

## Grant Round Application for G-021-B

### DIRECTOR'S COMMENTS G—021-B

“Simul-Frac two Bakken Wells Spaced 1320’ Apart to Maximize OOIP Recoveries”

Submitted by: Peak North Dakota, LLC

Request for \$750,000; Total Project Costs \$11,450,618

#### **Description of the Project:**

Peak proposes to drill and then simultaneously fracture stimulate (simul-frac) two short lateral (4000’ – 4200’) horizontal Middle Bakken wells located approximately 1320’ apart in a 320 acre spaced drilling unit on the Fort Berhold Indian Reservation (FBIR) in order to validate a completion technique to economically maximize the recovery of Original Oil In Place (OOIP).

The primary objective of this program is to educate and encourage the use of new technologies by all FBIR operators and others in similar geologic settings within the Bakken petroleum system. The successful completion of this program and subsequent data evaluation by other operators will effectively help to prevent waste, provide critical data for proper planning of both present and future development and have positive economic impact by proving up an economically attractive methodology for maximizing reserve recoveries from this resource.

#### **Technical Reviewers’ Comments**

##### **Reviewer 21A-01**

First of all there is no guarantee that the operations will be successful and even if they are, it is hard to say whether they will be indicative of the formation in general. The proposer refers to the results of their previous investigations without providing sufficient details, thus it is hard to say whether there is enough background data justifying the approach proposed. Moreover, the proposer intends to conduct only tests which are normally conducted in oil and gas operations. In a research project it could be useful to think of some tests which go beyond standard practice.

**Recommendation: Funding to be considered**

##### **Reviewer 21A-02**

Peak demonstrates good background knowledge, and very good motivation and intellectual desire to improve. Their relatively small number of wells constrains the statistical validity of conclusions they reach. There are some comments in the application that bring the technical judgment of the company into question. (see details in Section C). For instance, hiring IPT to conduct a DFIT analysis, then predicting production from those results, then planning to compare actual production to predict to evaluate the success of simulfracing... Peak appears to have been oversold on the merits and statistical certainty of this technique and/or the consultant’s capabilities.

Will this actually be a “zipper frac” instead of a simulfrac? If Peak desires to “monitor pressures in each wellbore” to observe communication from adjacent well, perhaps what Peak meant to describe was to fracture stage 1 in well 1 (while well 2 is stagnant and monitored), then switch to well 2, stage 1 while well 1 is stagnant and monitored. This is commonly called a zipper frac. A simulfrac requires

simultaneous pumping into both wells, and very minimal information is available as to possible pressure interaction between wellbores. With the discussion of pressure monitoring, I am questioning whether Peak actually intends simul or zipper fracturing.

*(Subsequent response from Peak Energy)*

*This is a great question. Peak is contemplating both techniques here which are similar in their intentions. Both frac styles should have practically the same effect with the frac wings from one well being influenced by rock already pressured up and retaining that pressure (and the subsequent theoretical diversion of the offset frac wing) from the other well. In this particular case, Peak is considering the “zipper frac” mentioned above where stages in each parallel well are frac’d alternately (rather than simultaneously). The reason both are being contemplated is that there is currently a severe availability limit on frac crews and the simul-frac requires two crews, one for each well, with the zipper frac needing only one crew on location. If Peak cannot get our service company to commit two crews to this job, we will then zipper frac both wells.*

**Recommendation: Funding to be considered**

### **Reviewer 21A-03**

The applicants provided a well written, concise description of the proposed drilling and completion methodology. The means by which data will be statistically evaluated is not ultimately described in any substantial detail.

**Recommendation: Fund**

### **Director’s Recommendations:**

The objectives outlined in the application are clear and concise, and the amount requested is definitively proportionate to the total project costs. However, weighing the total amount of the request to the level of success and benefit of industry, the indication of additional operator support is evident. Therefore, in order to justify spending over a quarter of the funds available to the OGRP, consideration to the initial and primary objectives stated within the application must be coupled with the foregoing commitments of individual operators. These commitments will liken the success of favorable dissemination throughout the Bakken, and relative industry.

**Recommendation: Fund upon the following contingency:**

**Receipt of a signed letter of intent to obtain a similar data sharing agreement and subsequently obtaining and providing the data to the Oil and Gas Research Council/Industrial Commission from a minimum of 3 operators performing simulfracs will result in a \$90,000 grant for each operator totaling \$270,000. (4 operators yield \$120,000 for each operator totaling \$480,000, 5 operators yield \$150,000 for each operator totaling 750,000) The approval shall not exceed \$750,000.**