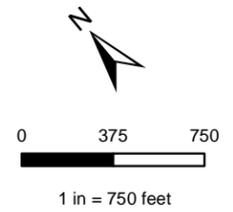


- Legend**
- River/Stream/Creek/Canal
 - County Boundary
- Courchesne Levee Reach**
- Enhanced Levee
 - New Flood Wall
 - New Levee
- Proposed Borehole Location**
- Environmental
 - Standard
 - 100' Depth



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 Dallas, TX 75207
 Phone (214)741-7777
 www.urscorp.com

Preliminary Borehole Location Map
 USIBWC
 Geotechnical Analysis and Engineering Evaluation of Courchesne Reach

Date: 10/14/2010 Figure 1

| BOREHOLE ID | LATITUDE | LONGITUDE |
|-------------|-----------|-------------|
| CB-01 | 31.803722 | -106.546176 |
| CB-02 | 31.805142 | -106.545219 |
| CB-03 | 31.805225 | -106.544441 |
| CB-04 | 31.803852 | -106.541556 |
| CB-05 | 31.802825 | -106.540070 |
| CB-06 | 31.801178 | -106.537865 |
| CB-07 | 31.798942 | -106.535586 |
| CB-08 | 31.796899 | -106.534153 |
| CB-09 | 31.795117 | -106.533240 |
| CB-10 | 31.793555 | -106.532188 |
| CB-11 | 31.792285 | -106.529932 |
| CB-12 | 31.791662 | -106.528617 |
| CB-13 | 31.790460 | -106.527008 |
| CB-14 | 31.788580 | -106.526257 |
| CB-15 | 31.786676 | -106.526420 |
| CB-16 | 31.785259 | -106.527109 |
| CB-17 | 31.801194 | -106.546765 |
| CB-18 | 31.802566 | -106.545801 |
| CB-19 | 31.803932 | -106.544478 |
| CB-20 | 31.803283 | -106.542379 |
| CB-21 | 31.801675 | -106.540673 |
| CB-22 | 31.798064 | -106.537100 |
| CB-23 | 31.797576 | -106.536933 |
| CB-24 | 31.787669 | -106.527796 |
| CB-25 | 31.785371 | -106.528120 |
| CB-26 | 31.784104 | -106.529853 |

LOG OF BORING NO. CB- 1

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10673656.35520; E 367451.95978

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % ₂₀₀ | |
|--|--------|---------|---|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|------------------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | | 2.5 |
| SURFACE ELEVATION: 3737.00 ft | | | | | | | | | | | | |
| 0 | | | SILTY SAND (SM) loose, light brown, moist to vey moist - gray below 3 feet | 8 | | | | | | | NP | 46 |
| 5 | | | | 4 | | | | | | | | |
| 9 | | | | 9 | | | | | | | NP | 22 |
| 10 | | | SILTY CLAYEY GRAVEL with SAND (GC-GM) very dense, light brown, wet | 50/6" | | | | | | | 6 | 17 |
| 10 | | | CLAYEY GRAVEL (GC) very dense, light brown, wet | Ref/6" | | | | | | | 9 | 21 |
| 15 | | | POORLY-GRADED SAND with SILT (SP-SM) loose, gray, wet | 4 | | | | | | | | |
| 20 | | | - gravelly at 20 feet | 4 | | | | | | | NP | 6 |
| 25 | | | POORLY-GRADED SAND (SP) medium dense, gray, wet | 26 | | | | | | | | |
| 30 | | | | 17 | | | | | | | NP | 2 |
| 35 | | | | 15 | | | | | | | | |
| 40 | | | | 16 | | | | | | | NP | 4 |
| Boring Terminated | | | | | | | | | | | | |
| <p>NOTES:</p> <ol style="list-style-type: none"> Free water was observed during drilling operations at a depth of about 7 feet. Backfilled with cement bentonite grout. Mud rotary methods used after a depth of about 10 feet. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | | |
| DEPTH DRILLED: 40.0 ft | | | DEPTH TO WATER: 7 ft | | | PROJ. No.: AEA10-052-00 | | | | | | |
| DATE DRILLED: 11/29/2010 | | | DATE MEASURED: 11/29/2010 | | | FIGURE: A-2 | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 2

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10673963.93370; E 367674.37820

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 |
|-------------------------------|--------|------------|--|------------------------|----------------------|--------------------------------------|-----|-------------------|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3732.54 ft | | | | | | | | | | | |
| 0 | | | SILTY SAND (SM) medium dense, light brown, slightly moist | 12 | | | | | | | |
| 5 | | | SANDY SILT (ML) loose, gray, moist to very moist | 5 | | | | | | | NP 64 |
| 4 | | | POORLY-GRADED SAND with SILT (SP-SM) loose, gray, moist to wet | 4 | | | | | | | |
| 8 | | | | 8 | | | | | | | NP 5 |
| 9 | | | | 9 | | | | | | | |
| 15 | | | | 4 | | | | | | | NP 9 |
| 20 | | | | 7 | | | | | | | |
| 25 | | | WELL-GRADED GRAVEL with SILT and SAND (GW-GM) dense, gray, wet | 40 | | | | | | | NP 7 |
| 30 | | | POORLY-GRADED SAND with SILT and GRAVEL (SP-SM) dense, gray, wet | 48 | | | | | | | NP 6 |
| 35 | | | POORLY-GRADED SAND (SP) medium dense, gray, wet | 12 | | | | | | | NP 4 |
| 40 | | | POORLY-GRADED GRAVEL with SILT and SAND (GP-GM) dense, brown, wet | 33 | | | | | | | NP 8 |
| | | | Boring Terminated | | | | | | | | |
| | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 6-1/2 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | |
| 45 | | | | | | | | | | | |
| 50 | | | | | | | | | | | |
| 55 | | | | | | | | | | | |
| 60 | | | | | | | | | | | |
| 65 | | | | | | | | | | | |
| 70 | | | | | | | | | | | |
| 75 | | | | | | | | | | | |
| DEPTH DRILLED: | | 40.0 ft | | DEPTH TO WATER: | | 6.5 ft | | PROJ. No.: | | AEA10-052-00 | |
| DATE DRILLED: | | 11/29/2010 | | DATE MEASURED: | | 11/29/2010 | | FIGURE: | | A-3 | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-3

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10674172.38830; E 368020.80586

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | PLASTICITY INDEX | % -200 |
|-------------------------------|--------|---------|--|----------------------|----------------------|--------------------------------------|-----|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | | |
| SURFACE ELEVATION: 3733.63 ft | | | | | | | | | | |
| | | | SILTY CLAYEY SAND with GRAVEL (SC-SM) medium dense, brown, moist | 28 | | | | | 6 | 23 |
| 5 | | | SILTY SAND (SM) medium dense, brown, moist, with interbedded lenses of clay - black coloration below 7 feet | 20 19 20 22 | | | | | NP | 44 |
| 15 | | | POORLY-GRADED SAND (SP) medium dense, gray, wet | 24 | | | | | | |
| 20 | | | POORLY-GRADED SAND with SILT (SP-SM) medium dense to dense, light brown, wet | 11 | | | | | | |
| 25 | | | SILTY CLAY (CL-ML) hard, gray, wet | 30 | | | | | NP | 3 |
| 30 | | | POORLY-GRADED SAND with GRAVEL (SP) medium dense, gray, wet | 24 | | | | | | |
| 35 | | | - with clay lenses at 35 feet | 11 | | | | | 10 | 2 |
| 40 | | | CLAYEY SAND (SC) very dense, light brown, moist, with some gravel | 50/9" | | | | | | |
| 45 | | | - dense at 45 feet | 34 | | | | | 12 | 36 |
| 50 | | | | 50/10" | | | | | | |
| 55 | | | | 50/11" | | | | | | |
| 60 | | | | 50/9" | | | | | | |
| 65 | | | CLAYEY SAND with GRAVEL (SC) very dense, light brown, moist | 50/6" | | | | | 17 | 16 |
| 70 | | | | 50/4" | | | | | | |
| 75 | | | | 50/1" | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

| | | |
|---|--|---|
| DEPTH DRILLED: 100.0 ft DATE DRILLED: 12/18/2010 | DEPTH TO WATER: 13 ft DATE MEASURED: 12/18/2010 | PROJ. No.: AEA10-052-00 FIGURE: A-4a |
|---|--|---|

LOG OF BORING NO. CB- 3

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10674172.38830; E 368020.80586

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | | | PLASTICITY INDEX | %-200 | |
|-----------|----------|----------|--|--------------|----------------------|--------------------------------------|-----|-----|-----|-----|-----|------------------|-------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | | | 3.5 |
| | | | SURFACE ELEVATION: 3733.63 ft | | | | | | | | | | | |
| 85 | [Symbol] | [Symbol] | CLAYEY SAND with GRAVEL (SC) very dense, light brown, moist <i>(continued)</i> | Ref/1" | | | | | | | | | | |
| 90 | [Symbol] | [Symbol] | | Ref/1" | | | | | | | | | | |
| 95 | [Symbol] | [Symbol] | | 50/2" | | | | | | | 22 | 21 | | |
| 100 | [Symbol] | [Symbol] | SANDY LEAN CLAY (CL) hard, light brown, moist Boring Terminated | Ref/2" | | | | | | | 18 | 61 | | |
| 105 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 13 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 15 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

| | | |
|---|--|---|
| DEPTH DRILLED: 100.0 ft DATE DRILLED: 12/18/2010 | DEPTH TO WATER: 13 ft DATE MEASURED: 12/18/2010 | PROJ. No.: AEA10-052-00 FIGURE: A-4b |
|---|--|---|

LOG OF BORING NO. CB- 4

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10673623.64740; E 368887.85471

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 |
|--------------------------------|--------|---------|---|---------------------------------|----------------------|--------------------------------------|-----|--------------------------------|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3731.81 ft | | | | | | | | | | | |
| 5 | | | FILL: SILTY SAND (SM) medium dense, light brown, slightly moist to moist | 11 | | | | | | | |
| 5 | | | FILL: CLAYEY SILTY SAND (SC-SM) loose, brown, moist | 7 | | | | | | 6 | 46 |
| 10 | | | SANDY LEAN CLAY (CL) firm, brown, moist | 5 | | | | | | 17 | 54 |
| 10 | | | SILTY SAND (SM) loose to medium dense, gray, moist to wet | 5 | | | | | | 16 | 51 |
| 15 | | | | 4 | | | | | | NP | 47 |
| 20 | | | - very loose at 20 feet | 3 | | | | | | | |
| 25 | | | | 10 | | | | | | NP | 33 |
| 30 | | | SILTY SAND with GRAVEL (SM) very dense, light brown, wet | Ref/6" | | | | | | NP | 16 |
| 35 | | | - loose and without gravel below 35 feet | 7 | | | | | | | 16 |
| 40 | | | POORLY-GRADED SAND (SP) loose, gray, wet | 5 | | | | | | | 6 |
| 45 | | | ROCK (Sandstone) very dense, weathered, very factured, light brown | Ref/1" | | | | | | | |
| 50 | | | Boring Terminated | Ref/2" | | | | | | | 1 |
| 55 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 12 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 15 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | |
| 60 | | | | | | | | | | | |
| 65 | | | | | | | | | | | |
| 70 | | | | | | | | | | | |
| 75 | | | | | | | | | | | |
| DEPTH DRILLED: 50.0 ft | | | | DEPTH TO WATER: 12 ft | | | | PROJ. No.: AEA10-052-00 | | | |
| DATE DRILLED: 12/1/2010 | | | | DATE MEASURED: 12/1/2010 | | | | FIGURE: A-5 | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 5

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10673224.96140; E 369327.75409

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | PLASTICITY INDEX | % -200 | |
|--|--------|---------|---|----------------------------------|----------------------|--------------------------------------|-----|--------------------------------|------------------|--------|--|
| | | | | | | 0.5 | 1.0 | 1.5 | | | |
| SURFACE ELEVATION: 3731.00 ft | | | | | | | | | | | |
| | | | SILTY CLAYEY SAND (SC-SM) medium dense, brown, moist | 12 | | | | | 6 | 31 | |
| 5 | | | LEAN CLAY with SAND (CL) firm, brown, very moist | 5 | | | | | 10 | 79 | |
| | | | SANDY SILT (ML) very loose, dark brown, wet | 2 | | | | | NP | 52 | |
| 10 | | | SILTY SAND (SM) very loose to medium dense, brown, wet | 2 | | | | | | | |
| | | | POORLY-GRADED SAND (SP) medium dense, brown, wet | 17 | | | | | NP | 12 | |
| 15 | | | | 25 | | | | | | | |
| 20 | | | | 33 | | | | | | | |
| 25 | | | | 27 | | | | | | | |
| 30 | | | | 37 | | | | | NP | 4 | |
| 35 | | | POORLY-GRADED SAND with SILT (SP-SM) very dense, brown, wet | 50/ 11" | | | | | | | |
| 40 | | | | 50/9" | | | | | NP | 5 | |
| Boring Terminated | | | | | | | | | | | |
| <p>NOTES:</p> <ol style="list-style-type: none"> Free water was observed during drilling operations at a depth of about 5-1/2 feet. Backfilled with cement bentonite grout. Mud rotary methods used after a depth of about 10 feet. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | |
| DEPTH DRILLED: 40.0 ft | | | | DEPTH TO WATER: 5.5 ft | | | | PROJ. No.: AEA10-052-00 | | | |
| DATE DRILLED: 11/29/2010 | | | | DATE MEASURED: 11/29/2010 | | | | FIGURE: A-6 | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 6

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10T043



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10672588.36920; E 369978.54106

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 |
|-------------------------------|--------|-----------|---|------------------------|----------------------|--------------------------------------|-----|-------------------|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3731.52 ft | | | | | | | | | | | |
| 8 | | | SILTY SAND (SM) loose, light brown, moist | 8 | | | | | | | |
| 9 | | | SANDY SILT (ML) loose, brown, very moist | 9 | | | | | | NP | 71 |
| 5 | | | SILTY SAND (SM) loose to very loose, brown, moist to wet | 5 | | | | | | | |
| 10 | | | - medium dense at 10 feet | 13 | | | | | | NP | 19 |
| 15 | | | POORLY-GRADED SAND (SP) medium dense to dense, light brown, wet | 10 | | | | | | | |
| 20 | | | | 30 | | | | | | NP | 3 |
| 25 | | | - with clay seams from 25 to 27 feet | 36 | | | | | | | |
| 30 | | | - with some gravel from 25 to 33 feet | 13 | | | | | | | |
| 35 | | | - gray coloration below 30 feet | 30 | | | | | | NP | 3 |
| 40 | | | - medium dense at 40 feet | 22 | | | | | | | |
| 45 | | | SILTY SAND (SM) dense to very dense, gray, wet | 46 | | | | | | NP | 28 |
| 50 | | | | 50/7" | | | | | | | |
| 55 | | | SILTY GRAVEL (GM) dense, gray, wet | 46 | | | | | | 3 | 21 |
| 60 | | | LEAN CLAY with SAND and GRAVEL (CL) hard, gray, wet | Ref/2" | | | | | | | |
| 65 | | | | | | | | | | 31 | 73 |
| 70 | | | CLAYEY SAND with GRAVEL (SC) very dense, brown, wet | Ref/3" | | | | | | 21 | 31 |
| 75 | | | | Ref/2" | | | | | | 22 | 43 |
| DEPTH DRILLED: | | 100.0 ft | | DEPTH TO WATER: | | 4 ft | | PROJ. No.: | | AEA10-052-00 | |
| DATE DRILLED: | | 12/3/2010 | | DATE MEASURED: | | 12/3/2010 | | FIGURE: | | A-7a | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 6

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10672588.36920; E 369978.54106

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | | | PLASTICITY INDEX | %-200 | |
|-----------------------|----------|----------|--|------------------------|----------------------|--------------------------------------|-----------|-------------------|-----|-----|--------------|------------------|-------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | | | 3.5 |
| | | | SURFACE ELEVATION: 3731.52 ft | | | | | | | | | | | |
| 85 | [Symbol] | [Symbol] | CLAYEY SAND with GRAVEL (SC) very dense, brown, wet (continued) | Ref/2" | | | | | | | | | | |
| 90 | [Symbol] | [Symbol] | | Ref/2" | ● | --- | X | | | | | 21 | 40 | |
| 95 | [Symbol] | [Symbol] | | Ref/1" | | | | | | | | | | |
| 100 | [Symbol] | [Symbol] | | Ref/0" | ● | --- | X | | | | | 20 | 30 | |
| | | | | Boring Terminated | | | | | | | | | | |
| | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 4 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | |
| DEPTH DRILLED: | | | 100.0 ft | DEPTH TO WATER: | | | 4 ft | PROJ. No.: | | | AEA10-052-00 | | | |
| DATE DRILLED: | | | 12/3/2010 | DATE MEASURED: | | | 12/3/2010 | FIGURE: | | | A-7b | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 7

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10671736.68330; E 370639.89372

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | PLASTICITY INDEX | % -200 |
|-------------------------------|--------|---------|--|--------------|----------------------|--------------------------------------|-----|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | | |
| SURFACE ELEVATION: 3729.98 ft | | | | | | | | | | |
| 0 - 5 | | | SILTY SAND (SM) medium dense, light brown, slightly moist | 11 | | | | | 50 | |
| 5 - 11 | | | LEAN CLAY (CL) firm, brown, very moist | 4 | | | | | 28 | 89 |
| 11 - 15 | | | SANDY SILT (ML) medium dense, dark brown, wet | 11 | | | | | NP | 56 |
| 15 - 24 | | | POORLY-GRADED SAND with SILT (SP-SM) very loose to very dense, dark brown, wet | 3 | | | | | | |
| 24 - 30 | | | | 24 | | | | | | |
| 30 - 34 | | | | 14 | | | | | NP | 5 |
| 34 - 38 | | | | 34 | | | | | | |
| 38 - 40 | | | | 50/11" | | | | | NP | 7 |
| 40 - 46 | | | POORLY-GRADED SAND (SP) dense to very loose, gray, wet | 46 | | | | | | |
| 46 - 49 | | | | 45 | | | | | | |
| 49 - 40 | | | | 3 | | | | | NP | 4 |
| 40 - 40 | | | Boring Terminated | | | | | | | |
| 45 - 75 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 5 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

| | | |
|--|---|--|
| DEPTH DRILLED: 40.0 ft DATE DRILLED: 11/29/2010 | DEPTH TO WATER: 5 ft DATE MEASURED: 11/29/2010 | PROJ. No.: AEA10-052-00 FIGURE: A-8 |
|--|---|--|

LOG OF BORING NO. CB- 8

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10670970.01340; E 371042.96402

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | %-200 | |
|---------------------------------|--------|---------|---|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|-------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | | 2.5 |
| SURFACE ELEVATION: 3729.01 ft | | | | | | | | | | | | |
| | | | SILTY CLAYEY SAND (SC-SM) medium dense, light brown, moist | 13 | | | | | | 4 | 21 | |
| 5 | | | POORLY-GRADED SAND with SILT (SP-SM) medium dense to loose, brown, wet | 14 | | | | | | NP | 10 | |
| 10 | | | POORLY-GRADED SAND (SP) medium dense to very dense, light brown to brown, wet - very loose at 10 feet | 12 | | | | | | NP | 4 | |
| 15 | | | - loose at 15 feet | 6 | | | | | | | | |
| 20 | | | | 11 | | | | | | NP | 4 | |
| 25 | | | | 12 | | | | | | | | |
| 30 | | | - with interbedded seams of silt from 29 to 33 feet | 50/ 11" | | | | | | NP | 6 | |
| 35 | | | | 29 | | | | | | | | |
| 40 | | | Boring Terminated | 50/ 10" | | | | | | NP | 4 | |
| 45 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 4 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | |
| 50 | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | |
| DEPTH DRILLED: 40.0 ft | | | DEPTH TO WATER: 4 ft | | | PROJ. No.: AEA10-052-00 | | | | | | |
| DATE DRILLED: 11/30/2010 | | | DATE MEASURED: 11/30/2010 | | | FIGURE: A-9 | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 9

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10670306.90330; E 371290.08709

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | PLASTICITY INDEX | % -200 | |
|------------------------------|--------|---------|---|------------------------|----------------------|--------------------------------------|------------|-------------------|------------------|--------|--------------|
| | | | | | | 0.5 | 1.0 | 1.5 | | | 2.0 |
| SURFACE ELEVATION: 3734.3 ft | | | | | | | | | | | |
| 0 | | | FILL: SILTY SAND with GRAVEL (SM) medium dense to loose, light brown, slightly moist | 21 | | | | | | | |
| 5 | | | FILL: CLAYEY SAND (SC) loose, light brown, moist, with some gravel | 5 | | | | | | | |
| 9 | | | | 9 | 10 | | | | 10 | 48 | |
| 10 | | | SILTY SAND with GRAVEL (SM) loose, brown, slightly moist | 4 | | | | | | | |
| 15 | | | POORLY-GRADED SAND (SP) loose to medium dense, brown, wet | 6 | | | | | NP | 17 | |
| 20 | | | | 8 | | | | | | | |
| 25 | | | | 11 | | | | | NP | 5 | |
| 25 | | | SILTY SAND with GRAVEL (SM) medium dense, gray, wet | 25 | | | | | | | |
| 30 | | | ROCK (Limestone) fractured, weathered, tan to light gray, with shale lenses and calcite veins | Ref/2" | | | | | | | |
| 35 | | | | 50/5" | | | | | NP | 8 | |
| 40 | | | | Ref/1" | | | | | | | |
| 45 | | | | 50/7" | | | | | NP | 10 | |
| 50 | | | | Ref/1" | | | | | | | |
| 55 | | | ROCK (Shale) highly fractured, weathered, gray | Ref/1" | | | | | | | |
| 60 | | | | Ref/1" | | | | | | | |
| 65 | | | ROCK (Shale) fractured, slightly weathered, gray - Rec= 93% - RQD= 56% | | | | | | | | |
| 70 | | | ROCK (Shale) highly fractured, weathered, gray | | | | | | | | |
| 75 | | | | Ref/2" | | | | | | | |
| 75 | | | ROCK (Limestone) fractured, slightly weathered, gray - Rec= 93% - RQD= 30% | | | | | | | | |
| DEPTH DRILLED: | | | 80.0 ft | DEPTH TO WATER: | | | 6 ft | PROJ. No.: | | | AEA10-052-00 |
| DATE DRILLED: | | | 12/13/2010 | DATE MEASURED: | | | 12/13/2010 | FIGURE: | | | A-10a |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB- 9

Courchesne / Nemexas Reach
El Paso, Texas / Sunland Park, New Mexico

Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING

METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10670306.90330; E 371290.08709

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | | | | | PLASTICITY INDEX | %-200 | | | | |
|---------------------------------|--------|---------|--|--------------|----------------------|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|------------------|-------|--|--|--|--|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | | | | | | |
| | | | SURFACE ELEVATION: 3734.3 ft | | | | | | | | | | | | | | | | |
| 85 | | | Boring Terminated | | | | | | | | | | | | | | | | |
| 90 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 6 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | | | | | |
| DEPTH DRILLED: 80.0 ft | | | DEPTH TO WATER: 6 ft | | | PROJ. No.: AEA10-052-00 | | | | | | | | | | | | | |
| DATE DRILLED: 12/13/2010 | | | DATE MEASURED: 12/13/2010 | | | FIGURE: A-10b | | | | | | | | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-10

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10669721.49530; E 371584.94578

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | %-200 | |
|-------------------------------|--------|---------|--|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|-------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | | 2.5 |
| SURFACE ELEVATION: 3733.41 ft | | | | | | | | | | | | |
| | | | Base Course - 6 inches | 9 | | | | | | | 2 | 46 |
| 5 | | | FILL: SILTY SAND (SM) loose to medium dense, light brown, slightly moist, with trace gravel | 12 | | | | | | | NP | 27 |
| | | | SILT (ML) loose, brown, moist | 8 | | | | | | | NP | 90 |
| 10 | | | LEAN CLAY with SAND (CL) firm, brown, very moist | 4 | | | | | | | 17 | 74 |
| | | | SILTY SAND (SM) very loose to medium dense, brown, wet - with interbedded clay lenses from 15 to 20 feet | 3 | | | | | | | NP | 44 |
| 15 | | | | 10 | | | | | | | | |
| 20 | | | | 15 | | | | | | | NP | 18 |
| 25 | | | POORLY-GRADED SAND with SILT (SP-SM) medium dense to very dense, gray, wet - with trace gravel from 26-1/2 to 33 feet | 28 | | | | | | | | |
| 30 | | | | 43 | | | | | | | NP | 7 |
| 35 | | | | 44 | | | | | | | | |
| 40 | | | | 50/ 10" | | | | | | | NP | 5 |
| 45 | | | POORLY-GRADED SAND (SP) medium dense, gray, wet | 26 | | | | | | | | |
| 50 | | | Boring Terminated | 29 | | | | | | | NP | 5 |
| 55 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 8 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | |
| 60 | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

| | | |
|--|---|---|
| DEPTH DRILLED: 50.0 ft DATE DRILLED: 11/30/2010 | DEPTH TO WATER: 8 ft DATE MEASURED: 11/30/2010 | PROJ. No.: AEA10-052-00 FIGURE: A-11 |
|--|---|---|

LOG OF BORING NO. CB-11

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10669221.12620; E 372259.15766

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % ₂₀₀ |
|---------------------------------|--------|---------|--|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|------------------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3733.46 ft | | | | | | | | | | | |
| 5 | | | SILTY CLAYEY SAND (SC-SM) loose to medium dense, light brown, slightly moist to moist | 9 | | | | | | | |
| 5 | | | SILT (ML) very loose to loose, light brown, moist to wet - sandy below 7 feet | 13 | | | | | | 5 | 36 |
| 10 | | | POORLY-GRADED SAND (SP) medium dense, gray, wet | 3 | | | | | | | 80 |
| 10 | | | | 5 | | | | | | | 62 |
| 15 | | | | 10 | | | | | | | |
| 15 | | | | 11 | | | | | | | 2 |
| 20 | | | - with silt between 20 to 25 feet | 17 | | | | | | | 11 |
| 25 | | | | 10 | | | | | | | |
| 30 | | | | 15 | | | | | | | 3 |
| 35 | | | - loose at 35 feet | 6 | | | | | | | 4 |
| 40 | | | | 15 | | | | | | | |
| 45 | | | SANDY SILT (ML) loose, gray, wet | 10 | | | | | | | 69 |
| 50 | | | Boring Terminated | 8 | | | | | | | 73 |
| 55 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 8 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | |
| 60 | | | | | | | | | | | |
| 65 | | | | | | | | | | | |
| 70 | | | | | | | | | | | |
| 75 | | | | | | | | | | | |
| DEPTH DRILLED: 50.0 ft | | | DEPTH TO WATER: 8 ft | | | PROJ. No.: AEA10-052-00 | | | | | |
| DATE DRILLED: 12/20/2010 | | | DATE MEASURED: 12/20/2010 | | | FIGURE: A-12 | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-12

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43



DRILLING METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10668972.04980; E 372654.50234

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 | |
|---------------------------------|--------|---------|---|----------------------------------|----------------------|--------------------------------------|-----|--------------------------------|-----|------------------|--------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | | 2.5 |
| SURFACE ELEVATION: 3736.13 ft | | | | | | | | | | | | |
| | | | Asphaltic-Concrete - 2-1/2 inches | 11 | | | | | | | | |
| | | | Base Course - 5 inches | 22 | | | | | | | 16 | 18 |
| 5 | | | CLAYEY SAND (SC) medium dense to loose, light brown, slightly moist, with gravel | 13 | | | | | | | | |
| 10 | | | | 5 | | | | | | | 12 | 20 |
| 10 | | | | 6 | | | | | | | 28 | 27 |
| 15 | | | SILTY SAND (SM) loose, dark gray, wet | 4 | | | | | | | | |
| 20 | | | | 5 | | | | | | | NP | 21 |
| 25 | | | POORLY-GRADED SAND (SP) medium dense to dense to medium dense, dark gray, wet | 27 | | | | | | | | |
| 30 | | | - trace gravel from 30 to 40 feet | 31 | | | | | | | NP | 5 |
| 35 | | | | 20 | | | | | | | NP | 4 |
| 40 | | | - with gravel below 40 feet | 24 | | | | | | | NP | 3 |
| 45 | | | | 16 | | | | | | | | |
| 45 | | | - silty at 47 feet | 12 | | | | | | | NP | 13 |
| 50 | | | Boring Terminated | | | | | | | | | |
| 55 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 16 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 20 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | |
| 60 | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | |
| DEPTH DRILLED: 50.0 ft | | | | DEPTH TO WATER: 16 ft | | | | PROJ. No.: AEA10-052-00 | | | | |
| DATE DRILLED: 12/23/2010 | | | | DATE MEASURED: 12/23/2010 | | | | FIGURE: A-13 | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-13

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10668507.45220; E 373129.07877

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | %-200 |
|---------------------------------|--------|---------|---|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|-------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3735.75 ft | | | | | | | | | | | |
| 5 | | | CLAYEY SAND with GRAVEL (SC) medium dense to loose, light brown to brown, slightly moist to moist | 28 | | | | | | | |
| 10 | | | SILTY SAND with GRAVEL (SM) medium dense to very loose, dark brown, wet | 11 | | | | | | 3 | 35 |
| 15 | | | POORLY-GRADED GRAVEL with SAND and SILT (GP-GM) dense to very dense, gray, wet | 47 | | | | | | | 10 |
| 20 | | | | 47 | | | | | | | |
| 25 | | | | 50/6" | | | | | | NP | 5 |
| 30 | | | SANDY FAT CLAY (CH) very stiff, dark brown, very moist | 22 | | | | | | 36 | 68 |
| 35 | | | POORLY GRADED SAND (SP) medium dense, dark brown, very moist, with trace gravel | 26 | | | | | | | |
| 40 | | | WELL-GRADED GRAVEL with SILT and SAND (GW-GM) very dense to dense, gray, wet | 50/5" | | | | | | NP | 12 |
| 45 | | | | 42 | | | | | | | |
| 50 | | | - poorly-graded below 50 feet | 40 | | | | | | NP | 10 |
| 55 | | | | 13 | | | | | | | |
| 60 | | | POORLY-GRADED SAND with SILT (SP-SM) medium dense, dark gray, wet | 12 | | | | | | | |
| 65 | | | CLAYEY SAND with GRAVEL (SC) loose to dense, light brown, wet | 6 | | | | | | | |
| 70 | | | | 40 | | | | | | 23 | 46 |
| 75 | | | ROCK (Shale) hard, dark gray, slightly moist | Ref/6" | | | | | | | |
| DEPTH DRILLED: 100.0 ft | | | DEPTH TO WATER: 10 ft | | | PROJ. No.: AEA10-052-00 | | | | | |
| DATE DRILLED: 12/21/2010 | | | DATE MEASURED: 12/21/2010 | | | FIGURE: A-14a | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-13

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10668507.45220; E 373129.07877

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | | | PLASTICITY INDEX | %-200 | |
|-----------------------|-----------|---------|---|------------------------|----------------------|--------------------------------------|------------|-------------------|-----|-----|--------------|------------------|-------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | | | 3.5 |
| | | | SURFACE ELEVATION: 3735.75 ft | | | | | | | | | | | |
| 85 | [Hatched] | X | ROCK (Shale) hard, dark gray, slightly moist (continued) | Ref/4" | | ● | - | - | X | | | 19 | 36 | |
| 90 | [Hatched] | X | | 50/4" | | X | ● | - | - | X | | | 14 | 42 |
| 95 | [Hatched] | X | | Ref/3" | | | ● | | | | | | | |
| 100 | [Hatched] | X | | Ref/1" | | | | | | | | | | |
| 100 | [Hatched] | X | | Ref/3" | | | X | ● | - | - | X | | 20 | 32 |
| | | | Boring Terminated | | | | | | | | | | | |
| | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 10 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 10 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | |
| DEPTH DRILLED: | | | 100.0 ft | DEPTH TO WATER: | | | 10 ft | PROJ. No.: | | | AEA10-052-00 | | | |
| DATE DRILLED: | | | 12/21/2010 | DATE MEASURED: | | | 12/21/2010 | FIGURE: | | | A-14b | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-14

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10667811.60450; E 373324.18892

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 |
|------------------------------|--------|---------|---|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3731.3 ft | | | | | | | | | | | |
| 0 | | | SILTY SAND (SM) very dense, light brown, dry | 50/9" | ● | | | | | | |
| 5 | | | SILTY SAND with GRAVEL (SM) dense, gray, moist, with some nodules of clay | 32 | ● | | | | | NP | 30 |
| 5 | | | POORLY GRADED GRAVEL (GP) medium dense, gray, moist | 13 | ● | | | | | NP | 4 |
| 10 | | | SANDY SILT (ML) medium dense to loose, brown, moist to wet | 5 | ▽ | | | | | NP | 59 |
| 15 | | | | 6 | | | | | | NP | 70 |
| 20 | | | POORLY-GRADED SAND (SP) medium dense, gray, wet | 18 | | | | | | | |
| 25 | | | - dense at 25 feet | 39 | | | | | | | |
| 30 | | | | 22 | | | | | | NP | 4 |
| 35 | | | | 29 | | | | | | | |
| 40 | | | POORLY-GRADED SAND with SILT (SP-SM) very dense to medium dense, wet | 50/5" | | | | | | | |
| 45 | | | | 50/9" | | | | | | NP | 6 |
| 50 | | | Boring Terminated | 11 | | | | | | | |
| 55 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 10 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 15 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | |
| 60 | | | | | | | | | | | |
| 65 | | | | | | | | | | | |
| 70 | | | | | | | | | | | |
| 75 | | | | | | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

| | | |
|--|--|---|
| DEPTH DRILLED: 50.0 ft DATE DRILLED: 11/22/2010 | DEPTH TO WATER: 10 ft DATE MEASURED: 11/22/2010 | PROJ. No.: AEA10-052-00 FIGURE: A-15 |
|--|--|---|

LOG OF BORING NO. CB-15

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10667122.85750; E 373235.02297

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 | |
|---------------------------------|--------|---------|---|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|--------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | | 2.5 |
| SURFACE ELEVATION: 3732.43 ft | | | | | | | | | | | | |
| 0 | | | FILL: SILTY SAND with GRAVEL (SM) medium dense to loose, light brown to brown, slightly moist | 20 | | | | | | | NP | 34 |
| 5 | | | - black coloration, coal & traces of concrete from 5 to 9 feet | 8 | | | | | | | | |
| 6 | | | | 6 | | | | | | | | |
| 10 | | | POORLY-GRADED SAND (SP) medium dense to loose to medium dense, gray, moist to wet | 13 | | | | | | | NP | 20 |
| 15 | | | | 5 | | | | | | | | |
| 20 | | | | 8 | | | | | | | | |
| 25 | | | - dense at 25 feet | 33 | | | | | | | NP | 4 |
| 30 | | | | 17 | | | | | | | | |
| 35 | | | SILTY SAND (SM) dense, brown, wet | 36 | | | | | | | NP | 14 |
| 40 | | | POORLY-GRADED SAND (SP) dense, gray, wet | 45 | | | | | | | | |
| 45 | | | - medium dense at 45 feet | 25 | | | | | | | | |
| 50 | | | Boring Terminated | 31 | | | | | | | NP | 5 |
| 55 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 10 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 15 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | |
| 60 | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | |
| DEPTH DRILLED: 50.0 ft | | | DEPTH TO WATER: 10 ft | | | PROJ. No.: AEA10-052-00 | | | | | | |
| DATE DRILLED: 11/22/2010 | | | DATE MEASURED: 11/22/2010 | | | FIGURE: A-16 | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. CB-16

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10666620.30650; E 372992.53023

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | PLASTICITY INDEX | % -200 |
|-------------------------------|--------|---------|---|--------------|----------------------|--------------------------------------|-----|-----|-----|------------------|--------|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | | |
| SURFACE ELEVATION: 3732.33 ft | | | | | | | | | | | |
| 5 | | | POORLY GRADED SAND with SILT (SP-SM) medium dense, brown, slightly moist - loose at 5 feet | 25 | | | | | | NP | 11 |
| 10 | | | SANDY LEAN CLAY (CL) soft, brown, moist to wet | 2 | | | | | | NP | 6 |
| 15 | | | SILTY SAND (SM) loose to very dense to dense, gray, wet | 5 | | | | | | | |
| 20 | | | | 50/9" | | | | | | NP | 19 |
| 25 | | | | 50/11" | | | | | | | |
| 30 | | | SILTY SAND with GRAVEL (SM) dense to medium dense, gray, wet | 31 | | | | | | NP | 21 |
| 35 | | | | 34 | | | | | | NP | 15 |
| 40 | | | | 40 | | | | | | | |
| 45 | | | WELL-GRADED SAND with SILT (SW-SM) dense, gray, wet | 25 | | | | | | NP | 13 |
| 50 | | | | 34 | | | | | | NP | 7 |
| 55 | | | SANDY LEAN CLAY (CL) hard, dark gray, moist | 50/9" | | | | | | 24 | 50 |
| 60 | | | | Ref/4" | | | | | | | |
| 65 | | | | Ref/4" | | | | | | | |
| 70 | | | | 50/6" | | | | | | | |
| 75 | | | | | | | | | | | |

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

| | | |
|---|--|--|
| DEPTH DRILLED: 100.0 ft DATE DRILLED: 11/22/2010 | DEPTH TO WATER: 10 ft DATE MEASURED: 11/22/2010 | PROJ. No.: AEA10-052-00 FIGURE: A-17a |
|---|--|--|

LOG OF BORING NO. CB-16

Courchesne / Nemexas Reach
 El Paso, Texas / Sunland Park, New Mexico
 Prime Contract No. IBM09D0008 - Task order No. IBM10TO43


DRILLING
METHOD: Hollow Stem and Mud Rotary

LOCATION: N 10666620.30650; E 372992.53023

| DEPTH, FT | SYMBOL | SAMPLES | DESCRIPTION OF MATERIAL | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT ² | | | | | | PLASTICITY INDEX | %-200 | |
|-----------------------|----------|---------|---|------------------------|----------------------|--------------------------------------|------------|-------------------|-----|-----|--------------|------------------|-------|-----|
| | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | | | 3.5 |
| | | | SURFACE ELEVATION: 3732.33 ft | | | | | | | | | | | |
| 85 | [Symbol] | X | CLAYEY SAND (SC) very dense, brown, moist | Ref/5" | | ● | X | | | | | 16 | 26 | |
| 90 | [Symbol] | X | | Ref/4" | | ● | | | | | | | | |
| 95 | [Symbol] | X | | Ref/3" | | ● | | | | | | | | |
| 95 | [Symbol] | X | | Ref/3" | | ● | X | X | | | | | 17 | 31 |
| 100 | [Symbol] | X | | Ref/2" | | | | | | | | | | |
| 100 | | | Boring Terminated | | | | | | | | | | | |
| 105 | | | NOTES: 1. Free water was observed during drilling operations at a depth of about 10 feet. 2. Backfilled with cement bentonite grout. 3. Mud rotary methods used after a depth of about 15 feet. 4. Ground surface elevations and updated boring coordinates were provided to us on Friday, January 14, 2011 by URS Corporation. | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | |
| DEPTH DRILLED: | | | 100.0 ft | DEPTH TO WATER: | | | 10 ft | PROJ. No.: | | | AEA10-052-00 | | | |
| DATE DRILLED: | | | 11/22/2010 | DATE MEASURED: | | | 11/22/2010 | FIGURE: | | | A-17b | | | |

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