -23.46 |
| R-27 | 12-Oct-05 | 10 | 44.70 | -23.40 | 107.10 | 68.23 | 68.23 | TRACE | -23.53 | 0.8008 | -23.53 | WT | -23.53 |
| R-28 | 12-Oct-05 | 10 | 42.89 | -25.00 | 112.50 | 66.88 | 68.35 | 1.47 | -25.46 | 0.9000 | -25.46 | WT | -24.14 |
| R-29 | 12-Oct-05 | 10 | 41.87 | -25.00 | 108.00 | 65.86 | 65.86 | SHEEN | -23.99 | 0.9000 | -23.99 | WT | -23.99 |
| R-30 | 12-Oct-05 | 10 | 41.57 | -24.80 | 97.70 | 70.68 | 95.50 | 24.82 | -53.93 | 0.9206 | -29.11 | WT | -31.08 |

Table 4-2
Summary of Well Gauging Data
ConocoPhillips LAR, Carson Plant
Fall 2005

| Well Number | Date Gauged | Well Diameter (inches) | Top of Casing Elevation (feet msl) | Top of Screen Elevation (feet msl) | Total Depth (feet) | Depth to LNAPL (feet bgs) | Depth to Water (feet bgs) | LNAPL Thickness (feet) | Groundwater Elevation (feet msl) | LNAPL Specific Gravity | LNAPL Elevation (feet msl) | Type | Corrected Ground-Water Elevation (feet msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-31 | 12-Oct-05 | 10 | 42.48 | -21.50 | 110.95 | 66.30 | 66.90 | 0.60 | -24.42 | 0.9206 | -24.42 | WT | -23.87 |
| R-32 | 12-Oct-05 | 10 | 43.44 | -24.90 | 109.20 | 67.77 | 68.30 | 0.53 | -24.86 | 0.9280 | -24.86 | WT | -24.37 |
| R-33 | 11-Oct-05 | 10 | 42.74 | -19.00 | 109.10 | | 67.75 | | -25.01 | | | WT | -25.01 |
| R-34 | 12-Oct-05 | 10 | 43.18 | -18.10 | 96.90 | 68.09 | 68.15 | 0.06 | -24.97 | 0.8894 | -24.97 | WT | -24.92 |
| R-35 | 12-Oct-05 | 10 | 43.05 | -18.70 | 103.20 | | 67.62 | | -24.57 | 0.8894 | | WT | -24.57 |
| R-36 | 12-Oct-05 | 10 | 43.24 | -17.50 | 103.40 | 75.36 | 77.80 | 2.44 | -34.56 | 0.9260 | -32.12 | WT | -32.30 |
| R-37 | 12-Oct-05 | 10 | 40.09 | -31.80 | 108.30 | | 65.10 | | -25.01 | | | WT | -25.01 |
| R-38 | 12-Oct-05 | 10 | 40.91 | -28.50 | 110.02 | | 65.88 | | -24.97 | | | WT | -24.97 |
| R-40 | 12-Oct-05 | 10 | 40.99 | -28.00 | 108.25 | | 64.35 | | -23.36 | | | WT | -23.36 |
| R-41 | 11-Oct-05 | 10 | 40.15 | -34.70 | 116.50 | 64.47 | 64.51 | 0.04 | -24.36 | 0.8500 | -24.32 | WT | -24.33 |
| R-42 | 12-Oct-05 | 10 | 39.35 | -13.50 | 84.80 | 69.53 | 89.30 | 19.77 | -49.95 | 0.9018 | -30.18 | WT | -32.12 |
| R-43 | 12-Oct-05 | 10 | 39.30 | -13.50 | 88.50 | 62.30 | 71.00 | 8.70 | -31.70 | 0.8984 | -23.00 | WT | -23.88 |
| R-44 | 12-Oct-05 | 10 | 39.49 | -8.30 | 103.45 | 63.28 | 64.80 | 1.52 | -25.31 | 0.8961 | -23.79 | WT | -23.95 |
| R-45 | 12-Oct-05 | 10 | 40.25 | -12.90 | 95.10 | 63.92 | 65.20 | 1.28 | -24.95 | 0.8933 | -24.95 | WT | -23.81 |
| R-46 | 12-Oct-05 | 10 | 40.34 | -15.20 | 96.55 | 63.60 | 67.30 | 3.70 | -26.96 | 0.8922 | -26.96 | WT | -23.66 |
| R-48 | 12-Oct-05 | 10 | 44.75 | -22.80 | 112.00 | 69.16 | 71.10 | 1.94 | -26.35 | 0.8008 | -24.41 | WT | -24.80 |
| R-49 | 12-Oct-05 | 10 | 45.38 | -19.90 | 108.90 | 69.76 | 69.76 | TRACE | -24.38 | 0.8008 | -24.38 | WT | -24.38 |
| R-50 | 12-Oct-05 | 10 | 44.82 | -23.10 | 108.40. | 69.04 | 69.07 | 0.03 | -24.25 | 0.8008 | -24.22 | WT | -24.23 |
| R-51 | 12-Oct-05 | 10 | 45.08 | -21.70 | 110.20 | 69.03 | 69.03 | SHEEN | -23.95 | 0.8008 | -23.95 | WT | -23.95 |
| R-52 | 11-Oct-05 | 10 | 44.64 | -20.70 | 104.25 | | 67.92 | | -23.28 | | | WT | -23.28 |
| R-53 | 11-Oct-05 | 10 | 42.34 | -19.10 | 102.60 | | 65.84 | | -23.50 | | | WT | -23.50 |
| R-54 | 11-Oct-05 | 10 | 42.77 | -24.10 | 113.21 | | 74.79 | | -32.02 | 0.8866 | | WT | -32.02 |
| R-55 | 12-Oct-05 | 10 | 41.12 | -29.30 | 114.30 | 64.63 | 66.70 | 2.07 | -25.58 | 0.8866 | -23.51 | WT | -23.74 |
| R-56 | 12-Oct-05 | 10 | 42.05 | -21.00 | 106.38 | 66.00 | 66.00 | SHEEN | -23.95 | 0.8866 | -23.95 | WT | -23.95 |
| R-57 | 12-Oct-05 | 10 | 43.47 | -23.70 | 114.80 | 68.05 | 68.05 | SHEEN | -24.58 | 0.9206 | -24.58 | WT | -24.58 |
| R-58 | 11-Oct-05 | 10 | 45.90 | -22.80 | 115.65 | | 70.25 | | -24.35 | | | WT | -24.35 |
| R-61 | 12-Oct-05 | 10 | 41.98 | -21.90 | 103.90 | 66.34 | 66.58 | 0.24 | -24.60 | 0.7500 | -24.60 | WT | -24.42 |
| R-62 | 11-Oct-05 | 10 | 41.39 | -19.90 | 108.10 | | 66.34 | | -24.95 | 0.7500 | | WT | -24.95 |
| R-63 | 12-Oct-05 | 10 | 40.11 | -29.50 | 110.40 | 64.96 | 64.96 | SHEEN | -24.85 | 0.8500 | -24.85 | WT | -24.85 |
| R-64 | 12-Oct-05 | 10 | 39.46 | -25.00 | 99.94 | | 64.35 | | -24.89 | | | WT | -24.89 |
| R-65 | 12-Oct-05 | 10 | 40.60 | -27.60 | 111.05 | | 65.16 | | -24.56 | | | WT | -24.56 |
| R-67 | 12-Oct-05 | 10 | 38.72 | -27.30 | 107.20 | | 62.95 | | -24.23 | | | WT | -24.23 |
| R-68 | 12-Oct-05 | 10 | 38.03 | -28.30 | 111.10 | 62.00 | 62.20 | 0.20 | -24.17 | 0.8338 | -24.17 | WT | -24.00 |
| R-69 | 12-Oct-05 | 10 | 39.28 | -13.90 | 96.90 | 63.02 | 65.70 | 2.68 | -26.42 | 0.8961 | -23.74 | WT | -24.02 |
| R-70 | 12-Oct-05 | 10 | 39.36 | -7.70 | 101.90 | 63.20 | 63.21 | 0.01 | -23.85 | 0.8930 | -23.84 | WT | -23.84 |
| R-71 | 12-Oct-05 | 10 | 40.15 | -7.80 | 103.70 | 63.90 | 65.31 | 1.41 | -25.16 | 0.8950 | -23.75 | WT | -23.90 |
| R-72 | 12-Oct-05 | 10 | 40.19 | -13.00 | 104.50 | 63.41 | 67.00 | 3.59 | -26.81 | 0.8950 | -23.22 | WT | -23.60 |
| R-73 | 12-Oct-05 | 10 | 40.42 | -15.60 | 95.90 | 63.17 | 70.10 | 6.93 | -29.68 | 0.8980 | -22.75 | WT | -23.46 |
| R-74 | 11-Oct-05 | 10 | 43.55 | -23.80 | 113.05 | | 66.67 | | -23.12 | | | WT | -23.12 |

Table 4-2
Summary of Well Gauging Data
ConocoPhillips LAR, Carson Plant
Fall 2005

| Well Number | Date Gauged | Well Diameter (inches) | Top of Casing Elevation (feet msl) | Top of Screen Elevation (feet msl) | Total Depth (feet) | Depth to LNAPL (feet bgs) | Depth to Water (feet bgs) | LNAPL Thickness (feet) | Groundwater Elevation (feet msl) | LNAPL Specific Gravity | LNAPL Elevation (feet msl) | Type | Corrected Ground-Water Elevation (feet msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R-75 | 11-Oct-05 | 10 | 42.78 | -27.60 | 114.92 | | 65.80 | | -23.02 | | | WT | -23.02 |
| R-76 | 11-Oct-05 | 10 | 40.56 | -24.90 | 110.51 | | 63.43 | | -22.87 | | | WT | -22.87 |
| R-77 | 11-Oct-05 | 10 | 40.84 | -24.90 | 110.82 | | 63.40 | | -22.56 | | | WT | -22.56 |

Notes:

NA = Not Available
WT = Well Screened in Upper Bellflower Aquitard
C = Well Screened in Gage Aquifer
P = Well Screened in Perched Water
Sheen = No measurable LNAPL thickness in the well; however, trace amounts of LNAPL were encountered in well (<0.01 foot thick).
* = LNAPL specific gravity inferred from nearest impacted well.
LNAPL = Light non-aqueous phase liquid

A

# SOIL BORING LOG
## WILMINGTON COMPLEX (WILM)
## 1/23/80-1/24/80

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 1 | | |
| | 0-1 | Surface sand. |
| | 1-9 | Sand, brown, medium-fine grained, moderately well sorted with some silt, clean, slight moisture. |
| | 9-14 | Sand, tan, fine grained-some silt, clean, no odor. |
| | 14-15 | Shell strata, pelecypods in sand. |
| | 15-22 | Sand, tan-green, some clayey sand with silt. |
| | 22-27 | Silt, clayey, tan-green, shells, sandy in part, no odor, dry. |
| | 27-33 | Sand, fine grained, silty, green-tan, some mica flecks, grading to medium grained with depth. |
| | 33-42 | Sand, fine-very fine grained, blue-gray, well sorted, some silt, slight moisture. |
| | 42-48 | Sand, fine-very fine grained, green-gray, some heavies, moist-not wet, clean. |
| | 48-49 | Shell strata, small pelecypods. |
| | 49-53 | Sand, fine grained, green-gray, shell fragments (definite marine sand). |
| | 53-58 | Sand, silty, gray-brown, some clay, no odor, moist-damp (W.T. approximately 58 ft.). |
| | 58-67 | Sand, very fine grained, clayey-silty, dark gray, some mica, slight product odor. |
| 2 | | |
| | 0-1 | Blacktop and surface fill. |
| | 1-8 | Silt, clayey, tan-brown. |
| | 8-11 | Sand, clayey, dark gray, trace odor. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| | 11-12 | Caliche, hardpan (like clayey silt). |
| | 12-19 | Sand, clayey-silty, dark gray-tan. |
| | 19-20 | Silt, sandy-clayey, gray-green, no odor. |
| | 20-25 | Sand, very fine grained, silty, green-yellow-tan, no odor. |
| | 25-32 | Silt, clayey, tan, slight moisture, no odor. |
| | 32-35 | Sand, fine grained, some silt, well sorted, blue-gray, slight moisture, slight odor. |
| | 35-51 | Sand as above, odor getting stronger with depth. |
| | 51-57 | Sand, fine grained, some mica flecks, green-gray, product odor, damp. |
| | 57-65 | Sand, lower medium-fine grained, (W.T. approximately 64 ft.), strong odor at 65 ft., very moist, well sorted some heavies and shell fragments. |
| | 65-69 | Sand, fine-silty, coarse sand strata at 67 ft. (caved at 69 ft.). |
| 3 | | |
| | 0-1 | Asphalt. |
| | 1-20 | Sand, lower medium-fine grained, well sorted, green-brown with some heavies. |
| | 20-30 | Sand as above, few silt and clay stringers, 35% heavy minerals. |
| | 30-40 | As above, some mica, slightly coarser with depth. |
| | 40-53 | Sand, lower medium grained, as above. |
| | 53-58 | As above, getting moist, (W.T. approximately 58 ft.) caving at 58 ft. |
| | 58-61 | As above, but turning gray with depth. |
| | 61-65 | Sand, medium-coarse grained, slight product odor. |
| 11 | | |
| | 0-56 | Predrilled,<br>Sand, fine-medium grained, tan, product odor. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 10 | | |
| | 0-1 | Surface fill. |
| | 1-8 | Clay, silty, no odor. |
| | 8-21 | Sand, fine-very fine grained, gray-green, well sorted, trace odor. |
| | 21-21½ | Shells in white sand. |
| | 21½-24 | Sand, medium-fine grained, dark gray, heavy shell concentrations, pelecypods. |
| | 24-28 | Sand, medium-fine grained, silty, clayey, brown-tan, very few shells, slight product odor, finer grained with depth. |
| | 28-35 | Silt, clayey, some sand, brown, slight moisture. |
| | 35-46 | Silt, very clayey, brown, some shells, no odor. |
| | 46-53 | Sand, brown, grading to a green-tan, medium grained, clayey-silty sand, moist at 48 ft., no odor (W.T. approximately 50 ft.). |
| | 53-58 | Sand, medium-fine grained, silty, very clayey, brown-gray, slight product odor. |
| 17 | | |
| | 0-1 | Blacktop. |
| | 1-10 | Sand, fine grained, clayey, silty, brown, moderate solvent odor. |
| | 10-14 | Sand, fine-very fine grained, tan, moderately sorted, dry, fair odor. |
| | 14-16 | Shells and sand, pelecypods and gastropods. |
| | 16-25 | Sand, medium-fine grained, tan, heavy shell fragments, heavy odor (solvent?), odor strongest at 24 ft., some silt. |
| | 25-27 | Sand, green-gray, strong odor. |
| | 27-32 | Silt, sandy, clayey, blue-green, strong solvent odor and fumes. |
| | 32-38 | Silt, clayey, green-gray, strong odor. |
| | 38-40 | Sand, tan-gold, different odor. |
| | 40-48 | Sand, very fine grained-silty, brown-tan, odor (Naptha, Toluene?). |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| | 48-55 | Silt and very fine sand, tan-brown, no shells, clayey, moderate solvent odor, moist but not wet. |
| | 55-70 | Sand, very fine grained, silty, clayey, blue-gray, strong odor and fumes, moist, no water. |
| 15 | | |
| | 0-1 | Surface fill. |
| | 1-3 | Silt, clayey, oily odor and saturated fill. |
| | 3-17 | Sand, silty, clayey, brown, dry. |
| | 17-19 | Shell strata with tan sand. |
| | 19-22 | Sand, medium-fine grained, dark gray, fair solvent odor, silty and clayey with depth, slightly moist. |
| | 22-41 | Sand, very fine grained, tan, some mica, silty, moderately sorted, fair odor, dry. |
| | 41-48 | Sand, very fine grained, silty, blue-gray, old product odor, grading to sandy silt, clayey. |
| | 48-69 | Sand, fine-very fine grained, silty, blue-gray, some mica flecks, odor becoming more live with depth. |
| | 69-71 | Shells and light gray sand, some large shells, dry, still some odor. |
| 14 | | |
| | 0-1 | Asphalt dike wall. |
| | 1-14 | Sand, medium grained, clayey, silty, brown-tan, no odor. |
| | 14-26 | Sand, fine grained, silty, tan-light gray, well sorted, slightly moist. |
| | 26-32 | Sand, very fine grained, clayey with some silt, gray-green, slightly moist, no odor. |
| | 32-48 | Sand, very fine grained, well sorted, green-gray, slightly moist, slight product odor at 41 ft., strong odor at 48 ft. |
| | 48-70 | Sand, silty, product odor to 70 ft., no water. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 18 | | |
| | 0-1 | Surface fill. |
| | 1-6 | Sand, medium grained, clayey, silty, dark brown. |
| | 6-17 | Sand, very fine grained, silty, light gray-green, slightly moist. |
| | 17-19 | Sand, light brown, as above. |
| | 19-21 | Shell strata and light tan sand. |
| | 21-25 | Sand, fine grained, light brown, shells, dry, no odor. |
| | 25-38 | Sand, fine-very fine grained, brown, dry, no odor. |
| | 38-45 | Sand as above, gray, shell fragments, slight old product odor. |
| | 45-65 | Sand, fine grained, silty with some clay, blue-gray, moist, old product odor. |

SOIL BORING LOG
WILMINGTON COMPLEX
4/21/80 - 4/28/80

B

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 12 | 0-1 | Asphalt. |
| | 1-3 | Sand, fine graned, clayey, silty, brown, moist. |
| | 3-9 | Sand, fine grained with some silt, red-brown. |
| | 9-18 | As above but with some clay, grading to a dark tan. |
| | 18-25 | Sand, fine grained, silt, tan, some heavies and mica. |
| | 25-29 | Sand, lower medium grained, with approximately 30% heavies and many shell fragments. |
| | 29-30 | Shell fragments and medium grained sand (whole pelecypods). |
| | 30-31 | Sand and shell fragments, some pebbles. |
| | 31-32 | Clay strata (4 inches), hard, oxidized. |
| | 32-35 | Sand, lower medium grained, heavies and mica, some clay lumps. |
| | 35-36 | Clay strata, green-brown, some fine sand. |
| | 36-37 | Clay and sand. |
| | 37-40 | Clay, brown, hard, some fine sand and silt. |
| | 40-42 | Sand with shell fragments, some clay lumps. |
| | 42-48 | Sand, fine grained, silt with clay, shell fragments. |
| | 48-52 | As above but getting moist. |
| | 52-83 | Sand, fine grained, clayey-silty, blue-green, hard in places, slight product odor, less clay-turning to clay lumps with depth, strong odor with depth, some mica and heavies, no clay after 60 ft. (W.T. approximately 74 ft.). |
| | 83-94 | As above but with shell fragments in places. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 19 | 0-1 | Surface fill. |
| | 1-8 | Sand, very fine grained, silt and clay, oil saturating the 6 ft.-8 ft. interval (old Dubbs unit). |
| | 8-12 | Sand, fine grained, some silt and clay, tan. |
| | 12-16 | Sand, very fine grained. |
| | 16-35 | Sand, very fine grained, tan, clay, no odor. |
| | 35-40 | As above. |
| | 40-55 | Sand, medium-fine grained sand, blue-tan. |
| | 55-58 | As above but with slight odor. |
| | 58-60 | Sand, fine grained, clayey, moist, no odor. |
| | 60-65 | As above, but used mud at 64 ft. to keep walls from caving. |
| | 65-70 | Sand, fine grained, blue-green, gasoline odor. |
| | 70-80 | As above but sand getting coarser with depth, shell fragments (W.T. approximately 75 ft.). |
| 6 | 0-5 | Sand, fine-silty, some clay, brown. |
| | 5-10 | Sand as above, red-brown, slightly more clay. |
| | 10-15 | Sand, fine grained, silty, light brown; grading to a tan fine grained sand with mica and heavies. |
| | 15-22 | Sand, lower medium grained, light brown, well sorted, shell fragments, approximately 25% heavies. |
| | 22-28 | As above but with a greater clay content. |
| | 28-30 | Silt and clay, light green-gray, some fine sand, mica flecks. |
| | 30-37 | Sand, fine grained with silt and clay, light brown-green; grading to a fine sand with approximately 25% heavies, mica flecks. |
| | 37-43 | As above but not as many shell fragments. |
| | 43-50 | As above but with clay lumps, more clay with depth. |
| | 50-54 | Sand, fine grained, brown, well sorted, approximately 25% heavies, no clay lumps. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| | 54-57 | Sand, fine grained, well sorted, brown, subrounded, subspherical, approximately 35% heavies, mica flecks. |
| | 57-59 | As above but with some clay lumps, getting moist-very damp. More clay with depth, (W.T. approximately 59 ft., may be perched?). |
| | 59-60 | Clay strata, hard, some sand and silt (Aquitard?). |
| | 60-67 | Silt, clayey, sandy, approximately 40% heavies, mica flecks, wet. |
| | 67-73 | Clay, silty, light brown, interbedded fine sand. |
| 5 | 0-3 | Surface fill, silt and clay, dark brown. |
| | 3-5 | Clay, silty, light brown, no odor. |
| | 5-10 | Sand, fine grained, brown. |
| | 10-25 | Sand, silty, dark gray, some clay. |
| | 25-29 | As above grading to a green-gray, clayey. |
| | 29-37 | Sand, fine grained, well sorted, green-gray, mica flecks, dry, very slight odor. |
| | 37-40 | Sand, fine grained, green-gray, moderately sorted, mica flecks, moist, odor increasing with depth. |
| | 40-41 | Clay, sandy, hard, brown, some silt. |
| | 41-42 | Silt and fine sand, green-gray, very slight product odor. |
| | 42-44 | Sand, fine-lower medium grained, light green-brown. |
| | 44-48 | Sand, fine grained, clayey and silty, brown, not many heavies. |
| | 48-50 | Sand, fine grained with heavies, interbedded with brown clay. |
| | 50-52 | Clay, hard, blue-green, slightly brittle, malleable. |
| | 52-57 | Sand, fine-medium grained, light green, well sorted, shell fragments. |
| | 57-60 | As above but fine grained, some cementation |

| Number | (ft.) | Description |
|---|---|---|
| | 60-67 | Sand, fine grained, light blue-green, well sorted, approximately 25% heavies getting damp and grading to a lower medium sand with depth. |
| | 67-73 | As above, wet sand, some clay interbedded with sand. |
| | 73-76 | Sand, medium grained. (W.T. approximately 75 ft.). |
| | 76-84 | Added Revert-type mud to hold up the wall. |
| 4 | 0-1 | Asphalt. |
| | 1-30 | Sand, lower medium-fine grained, well sorted, tan, some heavies, some silt and clay stringers. |
| | 30-37 | Sand, fine grained, well sorted, tan, slight product odor. |
| | 37-40 | As above but sand is becoming finer grained with depth. |
| | 40-45 | Sand, fine grained, well sorted, brown, mica flecks, grading to a green-gray at 41 ft., product odor getting stronger. |
| | 45-54 | Sand, very fine grained, green-gray, well sorted, some mica flecks, stronger product odor. |
| | 54-58 | As above but with some clay stringers, shell fragments. |
| | 58-62 | Sand, fine-medium grained, green-gray, no shell fragments at 60 ft., some product odor. |
| | 62-67 | Sand as above grading to tan, well sorted, approximately 35% heavies, some oxidation. |
| | 67-82 | Used bentonite mud (Imco Gel) to hold up the hole. |
| | * | Hydraulic fluid has leaked from the drilling rig into the observation holes. |

SOIL BORING LOG
WILMINGTON COMPLEX
5/27/80-5/30/80

C

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 9 | | |
| | 0-8 | Sand, silty, brown (asphalt first foot). |
| | 8-17 | As above but with some clay. |
| | 17-26 | Sand, fine grained, brown, not much clay, some mica and heavies. |
| | 26-29 | Shell fragments (pecten and ostrea), and fine-medium grained sand. |
| | 29-34 | Sand, fine grained, silty, green-brown, some clay balls. |
| | 34-39 | As above but with some clay stringers. |
| | 39-49 | As above but clay now occurs in seams (2 inches thick), grading to mostly a silty clay. |
| | 49-65 | Sand, fine grained, gray, mica and heavies, some clay stringers, browner with depth, (caving at 50 feet). |
| | 65-77 | As above but a lower medium grained sand. |
| | 77-79 | Sand, low medium grained, gray-brown, mica and heavies, slight odor? |
| | 79-96 | Sand, low medium grained, gray (W.T. approximately 90 ft.). |
| 8 | | |
| | 0-8 | Sand, silty, brown (There is a 1 inch asphalt layer at 2 feet). |
| | 8-12 | Sand, fine grained, green-brown. |
| | 12-14 | As above but moist and silty, some clay stringers. |
| | 14-20 | Sand, medium-lower medium grained, light-green; grading to a lower medium sand with mica and heavies. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| | 20-25 | Sand, lower medium grained, tan-light green. |
| | 25-28 | Shell strata with lower medium, tan-green sand. |
| | 28-32 | As above but shells thinning out, green-blue, silty clay. |
| | 32-40 | Sand, fine-medium grained, light tan, heavies and mica, some clay stringers, oxidation, (caving at 35 feet). |
| | 40-50 | As above but with a stronger odor, some black (organic?) layers, some shells. |
| | 50-65 | Sand, silty, blue-green, some heavies and mica, some hard clay stringers, strong product odor, shell fragments at 56 feet. |
| | 65-80 | As above but medium grained sand, good odor. |
| | 80-96 | As above but more clay, (W.T. approximately 87 feet) (some Weld-On primer dropped in hole). |
| 7 | | |
| | 0-12 | Sand, silty with some clay, brown. |
| | 12-20 | Sand, lower medium grained, brown-green, some heavies. |
| | 20-24 | As above but with some clay stringers, some shell fragments. |
| | 24-33 | Sand, lower medium-silty, blue-green, heavies and mica. |
| | 33-50 | Sand, lower medium grained, tan, heavies and mica. |
| | 50-56 | Sand, lower medium-medium grained, heavies and mica. |
| | 56-60 | As above but more green, some oxidation, grading into a silty sand with shell fragments. |
| | 60-83 | As above but grading to a medium-lower medium grained sand with some clay stringers at 70 ft. |
| | 83-95 | As above but getting moist, strong product odor, (W.T. approximately 85 ft.) caving badly at 85 ft., very strong odor at 87 ft. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| 16 | | |
| | 0-2 | Asphalt and fill. |
| | 2-5 | Sand, lower medium grained, brown (fill). |
| | 5-6 | Clay, sandy, blue-green. |
| | 6-12 | Sand, lower medium, brown-green. |
| | 12-24 | Sand, medium grained, tan, heavies and mica, some silty clay stringers, oxidation. |
| | 24-30 | As above but now an orange-brown silty-clayey sand. |
| | 30-39 | Sand, clayey, light tan-brown, more silty with depth, some hard clay stringers. |
| | 39-50 | Sand, lower medium grained, light tan, heavies and mica, well sorted with interbedded silty clays (2 inch beds), strong odor at 45 ft. (solvent?). |
| | 50-62 | As above but more sandy. |
| | 62-63 | Clay, blue-green, hard. |
| | 63-82 | Sand, lower medium grained, silty, blue-green, heavies and mica, moderately well sorted; shell fragments at 65 ft. (W.T. approximately 73 ft.), (caving at 71 ft.), very strong odor at 73 ft., used water and bucket auger the last 10 ft. |
| 13 | | |
| | 0-1 | Gravel fill. |
| | 1-14 | Sand, silty, brown with some clay stringers. |
| | 14-15 | Sand, silty, green-brown. |
| | 15-25 | Sand, lower medium grained, light tan, heavies and mica. |
| | 25-31 | As above but medium grained, some roller gravel, shell fragments at 26 ft. |
| | 31-39 | Sand, lower medium grained, orange-brown, shell fragments, interbedded firm, plastic clay. |

| Hole Number | Depth (Ft.) | Description |
|---|---|---|
| | 39-57 | Sand, lower medium grained with some silt, blue-green, some clay stringers. |
| | 57-65 | As above but clay stringers are now firm and brown. |
| | 65-78 | Sand, medium-lower medium grained, well sorted, mica and heavies, slight odor at 75 feet, (caving at 75 ft.). |
| | 78-90 | As above but medium grained, (W.T. approximately 80 ft.), strong odor at 79 ft., using firewater to hold hole up. |

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* Most shell fragments appear to be derived from the class Pelecypoda, suborders Pectinacea, Ostreacea, and Cyrenacea; and some from the class Gastropoda, order Mesogastropoda.

** The green coloration of some of these sands is due to the mineral epidote.

SOIL BORING LOG D

WILMINGTON COMPLEX (WILM)

7/28/80 - 7/30/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| 20 | 0-4 | Silt, clayey, brown. |
| | 4-7 | Silt, dark brown. |
| | 7-20 | Sand, upper fine grading to a lower medium grained green-brown. |
| | 20-27 | Sand, coarse and medium grained with heavies, light green-gray. |
| | 27-31 | Sand, coarse-medium grained, well sorted, 30% heavies grading to a medium grained sand. |
| | 31-35 | Sand, medium grained, dark green-gray, some clay stringers. |
| | 35-40 | As above but sand now fine-medium grained, higher clay content, some moisture, product odor at 40 feet. |
| | 40-42 | As above but less clay content, clay stringers decreasing, no clay at 42 feet. |
| | 42-55 | Sand, medium-fine grained, green-gray sand, 30% heavies with some mica, grading to a medium grained sand, oxidation is evident, grading to a coarse sand at 49 feet, moderately well sorted. |
| | 55-61 | As above but medium-coarse grained sand. |
| | 61-62 | Sand, fine-lower medium grained, black, large clay stringers. |
| | 62-69 | Sand, fine grained, dark green with heavies and mica, clay stringers, oxidation still evident, grading to a fine-medium grained sand, moist at 67 feet, (W. T. approximately 68 feet), odor. |
| | 69-80 | Unknown. |

E

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| 21 | 0-½ | Asphalt. |
| | ½-1 | Silt, clayey, moist, plastic, black-gray. |
| | 1-9 | Sand, fine grained, silty with some clay, dark gray-green, some clay seams. |
| | 9-19 | As above but with mica and heavies, slight oxidation, grading to a tan at 18 feet. |
| | 19-20 | Sand, upper medium grained, tan. |
| | 20-26 | As above but medium-fine grained, hard clay seam at 24'. |
| | 26-35 | Sand, medium-fine grained, green-tan turning tan and well sorted with depth. |
| | 35-43 | Sand, lower medium grained, gray, heavies. |
| | 43-44 | Sand, medium grained, blue-green. |
| | 44-48 | Sand, medium grained, gray, heavies, product odor and getting moist. |
| | 48-50 | As above but with shell fragments (W. T. approximately 49 feet), caving at 50 feet. |
| | 50-60 | Clay, hard, stratified seam. |
| 22 | 0-½ | Asphalt. |
| | ½-8 | Silt, clayey, brown, some sand. |
| | 8-12 | Sand, fine grained with silt, green-brown. |
| | 12-19 | Sand, fine grained, tan, well sorted. |
| | 19-20 | As above but medium grained and highly oxidized, some cementation and pebbles. |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| | 20-27 | Sand, medium grained, tan, small clay granules and a moderate clay content in the sand. |
| | 27-36 | Clay, hard, tan, increasing sand content with depth grading to interbedded fine sands and hard clay. |
| | 36-38 | Clay and fine sand, brown-green. |
| | 38-43 | Sand, upper fine - lower medium grained, 40% heavies, some clay. |
| | 43-52 | Sand, as above but light gray, some mica. |
| | 52-65 | As above but with shell fragments (ostreacea), strong odor at 61 feet, shells thinning out with depth. |
| | 65-69 | Sand, lower medium grained, strong odor (W. T. approximately 68 feet). |
| | 69-77 | As above but approximately 50% clay content. |
| 23 | 0-½ | Asphalt. |
| | ½-2 | Sand, lower medium grained (fill). |
| | 2-10 | Silt, brown, clayey, some fine sand. |
| | 10-19 | Sand, fine grained, green-tan, heavies and mica. |
| | 19-21 | As above but with many shell fragments. |
| | 21-26 | As above but with a higher clay content and clay stingers. |
| | 26-27 | Clay, sandy, green-tan. |
| | 27-30 | Sand, clayey, green-tan, some hard clay seams, oxidation. |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| | 30-34 | Sand, fine grained, silt, mica and heavies, high clay content. |
| | 34-51 | Sand, lower medium grained, gray, mica and heavies, moderate clay content, some clay seams. |
| | 51-60 | As above but interbedded with brown oxidized medium grained sand, grading to a lower medium - fine grained sand, slight odor. |
| | 60-78 | Sand, medium - upper fine grained, mica and heavies (W. T. approximately 63 feet). |
| 24 | 0-½ | Asphalt. |
| | ½-3 | Sand lower medium-fine grained, green-gray. |
| | 3-14 | Sand, fine grained, silt with clay, green-brown, mica. |
| | 14-16 | Sand, fine-lower medium grained, blue-green, heavies and mica, some silt and clay. |
| | 16-21 | Sand, fine grained, blue-green, high clay content with hard clay seams and stringers, some carbonate deposits, grading to a hard brittle clay, strong odor. |
| | 21-33 | Sand, fine grained, light green-gray, heavies and mica, grading to a light green-blue, some oxidation. |
| | 33-43 | As above but grading to a lower medium grained sand with some silt and clay, moist at 40 feet and odor. |
| | 43-51 | As above but wet medium grained sand, very strong odor at 45 feet, grading to a lower medium-fine grained sand. |
| | 51-59 | As above but with a high silt and clay content. |
| | 59-70 | Sand, medium-grained, blue-green, heavies and mica, high silt and clay content, (W. T. approximately 62 feet). |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| 25 | 0-½ | Asphalt and gravel. |
| | ½-3 | Clay, sandy, brown. |
| | 3-6 | Silt, clayey, light brown. |
| | 6-13 | Clay, silty, green-brown. |
| | 13-15 | Silt and fine sand, green-brown. |
| | 15-25 | Sand, medium grained, light tan, many shell fragments, shells thinning out with depth. |
| | 25-27 | Clay, hard, tan. |
| | 27-30 | Sand, medium grained, tan, grading to a fine-silty sand and clay. |
| | 30-35 | Clay seam, tan for one foot, then interbedded clays and fine sand, oxidation. |
| | 35-41 | As above but now a silt and fine sand, grading back to clay. |
| | 41-45 | Sand, medium grained, tan, slightly finer sand with depth, mica and heavies, slight odor. |
| | 45-51 | Sand, medium grained, green-brown, heavies and mica, strong odor, saturated hard clay layer at 46 feet (perched W.T.). |
| | 51-58 | Sand, lower medium grained (dry), heavies and mica, grading to a light tan. |
| | 58-59 | As above but getting wet. |
| | 59-65 | Clay, hard. |
| | 65-75 | Sand, medium grained, blue-gray, heavies and mica, some clay stringers, (W.T. approximately 71 feet), some silt, grading to a blue-gray coarse sand at 74 feet. |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| 26 | 0-½ | Asphalt. |
| | ½-2 | Clay, brown. |
| | 2-10 | Silt, clayey, brown, grading to a silty-fine grained sand with clay. |
| | 10-16 | Sand, fine grained, tan, some mica. |
| | 16-23 | Sand, medium grained, tan, many shell fragments grading to an upper medium grained sand, some heavies. |
| | 23-33 | Clay, plastic, green-brown, slightly silty, some hard clay stringers, clay has increasing silt content with depth. |
| | 33-34 | Silt, clayey, fine sand, brown, wet (perched W. T.). |
| | 34-36 | Clay, hard, brown. |
| | 36-44 | Sand, fine grained, silt and clay, green-brown (wet). |
| | 44-50 | Silt, clayey, blue-green. |
| | 50-54 | Clay, hard, brown and black, fine sand. |
| | 54-75 | Sand, fine grained, blue-gray,, with heavies, grading to a lower-medium grained sand with mica and heavies (W. T. approximately 66 feet). |
| 27 | 0-17 | Sand, fine grained, clayey, silty, brown, grading to a green-brown fine sand. |
| | 17-24 | Sand, lower medium grained, green-brown, shell fragments, heavies and mica. |
| | 24-27 | Clay, hard, brittle, blue-gray. |
| | 27-29 | Clay, silty, green-brown. |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| | 29-35 | Sand, lower medium grained light blue-gray, some silt, mica and heavies, some clay. |
| | 35-37 | Clay, hard, brittle, blue-gray. |
| | 37-44 | Sand, lower medium grained, blue-gray, mica and heavies, grading to a fine grained sand with silt and clay. |
| | 44-47 | As above but with a high clay content. |
| | 47-49 | Sand, medium grained, blue-gray, heavies and mica, some silt and clay, wet at 49 feet (perched). |
| | 49-50 | Clay, gray, silty. |
| | 50-66 | Sand, medium grained with some silt, blue-gray, high clay content at 51 feet, sand at 52 feet, medium grained sand at 57 feet. |
| | 66-71 | Sand, medium grained, dark blue-gray, mica. |
| | 71-72 | As above but grading to a silty clay. |
| | 72-78 | As above but no clay, moderate odor. |
| | 78-80 | As above but now clayey. |
| | 80-86 | Sand, medium-fine grained with silt, mica and heavies (W. T. approximately 80 feet). |
| 28 | 0-½ | Asphalt. |
| | ½-4 | Silt, brown. |
| | 4-7 | Sand, fine grained and silt, light brown. |
| | 7-8 | As above but with a high clay content. |
| | 8-15 | Silt, clayey, orange-brown. |
| | 15-22 | Sand, silty and fine grained, green-brown grading to tan, the sand grades to medium grained at 18 feet. |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| | 22-25 | Sand, medium grained, tan, many shell fragments (Pectenacea, Ostreacea), sand grades to green with depth. |
| | 25-29 | Sand, lower medium grained, light green-tan, mica and heavies. |
| | 29-37 | Clay, silty, green-tan, grading to a hard brittle orange-brown clay, grading to a tan. |
| | 37-42 | Clay, sandy, orange-brown, some organic stringers, sand content decreasing with depth; clay becomes hard and plastic at 39 feet. |
| | 42-43 | Sand, fine grained and silty, clayey, green-tan. |
| | 43-46 | Clay seam, wet. |
| | 46-47 | Clay, green-brown, very hard and plastic. |
| | 47-49 | Sand, fine grained, silty with some clay, green-brown, saturated (perched W. T.). |
| | 49-51 | Sand, fine grained, green, saturated. |
| | 51-52 | Clay, very hard, green-brown, some organic stringers, oxidation is evident. |
| | 52-54 | Sand, medium grained silty, high clay content, wet, strong odor. |
| | 54-56 | Clay, hard and plastic, green-brown. |
| | 56-90 | Sand, lower medium grained with silt and clay, light blue-gray, shell fragments at 61 feet, sand grades to a dark blue-gray at 80 feet, shell fragments at 83 feet, (W. T. approximately 83 feet). |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| 29 | 0-5 | Sand, fine grained-clayey, brown, concrete layer at 3 feet. |
| | 5-11 | Clay, sandy, black and oil saturated, strong odor. |
| | 11-15 | Clay, hard, plastic, blue-green. |
| | 15-24 | As above but is now clayey, fine grained sand grading to brown at 20 feet. |
| | 24-25 | Sand, hard and somewhat plastic, green-brown. |
| | 25-28 | Sand, clayey, green-brown, grading to a silty, lower medium grained sand. |
| | 28-39 | Sand, fine grained, tan with mica and heavies. |
| | 39-44 | As above but now a medium grained sand. |
| | 44-48 | Silt, clayey, blue-gray, grading to a clayey fine grained sand with mica and heavies. |
| | 48-53 | Sand, fine grained, silty, blue-green to gray, with mica and heavies (moderate odor). |
| | 53-75 | As above but now a silty-medium grained sand, shell fragments at 56 feet, (W. T. approximately 71 feet, all product). |
| 30 | 0-1 | Clay, hard tan. |
| | 1-8 | Silt, clayey brown. |
| | 8-13 | Silt, clayey, blue-green with mica. |
| | 13-16 | As above but now with a high clay content. |
| | 16-25 | Sand, fine grained, green-brown, grading to a silty-medium grained sand. |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| | 25-43 | Sand, lower medium grained with some silt, heavies and mica, product odor. |
| | 43-48 | Sand, medium grained, blue-gray, some silt, mica and heavies (perched water? approximately 44 feet). |
| | 48-50 | Clay, hard. |
| 31 | 0-2 | Sand, fine grained, silty, black. |
| | 2-7 | Sand, fine grained, clayey, silty, brown. |
| | 7-28 | Sand, fine grained, silty, tan. |
| | 28-50 | Sand, medium grained with silt, light blue-gray. |
| | 50-52 | Clay, silty, blue-gray. |
| | 52-56 | Sand, upper fine-grained, silty, dark blue-gray with heavies and mica. |
| | 56-75 | Sand, medium grained with silt, heavies and mica, light blue-gray, shell fragments (W. T. approximately 67 feet). |
| 32 | 0-2 | Silt, clayey, brown. |
| | 2-4 | Sand, fine grained, silty, brown, damp with some clay. |
| | 4-8 | Clay, silty, green-brown. |
| | 8-17 | Clay, hard brittle, brown, somewhat plastic. |
| | 17-49 | Sand, medium grained with silt, brown-tan, grading to a fine sand at 20 feet, grading back to a medium sand at 21 feet, fine sand and clay at 25 feet, high clay content at 41 feet. |
| | 49-51 | Sand, medium grained, tan (perched W. T. approximately 51 feet). |

WILMINGTON COMPLEX (WILM)

9/8/80 - 9/16/80

| Hole Number | Depth (Feet) | Description |
|---|---|---|
| | 51-55 | Sand, medium grained, clayey, blue-gray. |
| | 55-58 | Clay. |
| 33 | 0-1 | Gravel and asphalt. |
| | 1-4 | Silt, clayey. |
| | 4-24 | Sand, silty, gray. |
| | 24-25 | Clay, hard. |
| | 25-28 | Sand, fine grained, clayey. |
| | 28-32 | Clay, green-brown. |
| | 32-44 | Silt, clayey, green-brown, grading to a clayey fine sand. |
| | 44-45 | Sand, fine grained, clayey, gray, many hard cemented shell fragments. |
| | 45-48 | Clay, brown. |
| | 48-55 | Clay, silty, brown, some fine sand. |
| | 55-58 | Clay, hard, plastic, brown. |
| | 58-63 | Silt, clayey, brown. |
| | 63-70 | Sand, lower medium-grained, blue-gray, mica and heavies (W. T. approximately 65 feet). |