District Office 24 hour notice before running the MIT test and chart.

PROCEDURE TO CLEAN OUT AND DEEPEN

Cooper Jal Unit #134 WIW API: 30-025-09644 Lea County, New Mexico 02/25/2014 AFE #: 214025

WELL SUMMARY & OBJECTIVE:

The subject well is an active water injector in the Cooper Jal Unit. The well was last cleaned out to current TD at 3,570 ft in January 2011. This AFE will provide funds to deepen the well to 3,780' (through the Queen Formation). Upon deepening, the well will be acid stimulated and once a Mechanical Integrity Test is achieved, the well will be returned to Water Injection.

PROCEDURE

- 1. Test anchors prior to moving in Pulling Unit.
- 2. Hold pre job safety meeting and MIRU PU.
- 3. Kill well if necessary. ND tree & NU BOP.
- 4. Unset pkr & POOH w/ tbg in well.
- 5. PU 4-3/4" bit, drill collars and 2-7/8" WS.
- **6.** RIH and clean out well to 3,570' (current TD).
- 7. Drill new hole from 3,570' to 3,780'.
- 8. At new TD of 3,780', circulate hole clean and POOH.
- 9. MIRU WL & perforate at the following depths (all perfs 2 spf @ 180 deg):
 - a. 16' from 3028'-3044'
 - **b.** 20' from 3068'-3088'
 - **c.** 8' from 3106'-3114'
 - **d.** 6' from 3184'-3190'
 - e. 6' from 3290'-3296'
 - **f.** 6' from 3354'-3360'
 - **g**. 6' from 3444'-3450'
 - h. RDMO WL.
- **10.** PU treating pkr on WS. RIH and set pkr at +/- 2,960' (**Note**: Pkr was set at 2,990' in August 1994 workover and csg would not test).
- **11.** MIRU Acid Company and acidize down tubing with 10,000 gals of 15% HCL acid and 10,000 lbs of rock salt. Pump acid and rock salt at 5 to 10 BPM with a max surface treating pressure of 4500 psig. Pump acid stages alternating acid and rock salt in brine water.
 - a. Pump 1000 gals acid

- **b.** Pump 700#'s rock salt in brine water
- c. Pump 1500 gals acid
- **d.** Pump rock salt stage and increase or decrease rock salt based on pressure response of previous diversion stage.
- e. Pump 2000 gals acid
- f. Pump rock salt stage. Choose rock salt volume based on pressure response
- g. Pump 2500 gals acid
- h. Pump rock salt stage. Choose rock salt volume based on pressure response
- i. Pump 3000 gals acid
- j. Displace acid to top perf with 2%KCL water
- **12.** Obtain 5, 10, & 15 minute SIP's and flow back load if well has surface pressure. RDMO acid company.
- 13. If no flow back, RU swab and swab back load.
- 14. Unset pkr. POOH and LD pkr.
- 15. RIH w/ WS with notch collar and clean out rock salt to 3,780'.
- **16.** POOH & PU Injection Packer. Hydrotest in the hole to +/- 2,950' (shallowest depth packer can be set is within 100' of top perf at 3,028').
- 17. Circulate packer fluid around backside and set packer.
- 18. ND BOP & NU tree.
- 19. Test packer to 500 psi for 30 minutes, to ensure it will pass MIT.
- 20. RDMO PU.
- **21.** Perform MIT. Upon approval from NMOCD, return well to injection.

| PREPARED BY: | DATE: |
|---|-------|
| | |
| | |
| | |
| APPROVED BY: | DATE: |
| - · · · · · · · · · · · · · · · · · · · | |

CJU #134 Cooper Jal Unit Field: Reservoir: Cooper Jal Well ID Info: CJU #134 WIW Location: Wellbore Diagram Footage: 330 FSL & 1650 FWL API No: 30-025-09644 Spud Date Section Block: Sec. 24, T-24S, R-36E 6/29/1954 Survey 8 5/8" - 28# 286' 150 sx cmt + 2 sx Calcium Chloride Lea, New Mexico Surf. Csg: Set @ Lat: Cement w/ Long: Circ: Elevations: GL: KB: KB Calc 3.310 Surface ck w/log? Date History
OH frac 3463' - 3570' w/ 5000 gals Dowell PetroFrac & 7500# sand. 18-Jul-54 18-Sep-59 22-Jun-73 Changed status from flowing to rod pump.
Checked TD w/ tbg and re-activated well (well had been SI)
Acidize w/ 1500 gal. Criecked To Wing and re-activated well when had been 31 Acidize with 1500 gal.

Selectively Perforate 30311 - 32951, set RBP below and acidize perfs w/ 3000 gals 15% HCl & 3000 gals mud acid in 3 stages using BS. Frac'd perfs w/ 49000 gals X-L. gel, 36000# 20/40 & 13550# 10/20 sd in 3 stages using 750# RS. CO 581 fill, recover RBP & RWTP.

CO 1011 of fill to 35701. Frac Off 34631 - 35701 w/ 6000 gal CO2, 23500# 20/40 sand & 13500# 10/20 sand.

CO fill if 35211 - 3555.

CO fill if 35211 - 35701, set pkr & acidize DH w/ 4200 gals 20% HCl + 1700# RS in 4 stages. Pull pkr & acidize perfs + OH w/ 4200 gals 20% HCl & 2100# RS in 4 stages. Altempt to set pkr at 2,9901 & would not test. Re-set pkr at 25951 & shut well in.

Lay injection line and place well on injection. 8-Nov-75 TOC: 400' (Calc) 10元年11年2日 11-Oct-82 X DV Tool at 1186' (Cement w/ 100 sx) 21-Jan-89 9-Aug-94 TOC: 1880' (Calc) 28-Feb-95 Lay injection line and place well on injection. Tag fill at 3508' w/ sinker bar.
Tag fill at 3558' w/ sinker bar.
CO fill f/ 3460' - 3570' & acidized perfs + OH w/ 8500 gals + 15700# RS. 14-Feb-02 10-Jan-11 Pkr at 2950' KB X Yates @ 3030* Perf: 3.031', 3034', 3037', 3040', 3042', 3069', 3071', 3074', 3078', 3081', 3084', 3087', 3107', 3109', 3111', 3113', 3115', 3135', 3142', 3153', 3155' & 3157' w/ 1 JSPF on 2/7/1979 Perf: 3223', 3225' & 3227' w/ 1 JSPF on 2/7/1979 7-R @ 3242 Perf: 3291', 3293' & 3295' w/ 1 JSPF on 2/7/1979 **人种产生的现在分词的有效的对数的数据** Tubing Detail (top to bottom) Footage Depth Joints Description 2-3/8" 4.7#, Cmt Lined, J-55, w/ on/off tool 1.78" ID Profile Nipple 2.945 2,956 7 7/8" 5 1/2" - 15.5#, J-55 3,463' 2,957 2,960 Hole Size: 5 1/2" x 2 3/8" Baker Model AD-1 packer Prod. Csg: Set @ Cement: 200 sxs 100 sxs + 10% Gel DV Tool: 4-3/4" OH

Pumping Unit:

Rods

Updated: 01/20/14 MCB

Rod Detail (top to bottom)

Description

Footage

Depth

PBTD 3570' TD 3570' Queen @ 3615'

| Field: | Cooper Jal Unit | | CJU #134 PROPOSED | | | Reservoir: | Cooper Jal |
|------------------------|--|-----------|----------------------|-----------|--|---|--|
| | Location: | | | | | p | CJU #134 WIW |
| Footage: | 330 FSL & 1650 FWL | | Wellbore D |)iagr | am | API No: | 30-025-09644 |
| Section: | Sec. 24, T-24S, R-36E | | 88 · | | The second | Spud Date: | 6/29/1954 |
| Block: Survey: | | | | | | Hole Size: | 12-1/4" |
| County: | Lea, New Mexico | | | | * | Surf. Csg: | 8 5/8" - 28# |
| Lat: Long: | | | | | | Set @ Cement w/ | 286' 150 sx cmt + 2 sx Calcium Chloride |
| | Elevations: | | | | | Circ: | Yes |
| GL: | 3,310' | | | 1 1 | | TOC: | Surface |
| KB: KB Calc: | 3,321' 11' | | | 11 | 2 | | |
| ck w/log? | Yes | | | | | | |
| Date | History | _ | | ii | | | |
| 18-Jul-54 | OH frac 3463' - 3570' w/ 5000 gals Dowell PetroFrac & 7500# sand. | \dashv | | | | | |
| 18-Sep-59 | Changed status from flowing to rod pump. | \exists | 2 | | 7 | | |
| 22-Jun-73 8-Nov-75 | Checked TD w/ tbg and re-activated well (well had been SI) Acidize w/ 1500 gal. | \dashv | 11 | | | | |
| 15-Feb-79 | Selectively Perforate 3031' - 3295', set RBP below and acidize perfs w/ | | | | | TOC: | 400' (Calc) |
| | 3000 gals 15% HCI & 3000 gals mud acid in 3 stages using BS. Frac'd perfs w/ 49000 gals X-L gel, 36000# 20/40 & 13500# 10/20 sd in 3 stages | \dashv | | | *** | | • |
| | using 750# RS. CO 58' fill, recover RBP & RWTP, | | | | | | |
| 11-Oct-82 | CO 101' of fill to 3570'. Frac OH 3463' - 3570' w/ 6000 gal CO2, 23500# 20/4 sand & 13500# 10/20 sand. | \dashv | × | 11 | | | |
| 21-Jan-89 9-Aug-94 | CO fill f/ 3521' - 3555'. | - | ⊠ l | | Ž | DV Tool at 1186' (C | Cement w/ 100 sx) |
| 9-Aug-94 | CO fill f/ 3524' - 3570', set pkr & acidize OH w/ 4200 gals 20% HCl + | | 71 | | | | |
| | 1700# RS in 4 stages. Pull pkr & acidize perfs + OH w/ 4200 gals 20% HCl & 2100# RS in 4 stages. Attempt to set pkr at 2,990' & would not | \dashv | | 11 | | | |
| 20.5 | test. Re-set pkr at 2959' & shut well in. | \exists | 1964 | | NAS. | TOC | 1990' (0-1-) |
| 28-Feb-95 14-Feb-02 | Lay injection line and place well on injection. Tag fill at 3508' w/ sinker bar. | \dashv | | | | TOC: | 1880' (Calc) |
| 7-Nov-05 | Tag fill at 3558' w/ sinker bar. | ⇉ | | | | | |
| 10-Jan-11 | CO fill f/ 3460' - 3570' & acidized perfs + OH w/ 8500 gals + 15700# RS. | - | | | | | |
| | | \exists | M | | | | |
| | | 4 | \forall | \forall | | Pkr at 2950' KB | |
| | | \dashv | P | Ч | | 1 Ki at 2550 NB | |
| | | | | | | | |
| <u> </u> | | \dashv | | Į | 98 ==================================== | Yates @ 3030 | |
| | | | | ĺ | | | |
| | | - | | Ī | | Perf: 3.031' 3034' | 3037', 3040', 3042', 3069', 3071', 3074', 3078', |
| | | | | Ī | | 3081', 3084', | 3087', 3107', 3109', 3111', 3113', 3115', 3135', |
| | | 4 | | 1 | | | 3155' & 3157' w/ 1 JSPF on 2/7/1979 044', 3068'-3088', 3106'-3114' w/ 2 spf |
| | | - | | | | New Fells. 3020-3 | 044, 3006-3066, 3106-3114 W/ 2 Spi |
| | | | | į | 928 | New Perfs: 3184'-3 | 190' w/ 2 spf |
| <u> </u> | | \dashv | | | | | |
| | | | ** | Ī | | Perf: 3223', 3225' 8 | 3227' w/ 1 JSPF on 2/7/1979 |
| | | \dashv | | ĺ | 388 | | |
| | | | | | | - D - C - C - C - C - C - C - C - C - C | |
| | | - | | | | 7-R @ 3242' | |
| | | | | | 540 F 241 S | á. | |
| <u> </u> | | - | | Į | | Porf: 3291' 3293' 8 | 3295' w/ 1 JSPF on 2/7/1979 |
| | | | | Ī | ### 1986 W.E. | New Perfs: 3290'-3 | |
| | | 4 | | - 1 | 348 | | |
| <u> </u> | | \dashv | | | | | |
| | | | | | | | |
| <u> </u> | | \dashv | | ļ | | New Perfs: 3354'-3 | 360' w/ 2 snf |
| | | | | ĺ | 100 | 1101111 01101 0001 0 | |
| | | - | | - 1 | 麗 | | |
| | | | | | | | |
| Joints | Tubing Detail (top to bottom) Description Footage Depth | \dashv | | ļ | | New Perfs: 3444'-3 | 450' w/ 2 sof |
| | K8 11 11 | \exists | | ĺ | 3 | | <u>2 op</u> i |
| 92 | 2-3/8" 4.7#, Cmt Lined, J-55, w/ on/off tool. 2,945 2,956 1.78" ID Profile Nipple 1 2,957 | 4 | 4 | ļ | S | Hole Size: | 7 7/8" |
| | 5 1/2" x 2 3/8" Baker Model AD-1 packer 3 2,960 | \dashv | | | | Prod. Csg: | 5 1/2" - 15.5#, J-55 |
| | | _ | | | | Set @ | 3,463 |
| <u> </u> | | _ | | ļ | | Cement: DV Tool: | 200 sxs 100 sxs + 10% Gel |
| | | 4 | | 1 | | | |
| ├ | | \dashv | | | | | |
| | | ゴ | | | | | |
| | | | | | | 4-3/4" OH | |
| | Rod Detail (top to bottom) | | | | | | |
| Rods | Description Footage Depth | \dashv | | | | | |
| | | \exists | | | | | |
| | | \exists | | | | Queen @ 3615' | |
| | | \dashv | | | | | |
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PBTD 3780° TD 3780°

Pumping Unit: Updated: 02/25/14 MLS