

**Geologic Testimony
Weld County, Colorado
Docket No. 150700376
Unitization**

Township 6 North, Range 61 West, 6th P.M.

Section 14: SE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$

Section 23: NW $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$

**(D-Sand Formation)
Foundation Energy Management, LLC**

In support of the Request for Director Approval of the Verified Application of Foundation Energy Management, LLC (“Foundation”) in Docket No. 150700376, and pursuant to Rule 511 b, Meredith Smith, Geologist of Foundation deposes and states as follows:

I am employed as a Geologist for Foundation. I have over 8 years of experience working as a petroleum geologist and am familiar with the geologic characteristics of the Application Lands. I have been employed with Foundation since April 2014 working directly with properties that are the subject of the hearing. I have previously testified as an expert geologic witness before the Hearing Officers of the COGCC.

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Section 23: NW $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$

The Productive Formation (“D-Sand”) is a Cretaceous age sand formation which can be found at depths between 6,711’ – 6,731’ below the surface of the Application Lands. The D-Sand is the common source of supply and is the only formation which is producing, has produced and will be injected into. The D-Sand was deposited in multiple episodes where the depositional environments ranged from deltaic to fluvial. The depositional nature of the D-Sand formation makes it likely that injection of water into zones currently producing oil will increase production of oil from the reservoir.

It is overlain by the Cretaceous Graneros Formation and underlain by the Cretaceous Huntsman Formation. Both the Graneros and Huntsman are shales which serve as sealing formations that are capable of limiting the movement of fluids out of the D-Sand. The Graneros is approximately 70’ thick, and found at a depth of 6,640’ below the surface. The Huntsman is approximately 50’ thick, and found at a depth of 6,735’ below the surface.

Underground sources of drinking water in the vicinity of the Application Lands include Quaternary alluvium deposits. The base of these deposits is found around a depth of 300 feet in this area. Because these deposits are separated from the D-Sand by

multiple sealing formations, Applicant does not anticipate that underground sources of drinking water will be affected by the proposed unit operations.

In support of our Application today, I have prepared five (5) exhibits. The exhibits are attached to my sworn testimony and form the basis for Foundation's Application to obtain an order to establish a secondary recovery unit in the D-Sand Formation in the following lands located in Weld County, Colorado (the "Application Lands"):

Exhibit G-1 is a subsea structure map on the top of the D-Sand underlying the Application Lands.

Exhibit G-2 is a net isopach map of the D-Sand using a density porosity cutoff of 8%. Observing production trends in this portion of the DJ Basin, has established this cutoff as an adequate discriminator for whether or not this reservoir is capable of producing fluids. Isopach thickness reaches up to 20'. A gross isopach map was not constructed, as it does not enhance the definition of reservoir limits. The lower porosity of the D-Sand formation adjacent to the Application Lands defines the limit of the reservoir and will limit flow out of the Application Lands.

Exhibit G-3 is a type log for the D Sand, from a producing well within the proposed unit, the Behring 23-7. Both the dual induction ("DIL") and compensated neutron-density ("CND") logs are provided on 2.5" = 100' scale. The D-Sand interval is highlighted in purple and the D-Sand and J-Sand tops are marked.

Exhibit G-4 is a resistivity log on the proposed injection well, the Babb 14-14, from the bottom of surface casing to total depth. Scale is 1" = 100'. Due to the total footage being great, this exhibit has been attached in an electronic form only.

Exhibit G-5 is a cross-section traversing north to south across the Application Lands. DIL and CND logs are provided on a 2.5" = 100' scale and cover the D-Sand interval. The cross section illustrates the continuous nature of the D-Sand formation across the Application Lands.

Foundation believes that creating the proposed secondary recovery unit will allow full development of the D-Sand Formation to occur, will not promote waste, will not violate correlative rights and will assure the greatest ultimate recovery of oil, gas and associated hydrocarbon substances from the reservoir.

To the best of my knowledge and behalf, all of the matters set forth herein, my testimony and in the exhibits are true, correct and accurate.

Dated this 26th day of June, 2015



Meredith Smith
Meredith Smith
Geologist

STATE OF COLORADO)
) ss
CITY AND COUNTY OF DENVER)

I, the undersigned Notary Public in and for said County in said State, hereby certify that Meredith Smith, whose name as Geologist of Foundation Energy Management, LLC, is signed to the foregoing instrument and who is known to me, acknowledged before me on this day that, being informed of the contents of the instrument, executed the same voluntarily for and as the act of said corporation.

Subscribed and sworn to before me this 26th day of June, 2015

Witness my hand and official seal

My commission expires 10/26/17 Barbara L. Ellard
Notary Public

Exhibit G-1.

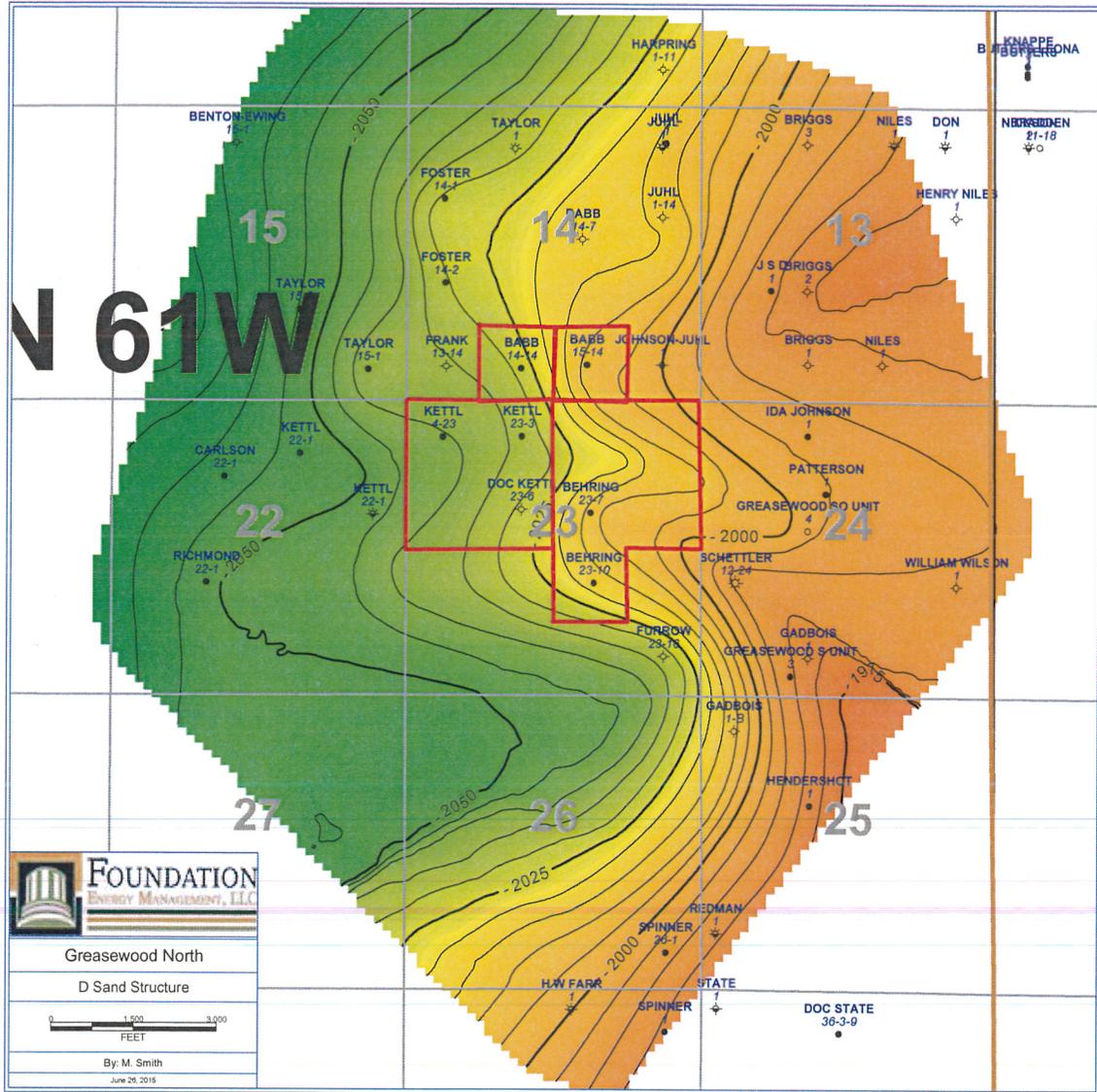
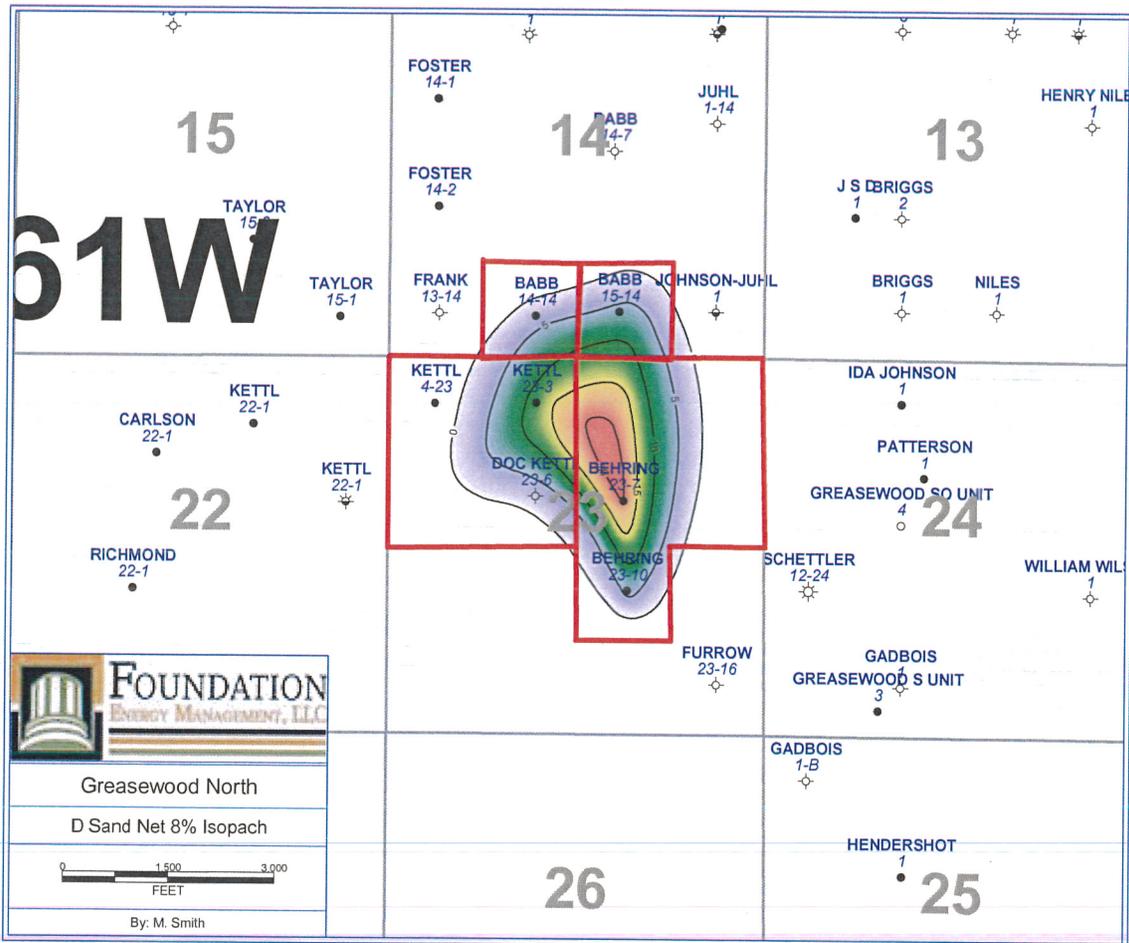
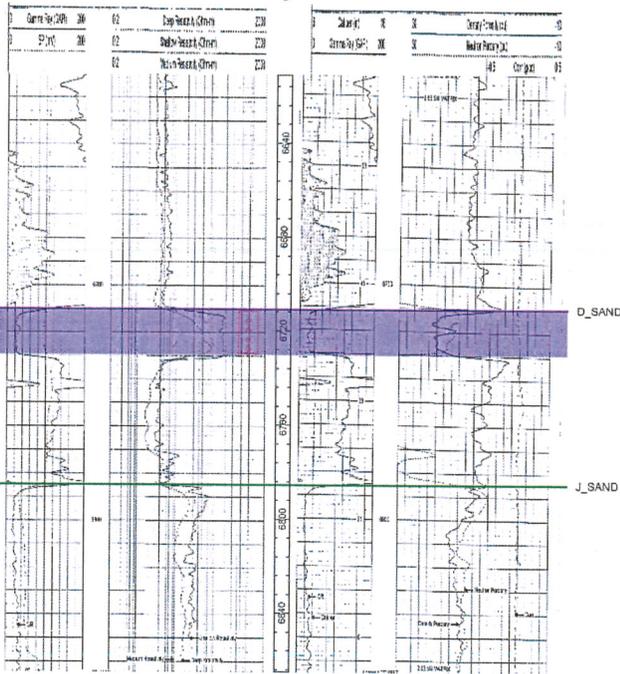


Exhibit G-2.



BEHRING
23-7



Greasewood North

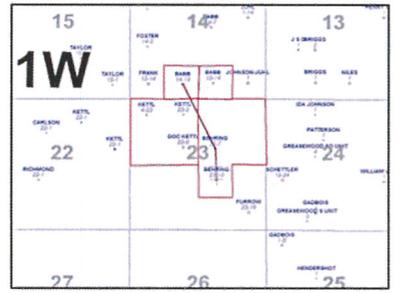
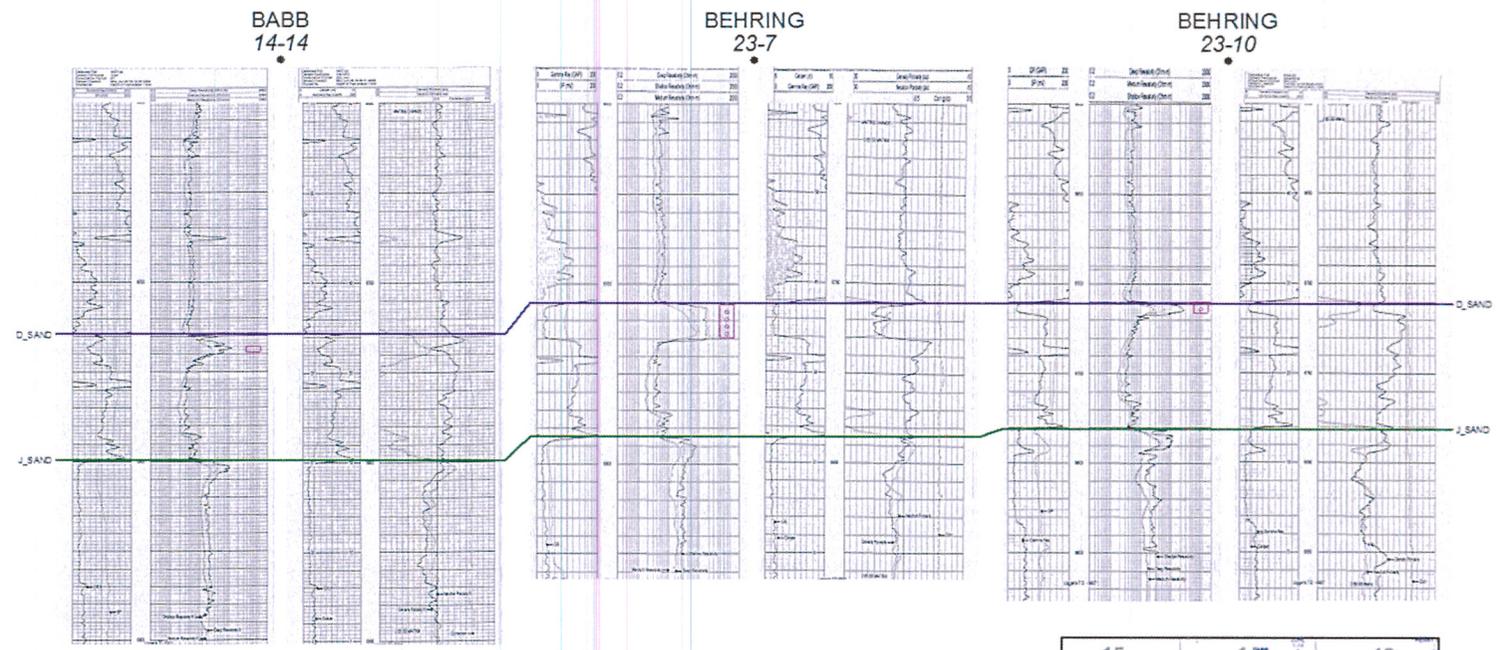
D Sand Type Log

Horizontal Scale = 1.0
Vertical Scale = 40.0
Vertical Exaggeration = 0.0x

June 26, 2015 10:07 AM

HS#1

PTP16L A5842015 11:37:41 AM



FOUNDATION
ENERGY MANAGEMENT, LLC

Greasewood North

X-Section

Horizontal Scale = 217 ft
Vertical Scale = 20 ft
Vertical Elongation = 7.9x