

C
H
A
R
L
I
E

334-6178

GCU 13 SWD #1
Sec 13 of T29N - R13W
API No. 30-045-28601
San Juan County, NM

April 24, 2000

Reason for work

Perform step-rate test in preparation of requesting an increase in the maximum allowable surface injection pressure from the NMOCD. Current MASIP is 571 psi. Current injection rate is approximately 0.5 bpm @ 550 psi.

Wellbore Configuration

KB:	10' above GL
TD:	4008'
PBTD:	3969'
Csg:	5-1/2" 15.5# J55 @ 4007'
Tbg:	2-7/8" 8.5# J55 STD
Packer:	Baker AL-2 Lok-set @ 2775' w/ on-off tool
Perfs:	2870' - 2972' (Cliffhouse)
	3291' - 3604' (Manefee)
	3736' - 3762' (Point Lookout)
Last rig work:	2/5/94

Procedure

1. SI well minimum of 24 hrs prior to step-rate test. Notify OCD inspector Charlie Perrin.

NOTE: Ensure that a minimum of 500 bbls of lease water is on hand before starting test. Running out of water voids the test.

2. MIRU slickline unit x mast truck. Make gauge run with sand pump x EOT locator. Tag bottom and recover sample of fill. Pull up and locate EOT. BOOH.

NOTE: Well was fraced 2/1/94 with 140,000 gal lease water and 165,000 lbs of 20/40 Brady sand. Well flowed back large amounts of sand during clean up.

3. RIK with 3000 psi tandem Amerada pressure bombs to 2830'.

DOWELL
BILL REDMAN
325-5096

BILL BEAN 325-239:

On Site Technologies, LTD.

Date: 28-Sep-99

CLIENT: Cimarron Oilfield Service
 Work Order: 9909058
 Project: Jicarilla Apache 12-F LF

QC SUMMARY REPORT
 Laboratory Control Spike - generic

Sample ID: LCS SOIL		Batch ID: GC-1_990924	Test Code: SW8021B	Units: µg/Kg		Analysis Date 09/24/1999		Prep Date:	
Client ID: 9909058		Run ID: GC-1_990924A	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	SeqNo: 19936
Analyte	Result								
Benzene	56.89		1	60	0	94.8%	80	106	
Ethylbenzene	58.83		1	60	0	98.0%	79	110	
m,p-Xylene	115.3		2	120	1.727	94.7%	78	105	
Methyl tert-Butyl Ether	54.12		10	60	0	90.2%	45	129	
o-Xylene	57.4		1	60	0.9105	94.2%	79	108	
Toluene	58.56		2	60	0	97.6%	80	109	
							%RPD	RPDLimit	Qual

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

4. RU pump truck. RU chart pressure recorder to tubing, casing and bradenhead.
5. Pump step rate test using following schedule:
 - 0.5 bpm for 20 minutes
 - 1.0 bpm for 20 minutes
 - 1.5 bpm for 20 minutes
 - 2.0 bpm for 20 minutes
 - 2.5 bpm for 20 minutes
 - 3.0 bpm for 20 minutes
 - 3.5 bpm for 20 minutes
 - 4.0 bpm for 20 minutes
6. Shut down and record ISIP.
7. Fax pressure and rate charts to Allen Kutch at 281-366-7143.
8. Verify with engineer and OCD inspector that data is good before RDMO pump truck.
9. FOOH with pressure bombs. Check charts. RDMO slickline.
10. Have calculated BHP survey faxed to Allen Kutch at 281-366-7143.

Allen Kutch

281-366-7955 office
281-366-7143 fax
888-788-6522 pager
409-865-0140 home

Cost Estimate

Pumping	2500
Slickline	700
Total	\$3200

Attachments

wellbore diagram
state guidelines

On Site Technologies, LTD.

Date: 28-Sep-99

CLIENT: Cimarron Oilfield Service
Work Order: 9909058
Project: Jicarilla Apache 12-F LF

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 9909058-01AMS		Batch ID: GC-1_990924		Test Code: SW8021B		Units: µg/Kg		Analysis Date 09/24/1999		Prep Date:	
Client ID: Landfarm Comp.		9909058		Run ID: GC-1_990924A				SeqNo: 19938			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	46.57	1	60	0	77.6%	68	106				
Ethylbenzene	45.62	1	60	1.866	72.9%	64	110				
m,p-Xylene	87.03	2	120	7.58	66.2%	55	110				
Methyl tert-Butyl Ether	49.99	10	60	0	83.3%	50	124				
o-Xylene	54.24	1	60	1.73	87.5%	70	109				
Toluene	48	2	60	0	80.0%	72	104				

Sample ID: 9909058-01AMSD		Batch ID: GC-1_990924	Test Code: SW8021B	Units: µg/Kg	Analysis Date 09/24/1999				Prep Date:		
Client ID: Landfarm Comp.		9909058	Run ID: GC-1_990924A		SeqNo: 19940						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	46.29	1	60	0	77.1%	68	106	46.57	0.6%	10	
Ethylbenzene	46.61	1	60	1.866	74.6%	64	110	45.62	2.1%	13	
m,p-Xylene	85.25	2	120	7.58	64.7%	55	110	87.03	2.1%	18	
Methyl tert-Butyl Ether	50.17	10	60	0	83.6%	50	124	49.99	0.4%	9	
o-Xylene	53.92	1	60	1.73	87.0%	70	109	54.24	0.6%	12	
Toluene	48.1	2	60	0	80.2%	72	104	48	0.2%	10	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

GCU 13 SWD #1

Sec 13-T29N-R13W

4-24

ATK

2-7/8" 6.5# J55 B2D tbg

8-5/8" 24"
STC CSA 3
w/cmt circBaker AL-2 Lok-set
pkr @ 2775' w/on-off toolDV tool @ 197
cmt'd w/4603
25 bbls cmt to 8Cliffhouse perfs:
2870' - 2972' (632 holes)Manefee perfs:
3291' - 3604' (1032 holes)Point Lookout perfs:
3736' - 3762' (1208 holes)5-1/2" 15.5# J
STC CSA 4007
w/650 3x3PBTD : 3969'
TD : 4008'

On Site Technologies, LTD.

Date: 28-Sep-99

CLIENT: Cimarron Oilfield Service

Work Order: 9909058

Project: Jicarilla Apache 12-F LF

QC SUMMARY REPORT

Method Blank

Sample ID: MB1	Batch ID: GC-1_990924	Test Code: SW8021B	Units: µg/Kg	Analysis Date 09/24/1999	Prep Date:
Client ID:	9909058	Run ID: GC-1_990924A		SeqNo: 19937	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Benzene	ND	1			
Ethylbenzene	ND	1			
m,p-Xylene	1.727	2			J
Methyl tert-Butyl Ether	ND	10			
o-Xylene	.9105	1			J
Toluene	ND	2			

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

1 of 1

The operator must submit a written procedure and rig-up diagram to the OCD at least 24 hours before starting the test. The procedure will contain the following information:

- A description of the mechanical configuration of the well.
- The history of injection pressures and volumes.
- The history of any fracture treatments and pressures especially ISIP.

A bottom hole pressure recorder will be required for wells deeper than 2000' and injection rates greater than 1 BPM.

- A pressure gauge and recorder of the appropriate range will be used during the test.

Wells currently injecting must be shut-in at least 24 hours before the test unless the shut-in pressures indicate that the well has not adequately stabilized and a longer time is necessary.

Starting pump rates and pressures must be lower than the current rates and pressures if the well is currently injecting and there must be at least 3 steps below the .2psi/ft gradient and 3 steps above the breakover point.

Pumping equipment must be able to pump at the rates and pressures needed for the test.

Rate changes will be .5bpm or smaller unless the OCD witness determines that bigger rate changes are necessary due to small incremental increases in pressure.

Each step will be at least 15 minutes in duration unless otherwise determined by the OCD. Step duration must not be changed during the test.

The operator must have enough water on hand for the test.

The casing and bradenhead pressures will be monitored during the test.

All wellhead equipment must be rated for the anticipated pressures.

CLIENT: Cimarron Oilfield Service
Work Order: 9909058
Project: Jicarilla Apache 12-F LF

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: CCV5 GRO_99083	Batch ID: 8015GRO_S-	Test Code: SW8015B	Units: mg/Kg	Analysis Date 09/16/1999	Prep Date:
Client ID: 9909058	Run ID: GC-1_990916A	PQL	SPK value	SeqNo: 19688	
Analyte	Result	%REC	LowLimit	HighLimit	RPD Ref Val
T/R Hydrocarbons: C6-C10	1.616	89.2%	85	115	
Trifluorotoluene	.0761	95.1%	77	134	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

Packer: Baker AL-2 Lok-set @ 2775'

Perfs: 2870' - 2972' (Cliffhouse)
3291' - 3604' (Menefee)
3736' - 3762' (Point Lookout)

Current MASIP: 571 psi

Last rig work: 2/5/94

History of injection pressures and volumes

2/1/94: Fraced well down 5-1/2" csg with 138,726 gal lease water and 164,780 lbs 20/40 Brady sand, 1000 gal 15% HCl and 400 ball sealers. Average injection rate and pressure during pad was 45 bpm @ 1650 psi. ISIP was 750 psi surface pressure or 2100 psi calculated BHP.

Proposed step-rate procedure

1. SI well minimum of 24 hrs prior to test. Notify OCD inspector.
2. RIH with electronic pressure gauge to 2830'.
3. RU chart pressure recorder to tubing, casing, and bradenhead.
4. RU Dowell pump truck. Test backside to 300 psi.
5. Perform step rate test from 0.5 bpm to 4.0 bpm in 0.5 bpm increments. Stay at each rate a minimum of 15 minutes or until stabilized pressures are achieved. Need to have a minimum of 500 bbls of lease water on hand before starting test.

Allen Kutch

On Site Technologies, LTD.

Date: 28-Sep-99

CLIENT: Cimarron Oilfield Service
Work Order: 9909058
Project: Jicarilla Apache 12-F LF

QC SUMMARY REPORT
Laboratory Control Spike - generic

Sample ID: LCS Soil	Batch ID: 8015GRO_S-	Test Code: SW8015B	Units: mg/Kg	Analysis Date 09/16/1999	Prep Date:						
Client ID:	9909058	Run ID: GC-1_990916A		SeqNo: 19665							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.392	0.18	1.802	0.0415	74.9%	65.9	118				

Qualifiers: NID - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank