

Static Water Level with lite oil film



Vertical Casing Seam



Scour Marks caused by the pump



Vertical Casing Seam



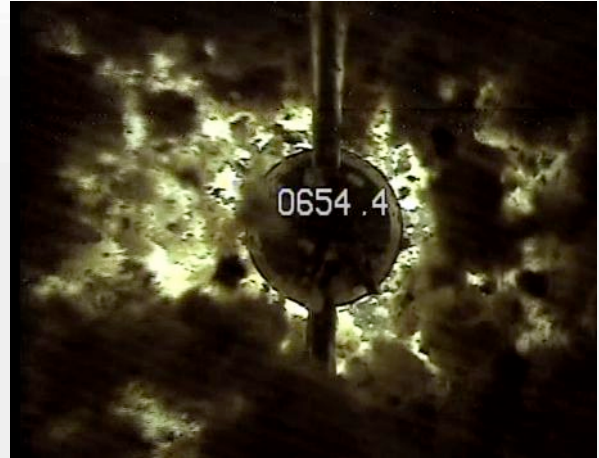
Top of 8" Liner



Clogged Screen



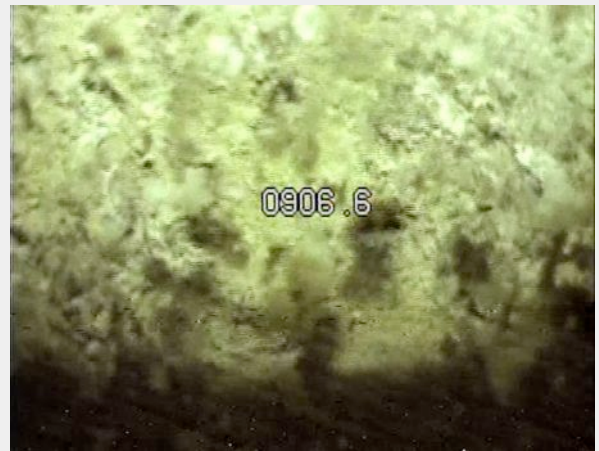
Partially Open Screen



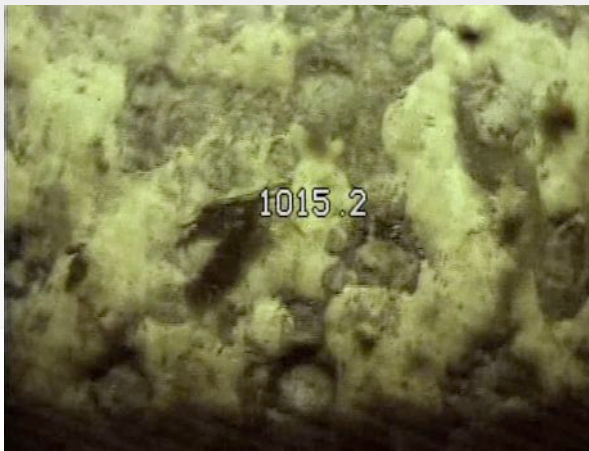
Iron Bacteria



Iron Bacteria



Clogged Screens – Pinholes can be seen



Clogged Screen Section



Top of Fill – END OF SURVEY

OVERVIEW:

Our best guess is that the well is operating with 80 – 85% clogged screens. Well conditions like this cause the following problems: premature pumping equipment failure, gravel washouts, casing and screen washouts, increased sand production, and eventually well collapse. This needs to be addressed before ordering and installation of new pumping equipment.

There are both pump and well indications that the well was not keeping up with the pump design. This well should have had 15 – 20ft of oil floating at the static water level due to normal operation over the years. Since only a thin oil film was present this indicates that the pump was breaking suction and pumped out the oil. Other findings that lead us to this conclusion are the scour marks at 481' and the pumping equipment damage including a broken shaft.

Recommendations:

Well Rehabilitation is needed before the pump installation. See the attached proposed scope of work.



# QUOTATION

14394 E INTERSTATE HWY 10  
 CONVERSE, TX 78109  
 OFFICE: (830) 865-2362  
 FAX: (830) 865-2362

PROJECT NAME / NUMBER: Houston National Cemetery  
 QUOTATION NUMBER: 20150507-1  
 DATE: 5/7/15  
 CUSTOMER P.O. NUMBER: \_\_\_\_\_  
 CUSTOMER NAME: U.S. Department of Veterans Affairs  
 ADDRESS (LINE 1): \_\_\_\_\_  
 ADDRESS (LINE 2): \_\_\_\_\_

**PRIMARY SCOPE OF WORK:**

No.	DESCRIPTION	Unit	Price	Line Total
1	MOBILIZATION & DEMOBILIZATION: the following; Workover Rig, Rig Crew with Supervisor, 1,100ft of pipe, crane with float trailer, service truck, 900 CFM Sullair air compressor.	1	\$ 6,500.00	\$ 6,500.00
2	WIRE BRUSH: Fabricate 14" and 8" steel wire brush	1	\$ 725.00	\$ 725.00
3	SCRATCHING: working a steel brush on the upper 14" casing to the 548'.	12	\$ 200.00	\$ 2,400.00
4	SEDIMENT TANK: used during the jetting operation to control the high velocity discharge water and debris from the well. Controlled discharge will help prevent site erosion.	1	\$ 1,500.00	\$ 1,500.00
5	JETTING: using the 900 CFM air compressor to air lift the debris from the bottom of the well to surface. Jet well to the TD "Total Depth" or solid bottom (TD est. 1,100ft) \$250 per hour	24	\$ 250.00	\$ 6,000.00
6	SCRATCHING: working a 8" steel brush to scratch the lower 8" casing from 548' to TD	20	\$ 200.00	\$ 4,000.00
7	JETTING: using the 900 CFM air compressor to air lift the debris from the bottom of the well to surface. Jet to well to the TD "Total Depth" or solid bottom (TD est. 1,100ft)	24	\$ 250.00	\$ 6,000.00
8	Room and Board for 4 men (est. 9 days)	9	\$ 450.00	\$ 4,050.00
9	Televised Camera Survey for a down hole well inspection	1	\$ 1,750.00	\$ 1,750.00
10	Recommendations for additional rehabilitation may follow after the TV Survey	1	\$ -	\$ -
11				
12				
13				

**Subtotal:** \$ **32,925.00**  
**Sales Tax:** \_\_\_\_\_  
**Total:** \$ **32,925.00**

**ALTERNATES:**

<i>Alt. 1</i>		\$ -	\$ -
<i>Alt. 2</i>		\$ -	\$ -

Regulated by:  
 Texas Department of Licensing and Regulation  
 PO Box 12157 Austin, TX 78157 1-800-803-9202

Subtotal with Alternate: \$ 32,925.00  
 Sales Tax with Alternate: \_\_\_\_\_  
 Total with Alternate: \$ 32,925.00


*\* If additional jetting is required over and beyond the estimated amount a rate of \$250 per hour will apply.*  
*\*\*Any fishing operations needed during the project will be at a Rig rate of \$200 per hour.*  
*\*\*\*If additional days are needed a room and board rate of \$450 per day will apply.*  
*\*\*\*\*Additional work such as sonar jetting and/or acidizing will be determined after the well evaluation from the camera survey.*

**SHIPMENT:**

**SHIPPING DETAILS:**

Proposed Start Date:  
 All prices above are subject to Federal, State and Local Sales Taxes.  
 This quotation will automatically expire if Purchaser does not deliver a written acceptance to this contract by: 60 Days

**Advanced Water Well Technologies**  
 (Contractor)

By:  \_\_\_\_\_

**ACCEPTANCE OF THIS CONTRACT:** The above prices, specifications, and conditions are satisfactory to the purchaser and are hereby accepted with signature below, Fax, Email, or verbal conformation. Purchaser authorizes Advanced Water Well Technologies and its subcontractors to do the work as specified. All work is to be completed as specified and according to standard industry practices. Any additional work or materials required due to unknown well conditions will result in an extra charge over and above the estimate. Our workers are fully covered by Workman's Compensation Insurance. We warrant our Craftsmanship for one year. There is a manufacturers warranty on equipment for one year. The manufacturer determines if the equipment will be warranted or not on a case by case basis. Payment is due upon receipt of invoice and balances past due after 30 days are subject to 15% interest per annum. We thank you for choosing Advanced Water Well Technologies.

PURCHASER: \_\_\_\_\_ ADDRESS: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_