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# 511 DOCUMENTS

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**COGCC**

BEFORE THE OIL & GAS CONSERVATION COMMISSION  
OF THE STATE OF COLORADO

IN THE MATTER OF THE PROMULGATION AND ) CAUSE NO. 531  
ESTABLISHMENT OF FIELD RULES TO )  
GOVERN OPERATIONS FOR THE NIOBRARA ) DOCKET NO. 160600248  
FORMATION, UNNAMED FIELD, JACKSON )  
COUNTY, COLORADO ) TYPE: ADDITIONAL WELLS

REQUEST FOR RECOMMENDATION OF  
APPROVAL OF APPLICATION WITHOUT A HEARING

SandRidge Exploration & Production, LLC (Operator No. 10598) ("SandRidge" or "Applicant"), by and through its undersigned attorneys, hereby requests pursuant to Rule 511.a. of the Rules and Regulations of the Colorado Oil and Gas Conservation Commission for the Director to recommend approval of its April 7, 2016 verified application ("Application") and the supporting exhibits without a hearing.

Applicant requests that the above-captioned matter be approved based upon: (i) the merits of the Application, and (ii) Applicant's sworn written testimony verifying sufficient facts along with exhibits that adequately support the relief requested in the Application. To Applicant's information and belief, no protests were timely filed in this matter.

WHEREFORE, Applicant requests that its request for a recommendation for approval of its Application without a hearing be granted.

DATED this 16 day of May, 2016.

Respectfully submitted,

SandRidge Exploration & Production, LLC



By: \_\_\_\_\_

James P. Parrot  
Jillian Fulcher  
Beatty & Wozniak, P.C.  
Attorneys for Applicant  
216 16<sup>th</sup> Street, Suite 1100  
Denver, Colorado 80202  
(303) 407-4499

**SANDRIDGE  
EXPLORATION  
& PRODUCTION,  
LLC**

Cause No. 531  
Docket No. 160600248

**Land Testimony – Richard Silman  
Cause No. 531; Docket No. 160600248  
Increased Density Application  
Unnamed Field, Jackson County, Colorado**

**June 2016 Colorado Oil and Gas Conservation Commission Hearing**

My name is Richard Silman, I am currently employed as a Landman for SandRidge Exploration and Production, LLC (“SandRidge” or “Applicant”). I graduated from the University of Oklahoma in 2009 with a Bachelor in Business Administration in Energy Management. I have over 7 years of experience in petroleum land management and the oil and gas business. I am personally familiar with the lands subject to, and the matters set forth in the April 7, 2016 verified application (the “Application”) filed herein.

In support of the Application, I am submitting two exhibits. The exhibits are attached to my sworn testimony and form the basis for the Application requesting to: (1) authorize up to Nine (9) horizontal wells within the existing spacing unit established by Order 531-2, for production of oil, gas and associated hydrocarbons produced from the Niobrara Formation, for Section 31, Township 8 North, Range 80 West, 6<sup>th</sup> P.M. (“Application Lands”). In support of its Application, Applicant states and alleges as follows:

1. Exhibit No. L-1

Exhibit No. L-1 is an overhead map which shows the location of the Application Lands within Jackson County, Colorado.

2. Exhibit No. L-2

Exhibit No. L-2 is a map which demonstrates Applicant’s leasehold interest in the Application Lands.

3. Exhibit No. L-3

Exhibit L-3 is a list of interested parties within the Application Lands.

4. Exhibit No. L-4

Exhibit L-4 is an aerial map of the Application Lands.

The Application will not result in a requirement for consultation with the Colorado Department of Public Health and Environment or Colorado Parks and Wildlife pursuant to 306.c.(1)B. or 306.d.(1)B.

Based on the examination of relevant contracts and records, the interested parties (owners within the proposed drilling and spacing unit) have been duly served with the Application and associated Notice of Hearing. Further, as of the date of this testimony, Anadarko has not received any notice of objection or protest to the Application.

*Notice of Application/Notice of Hearing*

Based on the examination of relevant contracts and records, the interested parties (owners within the proposed drilling and spacing unit) have been fully served with the Application and associated Notice of Hearing. Further as of the date of this testimony, SandRidge has not received any notice of objection or protest to the Application.

The matters described herein were devised under my direction and control. To the best of my knowledge and belief, all of the matters set forth herein, my testimony and the supporting exhibits, are true, correct and accurate.

Dated this 13<sup>th</sup> day of May, 2016.



Richard Silman, Sr. Landman  
SandRidge Exploration and Production, LLC

**VERIFICATION**

STATE OF OKLAHOMA            )  
  ) ss.  
COUNTY OF OKLAHOMA        )

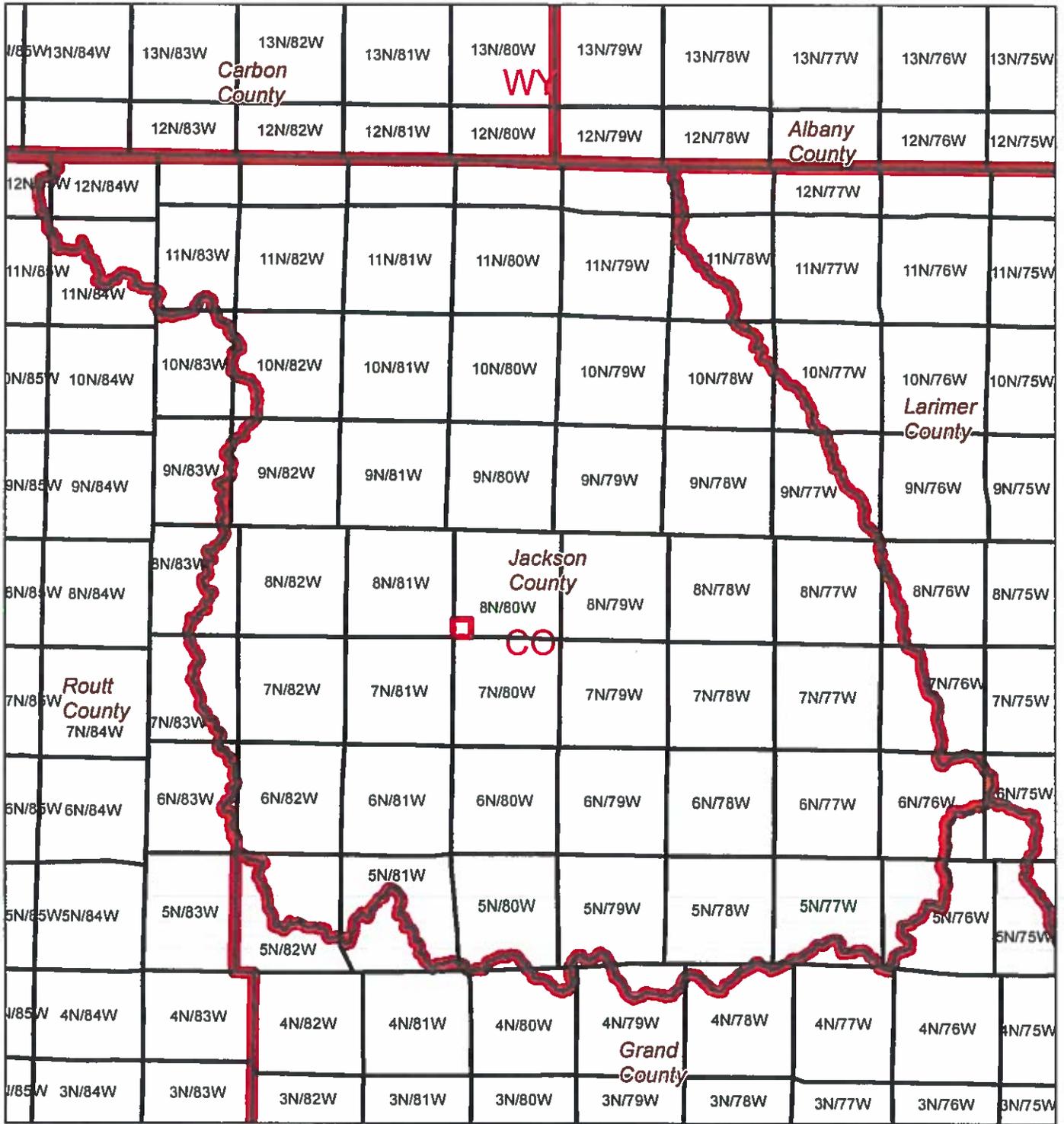
The foregoing instrument was subscribed and sworn to before me this 13 day of May, 2016, by Richard Silman, Sr. Landman for SandRidge Exploration and Production, LLC.

Witness my hand and official seal.

My commission expires: 8/13/18

Emily Rains  
Notary Public





**Legend**

 Spaced Lands

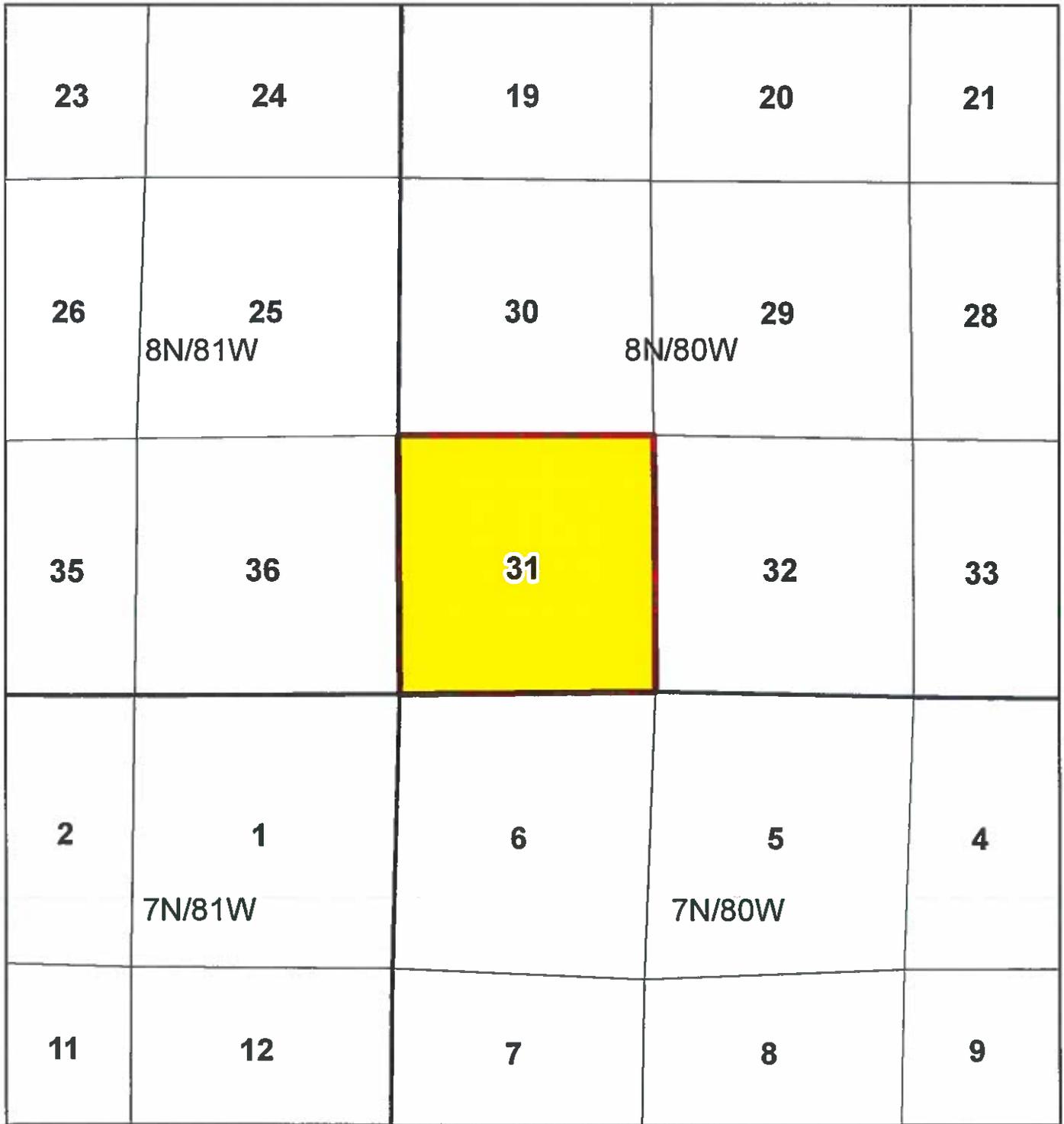


0 2.5 5 10 Miles

**Spacing Unit Map**

**EXHIBIT-L1**  
5/4/2016

8N-80W, Sec. 31 : All  
640 Acres more or less



**Legend**

 Spaced Lands



0 0.5 1 Miles

<p><b>Spacing Unit Map</b>  <b>EXHIBIT-L2</b>          5/4/2016</p>	<p>8N-80W, Sec. 31: All          640 Acres more or less</p>
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**EXHIBIT- L3**

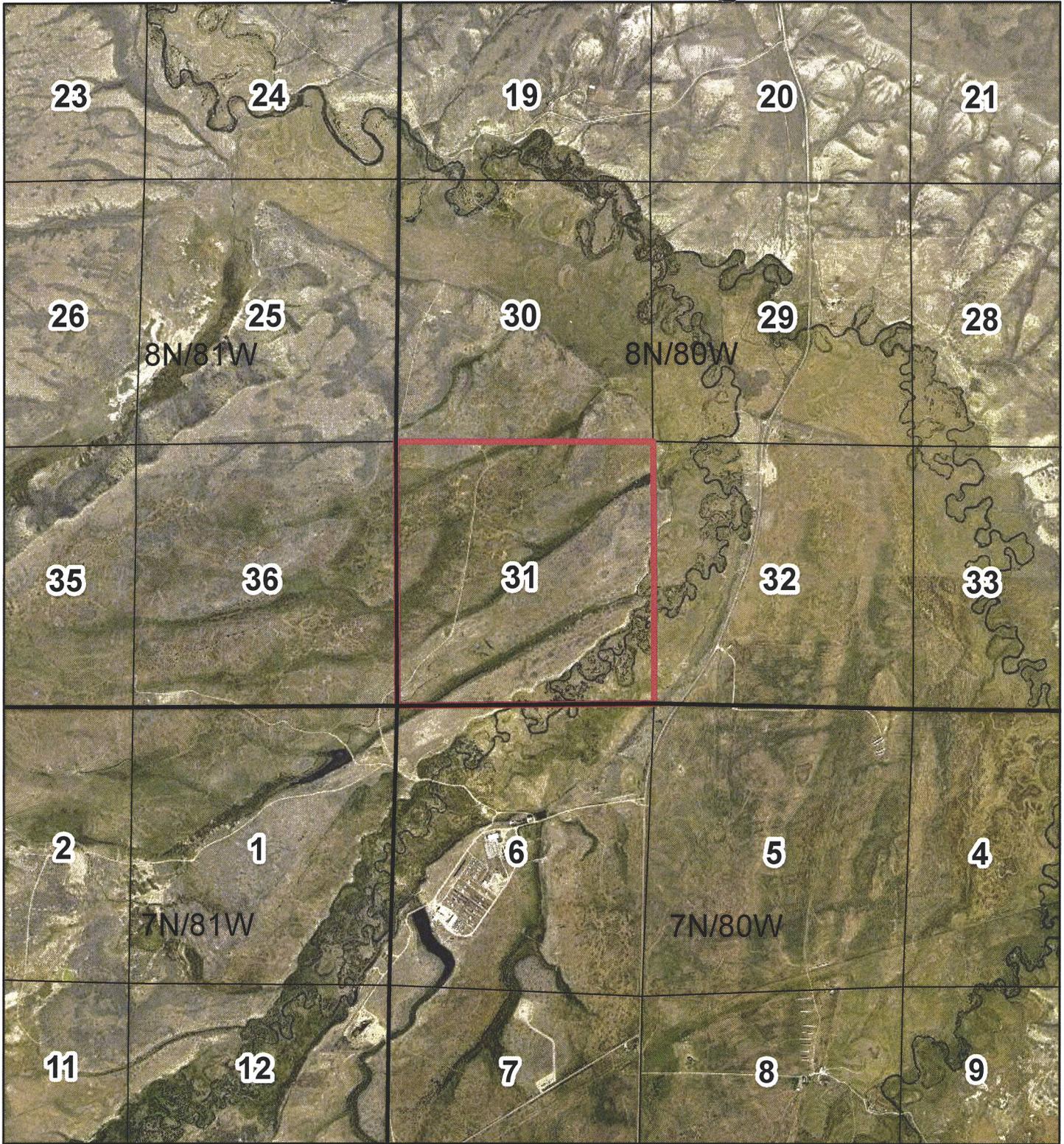
Sandridge Exploration & Production LLC  
123 Robert S. Kerr Ave.  
Oklahoma City, OK 73102

U.S. Department of Interior  
Bureau of Land Management  
2850 Youngfield Street  
Lakewood, CO 80215

Wm Kent Crowder  
Jackson County Administrator  
PO Box 1019  
Walden, CO 80480

Kent Kuster  
Oil & Gas Consultant Coordinator  
Colorado Department of  
Public Health & Environment  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530

Michael Warren, Energy Liaison  
Colorado Parks and Wildlife  
Northwest Regional Office  
711 Independent Avenue  
Grand Junction, CO 81505



**Legend**

 Spaced Lands



0 0.5 1 Miles

**Spacing Unit Map**

**EXHIBIT-L4**  
5/13/2016

8N-80W, Sec. 31: All  
640 Acres more or less

Geology Testimony – Simon Anzaldua  
Cause No. 531; Docket No. 160600248  
Increased Density Application  
Unnamed Field, Jackson County, Colorado

June 2016 Colorado Oil and Gas Conservation Commission Hearing

My name is Simon Anzaldua, and I am currently employed as a Geologist by SandRidge Exploration and Production, LLC (“SandRidge” or “Applicant”). I graduated from the University of Oklahoma with a Bachelor of Science degree in Geology and a Master of Science degree. I have over 2 years of experience in oil and gas exploration and development in the continental United States. I am familiar with the lands subject to, and the matters set forth in the verified application (the “Application”) filed herein.

In support of the Application, I am submitting four (4) exhibits. The exhibits are attached to my sworn testimony and form the basis for the Application requesting to: (1) authorize the drilling of up to eight (8) horizontal wells in two existing drilling and spacing units established by Order No. 531-18, for production from the Niobrara Formation for Section 31, Township 8 North, Range 80 West, 6th Prime Meridian. In support of its Application, Applicant state and alleges as follows:

1. Exhibit No. G-1

Exhibit No. G-1 is a type log for the Niobrara Formation for a well drilled in the vicinity of the Application Lands. Track 1 contains the gamma ray curve; Track 2 contains the deep resistivity curve, with red color-fill denoting values greater than or equal to 20 ohms; Track 3 contains density porosity and neutron porosity curves.

2. Exhibit No. G-2

Exhibit No. G-2 is a regional stratigraphic cross-section A-A’, reference datum top of Niobrara. The location of cross-section A-A’ is inset in Exhibit No. G-2. The cross-section shows the interval from the top of the Niobrara to the top of the underlying Carlile. Each log contains gamma ray, deep resistivity, neutron porosity, and, as available, density porosity. This exhibit demonstrates that the Niobrara Formation is laterally continuous throughout the vicinity of the Application Lands.

3. Exhibit No. G-3

Exhibit No. G-3 is a structure map constructed on the top of the Niobrara Formation. The regional dip for the Niobrara Formation underlying the Application Lands is approximately 300 feet per mile to the east.

4. Exhibit No. G-4

Exhibit No. G-4 is an isopach map of the total thickness of the Niobrara Formation. Total thickness of the Niobrara Formation underlying the Application Lands ranges from approximately 490 feet to 520 feet.

*Conclusions*

The Niobrara Formation is a sequence of chalks, marls, and limestones deposited in the Cretaceous Western Interior Seaway in a deep water marine environment. This environment was laterally continuous and covered much of present-day North America. Regional cross sections demonstrate that the Niobrara Formation is laterally continuous and stratigraphically consistent throughout the vicinity of the Application Lands. The Niobrara Formation exists under the entirety of the Application Lands and is a common source of supply.

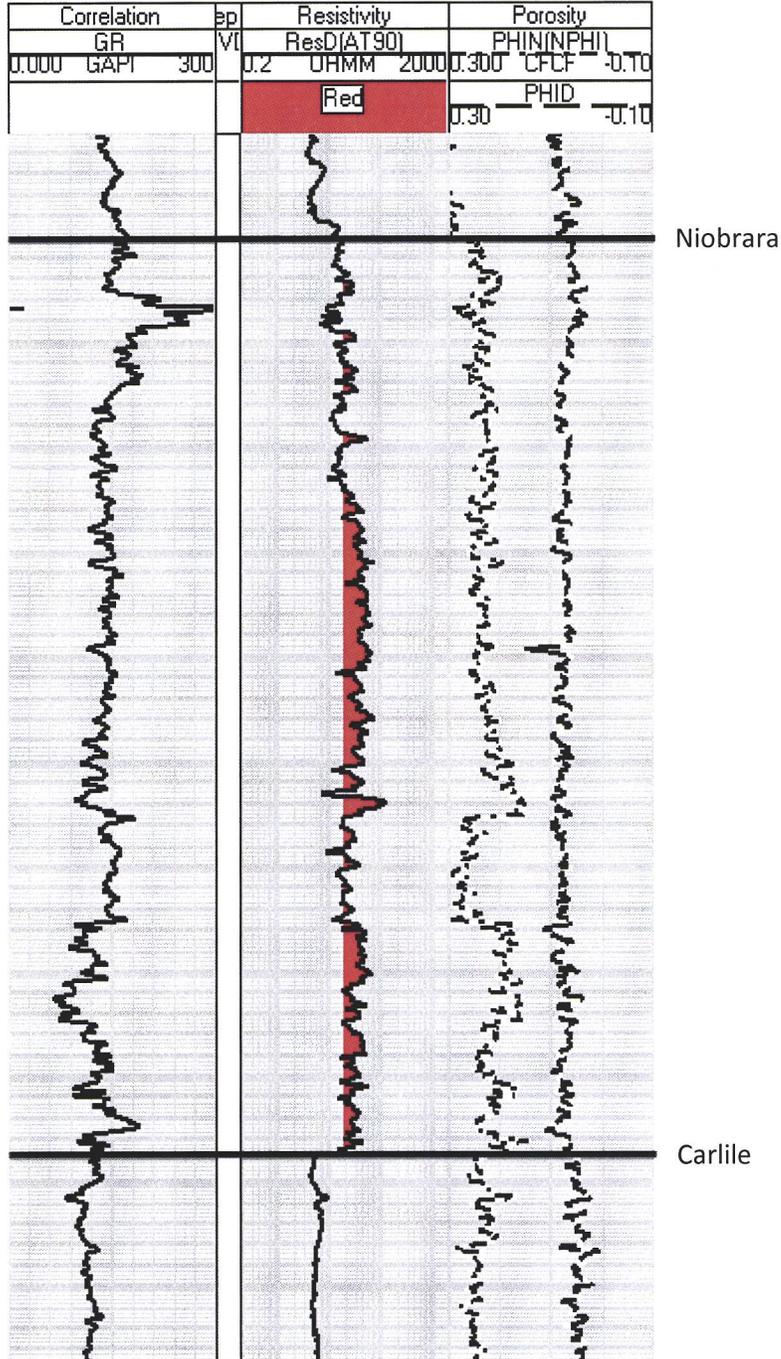


Exhibit No. G-1

Type Log



EOG RESOURCES INC  
BUFFALO DITCH 2-32H  
TWP: 7 N - Range: 80 W - Sec. 32  
05057064640000



Stratigraphic Cross-Section, Datum = Niobrara

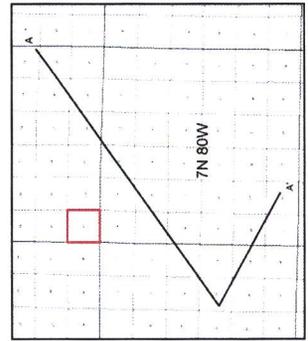
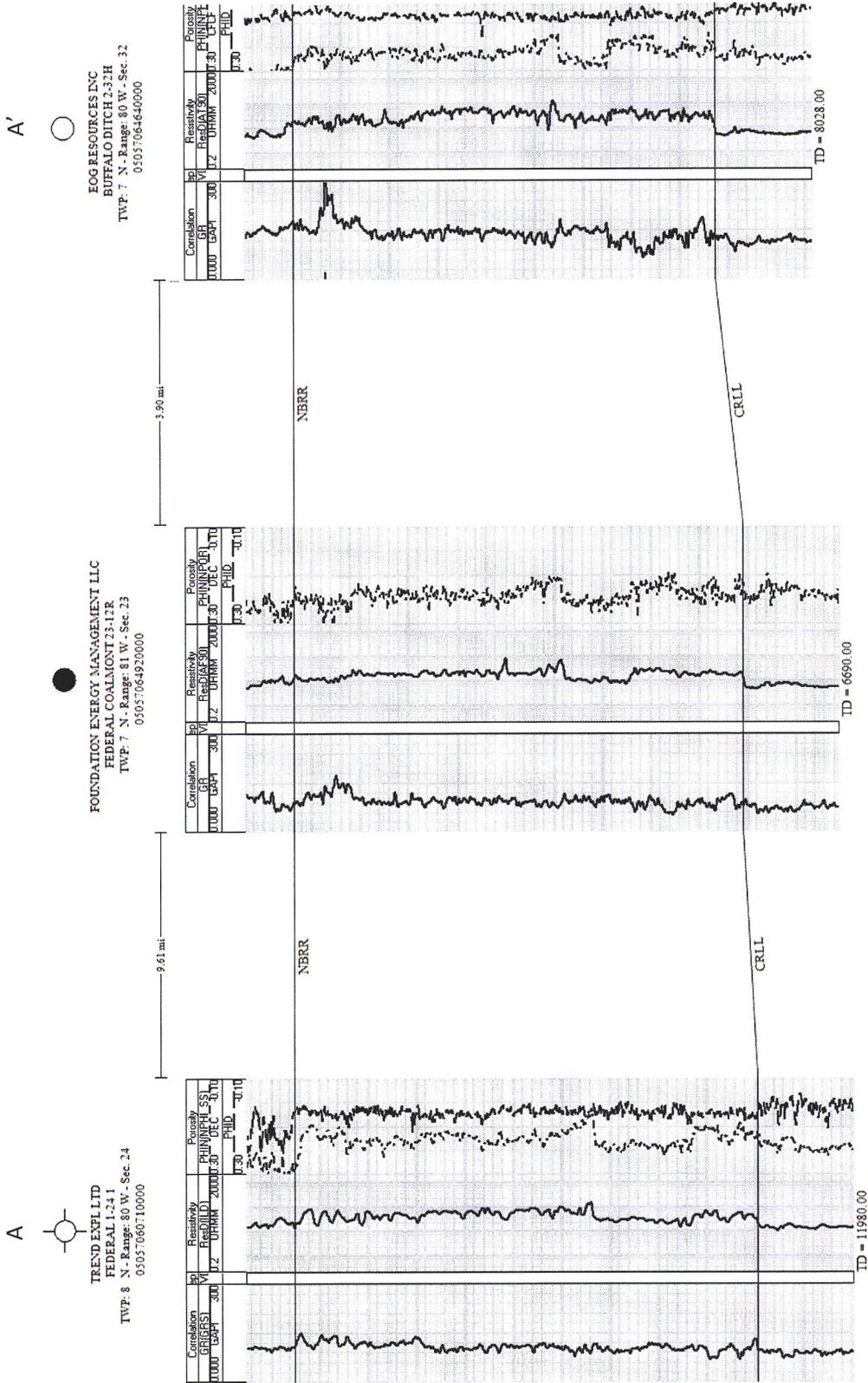


Exhibit No. G-3

Structural Map of Top of Niobrara

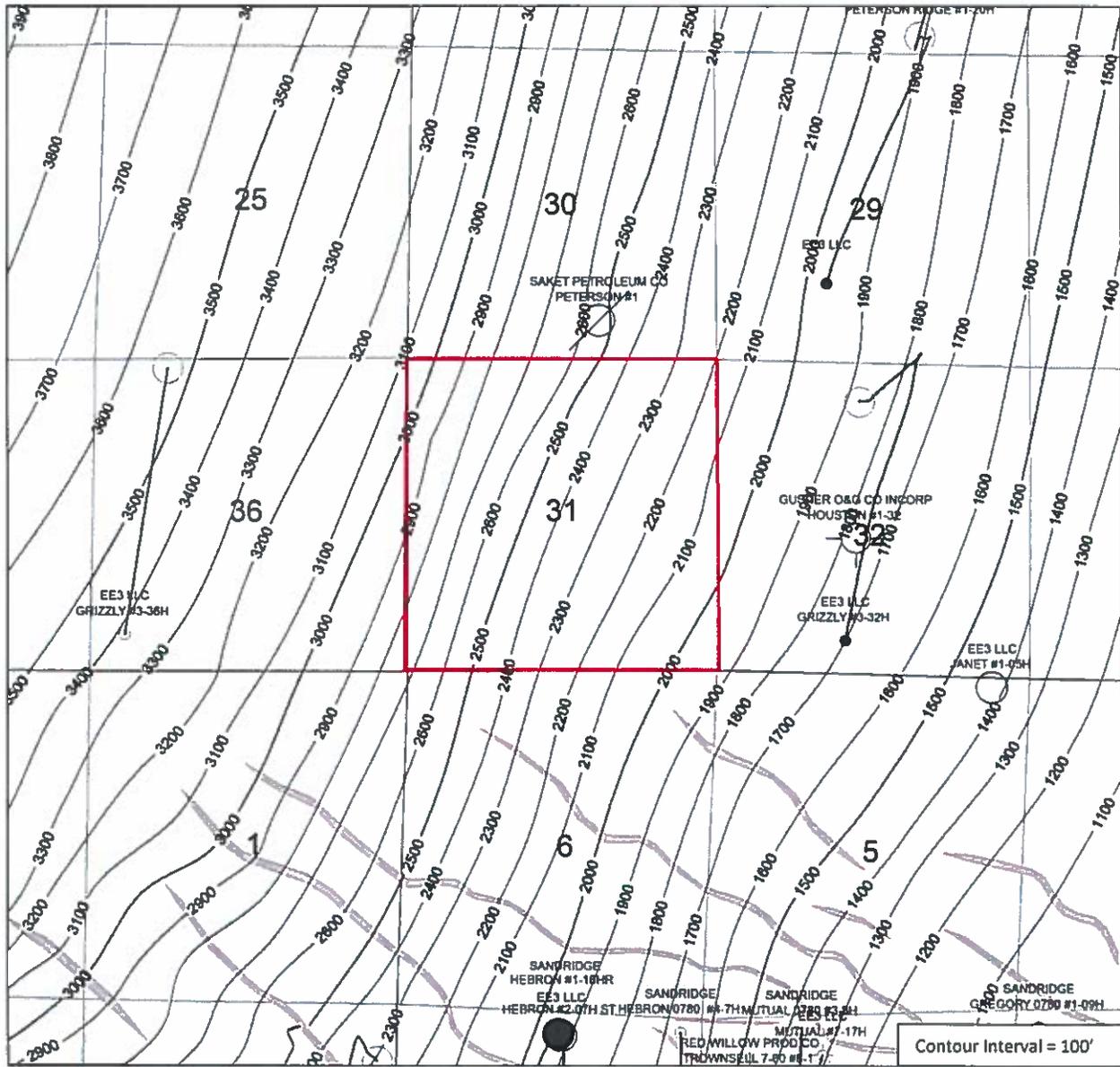
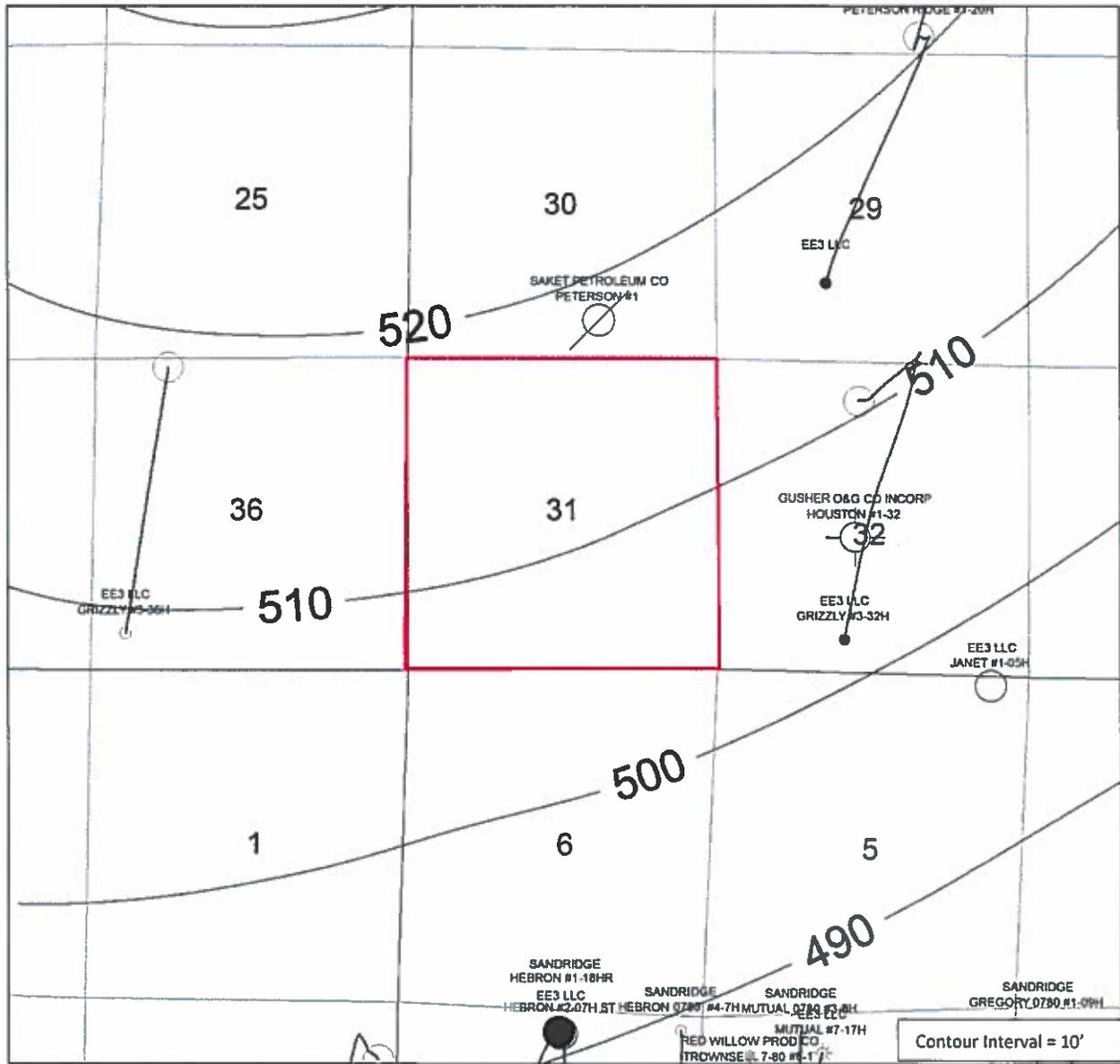


Exhibit No. G-4

Isopach of Niobrara Formation



# **SandRidge Exploration & Production LLC**

## **Wesley K McAlister – Engineering Testimony**

Cause No. 531, Docket No. 160600248

*Request to authorize the drilling of an additional four (4) horizontal wells, for a total of eight (8) horizontal wells, in the existing drilling and spacing unit established by Order No. 531-18, for the production of oil, gas and associated hydrocarbon from the Niobrara formation for Section 31, Township 8 North, Range 80 West, 6<sup>th</sup> P.M., Jackson County, Colorado.*

My name is Wesley McAlister, and I am currently employed as a Reservoir Engineer in the Rockies Division for SandRidge Exploration & Production LLC (SD). I graduated from the University of Oklahoma in 2007 with a Bachelor of Science degree in Petroleum Engineering. I have over eight years of experience in reservoir engineering, completions, production operations, and related matters. I am familiar with the lands subject to, and the matters set forth in the April 7, 2016, verified application (the "Application") filed herein. My resume/c.v. is attached to this submission. See Appendix.

In support of the Application, I am submitting three exhibits. The exhibits are attached to my sworn testimony and form the basis for the Application requesting an Order to authorize the drilling of an additional four (4) horizontal wells, for a total of eight (8) horizontal wells within the existing approximately 640-acre drilling and spacing unit, for production of oil, gas and associated hydrocarbon from the Niobrara formation.

### **1. Exhibit No. E-1.1**

Exhibit No. E-1.1 is a table showing reservoir engineering calculations for vertical wells that penetrated the Niobrara Formation in the North Park Basin in the area T6N-8N and R79W-81W. This table shows the calculated original oil-in-place ("OOIP") for a 640-acre drainage area surrounding each vertical well. The total thickness ("h") of the Niobrara, average water saturation ("SW") in the Niobrara and the average porosity ("por") in the Niobrara were estimated from publically released openhole logs run in each vertical well. The total thickness of the Niobrara formation consists of the sum of the individual chalk and marl benches/members within the Niobrara. The oil Formation Volume Factor ("Bo") was determined from PVT analyses on produced oil and gas samples collected on the Buffalo Ditch 1-32H. It should be noted that not all ten (10) vertical wells penetrated the entire Niobrara formation. The entire Niobrara interval is not present in the Fischer 15 (API 0505706260000), State 6-81-24-4 (API 05057065100000) and the Judy 1-30 (API 05057064660000) due to faulting and/or the total depth of the subject wells. This accounts for the lower OOIP per section for the Niobrara in these wells. Therefore from this exhibit it may be concluded that the average OOIP per section in the Niobrara, not including the Fischer 15, State 6-81-24-4 and the Judy 1-30, is approximately 51.5 MMBO.

## 2. Exhibit No. E-2.1

Exhibit No. E-2.1 is a table showing reservoir engineering calculations for horizontal wells that are completed in the Niobrara Formation in the North Park Basin in the area T6N-8N and R80W-81W. This table shows the estimated ultimate recovery ("EUR"), OOIP and the calculated drainage area for each well. The EURs in the table were determined using production decline curve analysis, as shown in Exhibit No. E-3.1. A net Niobrara thickness of 169 feet was used for all wells based on the effective stimulated height determined from the analyses of the microseismic monitoring programs conducted on the Buffalo Ditch 2-32H and the Mutual 2-30H. To approximate the porosity over the 169' Niobrara interval, log-derived porosities from the ten vertical wells in Exhibit No. E-1.1, along with the available core data from the Buffalo Ditch 1-32H and Buffalo Ditch 2-32H were used. These analyses resulted in an average porosity of 8% over the subject 169 foot Niobrara interval. For the water saturation ("SW"), an analysis of log calculations from the ten referenced vertical wells and available core data indicated an average SW over the 169 foot Niobrara interval of 48.5%. Numerical reservoir simulation was used to determine an approximate oil recovery factor ("RF") using a range of reservoir permeabilities calculated from available core data and horizontal well rate-time analysis. This work resulted in an oil recovery factor of 13.9% being used in the drainage area calculations, and compares very well with recoveries currently being used for horizontal wells completed in the Niobrara in the DJ Basin.

## 3. Exhibit No. E-3.1

Exhibit No. E-3.1, horizontal wells completed in the Niobrara formation in the North Park Basin, illustrates how decline curve analysis was used to extrapolate the individual well EURs used in the drainage area calculations shown in Exhibit No. E-2.1. Production curves are shown for sixteen (16) of the seventeen (17) horizontal Niobrara wells operated by Sandridge Exploration and Production LLC in the North Park Basin. Decline curve parameters used in analyzing the curves were "b-factors" in range of 1.1 – 1.5, with average of 1.29, and a terminal decline rate (" $D_{min}$ ") of 5% per year. All horizontal wells have completed lateral lengths between approximately 2,800 feet to 5,100 feet, with an average completed lateral length of approximately 4,000 feet.

### *Testimony and Conclusions*

Sandridge Exploration and Production LLC (SD) believes that drilling and completing horizontal wells in the Niobrara Formation underlying the Application Lands in the North Park Basin is the most efficient and economic method to develop the resource potential of this formation. SD is monitoring the performance of all horizontal wells in all parts of the North Park and DJ Basins.

As illustrated in the aforementioned exhibits the calculated drainage areas for the existing horizontal Niobrara wells range from 5.2 acres to 96.52 acres, with the average drainage area of only 40.26 acres. These same wells also have laterals with lengths ranging from 2,800 feet to 5,100 feet with an average completed lateral length of 4,000 feet. It, therefore, may be concluded, based on the calculated drainage areas in Exhibit No. E-2.1, that at least eight (8) horizontal wells for the Niobrara in a 640-acre drilling and spacing unit will be required to efficiently develop the Niobrara and avoid waste of the hydrocarbon resource.

Therefore based on my engineering analysis, it is my recommendation that the Commission authorize the drilling of an additional four (4) horizontal wells, for a total of eight (8) horizontal wells within the existing approximately 640-acre drilling and spacing unit, established for Section 31, Township 8 North, Range 80 West, 6<sup>th</sup> P.M. for the production of oil, gas and associated hydrocarbons from the Niobrara Formation, and that by doing so, the development of the said application lands will promote efficient drainage, protect correlative rights and avoid waste of the resource.

The matters described herein were devised under my direction and control. To the best of my knowledge and belief, all matters set forth herein, my testimony and the supporting exhibits are true, correct and accurate.

Dated this 13<sup>th</sup> day of May, 2016.

  
\_\_\_\_\_  
Wesley McAlister, Reservoir Engineer  
SandRidge Exploration and Production, LLC

**VERIFICATION**

STATE OF OKLAHOMA            )  
  ) ss.  
COUNTY OF OKLAHOMA        )

The foregoing instrument was subscribed and sworn to before me this 13<sup>th</sup> day of May, 2016, by Wesley McAlister, Reservoir Engineer for SandRidge Exploration and Production, LLC.

Witness my hand and official seal.

My commission expires: 8/13/18

Emily Rains  
\_\_\_\_\_  
Notary Public



**Exhibit No. E-1.1**

Niobrara OOIP Calculations from Vertical Wells in North Park Basin  
T6H-T7N / R79W-R81W  
Jackson County, Colorado

By Well	API	Current Operator	Field	Sec	TWN	RNG	Top of Niobrara (feet)	Bottom of Niobrara (feet)	Average h (feet)	Average Porosity (%)	Average Sw (%)	SoPHH	Niobrara Chalk OOIP per Section (Bbls Oil)	Niobrara Marl OOIP per Section (Bbls Oil)	Total Niobrara OOIP per Section (Bbls Oil)
State 1-36	05057060650000	Markus Production Inc	Coalmont	36	T7N	R81W	6,230	6,699	469	7.1%	59.4%	14,104	25,190,968	25,555,473	50,746,441
Federal 1-24	05057060710000	Trend Exploration LTD	Wildcat	24	T6N	R80W	10,624	11,100	476	4.4%	62.3%	10,307	15,244,250	21,840,951	37,085,201
SCM 1	05057062440000	Joseph P Doyle	Grizzly Creek	6	T6N	R80W	6,516	6,553	450	6.6%	48.0%	16,729	28,560,126	31,630,261	60,190,387
Fischer 15	05057062600000	Conoco Phillips Co	McCallium	15	T9N	R79W	7,234	7,602	368	4.9%	62.9%	8,576	10,293,773	20,560,994	30,854,767
Buffalo Ditch 2-32H	05057064640000	Sandridge Energy	Eclipse	32	T7N	R80W	7,093	7,536	443	5.7%	54.7%	12,132	17,148,733	26,502,551	43,651,284
Judy 1-30	05057064660000	Sandridge Energy	Unnamed	30	T7N	R80W	6,822	7,104	282	5.1%	41.1%	8,630	19,440,640	11,609,494	31,050,133
Vaneta 1-32D	05057064670000	Sandridge Energy	Eclipse	32	T7N	R80W	7,304	7,753	497	5.3%	39.2%	16,675	28,456,650	31,539,270	59,995,920
Federal Coalmont 23-12R	05057064920000	Foundation Energy MG	Coalmont	23	T7N	R81W	5,736	6,194	458	8.0%	57.7%	16,444	29,031,704	30,133,457	59,165,161
Arapaho State 6-18-36-3	05057065070000	Dakota Exploration LLC	Grizzly Creek SE	36	T6N	R81W	5,828	6,259	431	8.6%	63.8%	13,813	26,332,586	23,965,063	49,697,649
State 6-81-24-4	05057065100000	Dakota Exploration LLC	Unnamed	24	T6N	R81W	5,921	6,299	378	10.3%	61.2%	14,774	22,830,953	30,325,118	53,156,071

**Where**

OOIP = Original oil in place (bbls)  
Area = drainage area  
Bo = formation volume factor (rbv/STB)  
por = porosity (fraction)  
SW = water saturation (fraction)

**Input Assumptions**

Bo = 1.38 Oil FVF in res bbls/STB calculated from PVT analysis  
Area = 640 acres in a single section

**Notes**

Not all wells penetrated the entire Niobrara section

**Equation Used**

OOIP = (7758 \* Area \* h \* por \* (1 - SW)) / Bo

**Exhibit No. E-2.1**

Niobrara EUR and Drainage Area Calculations from Horizontal Wells in North Park Basin  
 T6H-T8N / R80W-R81W  
 Jackson County, Colorado

Lease	API	Sec	TWN	RNG	Date of 1st Production	30-Day (BOPD)	60-Day (BOPD)	90-Day (BOPD)	EUR (MBO)	OOIP (Mbbbls)	H (ft)	Porosity (Fraction)	Water Saturation (Fraction)	Calculated Drainage Area (acres)
Buffalo Ditch 01-32H	05057064630000	32	T7N	R80W	1/1/2008	217	253	225	60	429	169	0.08	0.485	10.97
Buffalo Ditch 02-32H	05057064640100	32	T7N	R80W	7/25/2008	68	54	58	55	392	169	0.08	0.485	10.03
Mutual 02-30H	05057064650000	30	T7N	R80W	7/25/2008	523	412	370	161	1,159	169	0.08	0.485	29.61
Mutual 07-17H	05057064720000	17	T7N	R80W	12/21/2008	394	326	290	251	1,803	169	0.08	0.485	46.05
Surprise 04-06H	05057064800000	6	T6N	R80W	10/5/2010	325	239	220	124	892	169	0.08	0.485	22.78
Hebron 05-18H	05057065020000	18	T7N	R80W	12/23/2010	335	303	269	218	1,572	169	0.08	0.485	40.15
Hebron 01-18H	05057065010000	18	T7N	R80W	12/20/2010	106	81	60	28	203	169	0.08	0.485	5.20
Coalmont 03-13H	05057065080000	13	T7N	R81W	8/1/2013	157	155	140	279	2,005	169	0.08	0.485	51.21
Herbon 03-12H	05057064980000	12	T7N	R81W	8/19/2013	385	420	375	269	1,939	169	0.08	0.485	49.53
Hebron 02-07H	05057064990000	7	T7N	R80W	10/9/2013	238	230	177	113	810	169	0.08	0.485	20.69
Damfino 02-06H	05057064820000	6	T6N	R80W	11/6/2013	507	550	527	232	1,666	169	0.08	0.485	42.57
Peterson Ridge 01-20H	05057065150000	20	T8N	R80W	1/17/2014	300	292	241	203	1,457	169	0.08	0.485	37.23
Spicer 03-32H	05057064690000	32	T7N	R80W	8/19/2014	453	226	447	251	1,809	169	0.08	0.485	46.22
Grizzly 03-32H	05057065230000	32	T8N	R80W	9/8/2014	544	241	478	340	2,445	169	0.08	0.485	62.46
Mutual 04-30H	05057064690000	30	T7N	R80W	12/22/2014	467	545	540	525	3,778	169	0.08	0.485	96.52
Surprise Unit 02-08H	05057065260000	8	T6N	R80W	7/13/2015	366	451	463	397	2,857	169	0.08	0.485	72.99

**Where:**

OOIP = Original oil in place (bbbls)  
 EUR = estimated ultimate recovery (bbbls)  
 RF = recovery factor (fraction)  
 Area = drainage area  
 Bo = formation volume factor (rvb/STB)  
 por = porosity (fraction)  
 SW = water saturation (fraction)

**Input Assumptions:**

Bo = 1.38 Oil FVF in res bbbls/STB calculated from PVT analysis  
 SW = 0.485 Average water saturation (fraction) determined from log analysis  
 RF = 0.139 Recovery factor (fraction) determined from reservoir simulation  
 h = 169 Average height of propped frac in feet determined from microseismic data

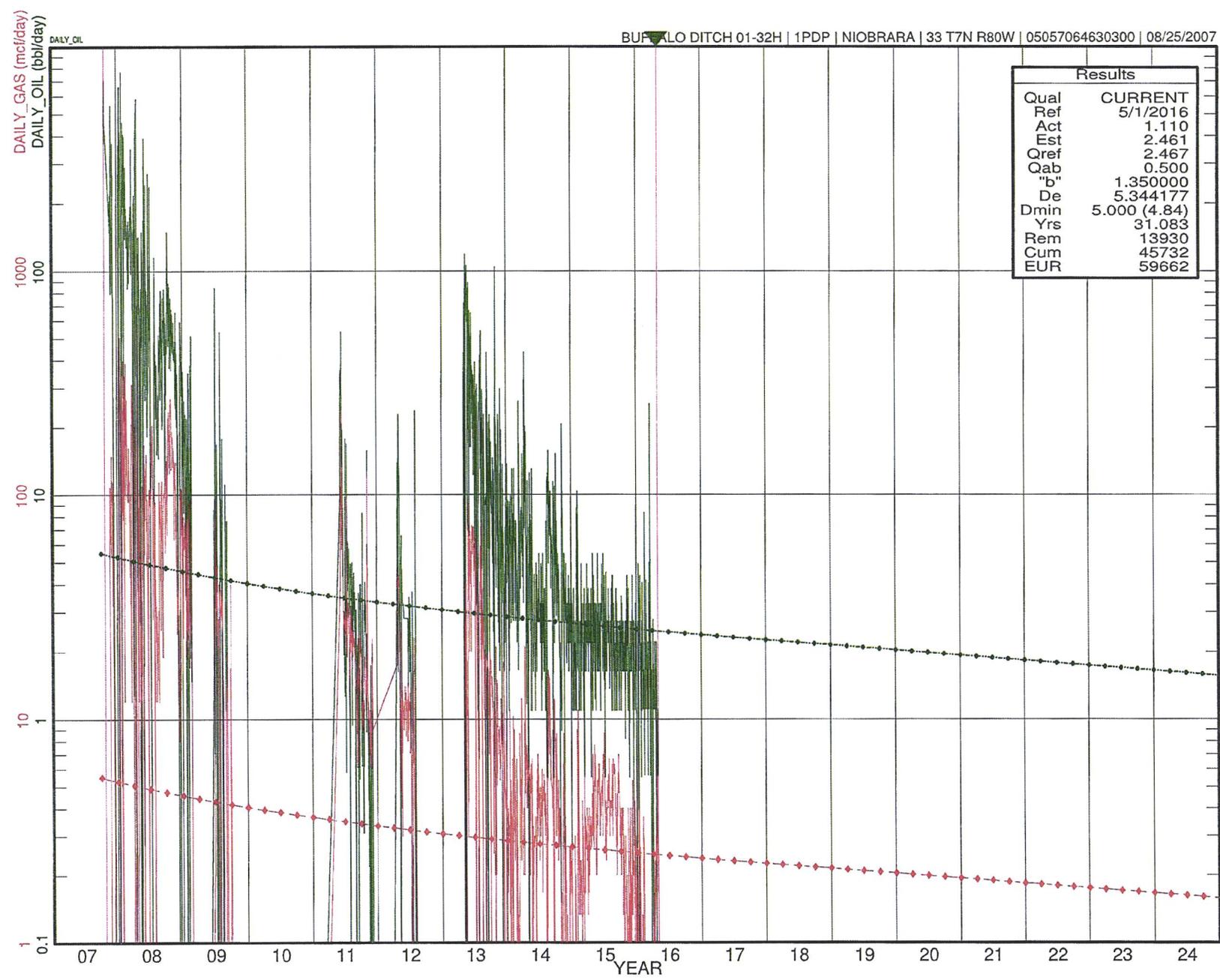
**Equation Used:**

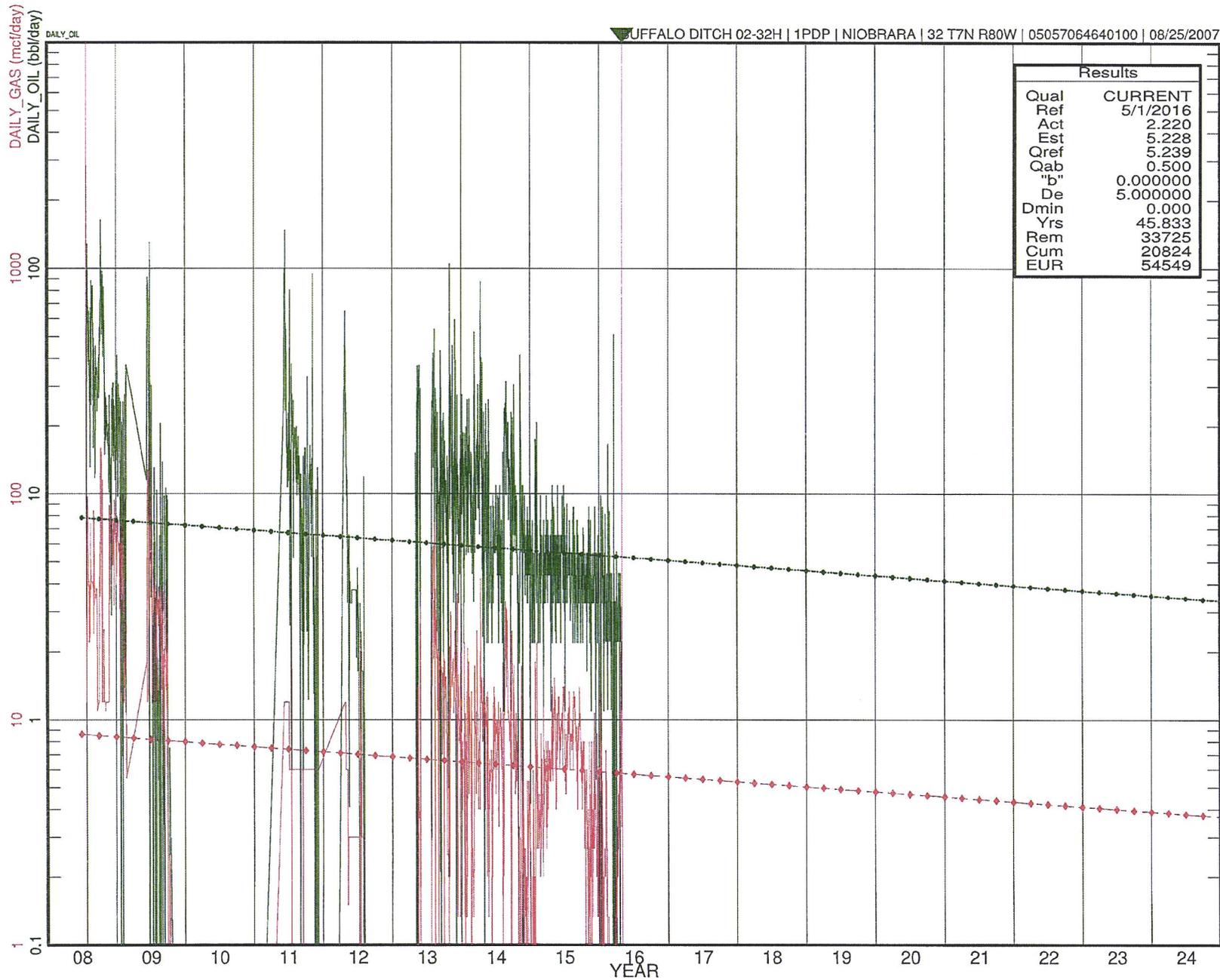
OOIP = EUR/RF  
 Area = (OOIP\*Bo)/(7758/1000\*h\*por\*(1-SW))

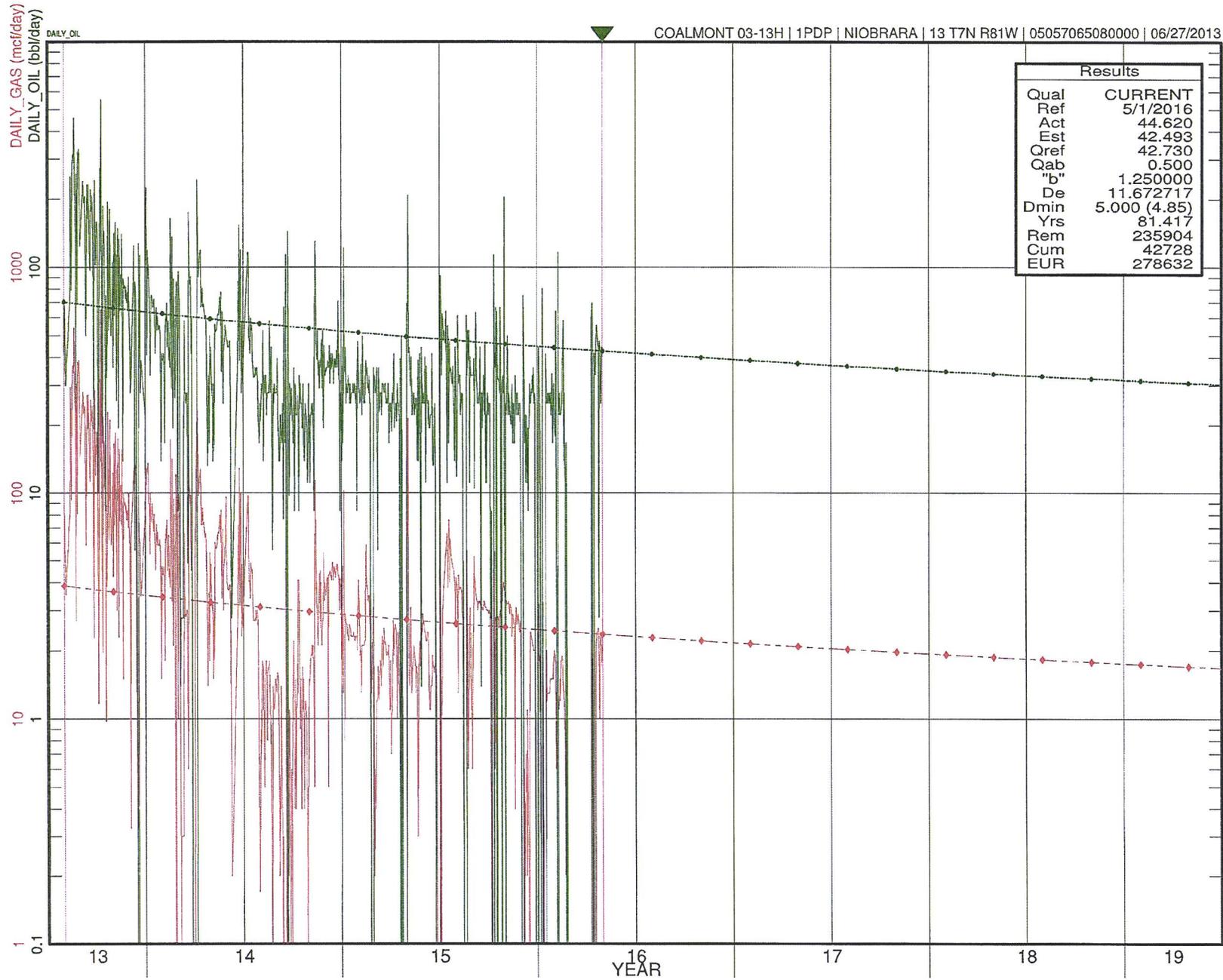
Average Drainage Area: 40.26

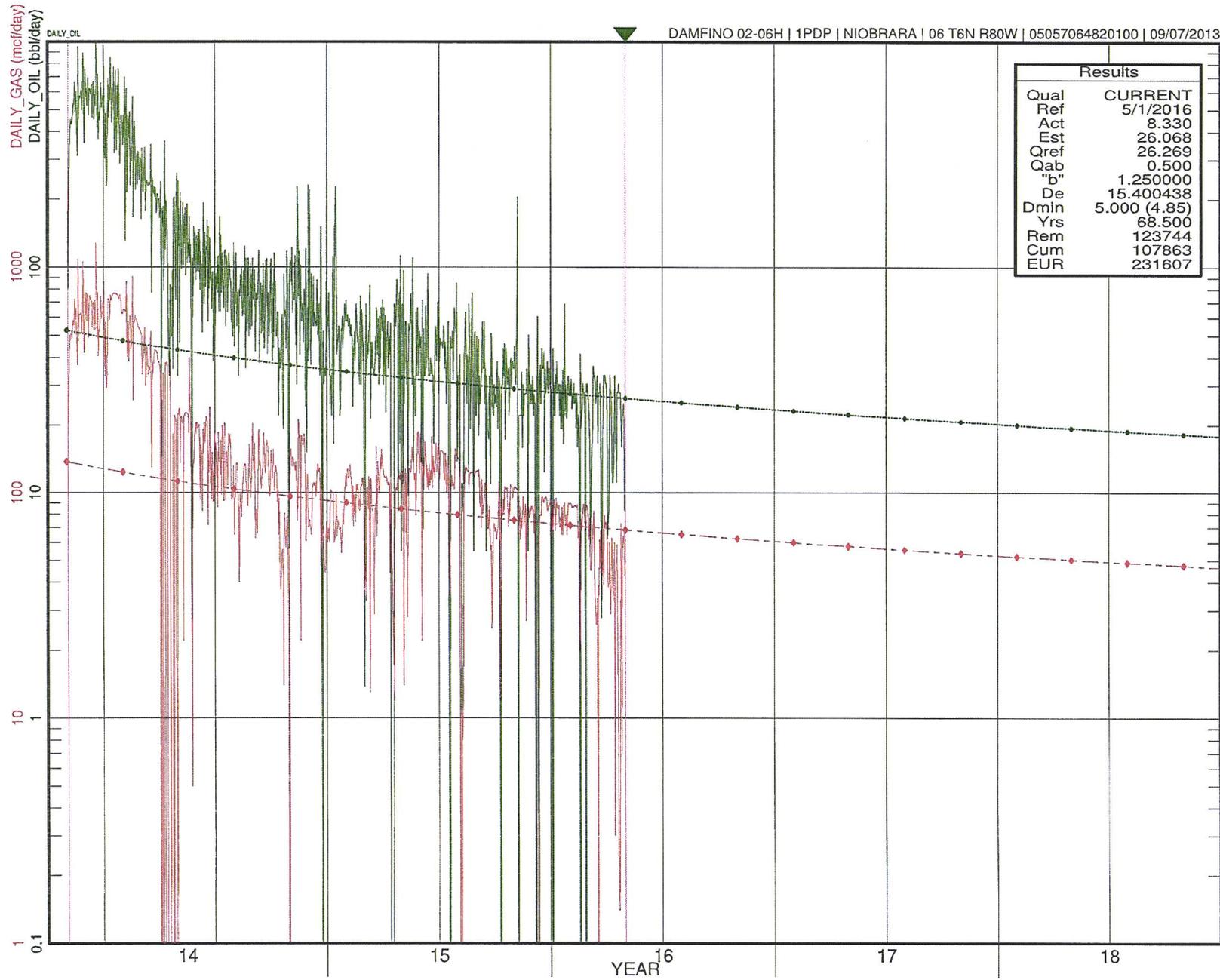
**Exhibit No. E-3.1**

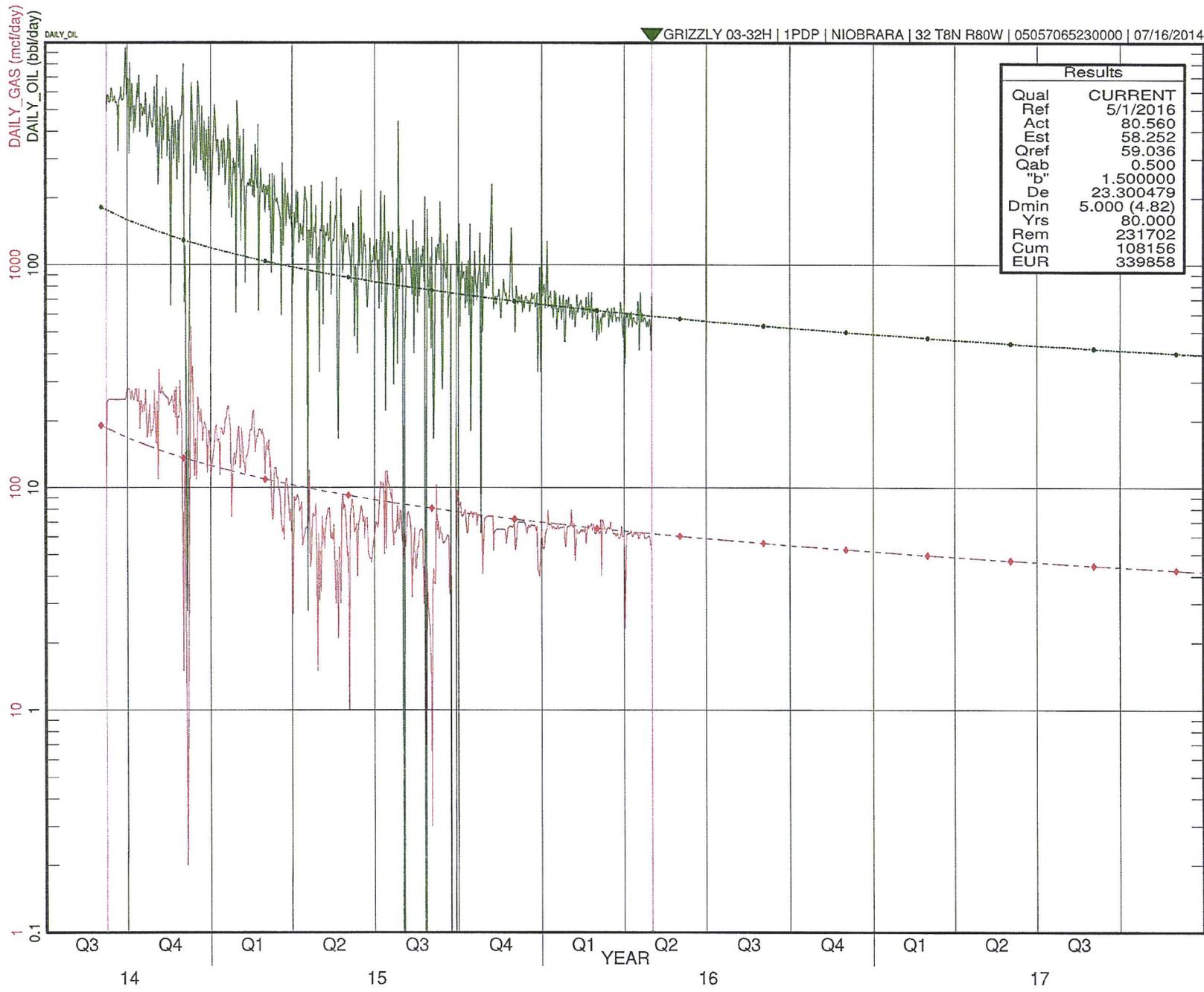
**Examples of Niobrara Decline Curve Analysis**

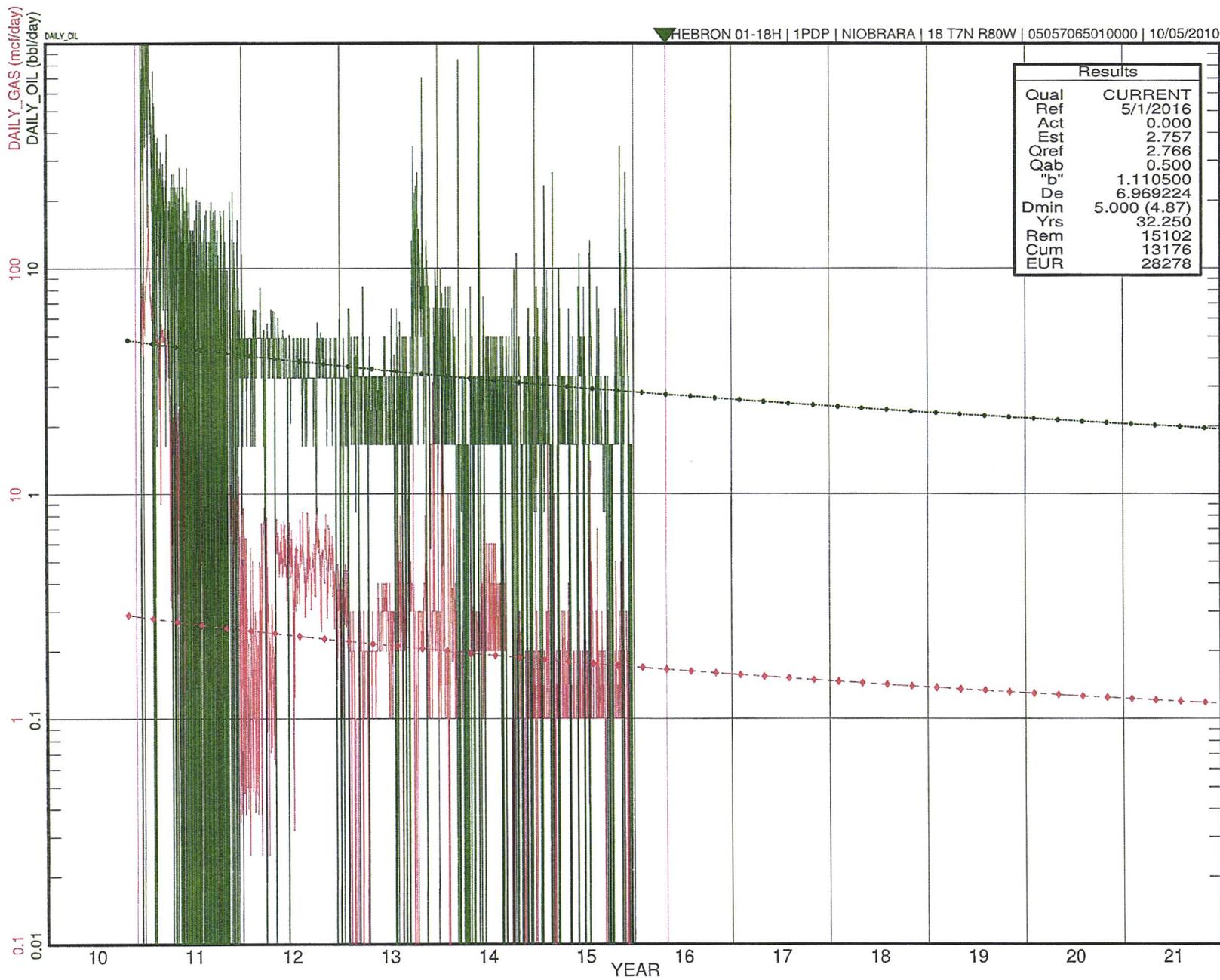


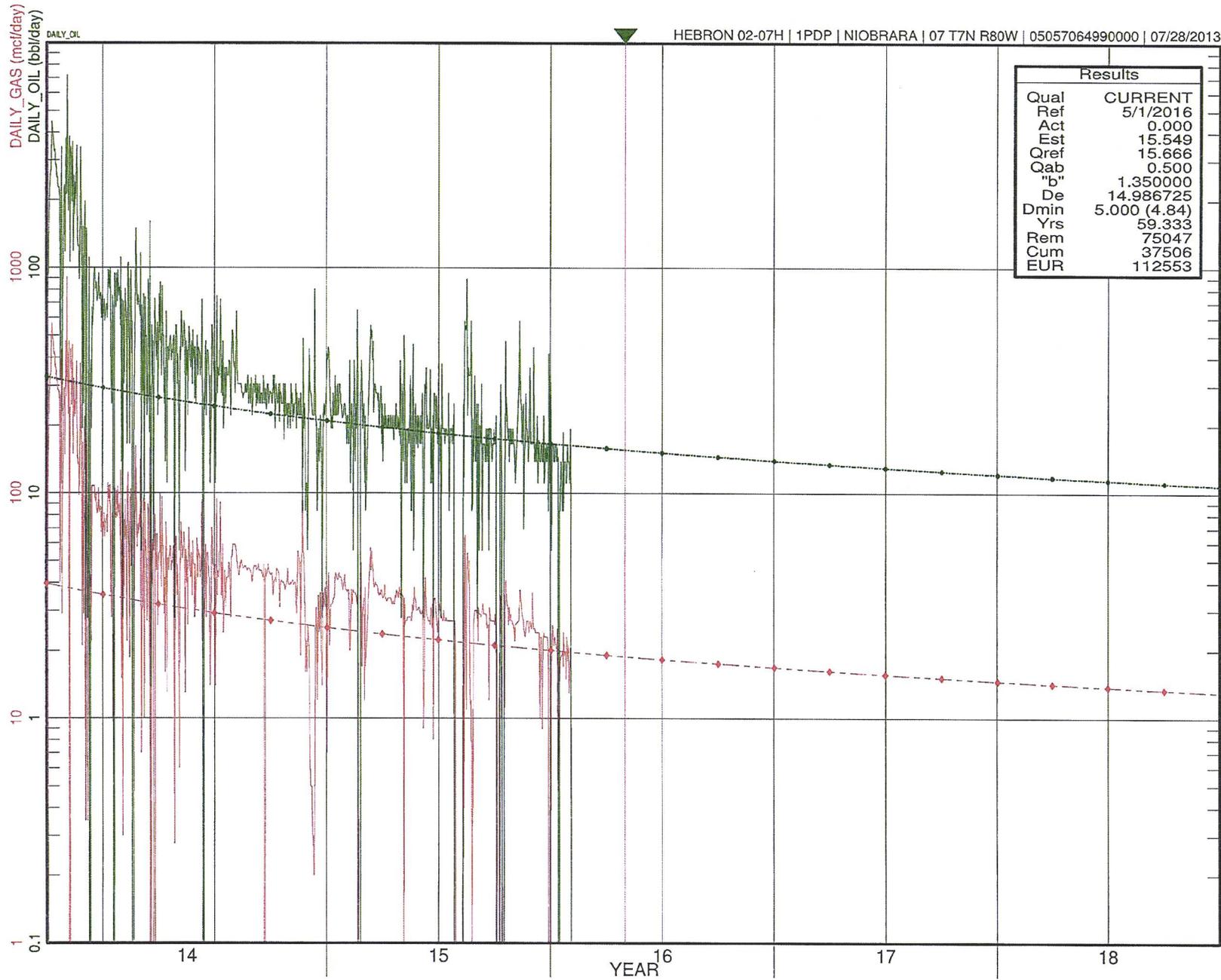


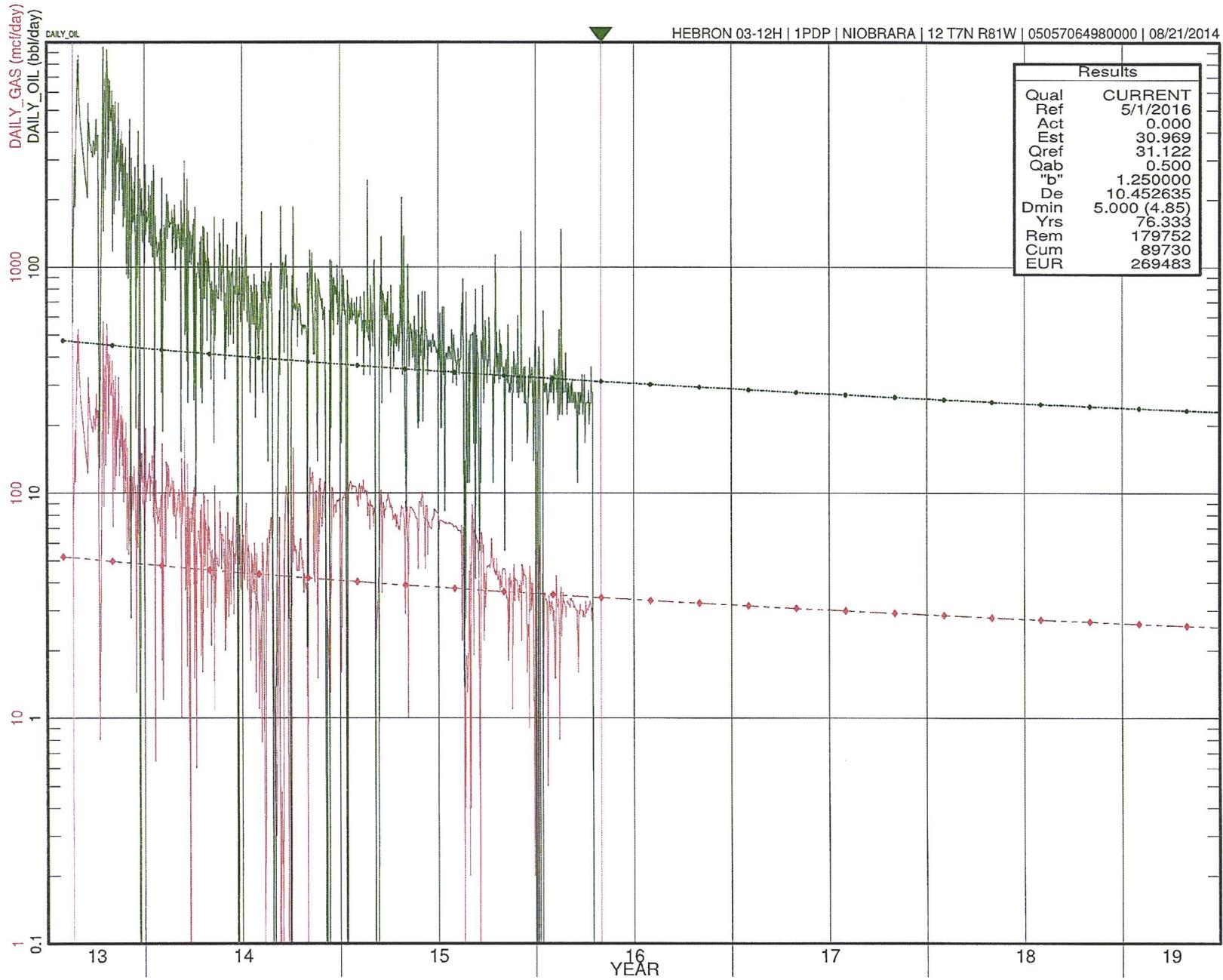


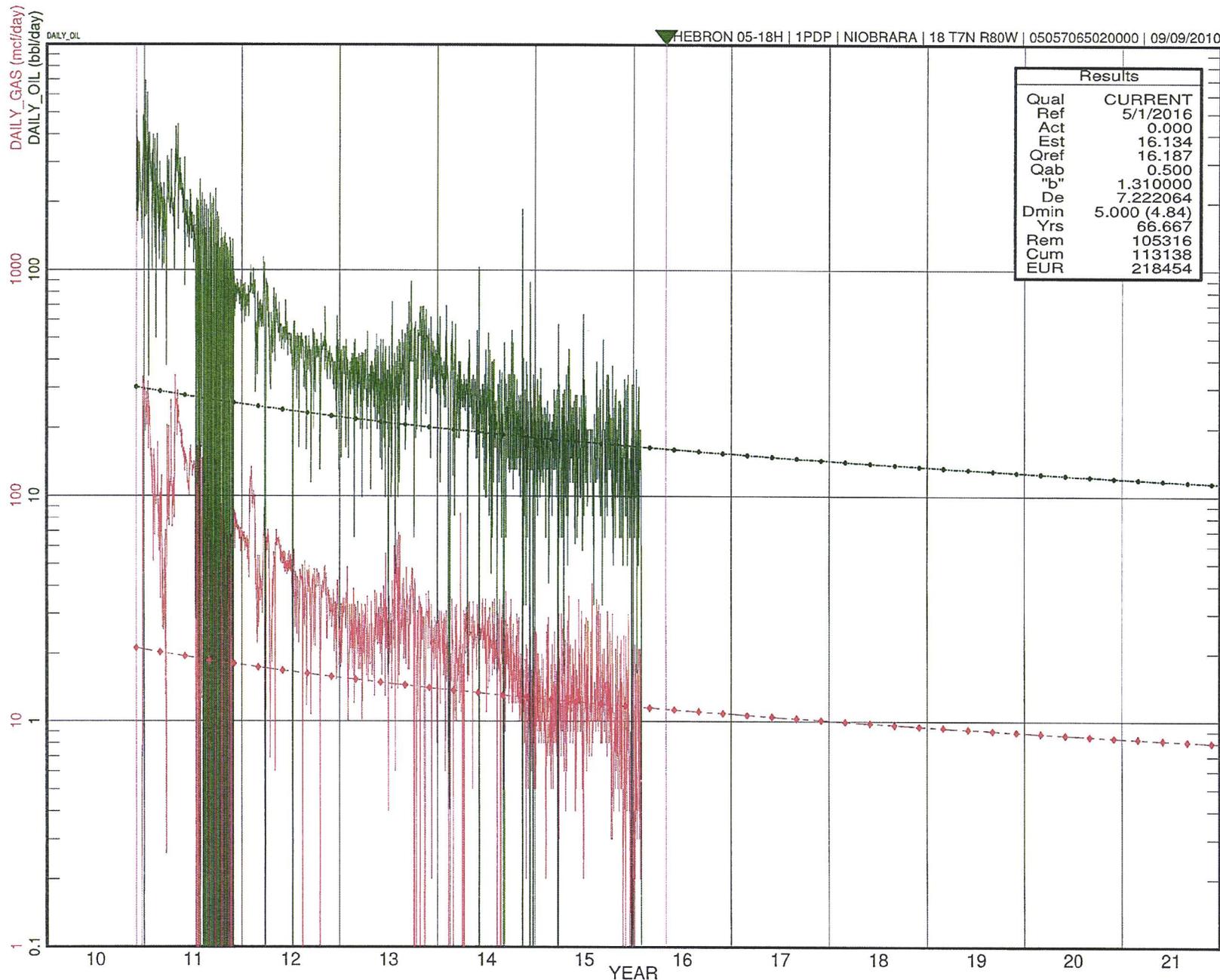


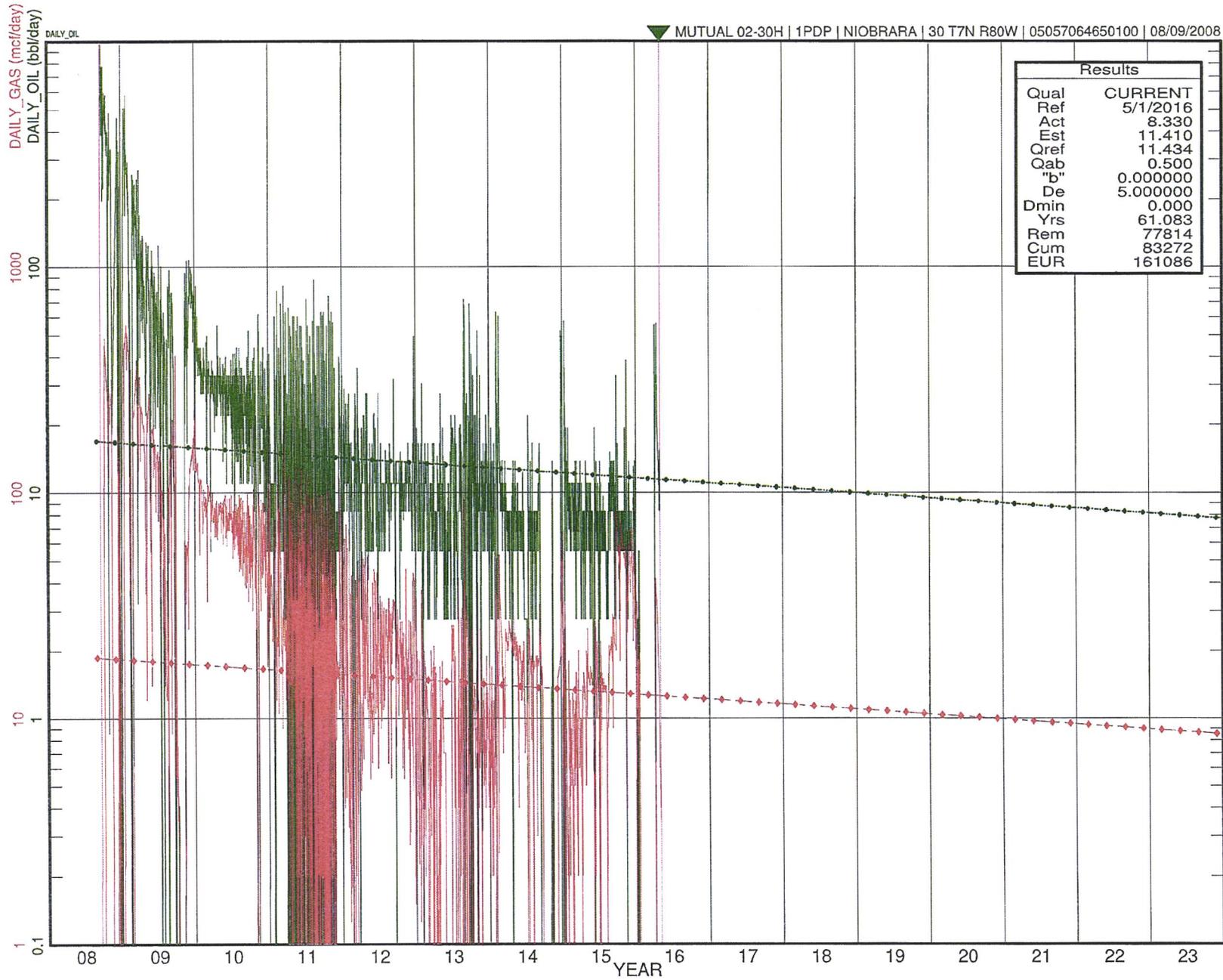


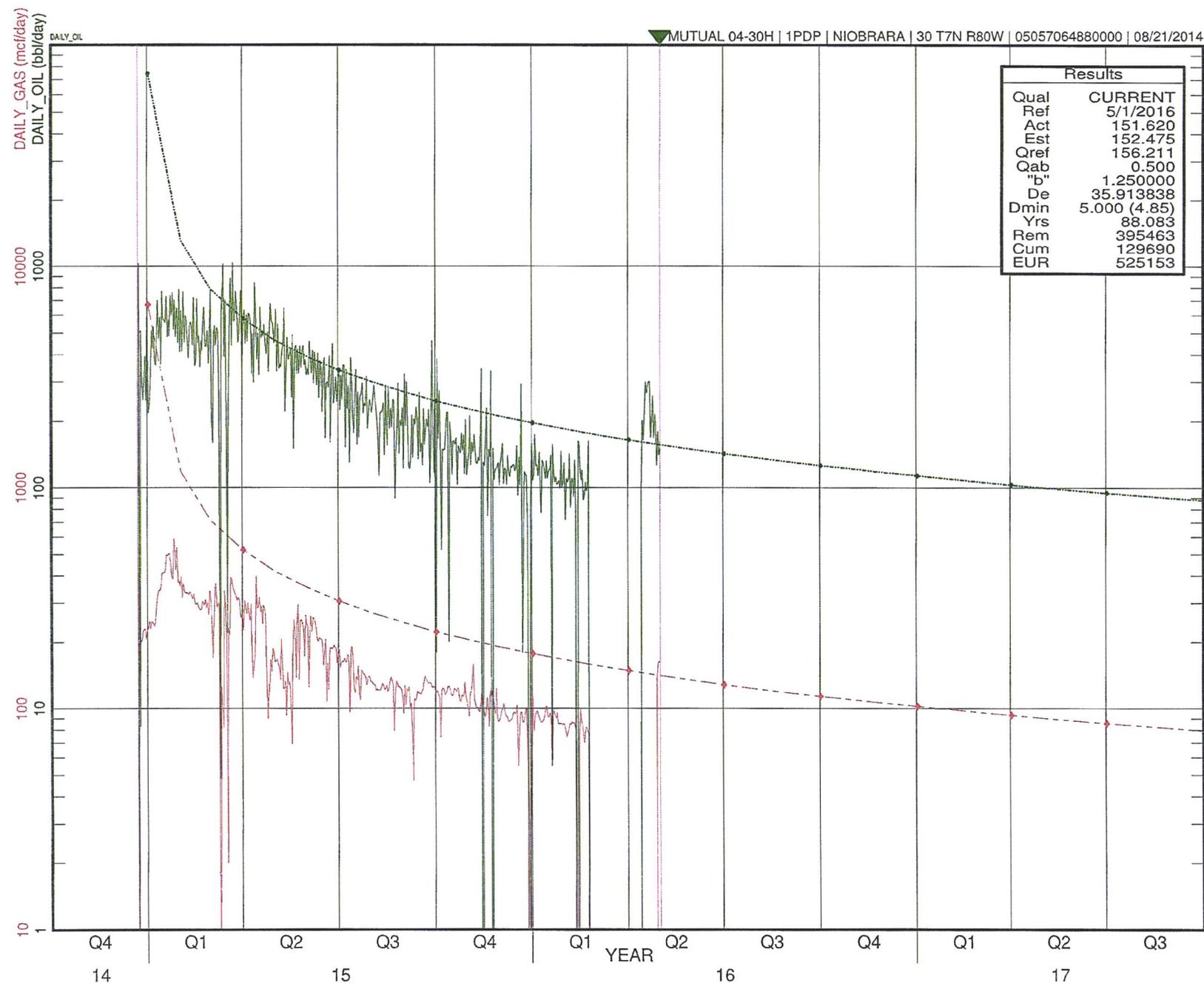


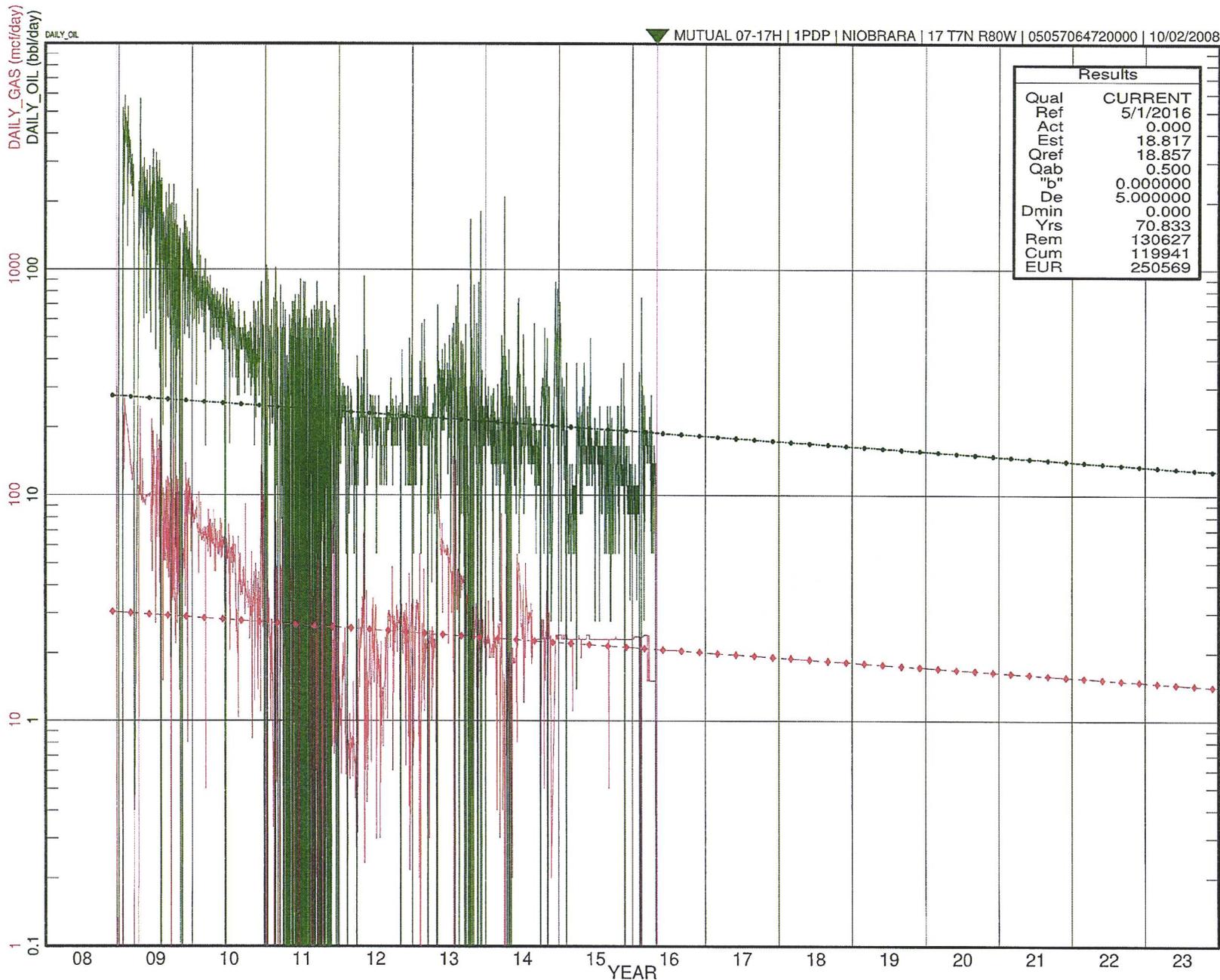


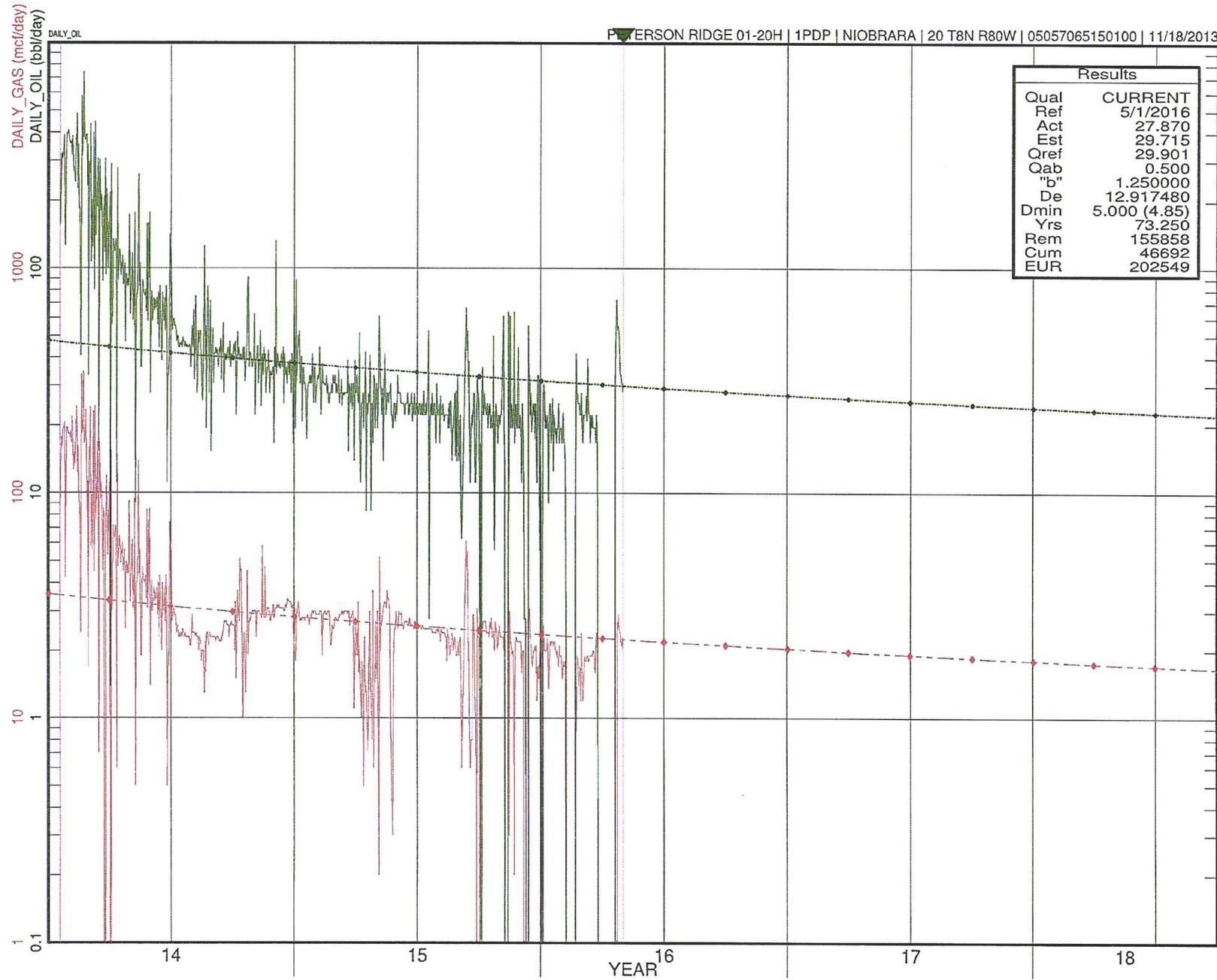


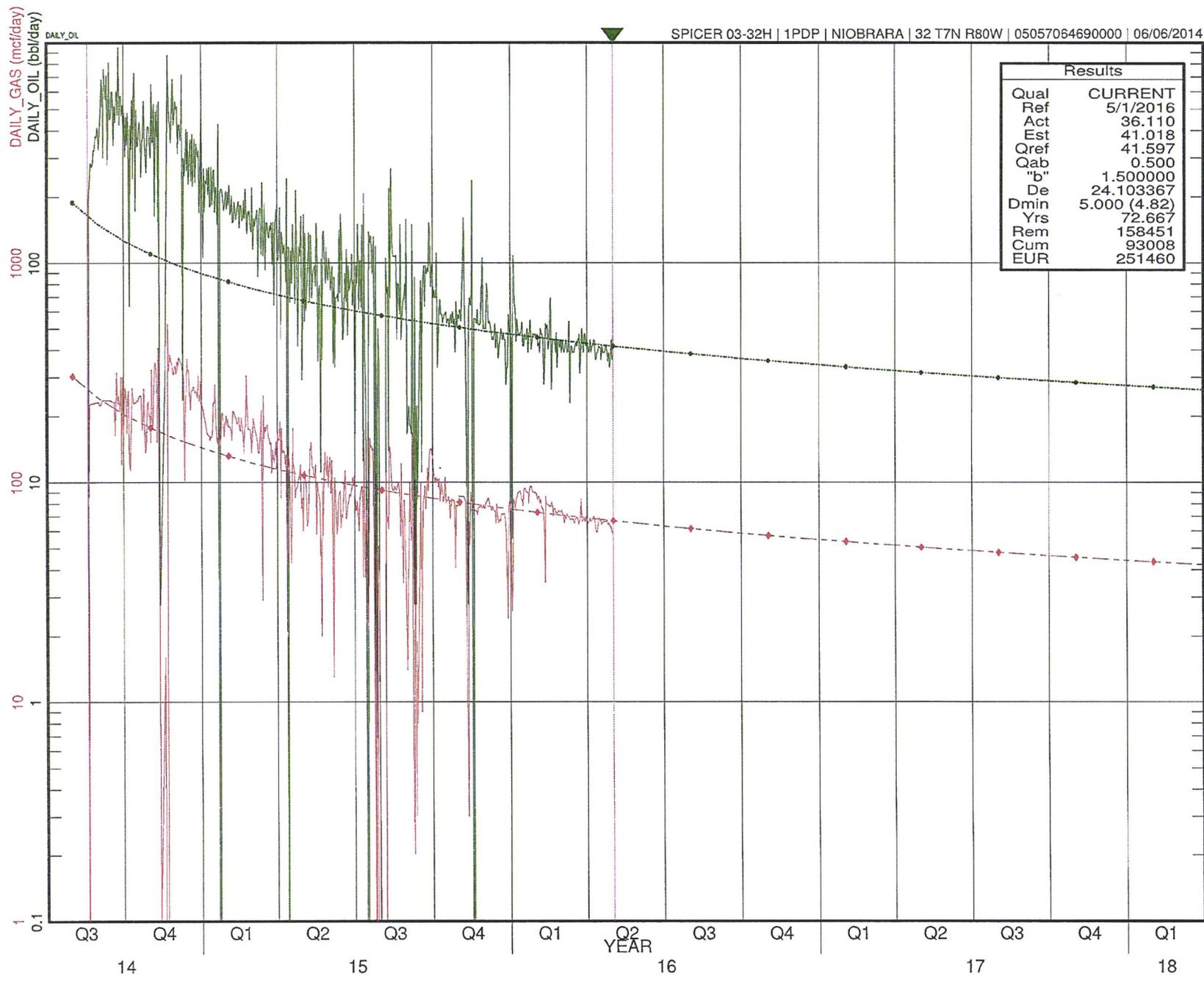


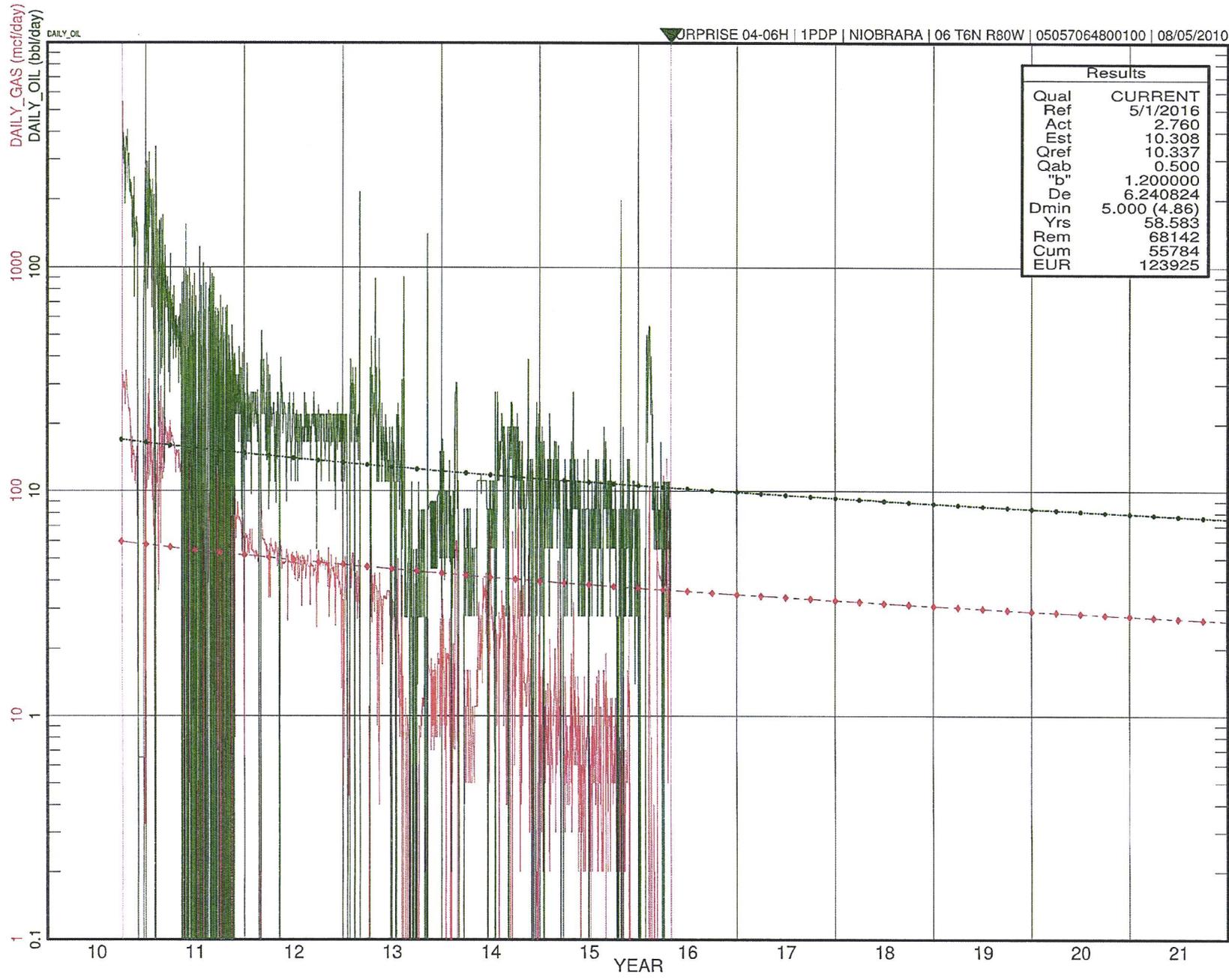


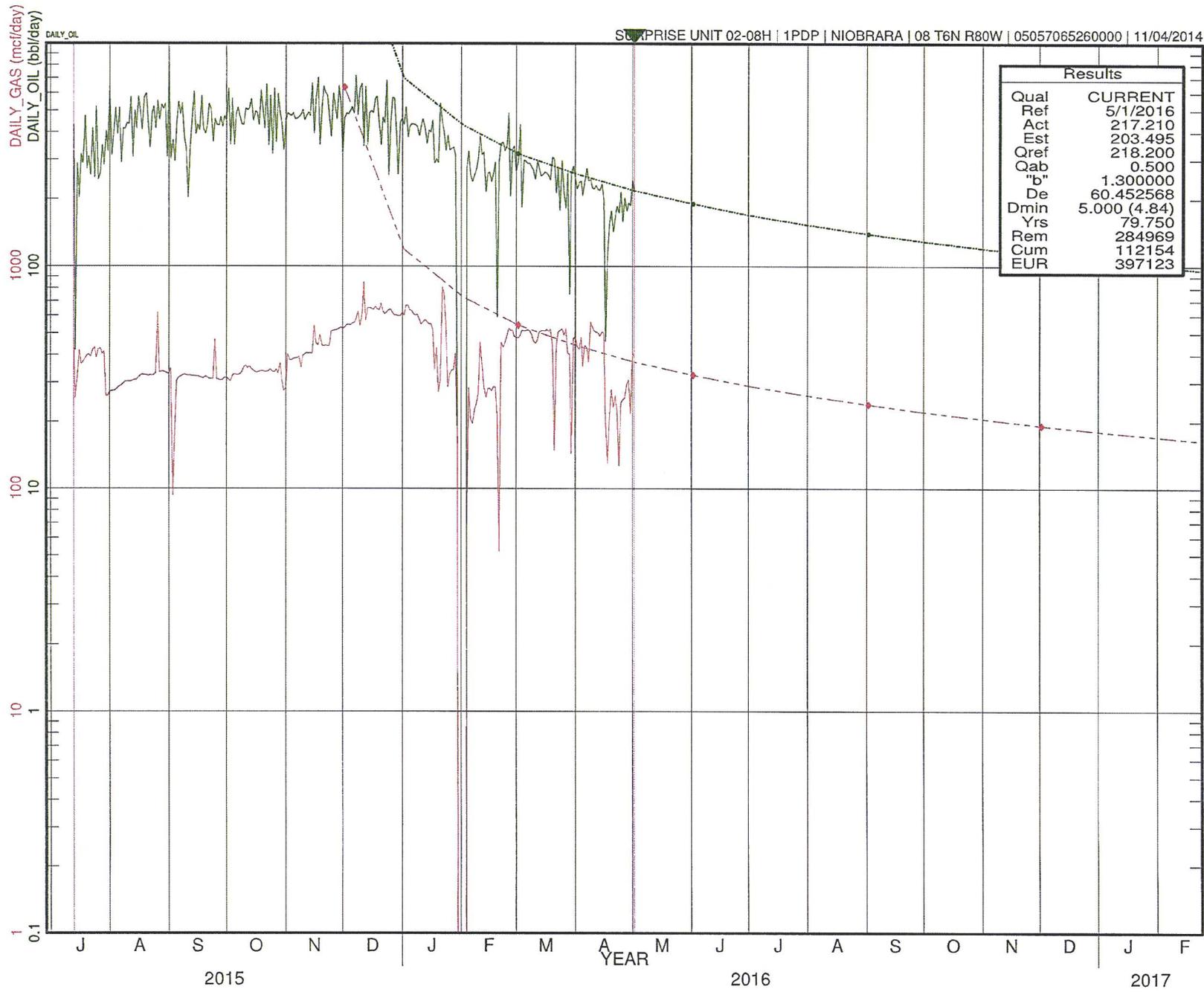












**Wesley K. McAlister**  
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## **EXPERIENCE**

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**SandRidge Energy**, Oklahoma City, OK 2009 – Current

*Reservoir Engineer II, North Park Basin, Jackson County, CO*

Field Overview: 16 active horizontal PDP oil wells in the Niobrara Shale

Responsibilities

- Perform rate-transient analysis (RTA) on five horizontal wells
- Input reserves and economics for all new drill AFE's

*Reservoir Engineer II, Anadarko Basin, OK*

Field Overview: 1,400+ horizontal Miss Lime PDP oil wells; Miss Lime – naturally fractured carbonate

Responsibilities – development Reservoir Engineer; Miss Lime and Woodford operations

- Prepare reserve estimates and run economics for new drills
- Perform lookbacks of new drills for executive management meetings
- Led asset review meetings with Geology, Drilling, Land, Facilities; presented recent results and plan forward to management

*Reservoir Engineer, Central Basin Platform, Andrews County, TX*

Field Overview: 1,000+ PDP oil wells; 97% San Andres, 3% Clearfork; primarily vertical wellbores

Responsibilities – development Reservoir Engineer for our Permian Operations

- Prepare reserve estimates and run economics for all new drills – 200+ wells per year
- Forecast oil/gas/water streams for CAPEX team, facilities and marketing groups
- Perform lookbacks of new drills for executive management meetings
- 3 year budget planning – forecasted CAPEX spend & projected volumes

*Completions Engineer, West Texas Overthrust, Pinon Field, Pecos County, TX*

Field Overview: 600+ dry gas wells, producing from chert and water sensitive sandstone formations.

50% of producers have high CO<sub>2</sub> content methane streams

Responsibilities

- Follow 4-8 rigs, design and prepare completion procedures for each new well
  - Majority were CO<sub>2</sub> foam fracs, linear gel, XL gel

Involved in LPG frac program

- Traveled to Canada to meet with service company, prepared completion procedures, then went onsite to our wells that were LPG frac'd

**ConocoPhillips**, Anchorage, AK 2007 – 2009

*Drillsite Petroleum Engineer*, Kuparuk Oilfield, North Slope, AK

Field Overview: 1000+ active wells; multi-layer, stacked sand; highly faulted reservoir; OOIP: 7 billion bbls. Managed 96 wells: 53 producers – jet pumped and/or gas lifted - totaling 12,000 bopd 43 injectors – water and miscible injectant (NGL)

Pattern Optimization

Water and MI floods

- Reviewed flood patterns & modified injection profiles; Closed/opened zones, downhole chokes
- Evaluated current slug volumes of MI and WAG ratios and proposed changes

Evaluate and Propose Workover/re-frac Candidates

Maximize ultimate recovery by performing workovers

- Assess SI wells to determine economic viability to workover
- Analyzed pressure build-up data using Ecrin's *Saphir* program

Other Tasks Performed

- Analyzed and allocated well tests: Wrote and prioritized wellwork procedures

## **EDUCATION**

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**University of Central Oklahoma**, Edmond, OK. Master of Business Administration

**University of Oklahoma**, Norman, OK, Bachelor of Science in Petroleum Engineering

## **SKILLS AND ACTIVITIES**

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- *ARIES, PowerTools, Peloton Wellview, I.H.S. RTA*
- Society of Petroleum Engineers (SPE), 11 year active member