

KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION

1101944

Form ACO-1 June 2009 Form Must Be Typed Form must be Signed All blanks must be Filled

## WELL COMPLETION FORM

#### WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License #		API No. 15	
Name:		Spot Description:	
Address 1:		Sec	TwpS. R 🗌 East 🗌 West
Address 2:		Fe	eet from Dorth / South Line of Section
City: State: Zip	+	Fe	eet from East / West Line of Section
Contact Person:			Nearest Outside Section Corner:
Phone: ( )		,	/ SE SW
CONTRACTOR: License #			
Name:		-	Well #:
Wellsite Geologist:			VVCII #
0			
Purchaser:		C C	Kelle Davidson
Designate Type of Completion:			Kelly Bushing:
New Well Re-Entry	Workover	·	ug Back Total Depth:
Oil WSW SWD	SIOW	Amount of Surface Pipe Se	et and Cemented at: Feet
Gas D&A ENHR	SIGW	Multiple Stage Cementing (	Collar Used? 🗌 Yes 🗌 No
OG GSW	Temp. Abd.	If yes, show depth set:	Feet
CM (Coal Bed Methane)		If Alternate II completion, c	ement circulated from:
Cathodic Other (Core, Expl., etc.):		feet depth to:	w/sx cmt
If Workover/Re-entry: Old Well Info as follows:			
Operator:			
Well Name:		Drilling Fluid Managemen (Data must be collected from th	
Original Comp. Date: Original Tot	tal Depth:		
	ENHR Conv. to SWD	Chloride content:	ppm Fluid volume: bbls
Conv. to	GSW	Dewatering method used: _	
Plug Back: Plug		Location of fluid disposal if	hauled offsite:
Commingled Permit #:	-	Operator Name:	
Dual Completion Permit #:			
SWD Permit #:			License #:
ENHR Permit #:		Quarter Sec	TwpS. R [_] East [_] West
GSW Permit #:		County:	Permit #:
Spud Date or Date Reached TD Recompletion Date	Completion Date or Recompletion Date		

#### 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
Letter of Confidentiality Received
Date:
Confidential Release Date:
Wireline Log Received
Geologist Report Received
UIC Distribution
ALT I II III Approved by: Date:

	Side Two	
Operator Name:	Lease Name:	Well #:
Sec TwpS. R □ East □ West	County:	

**INSTRUCTIONS:** Show important tops and base 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. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken (Attach Additional She	eets)	Yes No	Lo		n (Top), Depth an	d Datum Top	Sample Datum
Samples Sent to Geolog	ical Survey	Yes No	Num	0		iop	Datam
Cores Taken Electric Log Run Electric Log Submitted E (If no, Submit Copy)	Electronically	<pre>Yes No</pre> NoYes NoNo					
List All E. Logs Run:							
		CASING	RECORD Ne	ew Used			
		Report all strings set-	conductor, surface, inte	ermediate, producti	on, 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

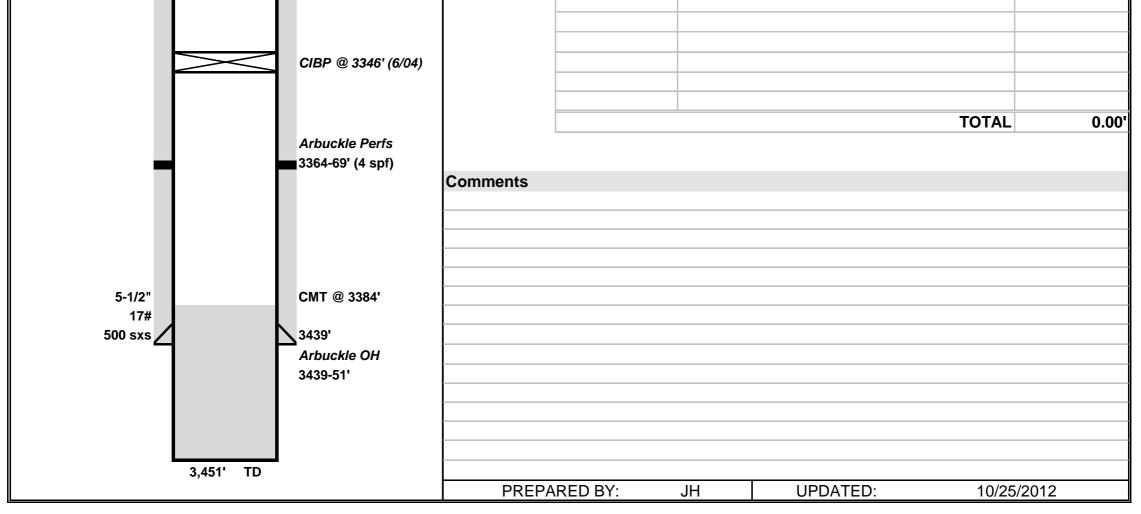
#### ADDITIONAL CEMENTING / SQUEEZE RECORD

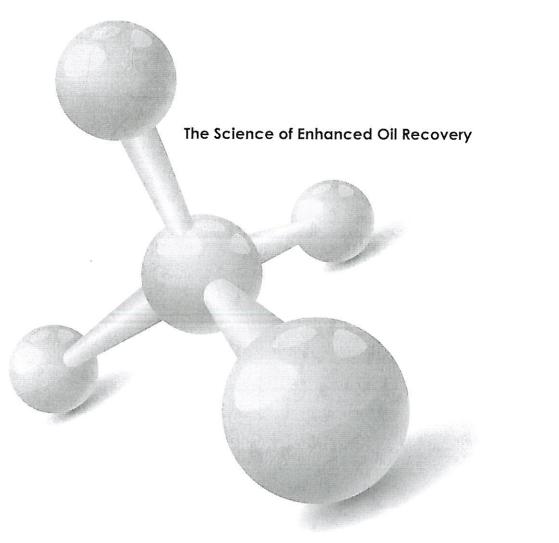
Purpose: Perforate	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
Protect Casing Plug Back TD				
Plug Off Zone				

Shots Per Foot		PERFORATION Specify Fo		RD - Bridge P Each Interval		e			ement Squeeze Record I of Material Used)	Depth
TUBING RECORD:	Siz	ze:	Set At:		Packer	At:	Liner R	un:	No	
Date of First, Resumed I	Product	on, SWD or ENH	<b>ર</b> .	Producing N	lethod:	oing	Gas Lift	Other (Explain)		
Estimated Production Per 24 Hours		Oil Bb	ls.	Gas	Mcf	Wate	ər	Bbls.	Gas-Oil Ratio	Gravity
			I							
DISPOSITIC	ON OF G	BAS:			METHOD	OF COMPLE	TION:		PRODUCTION INTE	RVAL:
Vented Sold		Jsed on Lease		Open Hole	Perf.	Uually (Submit )		Commingled (Submit ACO-4)		
(If vented, Sub	omit ACC	-18.)		Other (Specify)						

## WELLBORE SCHEMATIC

Curr		Lease:	Hendrick				Well No.	#16
Curr	on	API No.	15-051-25220				Status	PR
							Olalus	
		Location:	NE Sec. 13, T1 Ellis		KS		Field:	Romin Chutte
		County:		State:				Bemis-Shutts
8-5/8"		TD	3451'	GL	1880'		Spud Date:	5/12/2003
23#		PBTD	3346'	KB	1888'		Comp Date:	5/19/2003
150 sxs	212'	Current Perfs/OH:	2898-2906', 2938	-44', 2975-79',	Current Zor	ne:	TOP, LK	C C, F, G, I
			2993-99', 3113-18', 79', 323	3164-67', 3174-				
		Surface Equip		9-40				
		Unit Make:			Unit Size:			
		Unit S/N:				it Rotatio	on:	
		SPM:		Stroke Le			Unit Sheave:	
		Prime Mover:					Motor Sheave:	
		Motor S/N:					Motor RPM:	
		Casing Break		Crede	/ \ \ \ /	Denth		Operant
		Curtosa	Size	Grade		Depth	Hole Size	Cement
		Surface	8-5/8"	23		212'		150 sxs
		Production	5-1/2"	17	#	3439'		500 sxs
	TOC Unknown?	Production		_				
	CBL was run	Production						
		Liner						
_			Tubing Break Qty	down Descripti	on			Footage
_								
	Tanaka Darfa							
	Topeka Perfs							
	2938-44'							
	2975-79' 2993-99'							
							TOTAL	. 0.0
_	LKC Perfs							
	3113-18'		Rod Breakdow					
	3164-67' 3174-79'		Qty	Descripti	on			Footage
	3239-45'							





**Treatment Summary For** 

# Citation Oil & Gas Corp.

MARCIT<sup>sm</sup> Gel Conformance Bemis-Shutts Hendrick #16 Ellis County, Kansas

November 13, 2012



## TREATMENT SUMMARY

#### 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 November 5, 2012. 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 2,432 BBLS of gel. The treatment started on November 5, 2012 at 14:30 and ended on November 7, 2012 at 19:19. The gel was made-up of 3,740 lbs. of EOR204 (Medium molecular weight polymer) and 801 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.

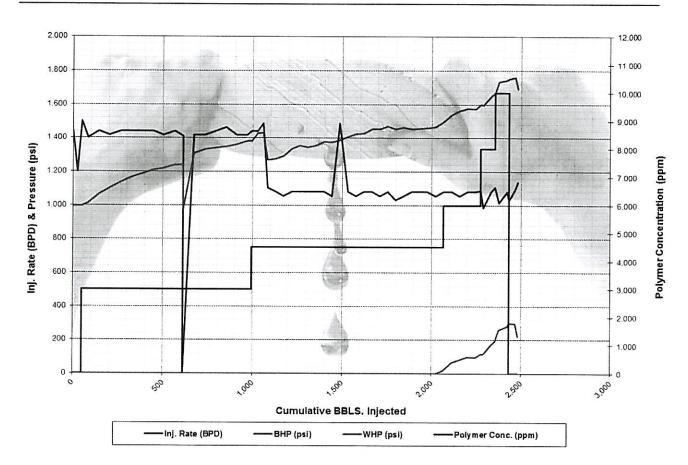
## **TREATMENT STAGE LOG**

Stage	Date	Time	Date	Time	Polymer	BBLS /	WHP	(psi)	BHP	(psi)	Pump Ra	te (bpd)	Comments
	Begin	Begin	End	End	ppm	Stage	Begin	End	Begin	End	Begin	End	Comments
1	11/5/12	2:30 PM	11/5/12	3:24 PM	0	50	0	0			1440	1440	Slage #1 Water Flush with CRO195 / X-Cide 102w
2	11/5/12	3:24 PM	11/6/12	10:26 AM	3,000	945	0	0	995	1382	1440	1440	Stage #2 3,000 ppm. with X-Cide 102w
3	11/6/12	10:26 AM	11/7/12	10:00 AM	4,500	1120	0	21	1382	1496	1440	1080	Stage #3 4,500 ppm with X-Cide 102w
4	11/7/12	10:00 AM	11/7/12	2:41 PM	6,000	210	21	115	1496	1598	1080	1080	Stage #4 6,000 ppm with X-Cide 102w
5	11/7/12	2:41 PM	11/7/12	4:26 PM	8,000	78	115	190	1598	1668	1080	1080	Slage #5 8,000 ppm with X-Cide 102w
6	11/7/12	4:26 PM	11/7/12	6:14 PM	10,000	79	190	300	1668	1750	1080	1080	Stage #6 10,000 ppm with X-Cide 102w
7	11/7/12	6:14 PM	11/7/12	7:19 PM	0	50	300	220	1750	1691	1080	1080	Stage #7 Water Flush with CRO195 / X-Cide 102w
Totals	- 14					2532		1963 - 197 - 197					

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

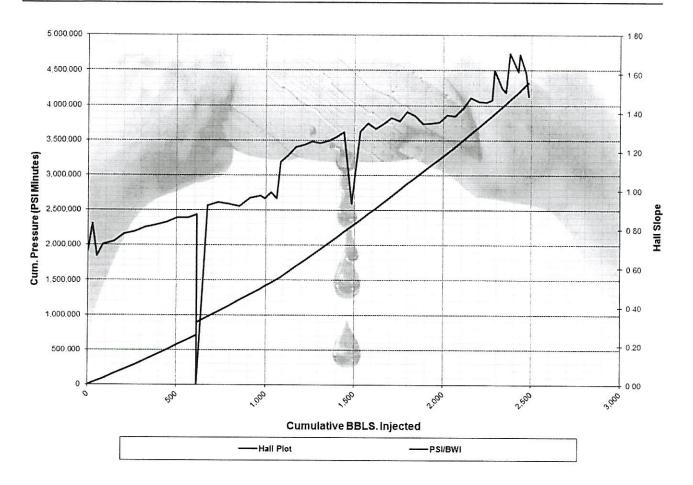
Sample No.	Treatment Stage	Sample Date	Sample Time	Cum. Bbls.	Polymer ppm	Polymer:X- Linker Ratio	Comments
1	2	11/05/12	16:15	100	3,000	40:1	Graded 3g
2	2	11/06/12	00:00	563	3,000	40:1	Graded 3g
3	2	11/06/12	10:15	985	3,000	40:1	Graded 3g
4	3	11/06/12	11:15	1,045	4,500	40:1	Graded 4g
5	3	11/07/12	00:00	1,620	4,500	40:1	Graded 3g
6	3	11/07/12	09:00	2,020	4,500	40:1	Graded 4g
7	4	11/07/12	11:09	2,177	6,000	40:1	Graded 6g
8	4	11/07/12	14:00	2,244	6,000	40:1	Graded 6g
9	5	11/07/12	15:49	2,333	8,000	40:1	Graded 8e
10	10 6 11/07/12		17:00	2,377	10,000	40:1	Graded 9e





# **RATE, PRESSURE, & CONCENTRATION**

## HALL SLOPE





## **TREATMENT JOB LOG**

DATE	TIME	INJEC		CUM. INJ BBLS	WHP PSI	BHP PSI	HALL	Polymer PPM	POLYMER	COMMENTS
		BPD	BPM							
5-Nov-12	14:30	1,440	1.00	0	0	995	0.69	0	0	Begin Well Treatment Stage # 1 50 BBL Water Flush With CRO 195 and XC102W
5-Nov-12	15:00	1,200	0.83	25	0	995	0.83	0	0	
5-Nov-12	15:24	1,500	1.04	50	0	995	0.66	0	0	End Stage # 1
5-Nov-12	15:24	1,500	1.04	50	0	995	0.66	3,000	0	Begin Stage # 2 @ 3000 PPM With EOR 204 and 684 Cont. XC102W
5-Nov-12 5-Nov-12	16:00	1,400	0.97	85	0	1,012	0.72	3,000	37	16:15 Polymer Sample From Unit @100 BBL: Graded 3g
5-Nov-12	17:00 18:00	1,440 1,416	1.00	145 204	0	1,063	0.74	3,000	100	
5-Nov-12	19:00	1,410	1,00	204	0	1,101	0.78	3,000 3,000	162	
5-Nov-12	20:00	1,440	1.00	324	0	1,157	0.79	3,000	224 287	
5-Nov-12	21:00	1,440	1.00	384	0	1,185	0.82	3,000	350	
5-Nov-12	22:00	1,440	1.00	444	0	1,208	0.84	3,000	413	
5-Nov-12	23:00	1,416	0.98	503	0	1,219	0.86	3,000	475	
6-Nov-12	0:00	1,440	1.00	563	0	1,238	0.86	3,000	538	Took sample of 3,000 ppm 563 BBLS: Graded 3g
6-Nov-12	0:50	1,411	0.98	612	0	1,238	0.88	3,000	590	Rental generator stopped running. Unit shuldown.
6-Nov-12	4:00	0	0.00	612	0	972	0.00	3,000	590	Restart unit with backup generator.
6-Nov-12	5:00	1,416	0.98	671	0	1,309	0.92	3,000	651	<b>J</b>
6-Nov-12	6:00	1,416	0.98	730	0	1,333	0.94	3,000	713	
6-Nov-12	7:00	1,440	1.00	790	0	1,340	0.93	3,000	776	
6-Nov-12	8:00	1,464	1.02	851	0	1,349	0.92	3,000	840	
6-Nov-12 6-Nov-12	9:00 10:00	1,416 1,416	0.98 0.98	910 969	0	<u>1,362</u> 1,381	0.96 0.98	3,000 3,000	902 964	10:15 Took sample of 3,000 ppm 985
6-Nov-12	10:26	1,440	1.00	995		1.000	0.00			BBLS: Graded 3g
6-Nov-12	10:26	1,440	1.00	995	0	1,382 1,382	0.96	3,000 4,500	991 991	End Stage #2. Begin Stage #3. 4,500 PPM with
6-Nov-12	11:00	1,440	1.00	1,029	0	1,428	0.99	4,500	1,045	EOR204 and 684 Cont. XC102W 11:15 Took sample of 4500 ppm @ 1,045 BBLS: Graded 4g
6-Nov-12	11:30	1,488	1.03	1,060	0	1,430	0.96	4,500	1,094	Slowed rate to 1,080 BWIPD
6-Nov-12	12:00	1,104	0.77	1,083	0	1,269	1.15	4,500	1,130	
6-Nov-12	13:00	1,080	0.75	1,128	0	1,276	1.18	4,500	1,201	
6-Nov-12	14:00	1,056	0.73	1,172	0	1,293	1.22	4,500	1,270	
6-Nov-12	15:00	1,080	0.75	1,217	0	1,335	1.24	4,500	1,341	
6-Nov-12	16:00	1,080	0.75	1,262	0	1,354	1.25	4,500	1,411	
6-Nov-12	17:00	1,080	0.75	1,307	0	1,345	1.25	4,500	1,482	
6-Nov-12 6-Nov-12	18:00 19:00	1,080	0.75	1,352	0	1,356	1.26	4,500	1,553	
6-Nov-12	20:00	1,080	0.73	1,397	0	1,377	1.28	4,500	1,624	
6-Nov-12	21:00	1,486	1.03	1,441	0	1,376	0.93	4,500 4,500	1,693 1,764	
6-Nov-12	22:00	1,080	0.75	1,531	0	1,408	1.30	4,500	1,784	
6-Nov-12	23:00	1,056	0.73	1,575	0	1,424	1.35	4,500	1,904	
7-Nov-12	0:00	1,080	0.75	1,620	0	1,426	1.32	4,500	1,975	Took sample of 4,500 ppm @ 1,620 BBLS: Graded 3g
7-Nov-12	1:00	1,080	0.75	1,665	0	1,453	1.35	4,500	2,045	
7-Nov-12	2:00	1,056	0.73	1,709	0	1,453	1.38	4,500	2,115	
7-Nov-12	3:00	1,080	0.75	1,754	0	1,469	1.36	4,500	2,185	
7-Nov-12	4:00	1,032	0.72	1,797	0	1,453	1.41	4,500	2,253	
7-Nov-12	5:00	1,056	0.73	1,841	0	1,462	1.38	4,500	2,322	
7-Nov-12 7-Nov-12	6:00 7:00	1,080	0.75	1,886	0	1,453	1.35	4,500	2,393	
7-Nov-12 7-Nov-12	8:00	1,080	0.75	1,931 1,976	0	1,456	1.35 1.35	4,500	2,464	
7-Nov-12	9:00	1,056	0.73	2,020	0	1,461	1.35	4,500 4,500	2,535 2,604	Took sample #6 at 09:00 4500 ppm: Graded 4g
7-Nov-12	10:00	1,080	0.75	2,065	21	1,496	1.39	4,500	2,675	End Stage #3 at 4500 ppm
7-Nov-12	10:00	1,080	0.75	2,065	21	1,496	1.39	6,000	2,675	Begin Stage #4 at 6000 ppm: Graded 6g
7-Nov-12	11:00	1,080	0.75	2,110	65	1,540	1.43	6,000	2,769	- 3
7-Nov-12	12:00	1,056	0.73	2,154	82	1,561	1.48	6,000	2,862	
7-Nov-12	13:00	1,080	0.75	2,199	98	1,575	1.46	6,000	2,956	
7-Nov-12	14:00	1,080	0.75	2,244	96	1,572	1.46	6,000	3,050	14:00 took sample #7 6000 ppm: Graded 6g
7-Nov-12	14:41	1,089	0.76	2,275	115	1,598	1.47	6,000	3,115	End stage #4 at 6000 ppm
7-Nov-12	14:41	1,089	0.76	2,275	115	1,598	1.47	8,000	3,115	Begin stage #5 at 8000 ppm

. and a

DATE	DATE TIME INJECTI RATE		Charles of the second second second second	CUM. INJ BBLS	WHP PSI	BHP PSI	HALL	Polymer PPM	POLYMER LBS	COMMENTS
		BPD	BPM							
7-Nov-12	15:00	985	0.68	2,288	114	1,596	1.62	8,000	3,152	
7-Nov-12	16:00	1,080	0.75	2,333	170	1,648	1.53	8,000	3,278	took sample at 2325 BBLS @ 15:49 8000 ppm #9 sample: Graded 8e
7-Nov-12	16:26	1,108	0.77	2,353	190	1,668	1.51	8,000	3,334	End stage #5 of 8,000 ppm
7-Nov-12	16:26	1,108	0.77	2,353	190	1,668	1.51	10,000	3,334	Begin stage #6 @ 10,000 ppm
7-Nov-12	17:00	1,016	0.71	2,377	260	1,735	1.71	10,000	3,417	Took sample of 10,000 ppm #10 sample: Graded 9e
7-Nov-12	18:00	1,080	0.75	2,422	280	1,743	1.61	10,000	3,575	
7-Nov-12	18:14	1,029	0.71	2,432	300	1,750	1.70	10,000	3,610	End stage #6 of 10,000 ppm
7-Nov-12	18:14	1,029	0.71	2,432	300	1,750	1.70	0	3,610	Begin stage #7 50 bbl. water flush with CRO 195
7-Nov-12	19:00	1,096	0.76	2,467	295	1,760	1.61	0	3,610	
7-Nov-12	19:19	1,137	0.79	2,482	220	1,691	1.49	0	3,610	End Stage #7. Completed Treatment





#### 2452 South Trenton Way • Suite M • Denver, CO 80231 • 303.923.6440

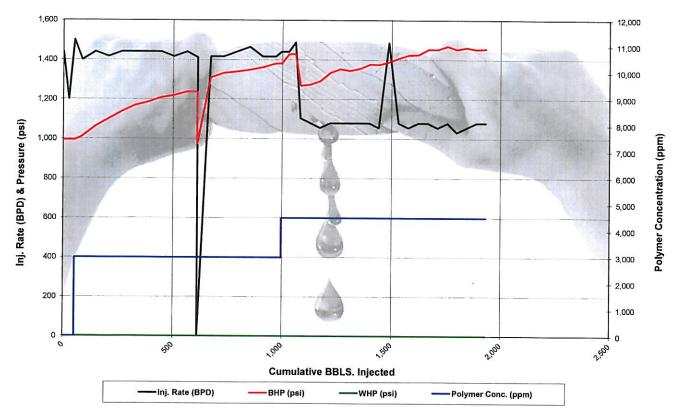
Company Name: Citation Oil & Gas Corp. Field Name: Bemis - Shutts Well Name: Hendrick #16 Well Type: Injection County and State: Ellis County, Kansas Portable Unit #: 17 Report Date: November 7, 2012

**MARCIT Polymer Gel Treatment** 

**Treatment Summary and Charts** 

Stage	Date	Time	Date	Time	Polymer	BBLS/	WHF	(psi)	BHP	(psi)	Pump Ra	te (bpd)	
otago	Begin	Begin	End	End	ppm	Stage	Begin	End	Begin	End	Begin	End	Comments
1	11/5/12	2:30 PM		3:24 PM	0	50	0	0			1440	1440	Stage #1 Water Flush
2	11/5/12	3:24 PM		10:26 AM	3,000	945	0	0	995	1382	1440	1440	Stage #2 3,000 ppm.
2	11/6/12	10:26 AM			4,500		0		1382		1440		Stage #3 4,500 ppm
						0							
									source and s				
otals					-	005							
otais						995							

### Injection Rate, Pressure , & Concentration



Hall Slope and Psi/BWI

