



RODGERS & CO., INC.

May 9, 2005

John L Anderson
37 First Mesa Ct
Placitas, NM 87043

Mr. Anderson:

re: La Mesa Well 3 cleaning summary and final video

The following summary of work is based on a work plan developed by Rodgers & Co. in cooperation with La Mesa Water Coop.

March 24, 2005: Mobilize Smeal 10T pump rig, connected air line to pressure gage, started pump and performed short pumping test. Pumped well at 100 gpm for 15 minutes with a pumping level measured at 320 ft. Starting water level based on video survey results was 252 ft. Resulting specific capacity: 1.47 gpm/ft (100 gpm/ (320-252 ft)).

Pulled Berkley 6T15-75 15-^{HP}gpm submersible pump and ¼-in. airline from well. Pump was set on 546 ft of 3-in. pipe. Pump, motor and pitless spool, and check valves were taken to Rodgers & Co. shop for evaluation and cleaning.

When brought to shop, pump was covered with encrustation. External surface of pump was cleaned and visually inspected and painted. Based on pumping test, the pump appeared to operating on the performance curve, which indicated the pump was in good shape (see pump attached pump curve). Motor thrust bearing tolerance was good, motor windings condition was checked by inducing current on leads and measuring resistance. Motor leads were cleaned and inspected and appeared in good condition so leads were not replaced. Pitless spool was cleaned and new o-rings installed.

March 25, 2005: Video survey of well showed the well casing in good condition down to a depth of 490 ft. Below 490 ft, the casing and louver perforated pipe had a heavy build up of material. The upper perforated interval was noted at 500-520 ft. Perforations were noted to start again at 561 ft, but due to build up and poor visibility toward the bottom of the well, depth where the lower perforations stopped was not detected. The survey stopped at a depth of 685 ft when the camera entered very dirty water or fill.

April 5, 2005: Well cleaning was initiated by wire brushing the well casing with a wire-rope brush set on tubing from 490 ft to total depth. Each 20 ft section of well casing was brushed for approximately 45 minutes.

April 6, 2005: A string of 3-in. pipe was run in the well with a 6-in swab tool installed on the lower joint. An 825 CFM air compressor was used to airlift the well by sweeping brushed debris and fill from the well to 700 ft. After airlifting the well clean, 110 gal of Cotey Chemical Liquid Acid Descaler was introduced to the well at intervals through the tubing. Acid introduction was followed by swabbing the solution through the well

perforations and into the gravel envelope. pH was measurement at 0. The solution was left in the well over night.

April 7, 2005: The solution was swabbed for another hour before removing the swab tool and running the wire brush again. Each 20 ft section of the lower 200 ft of well casing was brushed for about 20 minutes. A measurement of pH indicated a pH of about 2.

April 8-9, 2005: Acid solution was purged from the well by airlift pumping and treated in a poly tank with soda ash prior to discharge. pH was measured at 4.

April 12, 2005: Video survey of well after cleaning showed significantly less encrustation and improved visibility. Perforated intervals were noted at 500-520 ft and 560-680 ft. The survey ended at 699 ft. A copy of the video survey and operator notes accompanies this report.

April 20, 2005: Chlorinated well with 6 lb. of calcium hypochlorite distributed in the well with a chlorine basket and sand line. Reinstalled Berkley 6T15-75 submersible turbine on 462 ft of 3-in. galvanized pipe (the shallower pump setting was suggested by the Coop based on the previously observed pumping water level of only 320 ft). Twenty-two joints of pipe were selected from the 26 joints on hand and the old sched. 40 couplings were replaced with long API couplings to bolster joint strength. Two 1/4-in. airlines were installed with the pump 1 ft above pump discharge. Submersible cable (#0) and air lines were clamped to the drop pipe (banded every 60 ft and taped every 10 ft).

April 21, 2005: Started pump and purged chlorinated water through temporary test piping into a poly tank where residual chlorine was neutralized with sodium thiosulfate prior to discharge. A short pumping test was performed with the following observations.


| test date | starting water level, ft | pumping rate, gpm | pumping water level after 15 min., ft | specific capacity, gpm/ft |
|---------------------------------|--------------------------|-------------------|---------------------------------------|---------------------------|
| before cleaning, March 24, 2005 | 252 | 100 | 320 | 1.47 |
| after cleaning, April 21, 2005 | 251.5 | 100 | 272.5 | 4.76 |

DD = 68
DD = 21

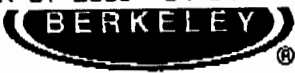
Well cleaning and acid treatment succeeded in raising the well's specific capacity from 1.47 to 4.76 gpm/ft, more than tripling the rate. Please contact me if you have any questions.

Thank you,

Rodgers & Co., Inc.


Jeff Watson

encl.



**SUBMERSIBLE
TURBINE**

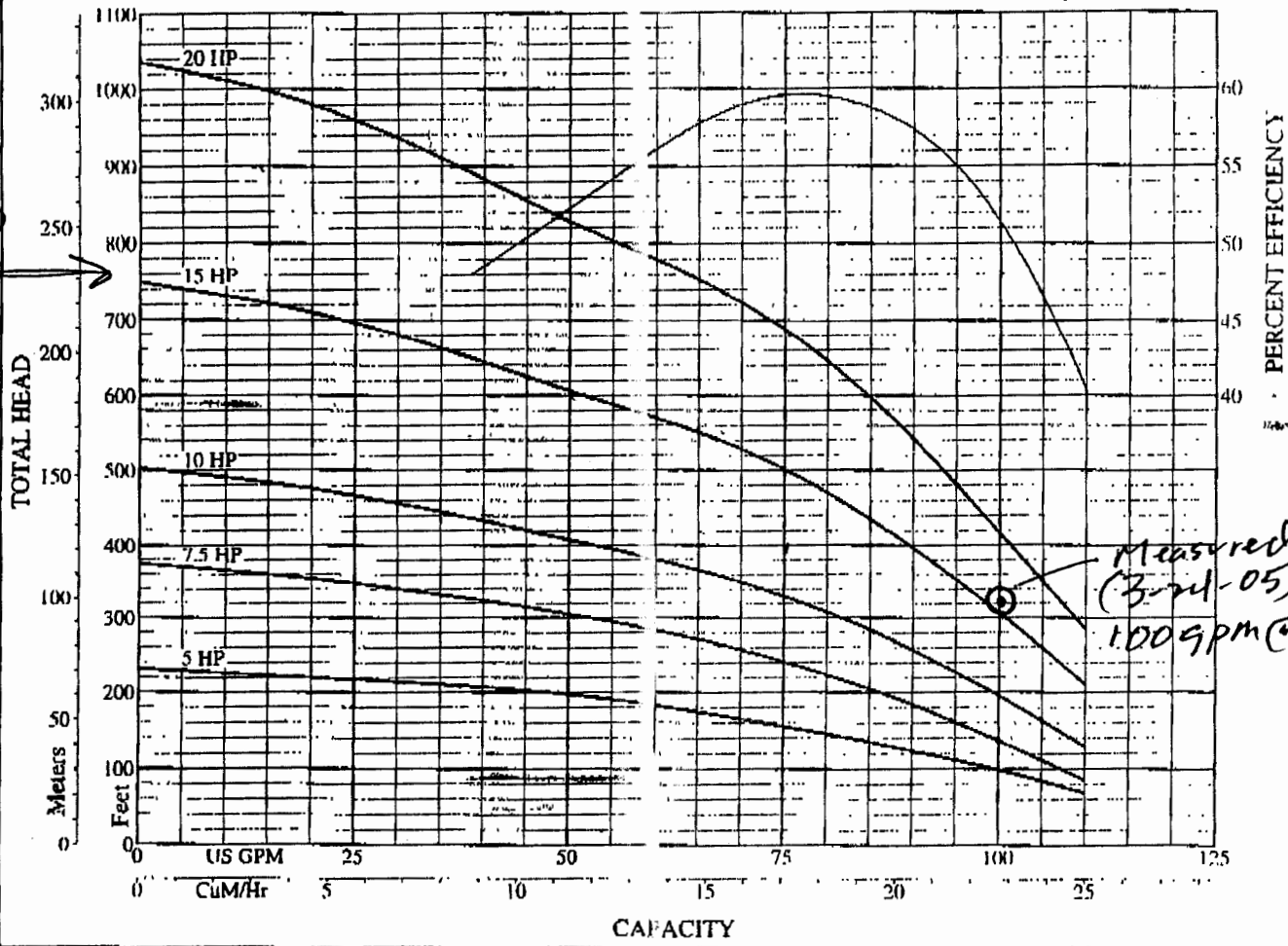
4-7-05

6T-75

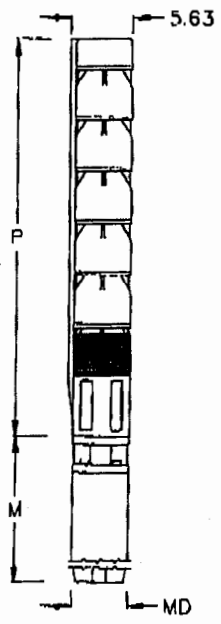
This is the fig end in La Mesa #3

Nominal RPM: 3450
Based on Fresh Water @ 68°F
Maximum Working Pressure: 725 PSI

15 HP →



OUTLINE DIMENSIONS / WEIGHTS



| HP | stages | Motor size | P length | M* length | MD* dia. | Mtr. wt. | Pump wt. |
|-----|--------|------------|----------|-----------|----------|----------|----------|
| 5 | 4 | 6" | 29.73 | 25.44 | 5.38 | 105 | 80 |
| 7.5 | 7 | 6" | 41.54 | 28.00 | 5.38 | 120 | 116 |
| 10 | 9 | 6" | 49.41 | 30.56 | 5.38 | 135 | 141 |
| 15 | 13 | 6" | 65.16 | 33.13 | 5.38 | 146 | 189 |
| 20 | 18 | 6" | 84.85 | 30.56 | 5.38 | 135 | 250 |

Note: dimensions = inches; weight = U.S. lbs.

M* Maximum length (Franklin Electric Motor)
MD* Motor diameter (Franklin Electric Motor)

SPECIFICATIONS

| | |
|--|--------------|
| Minimum Well I.D. | 6.0 Inches |
| Minimum Submergence @ IEP (above inlet) | 10.0 Feet |
| Capacity Range | 35 - 110 GPM |
| Discharge | 3" F NPT |
| See manufacturer's data for motor cooling requirements | |

SUPERSEDES
All Previous

Date **04/15/96**
Section **ST**
Page **8.01**



RODGERS & COMPANY

VIDEO SURVEY REPORT

La Mesa water coop

Client: _____ Well No.: 3 page ____ of ____

Job No.: 1581 Meas. Pt.: _____ Date: 4/12/05

started ground level Camera Number: _____
Top of well

| | <u>well</u> | <u>depth</u> | <u>remarks</u> |
|-----------------------------------|-------------|--------------|------------------------|
| Casing Size: _____ in. | | | |
| Band setting: _____ in. | | | |
| Static Water Level: <u>251</u> ft | | <u>251</u> | <u>Real Red</u> |
| Type of Perf.: _____ | | <u>290</u> | <u>" "</u> |
| | | <u>341</u> | <u>CLEARING UP</u> |
| Perforation Schedule | | | |
| top bottom | | <u>500</u> | <u>SCREEN START</u> |
| _____ ft _____ ft | | <u>520</u> | <u>SCREEN STOPPED</u> |
| _____ ft _____ ft | | <u>560</u> | <u>SCREEN START</u> |
| _____ ft _____ ft | | <u>680</u> | <u>SCREEN STOPPED</u> |
| _____ ft _____ ft | | <u>699</u> | <u>LIGHT BLACKSOAT</u> |
| _____ ft _____ ft | | | |
| Casing Reductions | | | |
| to _____ in. _____ ft | | | |
| to _____ in. _____ ft | | | |
| to _____ in. _____ ft | | | |
| Cased Depth: _____ ft | | | |
| Current Depth: _____ ft | | | |
| Drilled Depth: _____ ft | | | |



RODGERS & CO., INC.

2615 ISLETA BLVD. SW • ALBUQUERQUE, NM 87105
505-877-1030, Fax: 505-877-1105

CONTRACT INVOICE

Invoice#: 605528
Invoice Date: 04/26/2005
Order:
Finish Date:

| | |
|---|--|
| La Mesa Water Co-Operative P.O. Box 53 Placitas NM 87043 Customer Account Number: 4993 | Project: 1581 La Mesa CoOp-Well No 3 La Mesa Water Co-Operative Well #3 Placitas NM 87043 |
|---|--|

| Description | Quantity | Unit Price | Amount |
|---|------------|------------|----------|
| Item 1: Perform short test, remove well pump; 6.42 hrs. — 1 DAY | OK ✓ 6.42 | 75.00 | 481.50 |
| Item 2: Inspect & clean pump, motor, wire leads, replace pitless spool o-rings — @ site | OK ✓ 1.00 | 173.18 | 173.18 |
| Item 3: Video survey well, 2 each — OK | OK ✓ 2.00 | 1,100.00 | 2,200.00 |
| Item 4: Brush casing, clean out fill, acidize, swab and brush, purge and treat; 48.42 hrs. — 4 1/2 DAYS | OK ✓ 48.42 | 75.00 | 3,631.50 |
| Item 5: cotcy liquid acid descaler; 2 each 55 gal. drums | OK ✓ 2.00 | 1,250.00 | 2,500.00 |
| Item 6: 3" API galvanized couplings; 20 each | OK ✓ 20.00 | 31.50 | 630.00 |
| Item 7: Labor to install new couplings, reinstall existing pump and test; 11.83 hrs. — 1 1/2 Days | OK ✓ 11.83 | 75.00 | 887.25 |

Notes:

HILDE: SEND TO JOHN. A. → His Budget

HRS

4/5 ————— 10
4/6 ————— 9.25
4/7 ————— 9.33
4/8 ————— 9.75
4/9 ————— 5.67
4/11 ————— 4.42
48.42

DO NOT PAY UNTIL - UNTIL we get copies of VIDEOS + ANY OTHER DELIVERABLES + REPORTS

S-S-O-S OK TO PAY, CONTINGENT ON THE FOLLOWING STATEMENT ADD: RODGERS+CO TO ACCEPT ANY FUTURE LIABILITY DUE TO NOT SECURING Elec. CABLE TO DROP PIPE w/ METAL BANDS @ 20' CONCRETS AS WAS ORIGINALLY DONE. CABLE WAS TAPED TO PIPE @ 10' CONCRETS + METAL BANDS @ 60' CONCRETS.

sales Tax: 630.21
ice Total: 11,133.64
retention: 0.00
aid/Credit: 0.00

11,133.64

er annum will be computed to Rodgers & Co., Inc.

TO: HILDE + JOHN. A.

Subj: Well # 3
Date: 5/5/2005 7:36:54 A.M. Mountain Daylight Time
From: Watercooperative
To: hender@comcast.net, Lamesawatercoop, doug.beady@att.net
CC: Watercooperative

Doug, John, and Marty- an update on Well # 3.

On April 22, 2005 the well was flushed approximately 7 hours. The ph at the start of flushing was 5.6 and at the end of the day it was 6.6 . 44,200 gallons of water were flushed through the well. There was an odor associated with the water that I thought was the cleaning chemical. The flowrate was 100 gpm.

On April 27, 2005 the well was flushed approximately 8 hours. The water at startup was sudsy and had that chemical type smell to it. The pH at startup was 6.4 and at the end of the day was 7.16 . Approximately 49,200 gallons of water was flushed through the well. The flowrate was 100 gpm.

On April 28, 2005 the well was flushed for approximately 6.5 hours. Approximately 42,200 gallons of water was flushed through the well. The startup ph was 7.16 and the ending ph was 7.22 . I still smelt what I thought was a chemical type smell. Brought a sample over for John to smell. He indicated that he noticed a faint smell as well. A total coliform sample was taken and delivered to Assagai Labs- the results were negative. The flowrate measured was 101 gpm.

On May 2 the well was flushed again for a period of two days. The starting ph was 7.4 and the ending ph was 7.46. Total gallons pumped was 310,300 gallons. The flowrate was 105 gpm. The drawdown pressure was measured at 73 psi. I asked Doug to come over to smell the water, for at times I was still smelling an acrid type of chemical smell. Doug also tasted the water as all water quality personnel are required to do. Doug indicated he thought that what he smelled was a plastic type of smell.

I personally feel now that well # 3 is ready to be started up and put on line. Later this afternoon I will measure the static level after a 24 hour recovery period. Does anyone feel there is more to be done? Please advise.

Sincerely,

Phillip A. Carter

$73 + 2.31 = 168.6'$
 446.5
 $- 168.6$

 $278. - P.L.$
 $DD = 278 - 251.5 = 26.5'$
Applied Pumping 2 DAYS