



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1119321  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx)      (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

*(Data must be collected from the Reserve Pit)*

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



1119321

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*  
 Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*  
 Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR: \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Citation Oil & Gas Corp.
Well Name	Putnam Inv 7
Doc ID	1119321

All Electric Logs Run

Geological Report
Dual Induction
Micro Log
Compensated/Neutron
Sonic Log

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

Home Office P.O. Box 32 Russell, KS 67665

No. 6512

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
2-9-13	23	9	21	Coraham	KS		6:15 A.M.

Location *Palco Ball Park 4W 1/8 S E into*

Lease	<i>Putnam</i>	Well No.	<i>7</i>	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Contractor	<i>DICK #10</i>				
Type Job	<i>Productive String</i>			Charge To	<i>Central Oil Co</i>
Hole Size	<i>7 7/8</i>	T.D.	<i>3854</i>	Street	
Csg.	<i>5 1/2</i>	Depth	<i>3852</i>	City	State
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	<i>84.44</i>	Shoe Joint	<i>84.44</i>	Cement Amount Ordered	<i>235 com 10% Salt 2% GEL</i>
Meas Line		Displace	<i>89 1/2 BCL</i>		<i>30 gal mud flush 1/4 # F10</i>

**EQUIPMENT**

Pumptrk	No. <i>9</i>	Cementer Helper	Common
Bulktrk	No. <i>14</i>	Driver	Poz. Mix
Bulktrk	No. <i>14</i>	Driver	Gel.
Bulktrk	No. <i>14</i>	Driver	Calcium

**JOB SERVICES & REMARKS**

Remarks:	Hulls
Rat Hole <i>3051K</i>	Salt
Mouse Hole <i>3050</i>	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
<i>5 1/2 csg @ 3852 Tissue 3767 csg</i>	Sand
<i>1st Circulation Pump 500 gal Mud 400 gal</i>	Handling
<i>10 BCL Special Plug Retainer</i>	Mileage

**FLOAT EQUIPMENT**

<i>Cement 5 1/2 with 1905K Clear lines</i>	Guide Shoe	<i>5 1/2</i>
<i>Digital Plug Plug 1000 @ 1500*</i>	Centralizer	<i>14 Timberline 200 S</i>
<i>Release Pressure Dry</i>	Baskets	<i>2 Weather Ford</i>
	AFU Inserts	
	Float Shoe	<i>1</i>
	Latch Down	<i>1</i>

	Pumptrk Charge	
	Mileage	
	Tax	
	Discount	
	Total Charge	

X Signature *Shannon*

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

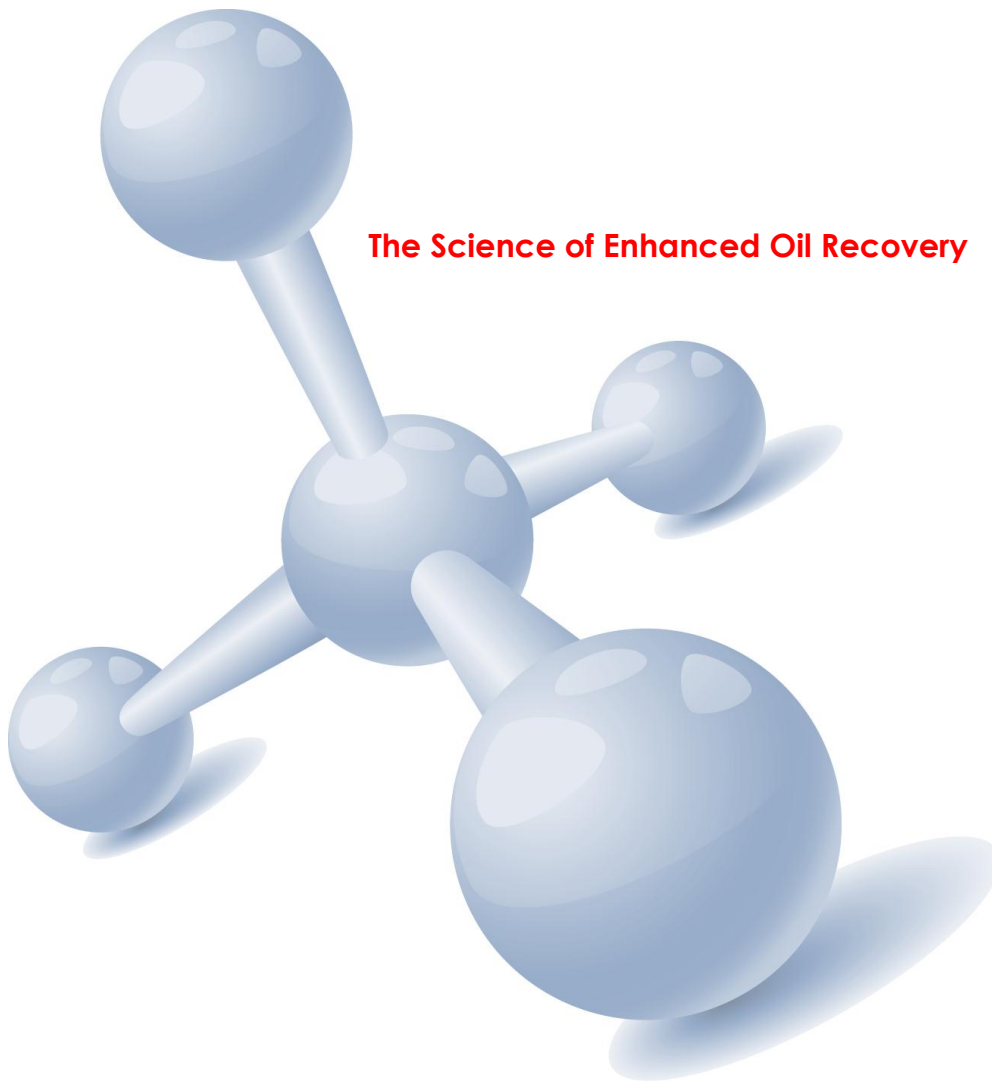
Phone 785-483-2025

Home Office P.O. Box 32 Russell, KS 67665

No. 6507

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
24.13	23	9	21	Corraham	KS		4:00pm
Lease				Location			
Putnam				Palco Bull Rock SW 1/4 E10			
Well No. 7				Owner			
Contractor				To Quality Oilwell Cementing, Inc.			
DUKE #10				You are hereby requested to rent cementing equipment and furnish			
Type Job				cement and helper to assist owner or contractor to do work as listed.			
Surface				Charge To			
Hole Size				Citation 0.1			
12 1/4				T.D. 1770			
Csg. 8 5/8				Depth 1761.31			
Tbg. Size				Street			
Depth				City			
Tool				State			
The above was done to satisfaction and supervision of owner agent or contractor.							
Cement Left in Csg. 88.40				Cement Amount Ordered			
Shoe Joint 88.40				650 100 3 3/4 2 1/2 1 1/2			
Meas Line				Displace 10642BC			
<b>EQUIPMENT</b>				Common			
Pumptrk 9				Cementer Helper			
No. 9				Poz. Mix			
Bulktrk #1				Driver			
No. 1				Gel.			
Bulktrk #13				Driver			
No. 13				Calcium			
<b>JOB SERVICES &amp; REMARKS</b>				Hulls			
Remarks:				Salt			
Rat Hole				Flowseal			
Mouse Hole				Kol-Seal			
Centralizers				Mud CLR 48			
Baskets				CFL-117 or CD110 CAF 38			
D/V or Port Collar				Sand			
Cement - (overlaid)				Handling			
				Mileage			
<b>FLOAT EQUIPMENT</b>							
				Guide Shoe 8 5/8			
				Centralizer 12			
				Baskets			
				AFU Inserts. Raffle Plate			
				Float Shoe Rubber Plug			
				Latch Down			
				Pumptrk Charge			
				Mileage			
				Tax			
				Discount			
				Total Charge			
X Signature							
E. Harrison							



The Science of Enhanced Oil Recovery

Treatment Summary For

## **CITATION Oil & Gas Corp.**

**MARCIT<sup>sm</sup> Gel Conformance  
Morel**

**Putnam Investments #7  
Rooks County, Kansas**

March 4, 2013

## **TREATMENT SUMMARY**

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### **PURPOSE**

Use MARCIT<sup>sm</sup> polymer gel technology to 1) decrease water production, 2) lower producing fluid level, 3) improve draw-down on oil-saturated reservoir matrix rock, 4) improve oil recovery and well economics.

### **TREATMENT**

TIORCO equipment and personnel arrived on location on March 1, 2013. A tailgate safety meeting was held to discuss all potential hazards specific to the job. TIORCO's Portable Unit #17 was connected to frac tanks for treatment supply water and to the wellhead for polymer solution injection. The unit was then connected to an electrical source. The treatment consisted of 2,021 BBLS of gel. The treatment started on March 1, 2013 at 07:42 and ended on March 3, 2013 at 14:35. The gel was made-up of 2,695 lbs. of EOR204 (Medium molecular weight polymer) and 575 lbs. of EOR684 (crosslinker). Details for each stage of the treatment, job log, and injection charts are included.

### **MARCIT<sup>sm</sup> GEL QA/QC**

Representative samples of cross-linked polymer solution were collected during all treatment stages to ensure that the intended gels would ultimately form. Pre-gel samples were stored at a temperature of 120°F in an oven onboard the TIORCO portable polymer injection unit. All samples indicated that gels formed as intended.

TIORCO is very interested in monitoring and evaluating the results of this treatment with time. If you should have questions or comments regarding the job, please do not hesitate to contact Mike Lantz in our Denver office at (303) 923-6440. We greatly appreciate the opportunity to be of service to Citation Oil & Gas Corp. and look forward to working with you again in the future.



## TREATMENT STAGE LOG

Stage	Date	Time	Date	Time	Polymer ppm	BBLs / Stage	WHP (psi)		BHP (psi)		Pump Rate (bpd)		Comments
	Begin	Begin	End	End			Begin	End	Begin	End	Begin	End	
1	3/1/13	7:42 AM	3/1/13	8:50 AM	0	50	0	0	1,049	1,058	1,080	1,080	Stage # 1: Water Flush with CRO195 & X-Cide 102w.
2	3/1/13	8:50 AM	3/2/13	6:10 PM	3,000	1,250	0	0	1,058	1,331	1,080	1,089	Stage # 2: 3,000 PPM with X-Cide 102w
3	3/2/13	8:13 PM	3/3/13	12:00 PM	4,500	708	0	10	1,060	1,662	1,080	1,080	Stage # 3: 4,500 PPM with X-Cide 102w
4	3/3/13	12:00 PM	3/3/13	1:25 PM	10,000	63	10	175	1,662	1,860	1,080	1,080	Stage # 4: 10,500 PPM with X-Cide 102w
5	3/3/13	1:25 PM	3/3/13	2:35 AM	0	50	175	0	1,860	1,702	1,080	1,080	Stage # 5: Water Flush with CRO195 & X-Cide 102w.
<b>Totals</b>						<b>2,121</b>							

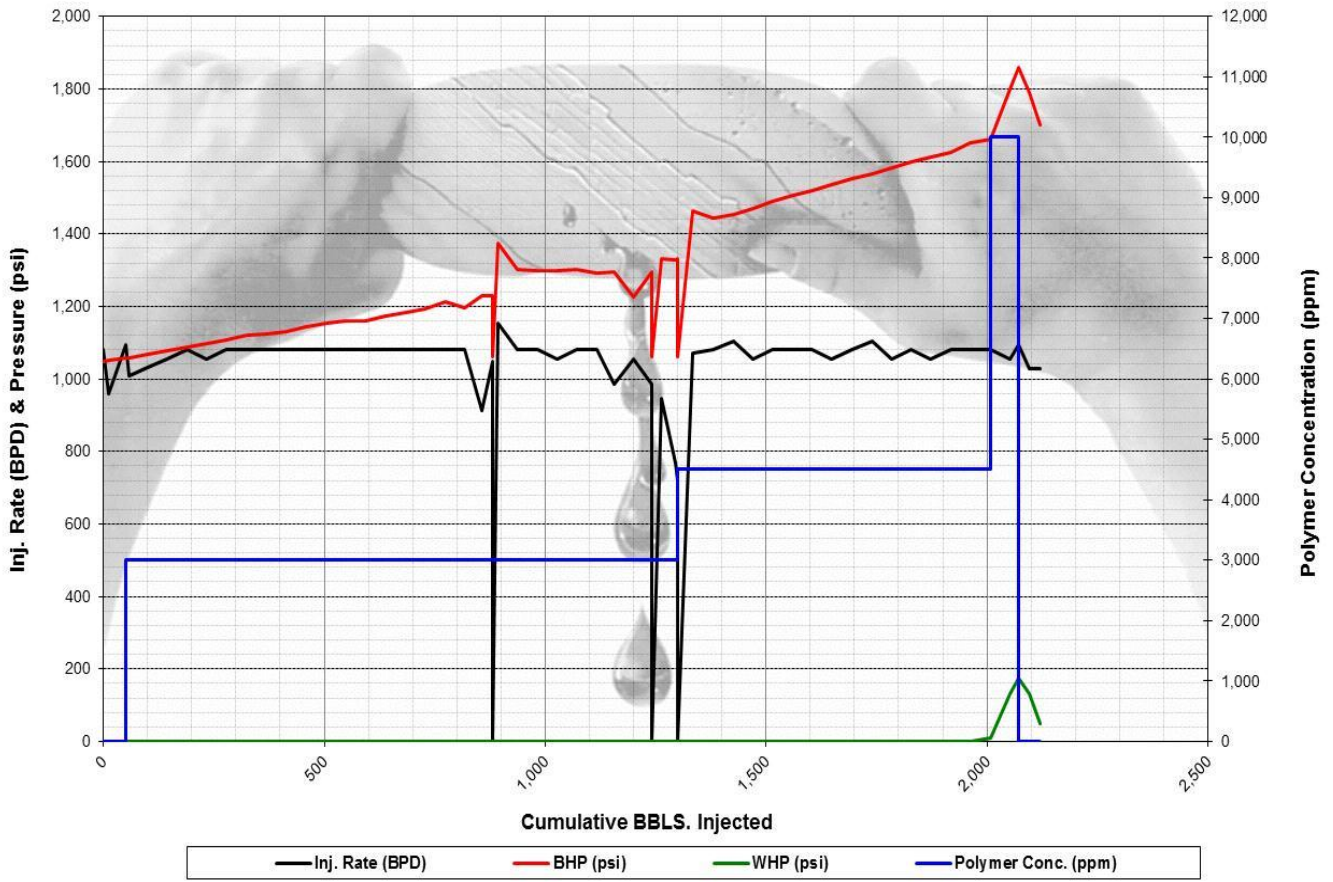
## MARCIT<sup>SM</sup> GEL QA/QC

Sample No.	Treatment Stage	Sample Date	Sample Time	Cum. Bbls.	Polymer ppm	Polymer:X-Linker Ratio	Comments
1	2	03/01/13	10:00	100	3,000	40:1	Graded 3g
2	2	03/01/13	00:00	728	3,000	40:1	Graded 3g
3	2	03/02/13	12:00	1,116	3,000	40:1	Graded 3g
4	2	03/02/13	14:00	1,201	3,000	40:1	Graded 3g
5	3	03/02/13	22:00	1,380	4,500	40:1	Graded 3g
6	3	03/03/13	01:00	1,515	4,500	40:1	Graded 3g
7	3	03/03/13	11:00	1,963	4,500	40:1	Graded 4g
8	4	03/03/13	13:00	2,052	10,000	40:1	Graded 9e

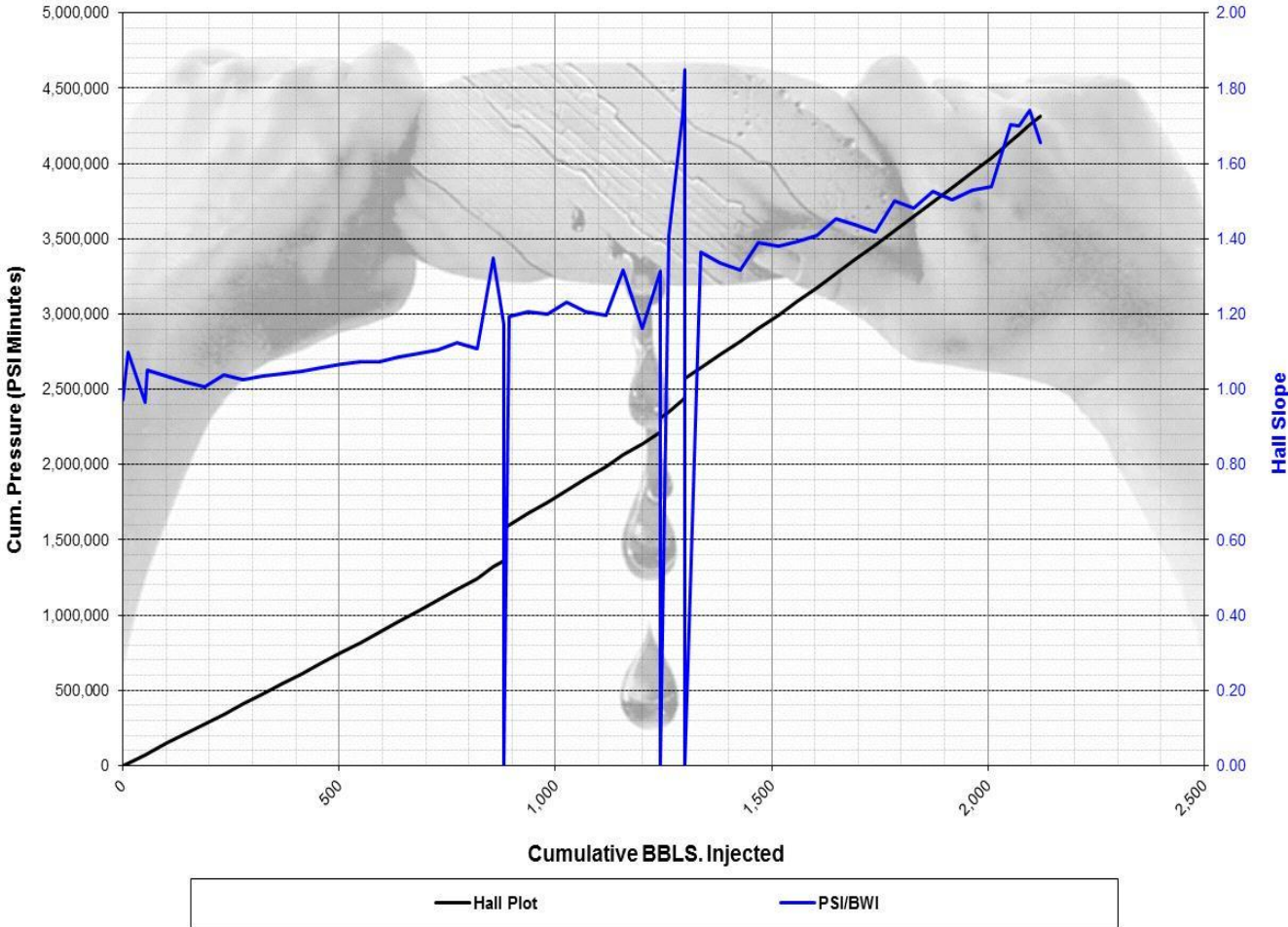




# RATE, PRESSURE, & CONCENTRATION



# HALL SLOPE



# TREATMENT JOB LOG

DATE	TIME	INJECTION RATE		CUM. INJ BBLs	WHP PSI	BHP PSI	HALL SLOPE	Polymer PPM	POLYMER LBS: Estimate	COMMENTS
		BPD	BPM							
1-Mar-13	7:42	1,080	0.75	0	0	1,049	0.97	0	0	Begin Well Treatment : Stage #1 Water Flush with Baker X-Cide 102w and CRO 195
1-Mar-13	8:00	960	0.67	12	0	1,053	1.10	0	0	
1-Mar-13	8:50	1,094	0.76	50	0	1,058	0.97	0	0	End Stage #1
1-Mar-13	8:50	1,094	0.76	50	0	1,058	0.97	3,000	0	Begin Stage #2 3,000 PPM with Baker X-Cide 102w
1-Mar-13	9:00	1,008	0.70	57	0	1,058	1.05	3,000	7	
1-Mar-13	10:00	1,032	0.72	100	0	1,069	1.04	3,000	52	Took Sample #1: Graded 3g
1-Mar-13	11:00	1,056	0.73	144	0	1,077	1.02	3,000	99	
1-Mar-13	12:00	1,080	0.75	189	0	1,087	1.01	3,000	146	
1-Mar-13	13:00	1,056	0.73	233	0	1,098	1.04	3,000	192	
1-Mar-13	14:00	1,080	0.75	278	0	1,108	1.03	3,000	239	
1-Mar-13	15:00	1,080	0.75	323	0	1,119	1.04	3,000	286	
1-Mar-13	16:00	1,080	0.75	368	0	1,124	1.04	3,000	334	
1-Mar-13	17:00	1,080	0.75	413	0	1,131	1.05	3,000	381	
1-Mar-13	18:00	1,080	0.75	458	0	1,143	1.06	3,000	428	
1-Mar-13	19:00	1,080	0.75	503	0	1,153	1.07	3,000	475	
1-Mar-13	20:00	1,080	0.75	548	0	1,160	1.07	3,000	522	
1-Mar-13	21:00	1,080	0.75	593	0	1,160	1.07	3,000	570	
1-Mar-13	22:00	1,080	0.75	638	0	1,173	1.09	3,000	617	
1-Mar-13	23:00	1,080	0.75	683	0	1,183	1.10	3,000	664	
2-Mar-13	0:00	1,080	0.75	728	0	1,193	1.10	3,000	711	Took Sample #2: Graded 3g
2-Mar-13	1:00	1,080	0.75	773	0	1,212	1.12	3,000	758	
2-Mar-13	2:00	1,080	0.75	818	0	1,196	1.11	3,000	806	
2-Mar-13	3:00	912	0.63	856	0	1,231	1.35	3,000	845	
2-Mar-13	3:33	1,047	0.73	880	0	1,228	1.17	3,000	871	Shut Down PU: Triplex Valves Sticking
2-Mar-13	4:00	0	0.00	880	0	1,200	0.00	3,000	871	Note: BHP was not recorded during shut down numbers reported are estimates.
2-Mar-13	5:00	0	0.00	880	0	1,150	0.00	3,000	871	
2-Mar-13	6:00	0	0.00	880	0	1,100	0.00	3,000	871	
2-Mar-13	6:45	0	0.00	880	0	1,060	0.00	3,000	871	Restart Treatment : Stage #2
2-Mar-13	7:00	1,152	0.80	892	0	1,376	1.19	3,000	883	
2-Mar-13	8:00	1,080	0.75	937	0	1,302	1.21	3,000	930	
2-Mar-13	9:00	1,080	0.75	982	0	1,297	1.20	3,000	978	
2-Mar-13	10:00	1,056	0.73	1,026	0	1,300	1.23	3,000	1,024	
2-Mar-13	11:00	1,080	0.75	1,071	0	1,302	1.21	3,000	1,071	
2-Mar-13	12:00	1,080	0.75	1,116	0	1,291	1.20	3,000	1,118	Took Sample #3: Graded 3g
2-Mar-13	13:00	984	0.68	1,157	0	1,295	1.32	3,000	1,161	
2-Mar-13	14:00	1,056	0.73	1,201	0	1,226	1.16	3,000	1,207	Took Sample #4: Graded 3g
2-Mar-13	15:00	984	0.68	1,242	0	1,294	1.32	3,000	1,250	Shut Down PU: Cleaned Heavy Oil From Flow Meter, Check Valve and Replaced Sock Filter
2-Mar-13	16:00	0	0.00	1,242	0	1,064	0.00	3,000	1,250	
2-Mar-13	16:28	0	0.00	1,242	0	1,062	0.00	3,000	1,250	Restart Treatment : Stage #2
2-Mar-13	17:00	945	0.66	1,263	0	1,332	1.41	3,000	1,272	
2-Mar-13	18:00	768	0.53	1,295	0	1,329	1.73	3,000	1,306	
2-Mar-13	18:10	720	0.50	1,300	0	1,331	1.85	3,000	1,311	Shut Down PU: Cleaned Valves on unit and washed fluid end out/ End Stage #2.
2-Mar-13	20:13	0	0.00	1,300	0	1,061	0.00	4,500	1,311	Restart Treatment: Begin Stage # 3. 4,500 ppm with Baker X-Cide 102w
2-Mar-13	21:00	1,072	0.74	1,335	0	1,463	1.36	4,500	1,366	
2-Mar-13	22:00	1,080	0.75	1,380	0	1,443	1.34	4,500	1,437	Took Sample #5 4,500 ppm: Graded 3g
2-Mar-13	23:00	1,104	0.77	1,426	0	1,454	1.32	4,500	1,509	
3-Mar-13	0:00	1,056	0.73	1,470	0	1,469	1.39	4,500	1,579	
3-Mar-13	1:00	1,080	0.75	1,515	0	1,490	1.38	4,500	1,649	
3-Mar-13	2:00	1,080	0.75	1,560	0	1,505	1.39	4,500	1,720	
3-Mar-13	3:00	1,080	0.75	1,605	0	1,521	1.41	4,500	1,791	Took Sample #6 4,500 ppm: Graded 3g
3-Mar-13	4:00	1,056	0.73	1,649	0	1,536	1.45	4,500	1,860	
3-Mar-13	5:00	1,080	0.75	1,694	0	1,551	1.44	4,500	1,931	
3-Mar-13	6:00	1,104	0.77	1,740	0	1,566	1.42	4,500	2,003	
3-Mar-13	7:00	1,056	0.73	1,784	0	1,583	1.50	4,500	2,073	
3-Mar-13	8:00	1,080	0.75	1,829	0	1,599	1.48	4,500	2,144	
3-Mar-13	9:00	1,056	0.73	1,873	0	1,611	1.53	4,500	2,213	
3-Mar-13	10:00	1,080	0.75	1,918	0	1,624	1.50	4,500	2,284	
3-Mar-13	11:00	1,080	0.75	1,963	0	1,651	1.53	4,500	2,354	Took Sample # 7:4,500 ppm: Graded 4g



DATE	TIME	INJECTION RATE		CUM. INJ BBLs	WHP PSI	BHP PSI	HALL SLOPE	Polymer PPM	POLYMER LBS: Estimate	COMMENTS
		BPD	BPM							
3-Mar-13	12:00	1,080	0.75	2,008	10	1,662	1.54	4,500	2,425	End Stage # 3
3-Mar-13	12:00	1,080	0.75	2,008	10	1,662	1.54	10,000	2,425	Begin Stage # 4 10,000 PPM with Baker X-Cide 102w
3-Mar-13	13:00	1,056	0.73	2,052	132	1,799	1.70	10,000	2,579	Took Sample # 8: 10,000 ppm: Graded 9e
3-Mar-13	13:25	1,094	0.76	2,071	175	1,860	1.70	10,000	2,645	End Stage # 4
3-Mar-13	13:25	1,094	0.76	2,071	175	1,860	1.70	0	2,645	Begin Stage # 5: Water Flush with Baker X-Cide 102w and CRO 195
3-Mar-13	14:00	1,029	0.71	2,096	130	1,790	1.74	0	2,645	
3-Mar-13	14:35	1,029	0.71	2,121	50	1,702	1.65	0	2,645	End Stage # 5:
3-Mar-13	14:35	1,029	0.71	2,121	50	1,702	1.65	0	2,645	End Well Treatment



Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

April 08, 2013

Tami Troxel  
Citation Oil & Gas Corp.  
14077 Cutten Rd  
PO BOX 690688  
HOUSTON, TX 77269-0688

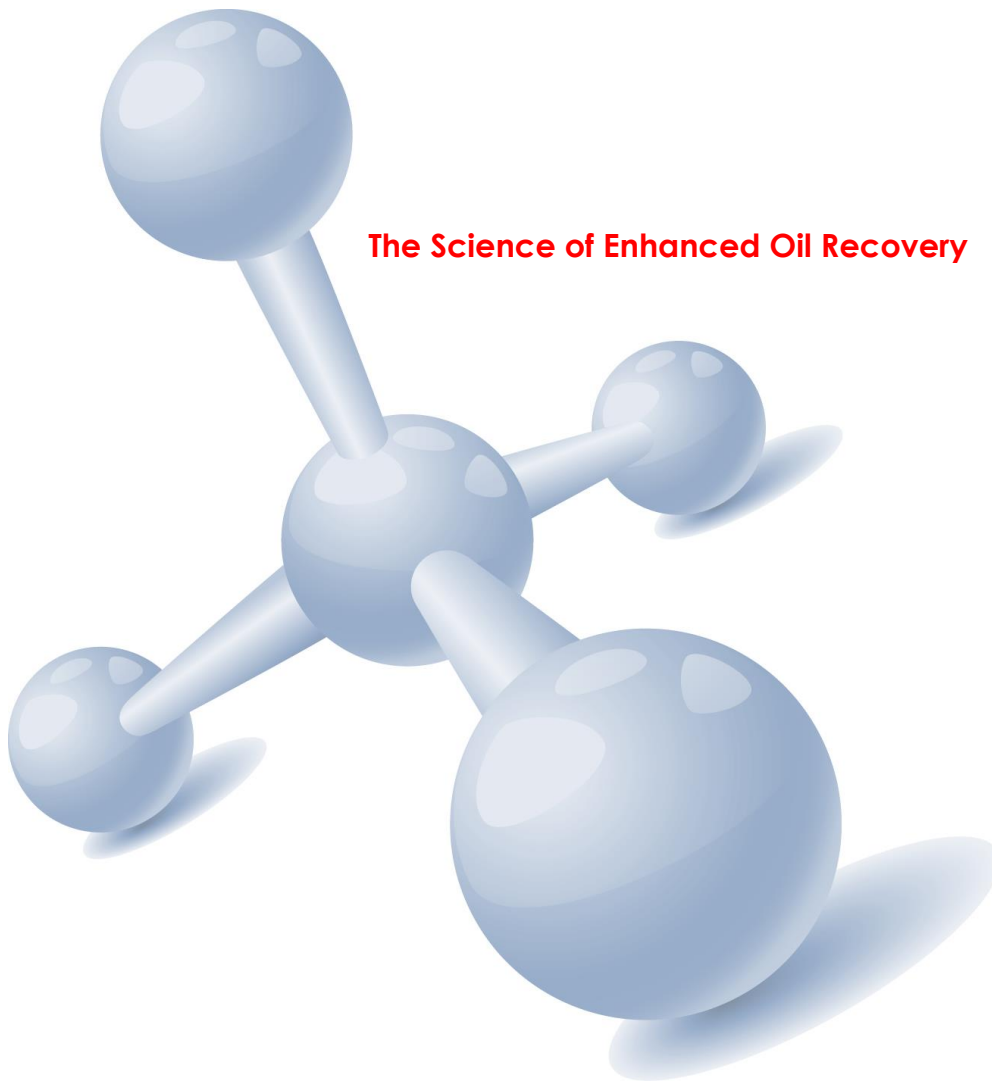
Re: ACO1  
API 15-065-23887-00-00  
Putnam Inv 7  
NW/4 Sec.23-09S-21W  
Graham County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Tami Troxel



The Science of Enhanced Oil Recovery

Treatment Summary For

**Citation Oil & Gas Corp.**

**MARCIT<sup>sm</sup> Gel Conformance  
Morel**

**Putnam Investments #7  
Rooks County, Kansas**

April 9, 2013

**TIORCO**  
A NALCO & STEPAN COMPANY

## **TREATMENT SUMMARY**

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### **PURPOSE**

Use MARCIT<sup>sm</sup> polymer gel technology to 1) decrease water production, 2) lower producing fluid level, 3) improve draw-down on oil-saturated reservoir matrix rock, 4) improve oil recovery and well economics.

### **TREATMENT**

TIORCO equipment and personnel arrived on location on April 5, 2013. A tailgate safety meeting was held to discuss all potential hazards specific to the job. TIORCO's Portable Unit #17 was connected to frac tanks for treatment supply water and to the wellhead for polymer solution injection. The unit was then connected to an electrical source. The treatment consisted of 1,679 BBLS of gel. The treatment started on April 5, 2013 at 08:00 and ended on April 6, 2013 at 23:45. The gel was made-up of 2,090 lbs. of EOR204 (Medium molecular weight polymer) and 453 lbs. of EOR684 (crosslinker). Details for each stage of the treatment, job log, and injection charts are included.

### **MARCIT<sup>sm</sup> GEL QA/QC**

Representative samples of cross-linked polymer solution were collected during all treatment stages to ensure that the intended gels would ultimately form. Pre-gel samples were stored at a temperature of 120°F in an oven onboard the TIORCO portable polymer injection unit. All samples indicated that gels formed as intended.

TIORCO is very interested in monitoring and evaluating the results of this treatment with time. If you should have questions or comments regarding the job, please do not hesitate to contact Mike Lantz in our Denver office at (303) 923-6440. We greatly appreciate the opportunity to be of service to Citation Oil & Gas Corp. and look forward to working with you again in the future.



## TREATMENT STAGE LOG

Stage	Date	Time	Date	Time	Polymer ppm	BBLs / Stage	WHP (psi)		BHP (psi)		Pump Rate (bpd)		Comments
	Begin	Begin	End	End			Begin	End	Begin	End	Begin	End	
1	4/5/13	8:00 AM	4/5/13	9:12 AM	0	50	0	VAC	1,060	1,125	1,080	1,080	Stage #1: Water Flush w/ CRO189 & 102w
2	4/5/13	9:12 AM	4/6/13	2:24 PM	3,000	1,312	VAC	VAC	1,125	1,497	1,080	1,080	Stage #2: 3,000 PPM w/ X-Cide 102w
3	4/6/13	2:24 PM	4/6/13	8:05 PM	4,500	255	VAC	6	1,497	1,672	1,080	1,080	Stage #3: 4,500 PPM w/ X-Cide 102w
4	4/6/13	8:05 PM	4/6/13	9:26 PM	6,000	60	6	102	1,672	1,773	1,080	1,080	Stage #4: 6,000 PPM w/ X-Cide 102w
5	4/6/13	9:26 PM	4/6/13	10:35 PM	10,000	52	102	210	1,773	1,893	1,080	1,080	Stage #5: 10,000 PPM w/ X-Cide 102w
6	4/6/13	10:35 PM	4/6/13	11:45 PM	0	50	210	150	1,893	1,839	1,080	1,080	Stage #6: Water Flush w/ CRO189 & 102w
<b>Totals</b>						<b>1,779</b>							

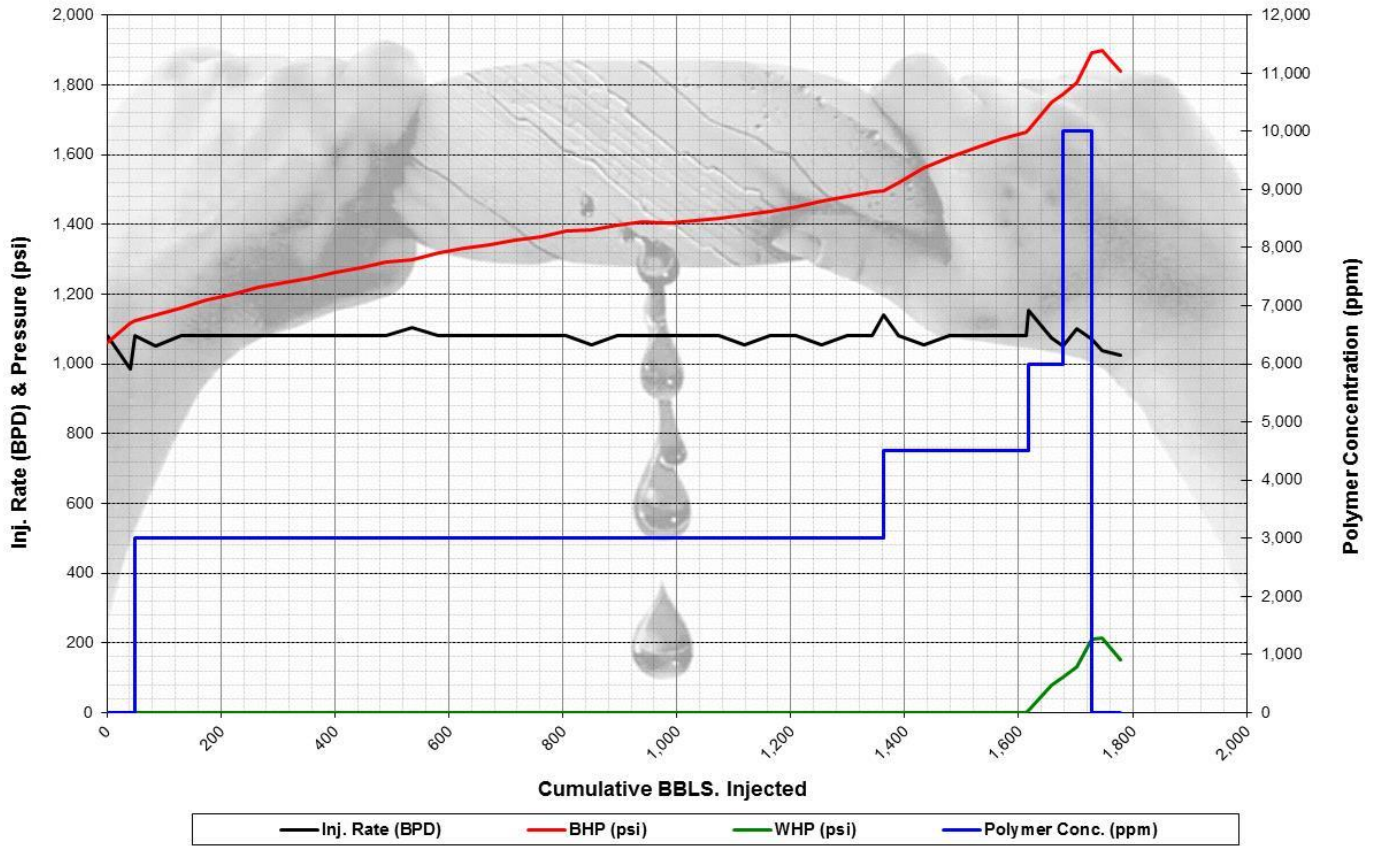
## MARCIT<sup>SM</sup> GEL QA/QC

Sample No.	Treatment Stage	Sample Date	Sample Time	Cum. Bbls.	Polymer ppm	Polymer:X-Linker Ratio	Comments
1	2	04/05/13	11:00	130	3,000	40:1	Graded 3g
2	2	04/06/13	00:00	716	3,000	40:1	Graded 3g
3	2	04/06/13	12:00	1,253	3,000	40:1	Graded 3g
4	3	04/06/13	16:00	1,433	4,500	40:1	Graded 5g
5	4	04/06/13	21:00	1,658	6,000	40:1	Graded 7g
6	5	04/06/13	22:00	1,703	10,000	40:1	Graded 9e

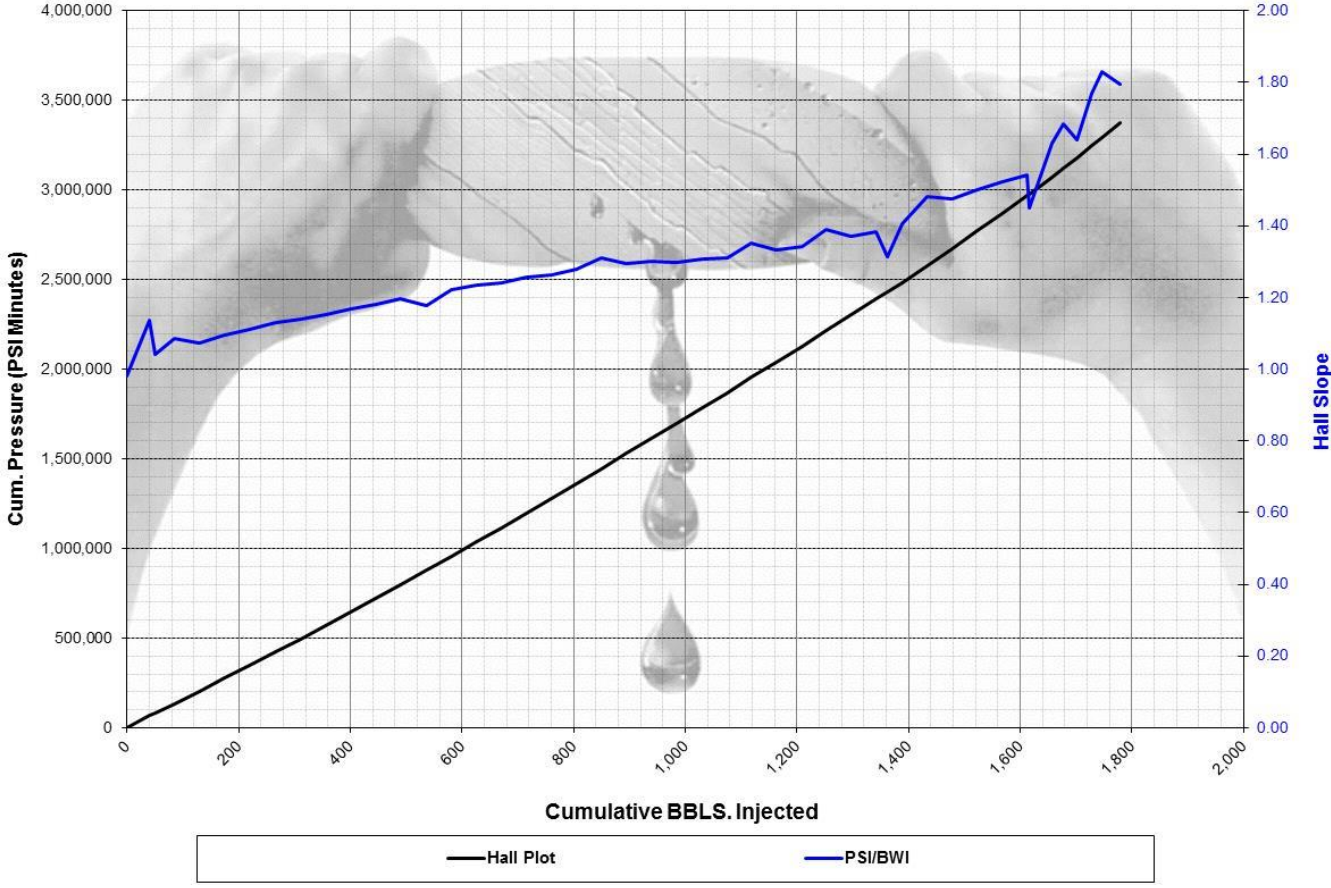




# RATE, PRESSURE, & CONCENTRATION



# HALL SLOPE



# TREATMENT JOB LOG

DATE	TIME	INJECTION RATE		CUM. INJ BBLs	WHP PSI	BHP PSI	HALL SLOPE	Polymer PPM	POLYMER LBS: Estimate	COMMENTS
		BPD	BPM							
5-Apr-13	8:00	1,080	0.75	0	0	1,060	0.98	0	0	Begin Well Treatment - Stage # 1: Water Flush w/ Baker CRO195 and X-Cide 102w
5-Apr-13	9:00	984	0.68	41	0	1,118	1.14	0	0	
5-Apr-13	9:12	1,080	0.75	50	0	1,125	1.04	0	0	End Stage # 1
5-Apr-13	9:12	1,080	0.75	50	0	1,125	1.04	3,000	0	Begin Stage #2 : 3,000 PPM With X-Cide 102w
5-Apr-13	10:00	1,050	0.73	85	0	1,141	1.09	3,000	37	
5-Apr-13	11:00	1,080	0.75	130	0	1,160	1.07	3,000	84	Took Sample #1: Graded 3g
5-Apr-13	12:00	1,080	0.75	175	0	1,184	1.10	3,000	131	
5-Apr-13	13:00	1,080	0.75	220	0	1,199	1.11	3,000	178	
5-Apr-13	14:00	1,080	0.75	265	0	1,221	1.13	3,000	226	
5-Apr-13	15:00	1,080	0.75	310	0	1,232	1.14	3,000	273	
5-Apr-13	16:00	1,080	0.75	355	0	1,246	1.15	3,000	320	
5-Apr-13	17:00	1,080	0.75	400	0	1,262	1.17	3,000	367	
5-Apr-13	18:00	1,080	0.75	445	0	1,274	1.18	3,000	414	
5-Apr-13	19:00	1,080	0.75	490	0	1,291	1.20	3,000	462	
5-Apr-13	20:00	1,104	0.77	536	0	1,300	1.18	3,000	510	
5-Apr-13	21:00	1,080	0.75	581	0	1,319	1.22	3,000	557	
5-Apr-13	22:00	1,080	0.75	626	0	1,332	1.23	3,000	604	
5-Apr-13	23:00	1,080	0.75	671	0	1,340	1.24	3,000	651	
6-Apr-13	0:00	1,080	0.75	716	0	1,356	1.26	3,000	699	Took Sample #2: Graded 3g
6-Apr-13	1:00	1,080	0.75	761	0	1,365	1.26	3,000	746	
6-Apr-13	2:00	1,080	0.75	806	0	1,381	1.28	3,000	793	
6-Apr-13	3:00	1,056	0.73	850	0	1,384	1.31	3,000	839	
6-Apr-13	4:00	1,080	0.75	895	0	1,397	1.29	3,000	886	
6-Apr-13	5:00	1,080	0.75	940	0	1,406	1.30	3,000	934	
6-Apr-13	6:00	1,080	0.75	985	0	1,403	1.30	3,000	981	
6-Apr-13	7:00	1,080	0.75	1,030	0	1,412	1.31	3,000	1,028	
6-Apr-13	8:00	1,080	0.75	1,075	0	1,416	1.31	3,000	1,075	
6-Apr-13	9:00	1,056	0.73	1,119	0	1,426	1.35	3,000	1,121	
6-Apr-13	10:00	1,080	0.75	1,164	0	1,438	1.33	3,000	1,169	
6-Apr-13	11:00	1,080	0.75	1,209	0	1,450	1.34	3,000	1,216	
6-Apr-13	12:00	1,056	0.73	1,253	0	1,468	1.39	3,000	1,262	Took Sample #3: Graded 3g
6-Apr-13	13:00	1,080	0.75	1,298	0	1,479	1.37	3,000	1,309	
6-Apr-13	14:00	1,080	0.75	1,343	0	1,493	1.38	3,000	1,356	
6-Apr-13	14:24	1,140	0.79	1,362	0	1,497	1.31	3,000	1,376	End Stage # 2
6-Apr-13	14:24	1,140	0.79	1,362	0	1,497	1.31	4,500	1,376	Begin Stage #3 : 4,500 PPM With X-Cide 102w
6-Apr-13	15:00	1,080	0.75	1,389	0	1,518	1.41	4,500	1,419	
6-Apr-13	16:00	1,056	0.73	1,433	0	1,564	1.48	4,500	1,488	Took Sample #4: Graded 5g
6-Apr-13	17:00	1,080	0.75	1,478	0	1,593	1.48	4,500	1,559	
6-Apr-13	18:00	1,080	0.75	1,523	0	1,620	1.50	4,500	1,630	
6-Apr-13	19:00	1,080	0.75	1,568	0	1,645	1.52	4,500	1,700	
6-Apr-13	20:00	1,080	0.75	1,613	0	1,664	1.54	4,500	1,771	
6-Apr-13	20:05	1,152	0.80	1,617	6	1,672	1.45	4,500	1,777	End Stage # 3
6-Apr-13	20:05	1,152	0.80	1,617	6	1,672	1.45	6,000	1,777	Begin Stage #4 : 6,000 PPM With X-Cide 102w
6-Apr-13	21:00	1,073	0.75	1,658	80	1,751	1.63	6,000	1,863	Took sample #5: Graded 7g
6-Apr-13	21:26	1,052	0.73	1,677	102	1,773	1.68	6,000	1,903	End Stage # 4
6-Apr-13	21:26	1,052	0.73	1,677	102	1,773	1.68	10,000	1,903	Begin Stage #5 : 10,000 PPM With X-Cide 102w
6-Apr-13	22:00	1,101	0.76	1,703	130	1,807	1.64	10,000	1,994	Took sample #6: Graded 9e
6-Apr-13	22:35	1,070	0.74	1,729	210	1,893	1.77	10,000	2,085	End Stage #5
6-Apr-13	22:35	1,070	0.74	1,729	210	1,893	1.77	0	2,085	Begin Stage #6. Water Flush with CRO 195 & X-ide 102w.
6-Apr-13	23:00	1,037	0.72	1,747	215	1,897	1.83	0	2,085	
6-Apr-13	23:45	1,024	0.71	1,779	150	1,839	1.80	0	2,085	End Stage #6: Treatment Completed



