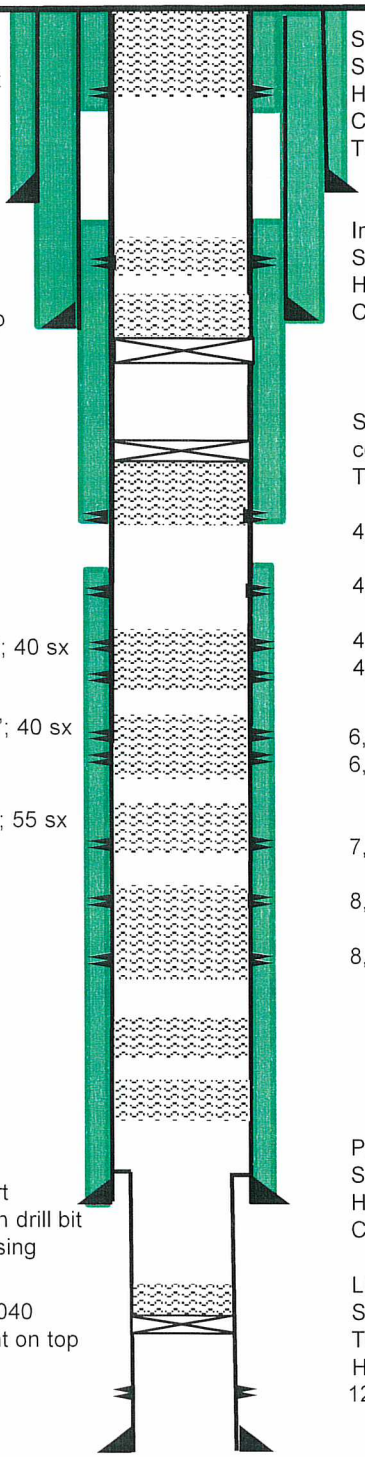
QUEEN LAKE FEDERAL 19#1
Current Configuration

Location:
GPS: 32.20492 -104.02115
1950' FNL & 1980' FEL
Unit Letter: G
Section No; 19 Twp: 24S Range: 29E
County. Eddy State: NM

Chevron: DQ1372
API No: 30-015-24292
Spud Date: 10/20/1982
Drill End Date: 12/20/1982
Compl. Date: 12/28/1982



Perf at 630'; circulate cement to surface.

Surface Csg: 13-3/8" 48# H-40
Set: @ 530'w/ 810 sx cmt
Hole Size: 17-1/2"
Circ: Yes TOC: Surface
TOC By. Circulation

Perf at 1,600'; Set cmt plug 1,669' – 1,365' (tag)

CIBP- 2,688'; 50 sx cmt on top
TOC- 2,330 (tag)'

Intermediate Csg: 9-5/8" 47# P-110&40#K-55
Set: @ 2630'w/ 1890 sx cmt
Hole Size: 12-1/4"
Circ: Yes TOC: Surface

Squeeze 350 sx Class C
cement under retainer set @ 4,235'.
TOC in annulus @ 950'by CBL

4,300' • Squeeze perf

4,670'- Could not squeeze.

Cmt plug: 4,700' (tagged) – 5,016'; 40 sx

4,720 (Sqz'd 100 sx cmt 7/13/06)
4,921'-4,935' (Cherry Canyon

Cmt plug: 6,380' (tagged) – 6,608'; 40 sx

6,420'(Unused Squeeze Hole)
6,503'-6,513' (Delaware)

Cmt plug: 7,412' (tagged) – 7,717'; 55 sx

7,520' - 7,636' (1st Bone Spring)

Cmt plug: 8,762' – 9,016'

8,856' - 8,884' (3rd Bone Spring)

8,900' - 8,910' (3rd Bone Spring)

Cmt plug: 9,496' – 9,736'

Cmt plug: 10,557' – 10,798'

FISH LEFT IN HOLE
April 1 - 2, 2010 Workover Report
Camera ran showed upside down drill bit
Between 2-3/8" tubing and 7" casing

Production Csg: 7" 23# N-80 & K-55
Set: @ 11,190' w/ 1275 sx cmt
Hole Size: 8-1/2"
Circ: TOC: 4,412' by: CBL ran 11/6/2010

CIBP- 12,040
35' cement on top

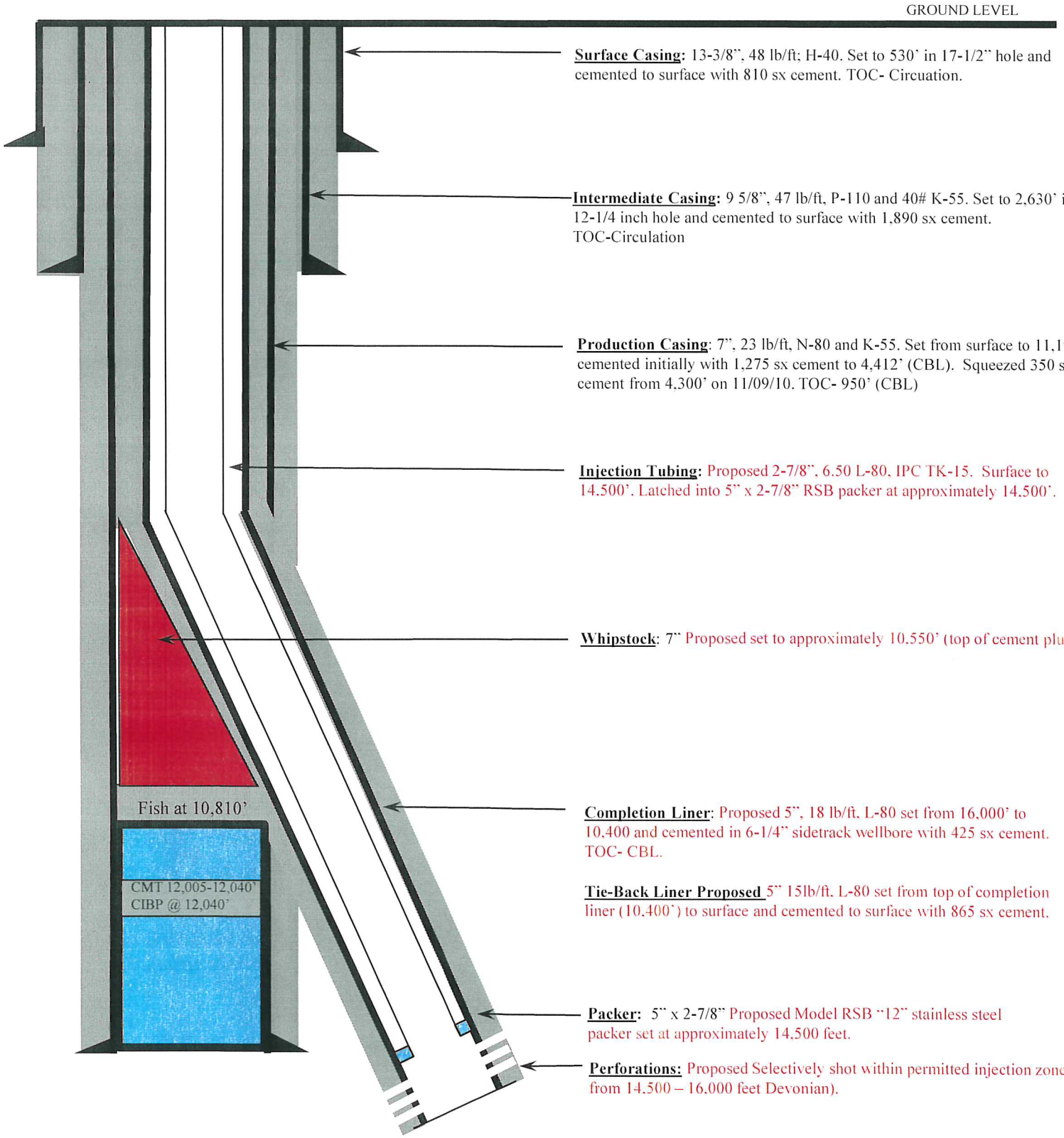
Liner. 4-1/2" 13.5# N-80
Set: @ 13,500' w/ 400 sx cmt
TOL: @ 10,987'
Hole Size: 6-1/8"
12,154-12,163'- Atoka.

PBTD: 4,235'
TD: 13,500'

OCD Case No. 20583
Key Energy Services, LLC
Exhibit 15

Date: 09-06-19
Rev. 1

QUEEN LAKE 19 FEDERAL NO. 1
PROPOSED
(FULL LENGTH LINER)



Surface Casing: 13-3/8", 48 lb/ft; H-40. Set to 530' in 17-1/2" hole and cemented to surface with 810 sx cement. TOC- Circuation.

Intermediate Casing: 9 5/8", 47 lb/ft, P-110 and 40# K-55. Set to 2,630' in 12-1/4 inch hole and cemented to surface with 1,890 sx cement. TOC-Circulation

Production Casing: 7", 23 lb/ft, N-80 and K-55. Set from surface to 11,190' cemented initially with 1,275 sx cement to 4,412' (CBL). Squeezed 350 sx cement from 4,300' on 11/09/10. TOC- 950' (CBL)

Injection Tubing: Proposed 2-7/8", 6.50 L-80, IPC TK-15. Surface to 14,500'. Latched into 5" x 2-7/8" RSB packer at approximately 14,500'.

Whipstock: 7" Proposed set to approximately 10,550' (top of cement plug).

Completion Liner: Proposed 5", 18 lb/ft, L-80 set from 16,000' to 10,400 and cemented in 6-1/4" sidetrack wellbore with 425 sx cement. TOC- CBL.

Tie-Back Liner Proposed 5" 15lb/ft, L-80 set from top of completion liner (10,400') to surface and cemented to surface with 865 sx cement.

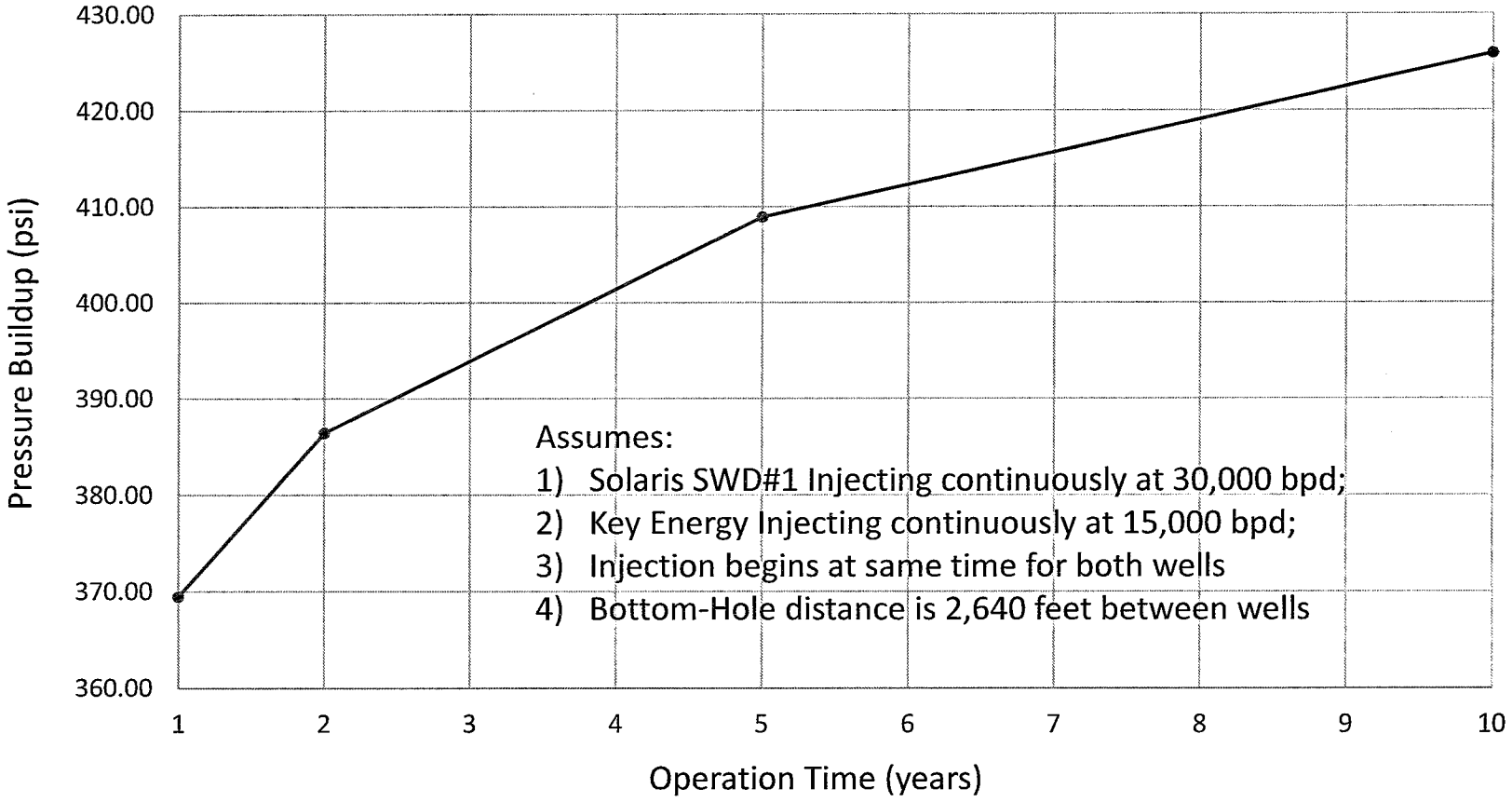
Packer: 5" x 2-7/8" Proposed Model RSB "12" stainless steel packer set at approximately 14,500 feet.

Perforations: Proposed Selectively shot within permitted injection zone from 14,500 – 16,000 feet Devonian).

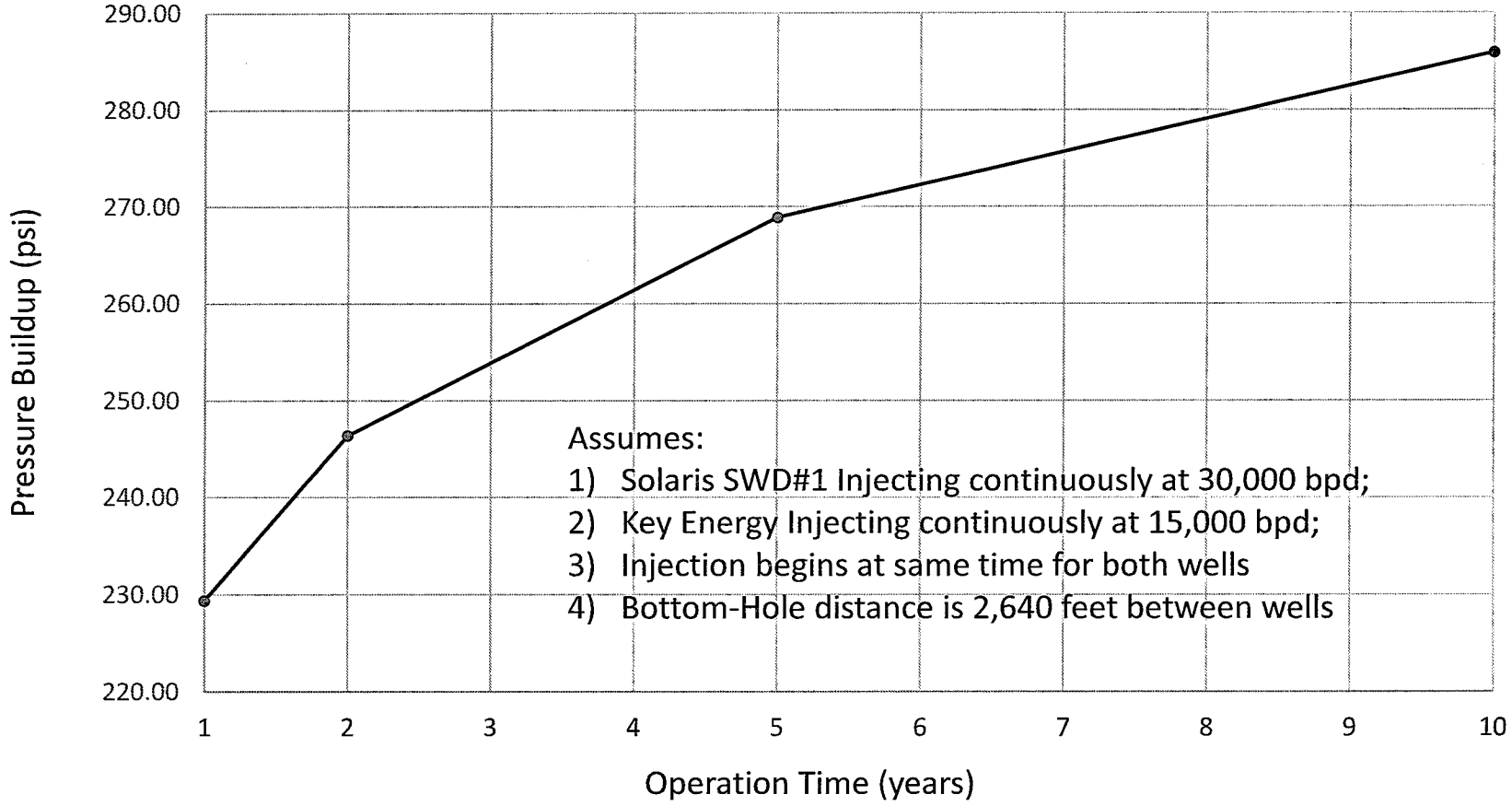
DRAWN BY: WMJ	CHECKED BY: WMJ	FILE: Queen Lake Federal 19 #1	DATE:08/28/19	REV.: 1

OCD Case No. 20583
Key Energy Services, LLC
Exhibit 16

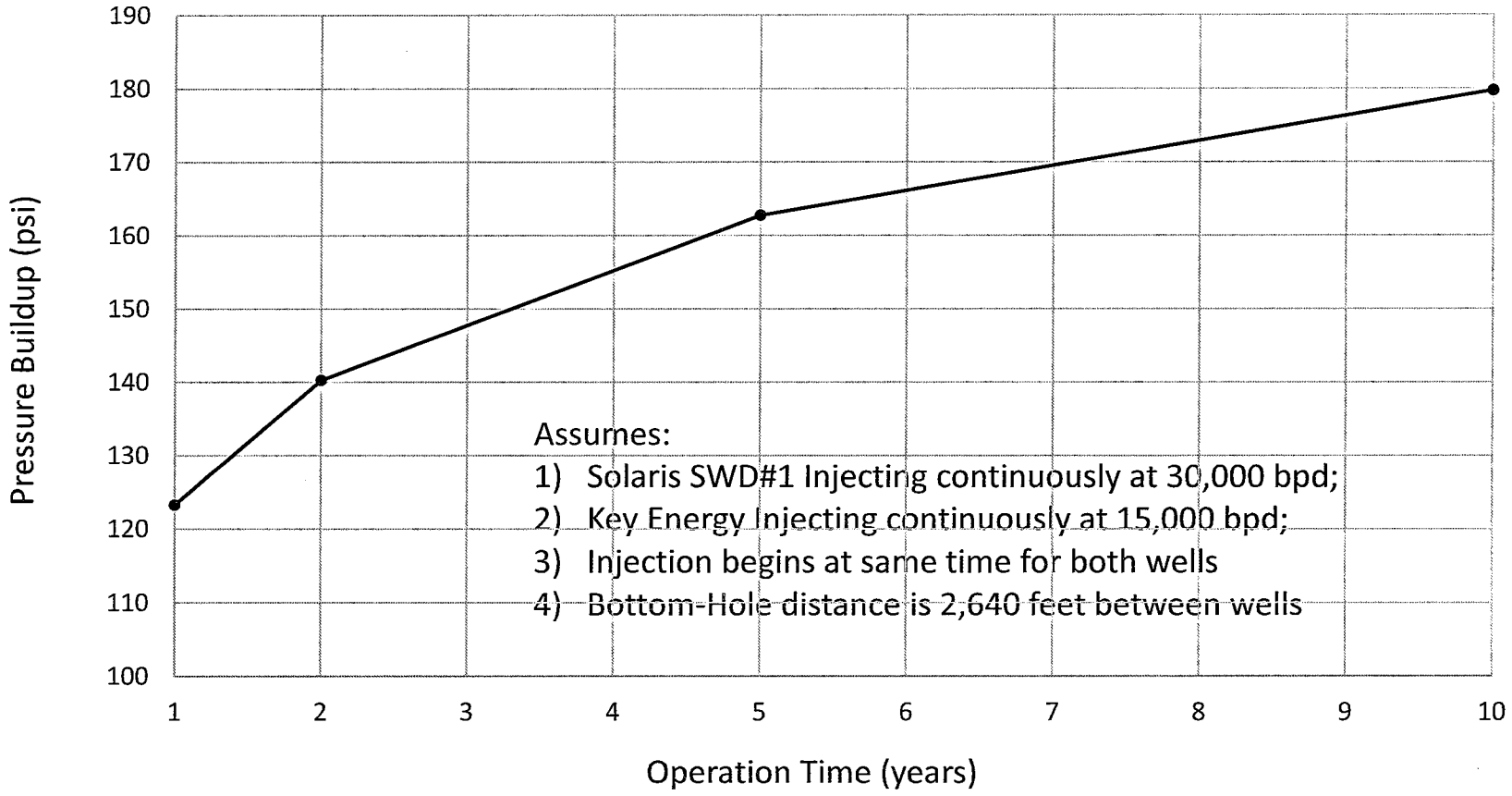
NET Pressure Buildup at Solaris Berry SWD#1



NET Pressure Buildup at Queen Lake Federal 19 #1



NET Pressure Buildup at Midpoint Between Solaris and Queen Lake (1,320 feet)



STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

APPLICATION OF	§	
KEY ENERGY SERVICES, LLC	§	
FOR A SALTWATER DISPOSAL WELL,	§	
KNOWN AS THE QUEEN LAKE FEDERAL	§	
19 NO. 1, SECTION 19, T-24-S, R-29-E,	§	
EDDY COUNTY, NEW MEXICO	§	**CASE NO. 20583**

NOTICE AFFIRMATION

At the evidentiary hearing held on August 22, 2019, the Hearing Examiners requested my review of an expanded 250-foot radius around the Queen Lake Federal 19 No. 1 Well to confirm that no additional parties require notice of Key Energy Services, LLC's permit application. This request is in response to Key Energy Services, LLC's proposal to reenter, sidetrack and convert the well for the disposal of saltwater into the Devonian Formation, resulting in a new bottom hole location. I have investigated the expanded 250-foot radius. The United States Bureau of Land Management, as surface owner, was provided notice of permit application by certified mail on April 10, 2019. There are two additional, oil and gas wells within the expanded radius. These wells are operated by WPX Energy – Permian and Chevron USA, Inc, both of which were provided notice of permit application by certified mail on April 10, 2019. There are no additional persons who require notice.

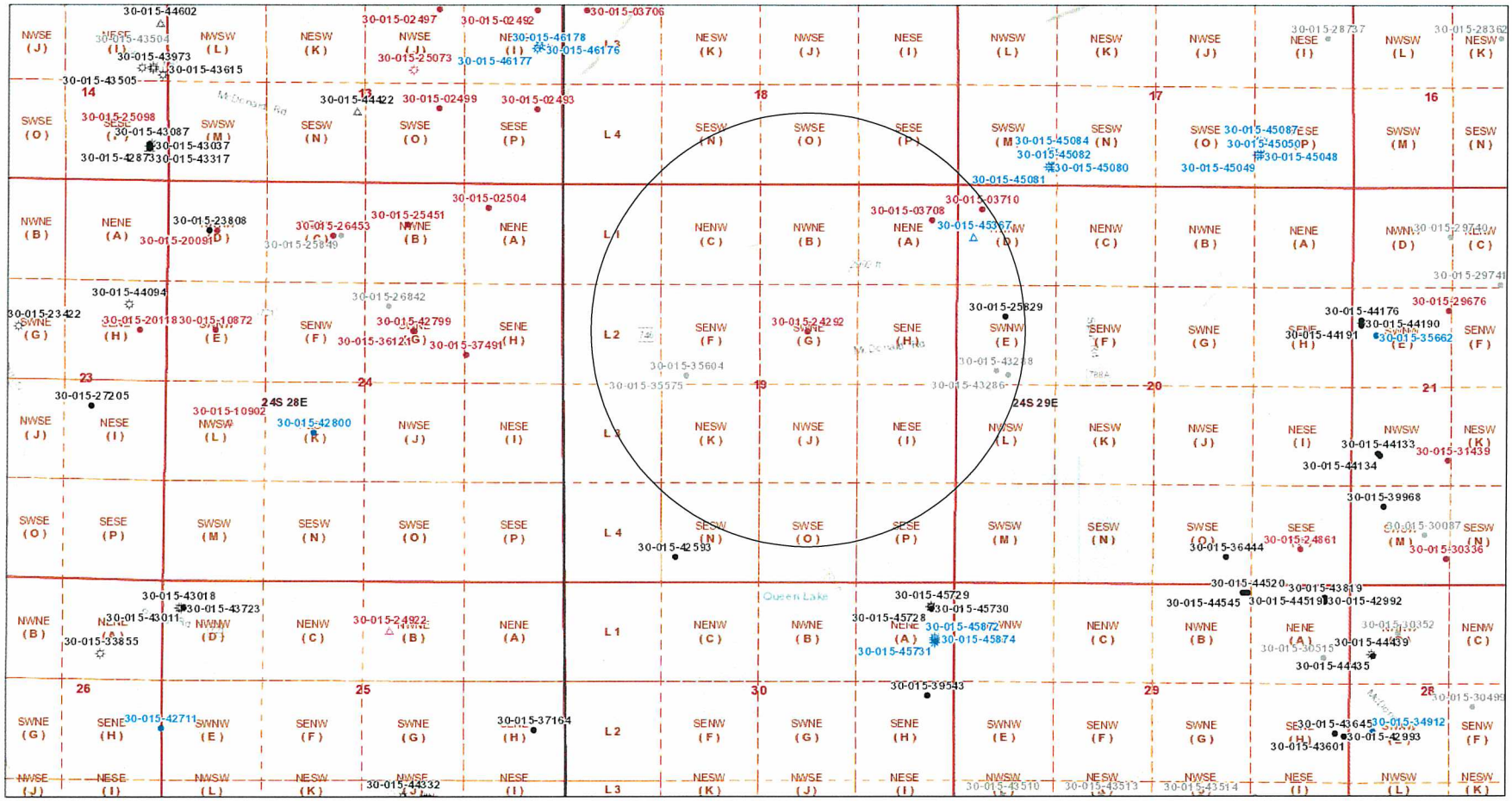
By: _____ Date: 09/05/19

William M. Johnson
Strata Technologies, LLC

On behalf of Key Energy Services, LLC

OCD Case No. 20583
Key Energy Services, LLC
Exhibit 17

0.547 mile (2,890 ft.) Radius Surrounding Queen Lake 19 Federal No.1



9/5/2019, 11:55:13 AM

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Well Locations - Small Scale
- Active
- New
- Plugged
- Cancelled
- Temporarily Abandoned

Well Locations - Large Scale
- Miscellaneous
- CO2 Active
- CO2 Cancelled
- CO2 New
- CO2, Plugged
- CO2, Temporarily Abandoned

- Gas, Active
- Gas, Cancelled, Never Drilled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged
- Oil, Temporarily Abandoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water Injection Temporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community, OCD.

New Mexico Oil Conservation Division

NM OCD Oil and Gas Map: http://nm-emnrd.maps.arcgis.com/apps/webappviewer/... New Mexico Oil Conservation Division

Key Energy Services

Queen Lake Federal 19 #1

Proposed Logging and Testing Program

Key Energy Proposes the following Logging and Testing Program for Mechanical Integrity and Formation Evaluation. The logging and testing will be conducted on the existing 7-inch casing, the proposed 6-1/4" sidetrack borehole and the proposed 5-inch liner. Proposed testing is as follows.

I) Existing 7", 23#, N-80 and K-55 Casing:

After drilling out of the current cement plugs (as indicated on the current wellbore diagram), Key Energy proposes the following evaluation tests:

- **Pressure Integrity Testing to NMOCD recommendations / requirements**

  Key Energy proposes to conduct pressure integrity testing of the existing 7-inch, 23 lb/ft casing to a minimum pressure of 500 psig for 30 minutes, utilizing a calibrated circular pressure recorder with a range of 0 - 1,000 psig. The pressure testing will be conducted from surface down to the proposed window depth (approximately 10,800 feet). The results of this testing will be shared with the NMOCD district office (Artesia). Should the results indicate an unacceptable test, a path forward will be discussed and proposed, as appropriate (cement squeeze, casing patch, etc.).

- **Electric Wireline Casing and Cement Evaluation Logging**

  Key Energy proposes to conduct casing inspection logging of the existing 7-inch, 23 lb/ft casing. The proposed logging includes a radial multi-censor caliper inspection log, in conjunction with a radial magnetic thickness image log from surface to the proposed window depth. Additionally, Key Energy proposes to conduct a radial cement bond evaluation log to determine the cement isolation external to the casing. The results of this logging will be shared with the NMOCD district office. Should the results indicate anomalous data (lack of cement bonding and/or degraded casing), a path forward will be discussed and proposed, as appropriate.

II) Proposed 6-1/4" Sidetrack Borehole:

After setting the whipstock and milling the window (at approximately 10,800 feet), Key Energy proposes the following formation evaluation logging:

- **Mud Log of Openhole Section from the Window to TD**

  Key Energy proposes to conduct mud logging of the sidetrack borehole from the window to the well total depth (≤ 16,000 feet, depending on where the base of the Devonian is encountered). Routine mudlogging, including formation description, rate of penetration and gas detection will be performed.

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Key Energy Services, LLC
Exhibit 18

- **Directional Survey and Drilling Control**

  Key Energy proposes to conduct directional drilling control while drilling the sidetrack borehole from the whipstock window to the well total depth. The whipstock face will be oriented in the opposite direction from the Solaris Berry SWD#1 permitted location, and a continuous direction survey will be made, and the borehole will be steered to ensure that the sidetrack borehole advances in the opposite direction from the Solaris Berry SWD#1 well.

- **Electric Wireline of Openhole Section from the Window to TD**

  Key Energy proposes to conduct electric wireline logging of the openhole section from the window to the well total depth. Proposed logging will include a "quad-combo" (induction-resistivity, density-compensated density, spontaneous potential, sonic characteristics) to determine formation characteristics (type, saturation, porosity, petrophysics).

III) Proposed 5-Inch, 18#, L-80 Casing Liner:

After drilling the sidetrack borehole, the 5-inch liner will be run and set from the well TD to a depth back up inside the existing 7-inch longstring casing. Depending on results of the casing and cement evaluation of the existing 7-inch longstring casing, the proposed 5-inch liner may be extended back to surface.

- **Pressure Integrity Testing to NMOCD Recommendations / Requirements**

  Key Energy proposes to conduct pressure integrity testing of the proposed 5-inch, 18 lb/ft casing liner to meet NMOCD requirements for pressure integrity testing. The NMOCD district will be notified in advance of the casing liner pressure test. Results of the pressure testing will be shared and discussed with the NMOCD before commencing subsequent completion operations.

- **Electric Wireline Casing and Cement Evaluation Logging**

  Key Energy proposes to conduct casing inspection logging of the existing 5-inch, 18 lb/ft casing. The proposed logging includes a radial multi-censor caliper inspection log, in conjunction with a radial magnetic thickness image log from surface to the proposed window depth to provide a baseline condition of the new casing liner material. Additionally, Key Energy proposes to conduct a radial cement bond evaluation log to determine the cement isolation condition external to the casing. Finally, Key Energy proposes to conduct flow evaluation logging, including a temperature decay survey and radioactive tracer survey to demonstrate the external integrity of the cement sheath surrounding the 5-inch casing liner.