

**PRELIMINARY INVESTIGATIONS OF SUBMERGED AREAS**

Delivery Order Number 023

Date 10/20/04

Project ANW Refuge

Location ID Number J-12

Coordinates: X 2637868

Y 13235398

Water Depth 2.4

Pipe Length 10 - 8/6s

Tide Staff Readings:

Time Reading

Morning \_\_\_\_\_

Mid-Day \_\_\_\_\_

Evening \_\_\_\_\_

**Push No. 1** Time 3:53

Weight of Pipe Penetration (WOP) 3.1

Comment SA

One-Hand Push (40-lb) Depth 3.4

Comments SA

One-Hand Push (70-lb) Depth 3.5

Comments SA

Two-Hand Push to Refusal - Depth 5.6

Comments SA CL w/SA layers

Fig 6.5 SA + shell

shell @ bottom

**Push No. 2** Time 4:13

Weight of Pipe Penetration (WOP) 3.0

Comment soft CL

One-Hand Push (40-lb) Depth 4.0

Comments \_\_\_\_\_

One-Hand Push (70-lb) Depth 5.8

Comments CL w/shell frag.

shell on bottom

Two-Hand Push to Refusal - Depth 6.0

Comments shell

Fig 6.4 shell

Hand Proving Ring Penetrometer Test? yes

Hand Vane Shear Test? \_\_\_\_\_

Technician (Probe Handler) mike A.

Recorder Gary L.

### HAND CONE PENETRATION TEST (CPT)

Delivery Order Number 023  
Project ANW Refuge

Date 10/20/04

Location ID Number J-12  
Time 4:41

Weight of Proving Ring \_\_\_\_\_  
Weight of Rod Section 13 lbs

Weight of Rod Penetration 4.0  
Comments \_\_\_\_\_

Number of Rods 3

| <u>End</u><br><u>Depth</u> | <u>Dial</u> | <u>No.</u><br><u>Rods</u> | <u>Comment</u> |
|----------------------------|-------------|---------------------------|----------------|
| 4.3                        | 25          |                           | SA CL          |
| 5.6                        | WOR         |                           | SOE + CL       |
| 5.9                        | 31          |                           | SA CL          |
| 6.0                        | 162         |                           | SA             |
| 6.1                        | 280         |                           | 11             |

[illegible]

Comments \_\_\_\_\_

### Hand Cone Penetrometer Test and Analysis:

RTB 11/8/4

**Project:** Arkansas National Wildlife Ref. - BUS Site "J"  
**Location:** Dunham Bay located outside of Rockport, TX  
**Delivery Order #:** 0023  
**Date of Testing:** 10/20/04 to 10/22/04

## Probing Results

| Resistance     | Depth1' | Depth2' | MLT1' | MLT2' | Average |
|----------------|---------|---------|-------|-------|---------|
| Weight of Pipe | 3.1     | 3.0     | -1.0  | -0.9  | -1.0    |
| 1 HP (40lbs)   | 3.4     | 4.0     | -1.3  | -1.9  | -1.6    |
| 1 HP (70lbs)   | 3.5     | 5.8     | -1.4  | -3.7  | -2.6    |
| 2 Hand Refusal | 5.6     | 6.0     | -3.5  | -3.9  | -3.7    |

[illegible]

# Depth Vs. Shear Strength

♦ J12

