Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1144958

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 # 3553
Name: Citation Oil & Gas Corp.
Address 1: 14077 Cutten Rd
Address 2: PO BOX 690688
City: HOUSTON State: TX Zip: 77269 + 0688
Contact Person: Liana Ramirez
Phone: (281) 891-1590
CONTRACTOR: License # 5929
Name: Duke Drilling Co., Inc.
Wellsite Geologist: Ed Glassman
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: Noble Energy
Well Name: Barry A 3
Original Comp. Date: 08/07/1943 Original Total Depth: 3441

☐ Deepening ☑ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD
☐ Plug Back ☐ Conv. to GSW ☐ Conv. to Producer

☑ Commingled Permit #: CO041304
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ ENHR Permit #:
☐ GSW Permit #:

05/29/2013 — Spud Date or Recompletion Date
— Date Reached TD
6/19/2013 — Completion Date or Recompletion Date

API No. 15 - 15-163-03191-00-01
Spot Description:
NW NE NW SE Sec. 2 Twp. 9 S. R. 19 ☐ East ☑ West
2319 Feet from ☐ North / ☑ South Line of Section
1678 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☐ NW ☑ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Rooks
Lease Name: BARRY LKC UNIT Well #: 6-13
Field Name: Barry
Producing Formation: LKC and Arbuckle
Elevation: Ground: 2011 Kelly Bushing: 2016
Total Vertical Depth: 3441 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 239 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: 06/27/2013
☑ **Confidential Release Date:** 06/27/2015
☐ **Wireline Log Received**
☐ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 06/27/2013

1144958

Operator Name: Citation Oil & Gas Corp. Lease Name: BARRY LKC UNIT Well #: 6-13

Sec. 2 Twp. 9 S. R. 19 ☐ East ☑ West County: Rooks

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. 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 ☐ Yes ☑ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☐ Yes ☑ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☐ Yes ☑ No

List All E. Logs Run:

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
LKC	3178	
Arbuckle	3423	

CASING RECORD ☐ New ☑ 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
___ Perforate ___ Protect Casing ___ Plug Back TD ___ 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 *(Amount and Kind of Material Used)*	Depth
	3423-3441	Treated w/ 2500 gals 28% HCL	3441
	3423-3441	Polymer Treatment - Stage 1-10	3441

TUBING RECORD: Size: 2 7/8" Set At: 3417' Packer At: Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 6/20/2013

Producing Method: ☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	32	0	147		35

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☑ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:
LKC and Arbuckle

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

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

Kansas
Corporation Commission

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

June 24, 2013

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

Re: ACO1
API 15-163-03191-00-00
BARRY LKC UNIT 6-13
SE/4 Sec.02-09S-19W
Rooks 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,
Liana Ramirez

eoga™
improved oil & gas recovery

CROSS-LINKED POLYMER GEL
WATER REDUCTION TREATMENT
JOB LOG AND SUMMARY PREPARED FOR:

Citation OIL & GAS CORP.

BARRY A #3
BARRY FIELD
ROOKS COUNTY, KANSAS

June 8, 2013

Eclipse IOR Services, LLC
d.b.a. Eclipse Oil & Gas Associates ("eoga")
PO Box 2230 • Keller, Texas 76244-2230

817.431.6336 (off)
817-431.6337 (fax)
www.getmoreoil.com

improved oil & gas recovery

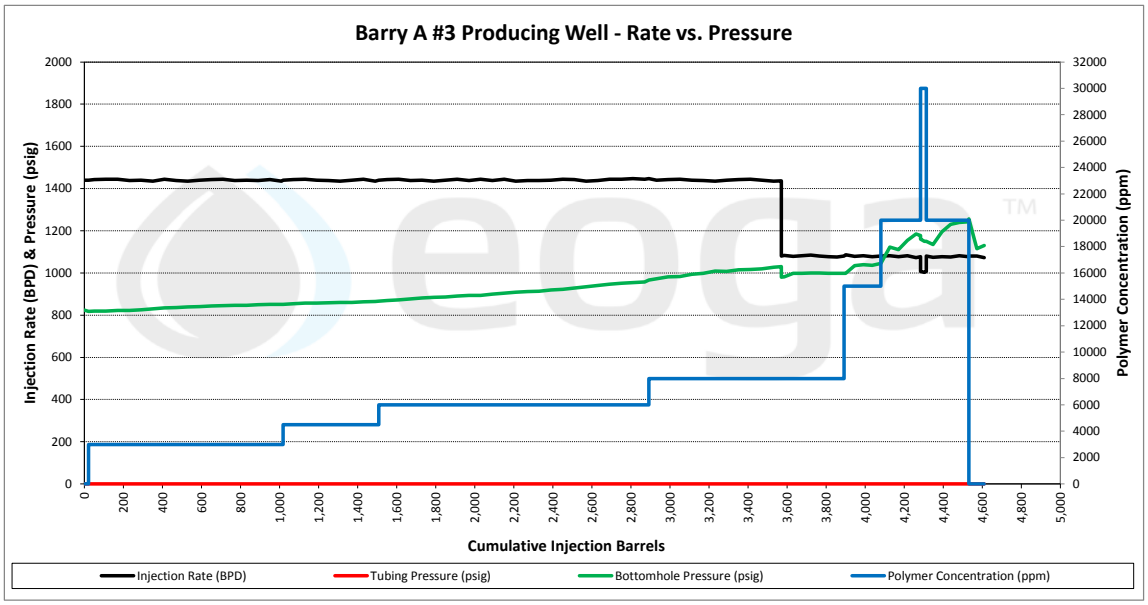
BULK POLYMER GEL TREATMENT

Morning Progress Report

Company Name:	Citation Oil & Gas Corp.	**Location:**	Rooks Co., KS
Field Name:	Barry	**Date:**	6/8/2013
Well Name:	Barry A #3	**Est. Cum. Cost:**	$58,600

The following is the most recent information available for the bulk polymer gel treatment that is in progress at the above captioned well.

	Begin	Begin	End	End	BG-100 Polymer		XL-100 Cross-linker		Gel	WHP (psi)		BHP (psi)		Rate (BPM)		
Stage No.	Date	Time	Date	Time	Ppm	Lbs.	Ratio	Lbs.	Bbls.	Begin	End	Begin	End	Begin	End	Comments
1	6/5/2013	8:10 AM	6/5/2013	8:31 AM	0	0		0	0	0	0	824	818	1.00	1.00	21 barrels water
2	6/5/2013	8:31 AM	6/6/2013	1:08 AM	3000	1046	40	227	997	0	0	818	851	1.00	1.00	
3	6/6/2013	1:08 AM	6/6/2013	9:18 AM	4500	771	40	168	490	0	0	851	867	1.00	1.00	
4	6/6/2013	9:18 AM	6/7/2013	8:21 AM	6000	2903	40	631	1384	0	0	867	967	1.00	1.00	
5	6/7/2013	8:21 AM	6/8/2013	2:48 AM	8000	2797	40	608	1000	0	0	967	998	1.00	0.75	
6	6/8/2013	2:48 AM	6/8/2013	7:00 AM	15000	991	40	215	189	0	0	998	1045	0.75	0.75	
7	6/8/2013	7:00 AM	6/8/2013	11:31 AM	20000	1420	40	309	203	0	0	1045	1178	0.75	0.75	
8	6/8/2013	11:31 AM	6/8/2013	12:14 PM	30000	315	40	68	30	0	0	1160	1150	0.70	0.70	
9	6/8/2013	12:14 PM	6/8/2013	5:04 PM	20000	1517	40	330	217	0	0	1150	1256	0.75	0.75	
10	6/8/2013	5:04 PM	6/8/2013	6:51 PM	0	0		0	0	0	0	1256	1130	0.75	0.75	80 barrels water
Totals						11760		2557	4510							



Eclipse IOR Services, LLC
d.b.a. Eclipse Oil & Gas Associates ("eoga")
PO Box 2230 • Keller, Texas 76244-2230

817.431.6336 (off)
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www.getmoreoil.com

eoga
improved oil & gas recovery
Project Engineer - Jay Portwood
P.O. Box 2230 Keller, TX 76244-2230
817-431-6336 (off) 817-431-6337 (fax)
817-312-1033 (cell)

PROJECT INFORMATION

Company Name:	Citation Oil & Gas Corp.	**Depth to Top Perforation or OH (ft.):**	3423	**EOT (ft.):**	3390
Field Name:	Barry	**Depth to Bottom Perforation or OH (ft.):**	3441	**Packer (ft.):**	3390
Well Name:	Barry A #3	**Depth to Mid-Perf (ft.):**	3432	**Tbg Size:**	2.875"
Injector or Producer:	Producer	**BHP Tool Depth (ft.):**	3400	**Tbg. Cap. (bbls./ft.):**	0.00538
County/State:	Rooks/KS	**Type Mix Water Used:**	Produced	**Tbg. Vol. (bbls.):**	18.24
Polymer Unit No.:	3	**Mix Water Specific Gravity:**	1.02	**Csg Size:**	6", 15#
Polymer Unit Operators:	Scott Seaton (day) 785-885-8187 / Brad Gordon (night) 785-885-8206	**Mix Water Pressure Gradient (psi per ft.):**	0.442	**Csg. Cap. (bbls./ft.):**	0.0296
Generator Used (Yes/No):	Yes	**Expect Positive Surface Pressure @ BHP of:**	1502	**Csg Vol. bbls. (Pkr. to Btm. Perf.):**	1.5096
Customer Contact:	Daniel Hansberger 281-891-1484 (off) 405-605-9177 (cell)	**Estimated Static BHP (psig):**	815	**Total Well Vol. (bbls.):**	19.75

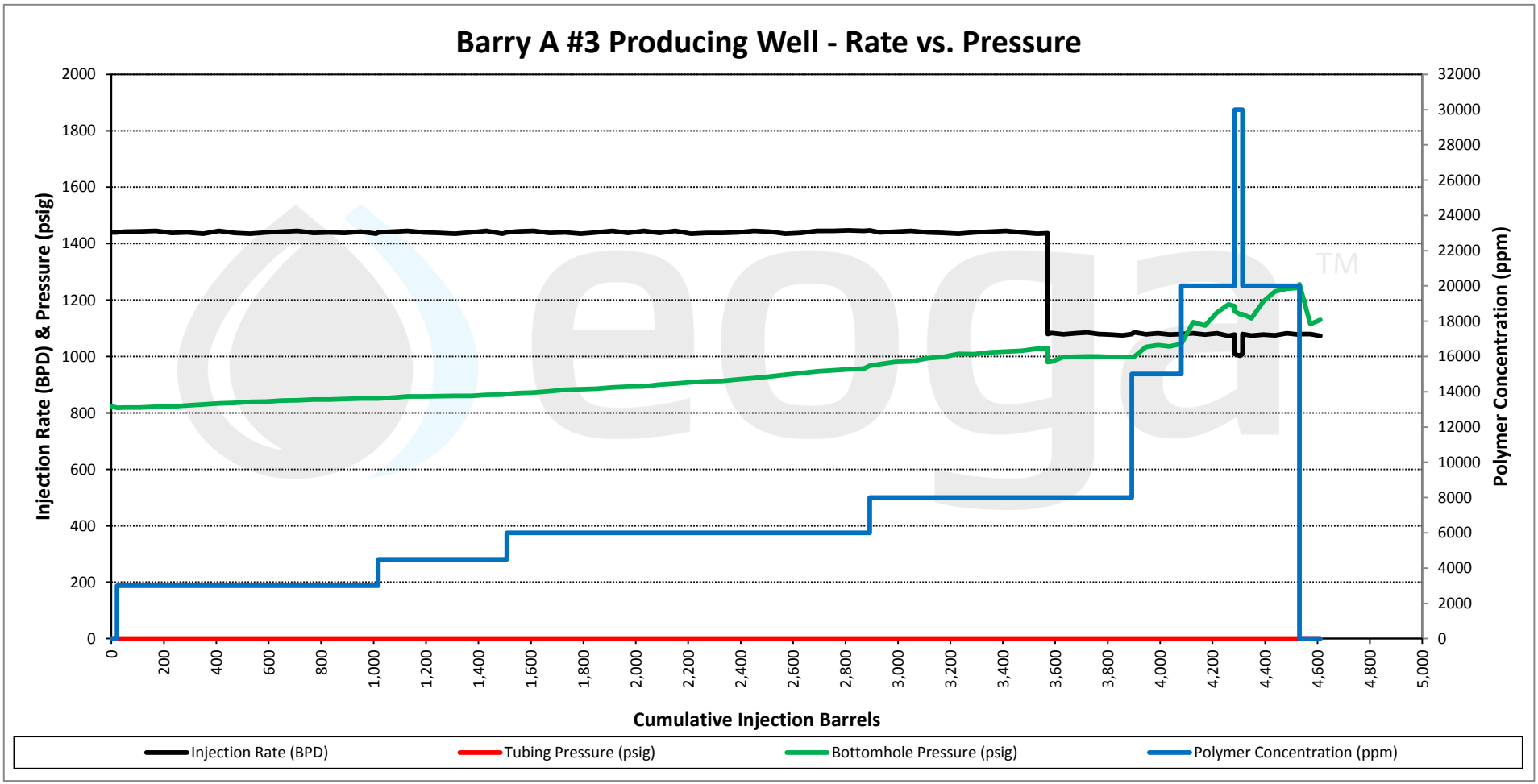
Date	Time	Elapsed Time Between Readings (Mins.)	Injection Rate BPD	Injection Rate BPM	Total Cum. Injection (Bbls.)	Stage Cum. Injection Bbls.	Tubing Pressure (psig)	PSIG per Bbl Injected	PSIG per Hour Injected	Bottomhole Conditions: Pressure Actual Reading (psig)	Pressure Calculated to Mid-Perf (psia)	Δp	Hall Plot Cum. psi-time	Injectivity Ratio (Psi ÷ Rate)	Injectivity Index BPD/(Calc. BHP-Static BHP) (BPD per psig)	Pressure Gradient (psig per ft.)	Polymer Concentration (ppm)	Cross-linker Ratio (x:1)	Total Cum. Polymer (lbs.)	Stage Cum. Polymer (lbs.)	Total Cum. X-linker (Lbs.)	Stage Cum. X-linker (Lbs.)	Casing Pressure (psig)	Comments
5-Jun-13	8:10 AM		1440	1.00	0.0	0.0	0			824	824		0	0.57		0.24	0		0	0	0	0		Begin water pre-flush
5-Jun-13	8:31 AM	0:21	1440	1.00	21.0	21.0	0	-0.29	-17.14	818	818	3	17178	0.57	480.00	0.24	0		0	0	0	0		
5-Jun-13	8:31 AM	0:00	1440	1.00	21.0	0.0	0	-0.29	-17.14	818	818	3	17178	0.57	480.00	0.24	3000	40	0	0	0	0		Begin 3,000 ppm polymer
5-Jun-13	9:00 AM	0:29	1442	1.00	50.1	29.1	0	0.03	2.07	819	819	4	40929	0.57	360.62	0.24	3000	40	30	30	7	7		
5-Jun-13	10:00 AM	1:00	1444	1.00	110.2	89.2	0	0.00	0.00	819	819	4	90069	0.57	360.90	0.24	3000	40	94	94	20	20		
5-Jun-13	11:00 AM	1:00	1445	1.00	170.4	149.4	0	0.05	3.00	822	822	7	139389	0.57	206.40	0.24	3000	40	157	157	34	34		
5-Jun-13	12:00 PM	1:00	1438	1.00	230.3	209.3	0	0.02	1.00	823	823	8	188769	0.57	179.70	0.24	3000	40	220	220	48	48		
5-Jun-13	1:00 PM	1:00	1440	1.00	290.3	269.3	0	0.05	3.00	826	826	11	238329	0.57	130.91	0.24	3000	40	282	282	61	61		
5-Jun-13	2:00 PM	1:00	1435	1.00	350.1	329.1	0	0.07	4.00	830	830	15	288129	0.58	95.68	0.24	3000	40	345	345	75	75		
5-Jun-13	3:00 PM	1:00	1445	1.00	410.3	389.3	0	0.07	4.00	834	834	19	338169	0.58	76.04	0.24	3000	40	408	408	89	89		
5-Jun-13	4:00 PM	1:00	1438	1.00	470.2	449.2	0	0.03	2.00	836	836	21	388329	0.58	68.46	0.24	3000	40	471	471	102	102		
5-Jun-13	5:00 PM	1:00	1435	1.00	530.0	509.0	0	0.05	3.00	839	839	24	438669	0.58	59.80	0.24	3000	40	534	534	116	116		
5-Jun-13	6:00 PM	1:00	1440	1.00	590.0	569.0	0	0.02	1.00	840	840	25	489069	0.58	57.60	0.24	3000	40	597	597	130	130		
5-Jun-13	7:00 PM	1:00	1442	1.00	650.1	629.1	0	0.07	4.00	844	844	29	539709	0.59	49.74	0.25	3000	40	660	660	143	143		
5-Jun-13	8:00 PM	1:00	1445	1.00	710.3	689.3	0	0.02	1.00	845	845	30	590409	0.58	48.16	0.25	3000	40	723	723	157	157		
5-Jun-13	9:00 PM	1:00	1438	1.00	770.2	749.2	0	0.03	2.00	847	847	32	641229	0.59	44.93	0.25	3000	40	786	786	171	171		
5-Jun-13	10:00 PM	1:00	1440	1.00	830.2	809.2	0	0.00	0.00	847	847	32	692049	0.59	45.00	0.25	3000	40	849	849	185	185		
5-Jun-13	11:00 PM	1:00	1438	1.00	890.1	869.1	0	0.03	2.00	849	849	34	742989	0.59	42.28	0.25	3000	40	912	912	198	198		
6-Jun-13	12:00 AM	1:00	1442	1.00	950.2	929.2	0	0.03	2.00	851	851	36	794049	0.59	40.07	0.25	3000	40	975	975	212	212		
6-Jun-13	1:00 AM	1:00	1435	1.00	1010.0	989.0	0	0.00	0.00	851	851	36	845109	0.59	39.87	0.25	3000	40	1037	1037	226	226		
6-Jun-13	1:08 AM	0:08	1440	1.00	1018.0	997.0	0	0.00	0.00	851	851	36	851917	0.59	40.00	0.25	3000	40	1046	1046	227	227		
6-Jun-13	1:08 AM	0:00	1440	1.00	1018.0	0.0	0	0.00	0.00	851	851	36	851917	0.59	40.00	0.25	4500	40	1046	0	227	0		Increase polymer concentration to 4,500 ppm
6-Jun-13	2:00 AM	0:52	1443	1.00	1070.1	52.1	0	0.06	3.00	854	854	39	896325	0.59	36.99	0.25	4500	40	1128	82	245	18		
6-Jun-13	3:00 AM	1:00	1445	1.00	1130.3	112.3	0	0.07	4.00	858	858	43	947805	0.59	33.60	0.25	4500	40	1223	177	266	39		
6-Jun-13	4:00 AM	1:00	1440	1.00	1190.3	172.3	0	0.00	0.00	858	858	43	999285	0.60	33.49	0.25	4500	40	1317	271	286	59		
6-Jun-13	5:00 AM	1:00	1438	1.00	1250.2	232.2	0	0.02	1.00	859	859	44	1050825	0.60	32.67	0.25	4500	40	1411	365	307	80		
6-Jun-13	6:00 AM	1:00	1435	1.00	1310.0	292.0	0	0.02	1.00	860	860	45	1102425	0.60	31.89	0.25	4500	40	1505	459	327	100		
6-Jun-13	7:00 AM	1:00	1440	1.00	1370.0	352.0	0	0.00	0.00	860	860	45	1154025	0.60	32.00	0.25	4500	40	1600	554	348	121		
6-Jun-13	8:00 AM	1:00	1445	1.00	1430.2	412.2	0	0.07	4.00	864	864	49	1205865	0.60	29.49	0.25	4500	40	1694	648	368	141		
6-Jun-13	9:00 AM	1:00	1435	1.00	1490.0	472.0	0	0.02	1.00	865	865	50	1257765	0.60	28.70	0.25	4500	40	1788	742	389	162		
6-Jun-13	9:18 AM	0:18	1440	1.00	1508.0	490.0	0	0.11	6.67	867	867	52	1273371	0.60	27.69	0.25	4500	40	1817	771	395	168		
6-Jun-13	9:18 AM	0:00	1440	1.00	1508.0	0.0	0	0.11	6.67	867	867	52	1273371	0.60	27.69	0.25	6000	40	1817	0	395	0		Increase polymer concentration to 6,000 ppm
6-Jun-13	10:00 AM	0:42	1443	1.00	1550.1	42.1	0	0.07	4.29	870	870	55	1309911	0.60	26.24	0.25	6000	40	1905	88	414	19		
6-Jun-13	11:00 AM	1:00	1445	1.00	1610.3	102.3	0	0.03	2.00	872	872	57	1362231	0.60	25.35	0.25	6000	40	2031	214	442	47		
6-Jun-13	12:00 PM	1:00	1438	1.00	1670.2	162.2	0	0.08	5.00	877	877	62	1414851	0.61	23.19	0.26	6000	40	2157	340	469	74		
6-Jun-13	1:00 PM	1:00	1440	1.00	1730.2	222.2	0	0.08	5.00	882	882	67	1467771	0.61	21.49	0.26	6000	40	2283	466	496	101		
6-Jun-13	2:00 PM	1:00	1435	1.00	1790.0	282.0	0	0.03	2.00	884	884	69	1520811	0.62	20.80	0.26	6000	40	2408	591	524	129		
6-Jun-13	3:00 PM	1:00	1440	1.00	1850.0	342.0	0	0.03	2.00	886	886	71	1573971	0.62	20.28	0.26	6000	40	2534	717	551	156		
6-Jun-13	4:00 PM	1:00	1445	1.00	1910.2	402.2	0	0.07	4.00	890	890	75	1627371	0.62	19.26	0.26	6000	40	2661	844	578	183		
6-Jun-13	5:00 PM	1:00	1438	1.00	1970.1	462.1	0	0.05	3.00	893	893	78	1680951	0.62	18.43	0.26	6000	40	2786	969	606	211		
6-Jun-13	6:00 PM	1:00	1445	1.00	2030.3	522.3	0	0.02	1.00	894	894	79	1734591	0.62	18.29	0.26	6000	40	2913	1096	633	238		
6-Jun-13	7:00 PM	1:00	1438	1.00	2090.2	582.2	0	0.10	6.00	900	900	85	1788591	0.63	16.91	0.26	6000	40	3038	1221	660	265		
6-Jun-13	8:00 PM	1:00	1445	1.00	2150.4	642.4	0	0.07	4.00	904	904	89	1842831	0.63	16.23	0.26	6000	40	3164	1347	688	293		
6-Jun-13	9:00 PM	1:00	1435	1.00	2210.2	702.2	0	0.08	5.00	909	909	94	1897371	0.63	15.27	0.26	6000	40	3290	1473	715	320		
6-Jun-13	10:00 PM	1:00	1438	1.00	2270.1	762.1	0	0.05	3.00	912	912	97	1952091	0.63	14.82	0.27	6000	40	3416	1599	743	348		
6-Jun-13	11:00 PM	1:00	1438	1.00	2330.0	822.0	0	0.02	1.00	913	913	98	2006871	0.64	14.67	0.27	6000	40	3541	1724	770	375		
7-Jun-13	12:00 AM	1:00	1440	1.00	2390.0	882.0	0	0.10	6.00	919	919	104	2062011	0.64	13.85	0.27	6000	40	3667	1850	797	402		
7-Jun-13	1:00 AM	1:00	1445	1.00	2450.2	942.2	0	0.07	4.00	923	923	108	2117391	0.64	13.38	0.27	6000	40	3793	1976	825	430		
7-Jun-13	2:00 AM	1:00	1442	1.00	2510.3	1002.3	0	0.10	6.00	929	929	114	2173131	0.64	12.65	0.27	6000	40	3920	2103	852	457		
7-Jun-13	3:00 AM	1:00	1435	1.00	2570.1	1062.1	0	0.10	6.00	935	935	120	2229231	0.65	11.96	0.27	6000	40	4045	2228	879	484		
7-Jun-13	4:00 AM	1:00	1438	1.00	2630.0	1122.0	0	0.10	6.00	941	941	126	2285691	0.65	11.41	0.27	6000	40	4171	2354	907	512		
7-Jun-13	5:00 AM	1:00	1445	1.00	2690.2	1182.2	0	0.10	6.00	947	947	132	2342511	0.66	10.95	0.28	6000	40	4297	2480	934	539		
7-Jun-13	6:00 AM	1:00	1445	1.00	2750.4	1242.4	0	0.07	4.00	951	951	136	2399571	0.66	10.62	0.28	6000	40	4423	2606	962	567		
7-Jun-13	7:00 AM	1:00	1447	1.01	2810.7	1302.7	0	0.05	3.00	954	954	139	2456811	0.66	10.41	0.28	6000	40	4550	2733	989	594		
7-Jun-13	8:00 AM	1:00	1445	1.00	2870.9	1362.9	0	0.05	3.00	957	957	142	2514231	0.66	10.17	0.28	6000	40	4676	2859	1017	622		
7-Jun-13	8:21 AM	0:21	1447	1.00	2892.0	1384.0	0	0.47	28.57	967	967	152	2534538	0.67	9.52	0.28	6000	40	4720	2903	1026	631		
7-Jun-13	8:21 AM	0:00	1447	1.00	2892.0	0.0	0	0.48	28.57	967	967	152	2534538	0.67	9.52	0.28	8000	40	4720	0	1026	0		Increase polymer concentratin to 8,000 ppm
7-Jun-13	9:00 AM	0:39	1440	1.00	2931.0	39.0	0	0.15	9.23	973	973	158	2572485	0.68	9.11	0.28	8000	40	4829	109	1050	24		
7-Jun-13	10:00 AM	1:00	1442	1.00	2991.1	99.1	0	0.13	8.00	981	981	166	2631345	0.68	8.69	0.29	8000	40	4997	277	1086	60		
7-Jun-13	11:00 AM	1:00	1445	1.00	3051.3	159.3	0	0.03	2.00	983	983	168	2690325	0.68	8.60	0.29	8000	40	5166	446	1123	97		
7-Jun-13	12:00 PM	1:00	1440	1.00	3111.3	219.3	0	0.18	11.00	994	994	179	2749965	0.69	8.04	0.29	8000	40	5334	614	1160	134		
7-Jun-13	1:00 PM	1:00	1438	1.00	3171.2	279.2	0	0.07	4.00	998	998	183	2809845	0.69	7.86	0.29	8000	40	5501	781	1196	170		
7-Jun-13	2:00 PM	1:00	1435	1.00	3231.0	339.0	0	0.18	11.00	1009	1009	194	2870385	0.70	7.40	0.29	8000	40	5669	949	1232	206		
7-Jun-13	3:00 PM	1:00	1440	1.00	3291.0	399.0	0	-0.02	-1.00	1008	1008	193	2930865	0.70	7.46	0.29	8000	40	5836	1116	1269	243		
7-Jun-13	4:00 PM	1:00	1442	1.00	3351.1	459.1	0	0.12	7.00	1015	1015	200	2991765	0.70	7.21	0.30	8000	40	6004	1284	1305	279		
7-Jun-13	5:00 PM	1:00	1445	1.00	3411.3	519.3	0	0.03	2.00	1017	1017	202	3052785	0.70	7.15	0.30	8000	40	6173	1453	1342	316		
7-Jun-13	6:00 PM	1:00	1440	1.00	3471.3	579.3	0	0.05	3.00	1020	1020	205	3113985	0.71	7.02	0.30	8000	40	6341	1621	1378	352		
7-Jun-13	7:00 PM	1:00	1435	1.00	3531.1	639.1	0	0.12	7.00	1027	1027	212	3175605	0.72	6.77	0.30	8000	40	6508	1788	1415	389		
7-Jun-13	7:40 PM	0:40	1436	1.00	3571.0	679.0	0	0.08	4.50	1030	1030	215	3216805	0.72	6.68	0.30	8000	40	6620	1900	1439	413		
7-Jun-13	7:40 PM	0:00	1080	0.75	3571.0	679.0	0	0.08	4.50	980	980	165	3216805	0.91	6.55	0.29	8000	40	6620	1900	1439	413		Reduce rate to 0.75 BPM (1,080 BPD)

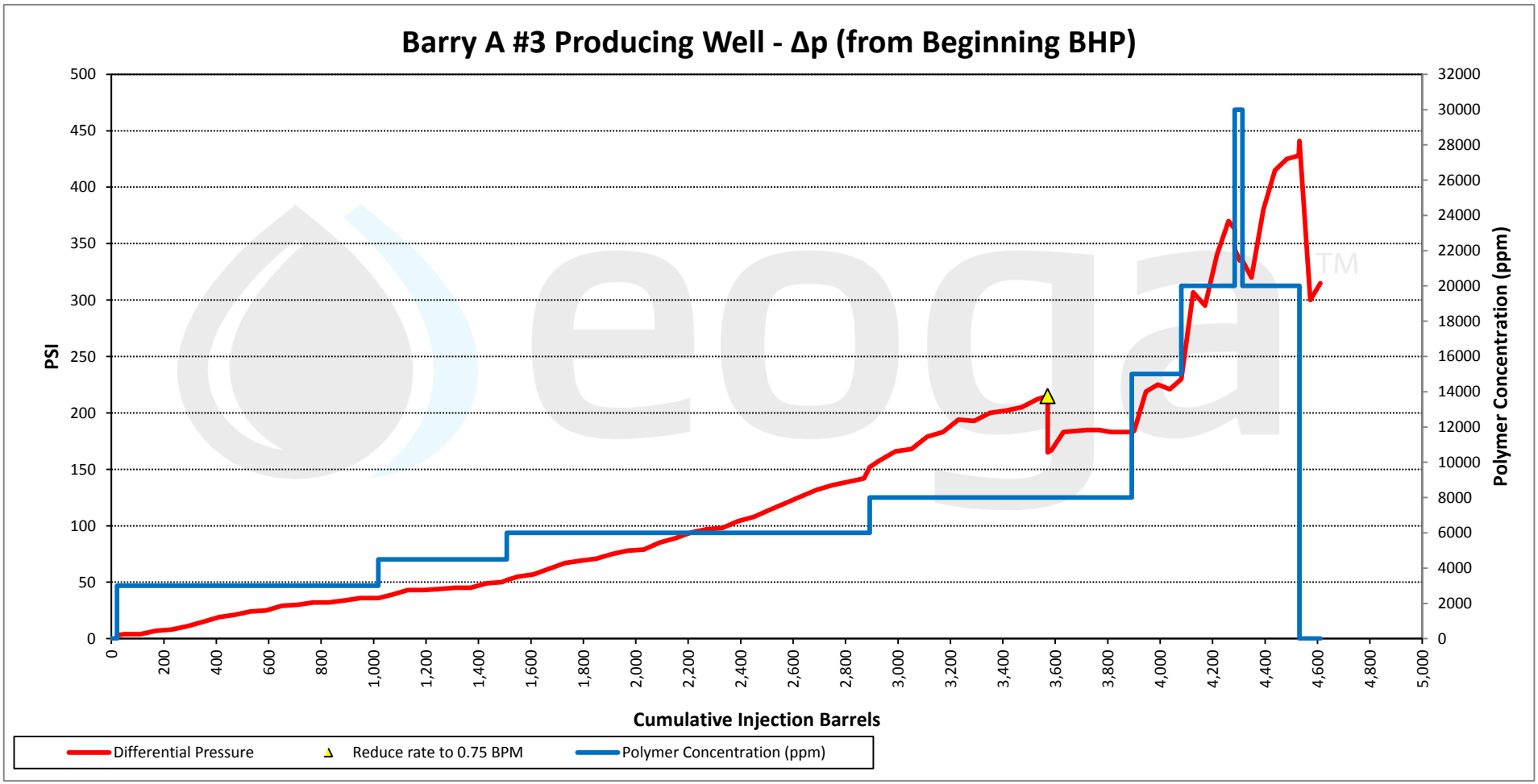
eoga
improved oil & gas recovery
Project Engineer - Jay Portwood
P.O. Box 2230 Keller, TX 76244-2230
817-431-6336 (off) 817-431-6337 (fax)
817-312-1033 (cell)

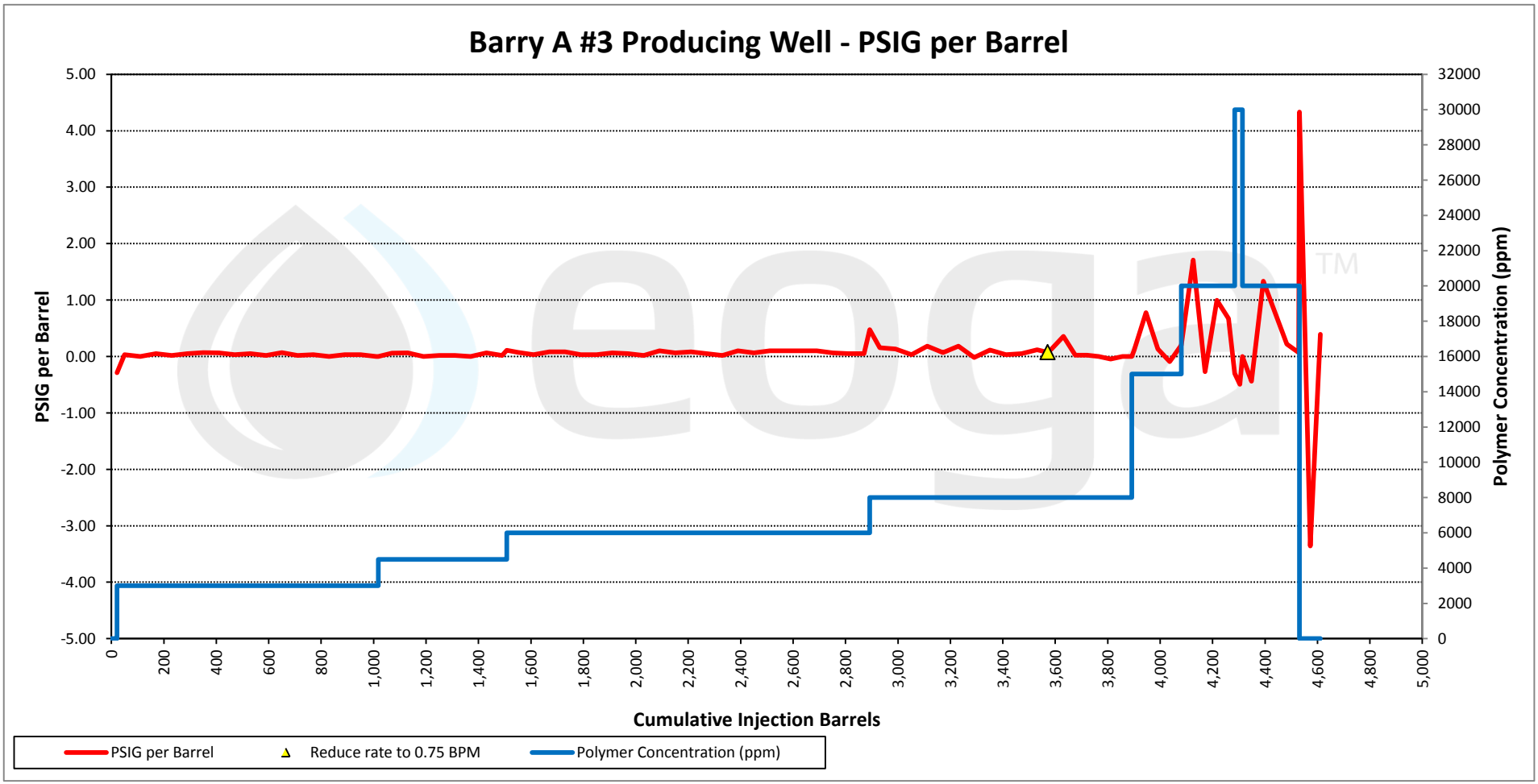
PROJECT INFORMATION

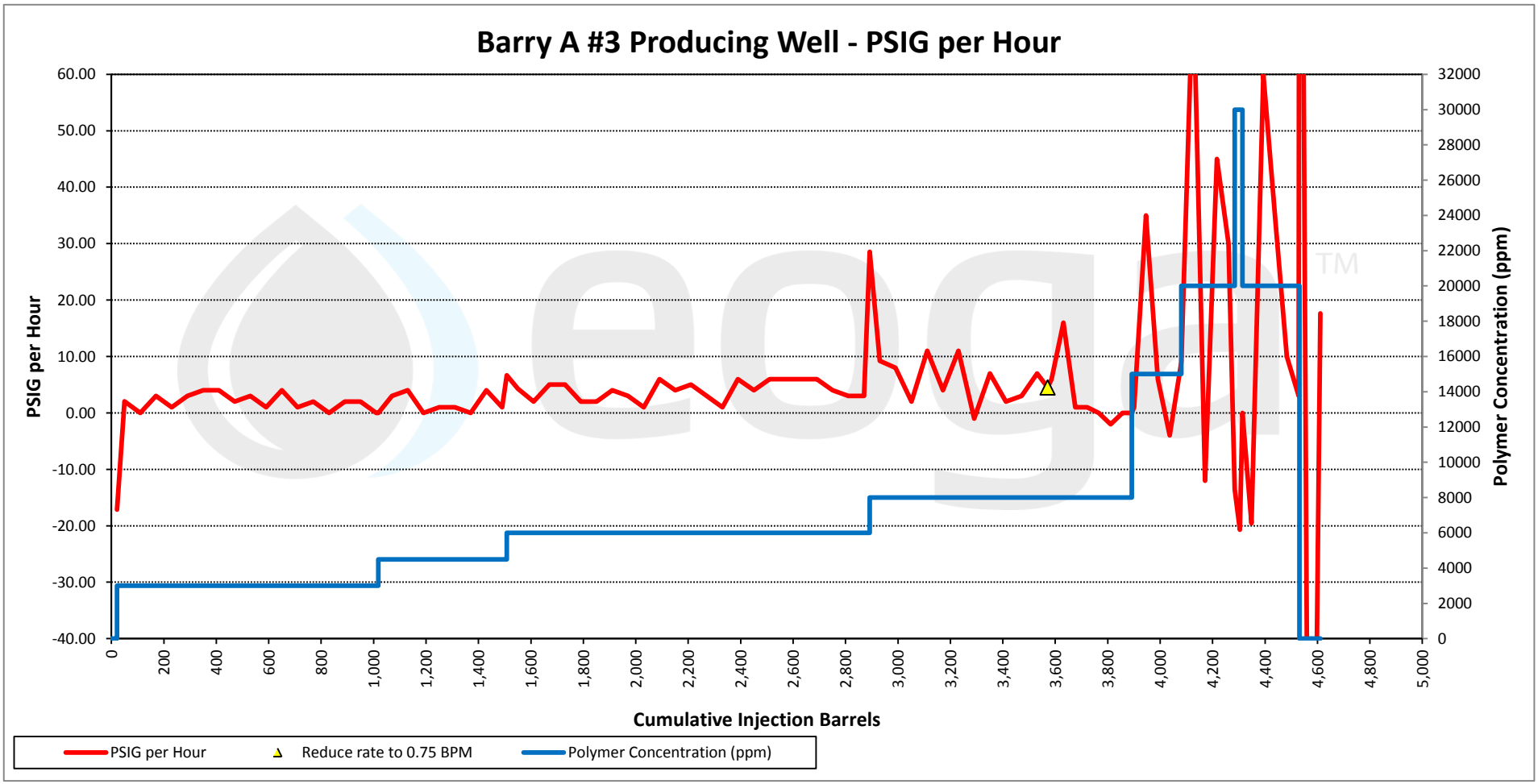
Company Name:	Citation Oil & Gas Corp.	**Depth to Top Perforation or OH (ft.):**	3423	**EOT (ft.):**	3390
Field Name:	Barry	**Depth to Bottom Perforation or OH (ft.):**	3441	**Packer (ft.):**	3390
Well Name:	Barry A #3	**Depth to Mid-Perf (ft.):**	3432	**Tbg Size:**	2.875"
Injector or Producer:	Producer	**BHP Tool Depth (ft.):**	3400	**Tbg. Cap. (bbls./ft.):**	0.00538
County/State:	Rooks/KS	**Type Mix Water Used:**	Produced	**Tbg. Vol. (bbls.):**	18.24
Polymer Unit No.:	3	**Mix Water Specific Gravity:**	1.02	**Csg Size:**	6", 15#
Polymer Unit Operators:	Scott Seaton (day) 785-885-8187 / Brad Gordon (night) 785-885-8206	**Mix Water Pressure Gradient (psi per ft.):**	0.442	**Csg. Cap. (bbls./ft.):**	0.0296
Generator Used (Yes/No):	Yes	**Expect Positive Surface Pressure @ BHP of:**	1502	**Csg Vol. bbls. (Pkr. to Btm. Perf.):**	1.5096
Customer Contact:	Daniel Hansberger 281-891-1484 (off) 405-605-9177 (cell)	**Estimated Static BHP (psig):**	815	**Total Well Vol. (bbls.):**	19.75

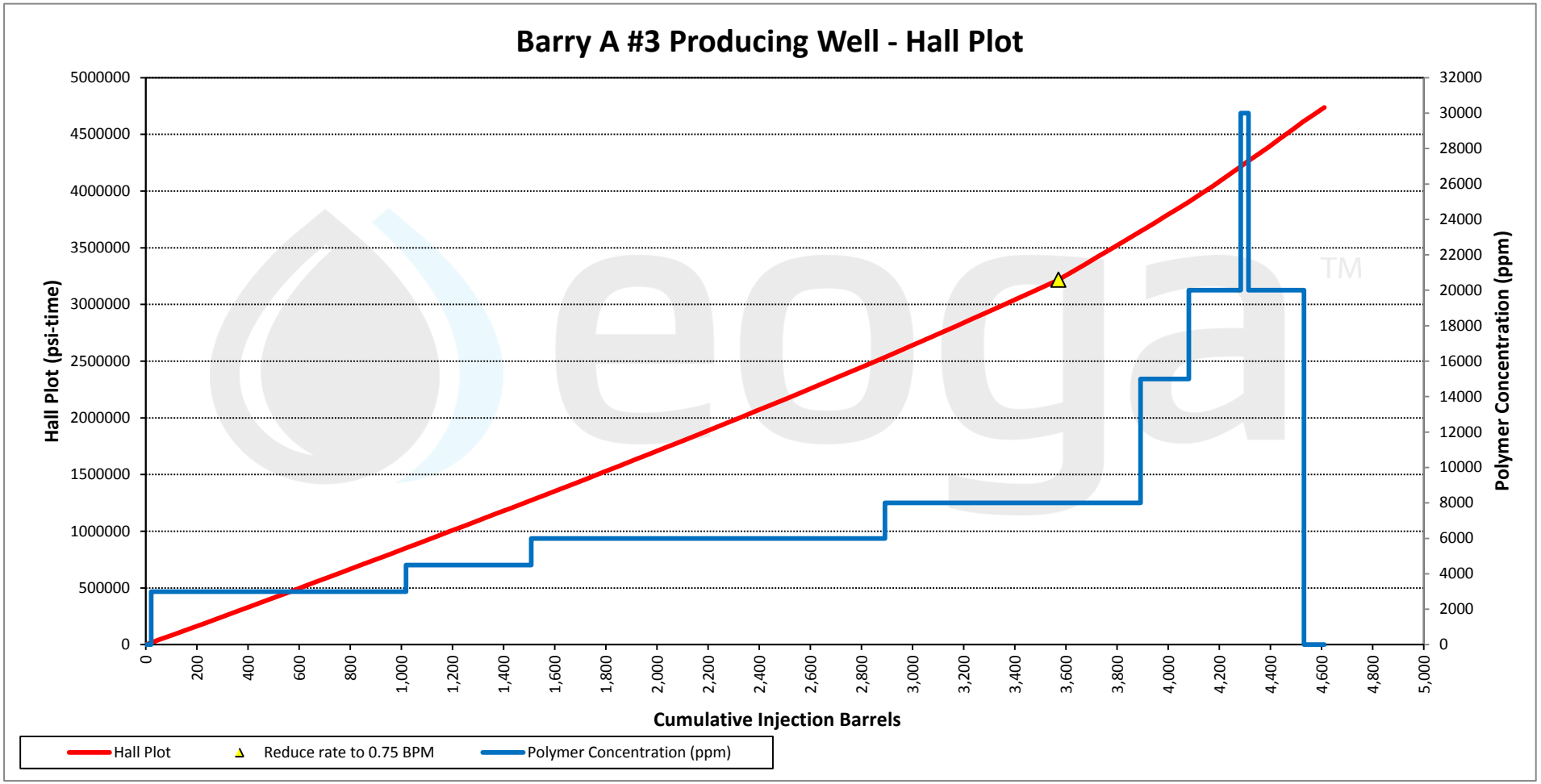
Date	Time	Elapsed Time Between Readings (Mins.)	Injection Rate BPD	Injection Rate BPM	Total Cum. Injection (Bbls.)	Stage Cum. Injection Bbls.	Tubing Pressure (psig)	PSIG per Bbl Injected	PSIG per Hour Injected	Bottomhole Conditions: Pressure Actual Reading (psig)	Bottomhole Conditions: Pressure Calculated to Mid-Perf (psia)	Δp	Hall Plot Cum. psi-time	Injectivity Ratio (Psi ÷ Rate)	Injectivity Index BPD/(Calc. BHP-Static BHP) (BPD per psig)	Pressure Gradient (psig per ft.)	Polymer Concentration (ppm)	Cross-linker Ratio (x:1)	Total Cum. Polymer (lbs.)	Stage Cum. Polymer (lbs.)	Total Cum. X-linker (Lbs.)	Stage Cum. X-linker (Lbs.)	Casing Pressure (psig)	Comments
7-Jun-13	8:00 PM	0:20	1084	0.75	3586.1	694.1	0	0.13	6.00	982	982	167	3236445	0.91	6.49	0.29	8000	40	6662	1942	1448	422		
7-Jun-13	9:00 PM	1:00	1079	0.75	3631.0	739.0	0	0.36	16.00	998	998	183	3296325	0.93	5.90	0.29	8000	40	6787	2067	1476	450		
7-Jun-13	10:00 PM	1:00	1082	0.75	3676.1	784.1	0	0.02	1.00	999	999	184	3356265	0.92	5.88	0.29	8000	40	6914	2194	1503	477		
7-Jun-13	11:00 PM	1:00	1085	0.75	3721.3	829.3	0	0.02	1.00	1000	1000	185	3416265	0.92	5.86	0.29	8000	40	7040	2320	1530	504		
8-Jun-13	12:00 AM	1:00	1080	0.75	3766.3	874.3	0	0.00	0.00	1000	1000	185	3476265	0.93	5.84	0.29	8000	40	7166	2446	1558	532		
8-Jun-13	1:00 AM	1:00	1078	0.75	3811.2	919.2	0	-0.04	-2.00	998	998	183	3536145	0.93	5.89	0.29	8000	40	7291	2571	1585	559		
8-Jun-13	2:00 AM	1:00	1075	0.75	3856.0	964.0	0	0.00	0.00	998	998	183	3596025	0.93	5.88	0.29	8000	40	7417	2697	1612	586		
8-Jun-13	2:48 AM	0:48	1080	0.75	3892.0	1000.0	0	0.00	0.00	998	998	183	3643929	0.92	5.90	0.29	8000	40	7517	2797	1634	608		
8-Jun-13	2:48 AM	0:00	1080	0.75	3892.0	0.0	0	0.00	0.00	998	998	183	3643929	0.92	5.90	0.29	15000	40	7517	0	1634	0		Increase polymer concentration to 15,000 ppm
8-Jun-13	3:00 AM	0:12	1086	0.75	3901.1	9.1	0	0.11	1.00	999	999	184	3655917	0.92	5.90	0.29	15000	40	7565	48	1645	11		
8-Jun-13	4:00 AM	1:00	1079	0.75	3946.0	54.0	0	0.78	35.00	1034	1034	219	3717957	0.96	4.93	0.30	15000	40	7801	284	1696	62		
8-Jun-13	5:00 AM	1:00	1082	0.75	3991.1	99.1	0	0.13	6.00	1040	1040	225	3780357	0.96	4.81	0.30	15000	40	8037	520	1747	113		
8-Jun-13	6:00 AM	1:00	1078	0.75	4036.0	144.0	0	-0.09	-4.00	1036	1036	221	3842517	0.96	4.88	0.30	15000	40	8273	756	1798	164		
8-Jun-13	7:00 AM	1:00	1080	0.75	4081.0	189.0	0	0.20	9.00	1045	1045	230	3905217	0.97	4.70	0.30	15000	40	8509	992	1850	216		
8-Jun-13	7:00 AM	0:00	1080	0.75	4081.0	0.0	0	0.20	9.00	1045	1045	230	3905217	0.97	4.70	0.30	20000	40	8509	0	1850	0		
8-Jun-13	8:00 AM	1:00	1082	0.75	4126.1	45.1	0	1.71	77.00	1122	1122	307	3972537	1.04	3.53	0.33	20000	40	8824	315	1918	68		
8-Jun-13	9:00 AM	1:00	1078	0.75	4171.0	90.0	0	-0.27	-12.00	1110	1110	295	4039137	1.03	3.65	0.32	20000	40	9138	629	1987	137		
8-Jun-13	10:00 AM	1:00	1082	0.75	4216.1	135.1	0	1.00	45.00	1155	1155	340	4108437	1.07	3.18	0.34	20000	40	9453	944	2055	205		
8-Jun-13	11:00 AM	1:00	1073	0.75	4260.8	179.8	0	0.67	30.00	1185	1185	370	4179537	1.10	2.90	0.35	20000	40	9766	1257	2123	273		
8-Jun-13	11:31 AM	0:31	1078	0.75	4284.0	203.0	0	-0.30	-13.55	1178	1178	363	4216055	1.09	2.97	0.34	20000	40	9928	1419	2158	308		
8-Jun-13	11:31 AM	0:00	1008	0.70	4284.0	0.0	0	-0.30	-13.55	1160	1160	345	4216055	1.15	2.92	0.34	30000	40	9928	0	2158	0		Reduce rate to 0.7 BPM (1,00 BPD) and increase polymer concentration to 30,000 ppm
8-Jun-13	12:00 PM	0:29	1003	0.70	4304.2	20.2	0	-0.50	-20.69	1150	1150	335	4249405	1.15	2.99	0.34	30000	40	10140	212	2204	46		
8-Jun-13	12:14 PM	0:14	1008	0.70	4314.0	30.0	0	0.00	0.00	1150	1150	335	4265505	1.14	3.01	0.34	30000	40	10243	315	2227	69		
8-Jun-13	12:14 PM	0:00	1080	0.75	4314.0	0.0	0	0.00	0.00	1150	1150	335	4265505	1.06	3.22	0.34	20000	40	10243	0	2227	0		Decrease polymer concentration to 20,000 ppm and increase rate to 0.75 BPM (1,080 BPD)
8-Jun-13	1:00 PM	0:46	1074	0.75	4348.3	34.3	0	-0.44	-19.57	1135	1135	320	4317715	1.06	3.36	0.33	20000	40	10483	240	2279	52		
8-Jun-13	2:00 PM	1:00	1078	0.75	4393.2	79.2	0	1.34	60.00	1195	1195	380	4389415	1.11	2.84	0.35	20000	40	10797	554	2347	120		
8-Jun-13	3:00 PM	1:00	1075	0.75	4438.0	124.0	0	0.78	35.00	1230	1230	415	4463215	1.14	2.59	0.36	20000	40	11110	867	2415	188		
8-Jun-13	4:00 PM	1:00	1082	0.75	4483.1	169.1	0	0.22	10.00	1240	1240	425	4537615	1.15	2.55	0.36	20000	40	11426	1183	2484	257		
8-Jun-13	5:00 PM	1:00	1078	0.75	4528.0	214.0	0	0.07	3.00	1243	1243	428	4612195	1.15	2.52	0.36	20000	40	11740	1497	2552	325		
8-Jun-13	5:04 PM	0:04	1080	0.75	4531.0	217.0	0	4.33	195.00	1256	1256	441	4617219	1.16	2.45	0.37	20000	40	11760	1517	2557	330		
8-Jun-13	5:04 PM	0:00	1080	0.75	4531.0	0.0	0	4.33	195.00	1256	1256	441	4617219	1.16	2.45	0.37	0		11760	0	2557	0		Begin water post-flush
8-Jun-13	6:00 PM	0:56	1080	0.75	4573.0	42.0	0	-3.36	-151.07	1115	1115	300	4679659	1.03	3.60	0.32	0		11760	0	2557	0		
8-Jun-13	6:51 PM	0:51	1073	0.75	4611.0	80.0	0	0.39	17.65	1130	1130	315	4737289	1.05	3.41	0.33	0		11760	0	2557	0		End job

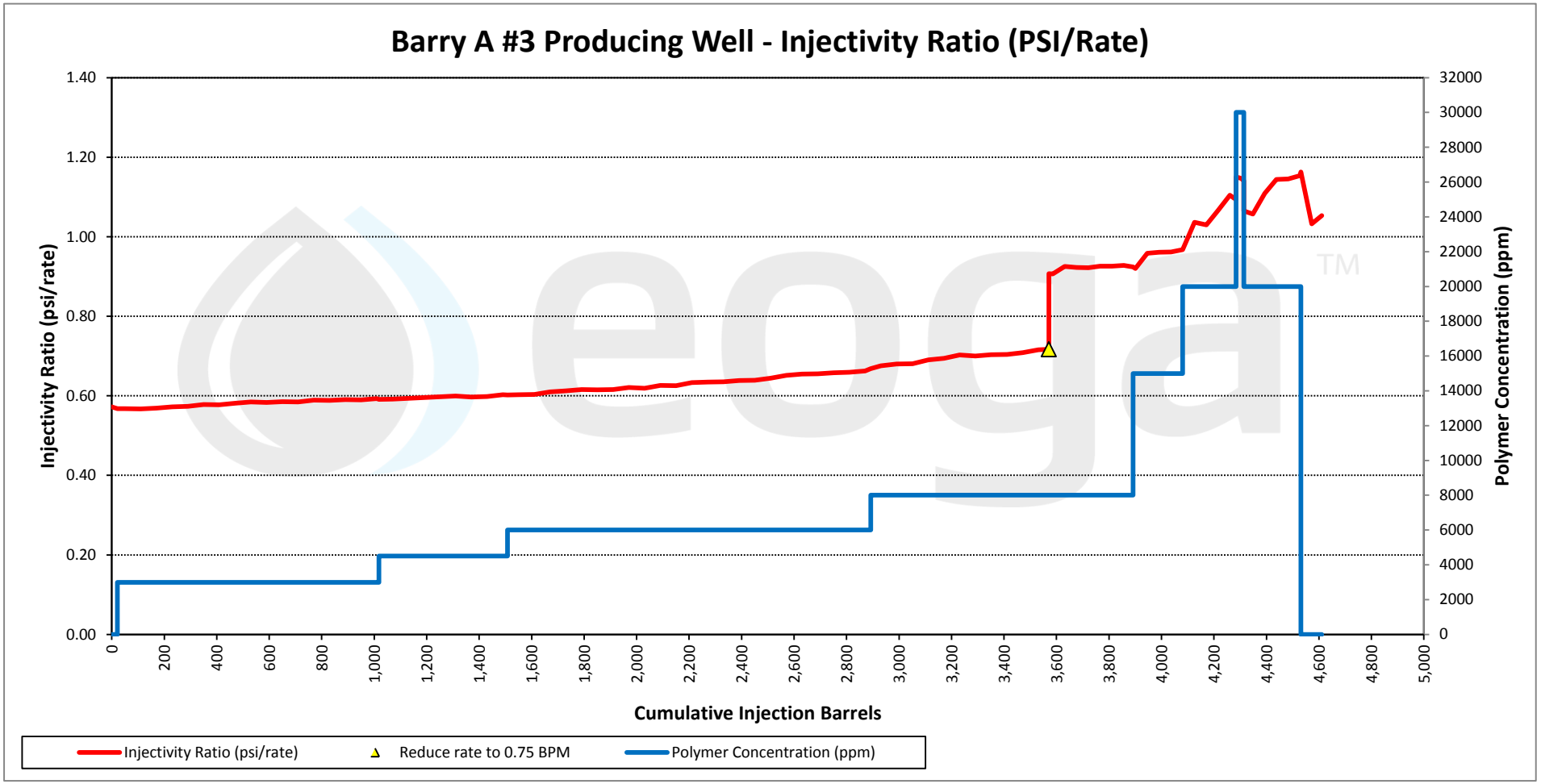

Barry A #3 Producing Well - Rate vs. Pressure
Injection Rate (BPD) & Pressure (psig)
Polymer Concentration (ppm)
Cumulative Injection Barrels
0
200
400
600
800
1000
1200
1400
1600
1800
2000
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000
24000
26000
28000
30000
32000
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Injection Rate (BPD)
Tubing Pressure (psig)
Bottomhole Pressure (psig)
Polymer Concentration (ppm)

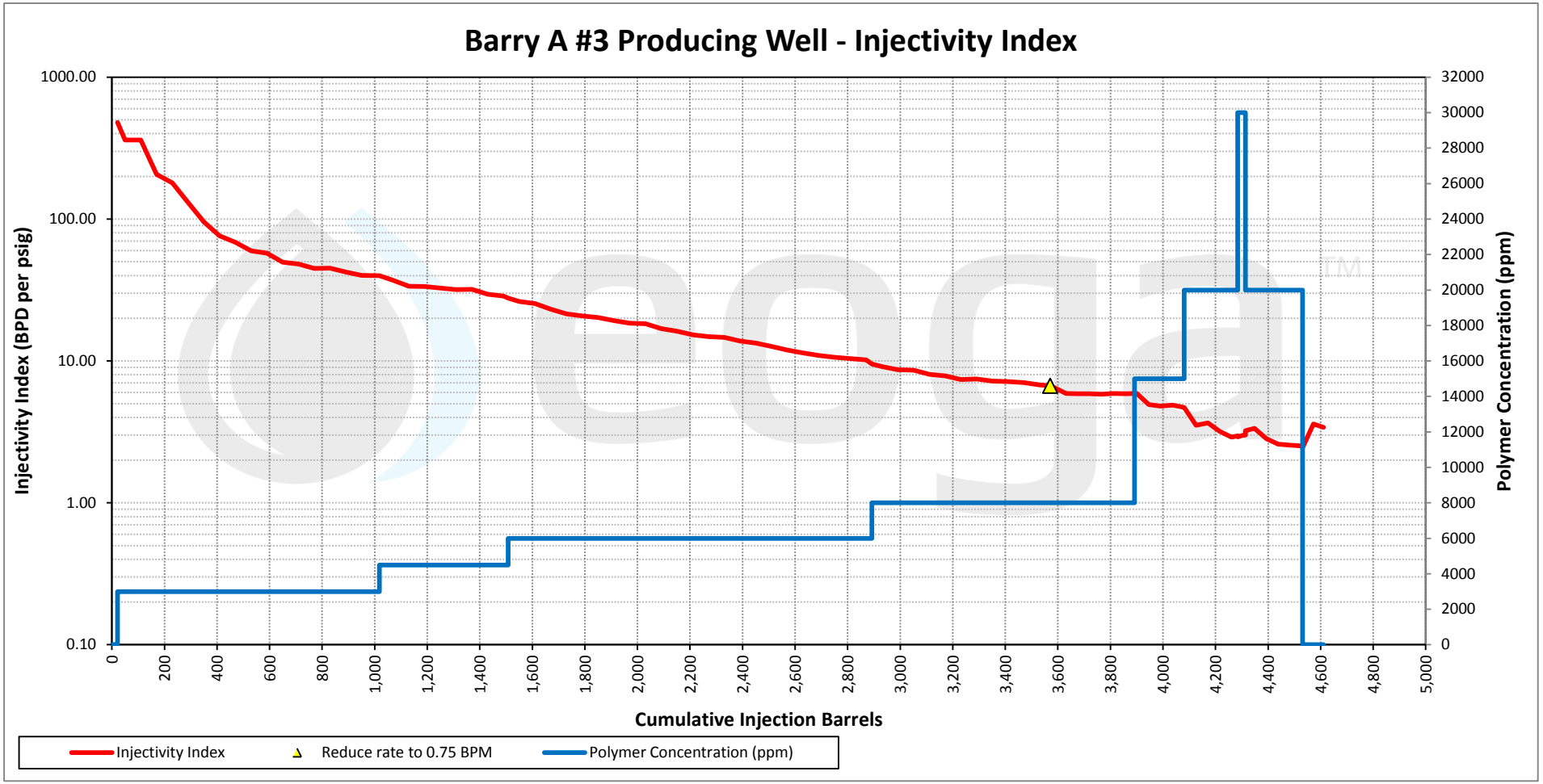

Barry A #3 Producing Well - Δp (from Beginning BHP)
PSI
Polymer Concentration (ppm)
Cumulative Injection Barrels
Differential Pressure
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)

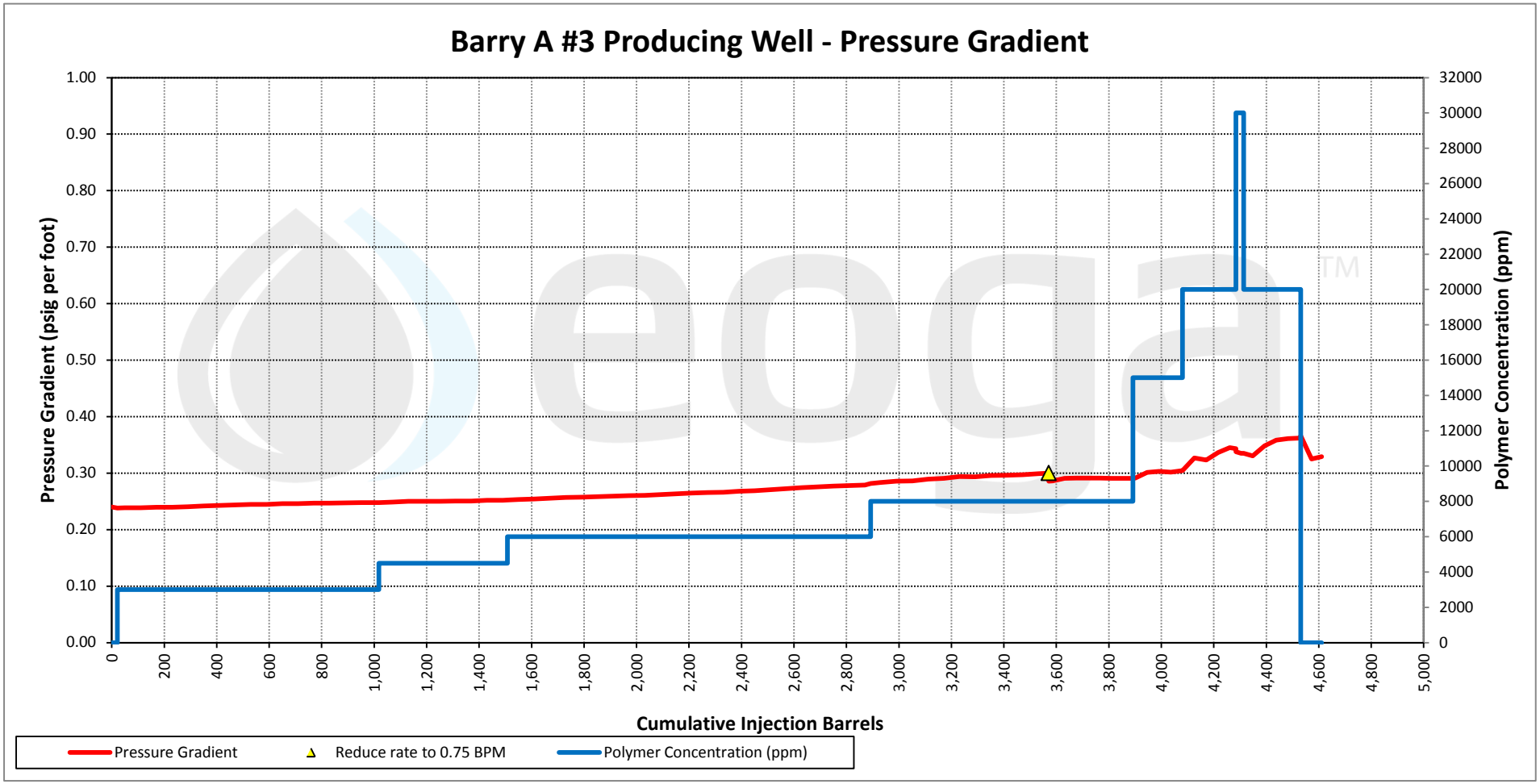

Barry A #3 Producing Well - PSIG per Barrel
PSIG per Barrel
Polymer Concentration (ppm)
Cumulative Injection Barrels
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
PSIG per Barrel
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)


Barry A #3 Producing Well - PSIG per Hour
PSIG per Hour
Polymer Concentration (ppm)
Cumulative Injection Barrels
60.00
50.00
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
PSIG per Hour
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)


Barry A #3 Producing Well - Hall Plot
Hall Plot (psi-time)
5000000
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Polymer Concentration (ppm)
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Cumulative Injection Barrels
Hall Plot
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)


Barry A #3 Producing Well - Injectivity Ratio (PSI/Rate)
Injectivity Ratio (psi/rate)
Polymer Concentration (ppm)
Cumulative Injection Barrels
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Injectivity Ratio (psi/rate)
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)


Barry A #3 Producing Well - Injectivity Index
Injectivity Index (BPD per psig)
1000.00
100.00
10.00
1.00
0.10
Polymer Concentration (ppm)
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Cumulative Injection Barrels
Injectivity Index
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)


Barry A #3 Producing Well - Pressure Gradient
Pressure Gradient (psig per foot)
Polymer Concentration (ppm)
Cumulative Injection Barrels
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Pressure Gradient
Reduce rate to 0.75 BPM
Polymer Concentration (ppm)