



May 15, 2015

Mr. Erik Vasquez  
PetroRock, LLC  
4700 Stockdale Highway, Suite 120  
Bakersfield, CA. 93309

Re: Preliminary Master Fire Protection Engineering & Planning Review  
United California, California and Bradley (“UCCB”) Energy Project  
Section 14, T9N/R33W, Cat Canyon, Santa Barbara County

Dear Mr. Vasquez:

We have reviewed PetroRock LLC’s project summary for the United California, California and Bradley (“UCCB”) Energy Project proposed for the existing Cat Canyon Oil Field located in Northern Santa Barbara County. This project will consist of the redevelopment of previously active oil properties as described in the summary below.

A Master Fire Protection Plan will be required if and when the proposed project is approved by Santa Barbara County. Based upon the project description provided per your firm, this letter is intended to service as a preliminary evaluation of the fire protection requirements that will likely be required once the project is approved for development. Based upon this review we anticipate the items to be required in the Master Fire Protection Plan be implemented as described in Section II of this document.

**I. Site Description Summary:**

Please refer to the proposed Facility Option 2 Tank Battery Plan (Attachment A), for a schematic illustration of the anticipated facility tanks/equipment. Per the Executive Summary provided by PetroRock , following is the description of the proposed project.

*The United California, California and Bradley (“UCCB”) Energy Project consists of the redevelopment of previously active oil properties in the Cat Canyon Oil Field in Northern Santa Barbara County. The project proposes 231 new oil wells located on 28 drilling pads, a centralized tank battery, pipelines and ancillary equipment. The entirety of the project is located on existing drill pads or currently disturbed ground, and will use existing public or private roads for operations and transportation. The project lands encompass approximately 700 gross acres, yet the project development footprint is limited to approximately 25 acres (3.5% of gross area). Current uses on the property include existing oil pads, cattle grazing and vineyards. Uses on adjacent properties to the North, South, East and West are active oilfields (operated by Greka and ERG), cattle grazing and vineyard operations. The property can be accessed from the South via Dominion Road, and the North via Orcutt-Garey Road.*

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*The targeted formations are the Sisquoc and Monterey which produce heavy oil with an API gravity between 9 and 12 degrees. To assist with the extraction of the heavy oil, the project will mix the heavy oil with a lighter gravity crude oil (‘LCO’) to bring the oil to a higher average gravity to meet requirements for delivery to refinery. The wells will also be steamed using the enhanced production method of cyclic steam. Cyclic steaming consists of introducing steam through the wells into the oil bearing reservoir beneath the project site in order to reduce the viscosity of the in-place oil to allow for extraction to the surface.*

*The project proposes five (5) steam generators: one (1) 62.5 MMBtu stationary, one (1) 50.0 MMBtu stationary, and three (3) 20 MMBtu portable units. The stationary steam generators will be located at the Tank Battery and Site Z and the three (3) portable units will be moved amongst the remaining pads. Water for steaming operations will be provided by a combination of recycled brine water from onsite/offsite oil operations and water wells producing from non-fresh water aquifers. Fresh groundwater will be used for domestic uses and fire protection (0.5 acre feet/year) and for one-time uses during drilling of the wells (max 1.2 acre feet/year). Natural gas for the steam generators will be provided from oil operations, with excess gas either transported off-site to neighboring operators or sold, re-injected into EPA approved aquifers or flared on-site. To limit emissions associated with the project, the applicant proposes to implement Best Available Control Technology (BACT) on its equipment and pipelines in accordance and oversight with Santa Barbara Air Pollution Control District standards. No hydraulic fracturing is proposed as part of the project.*

*Each well will be equipped with a pumping unit and produced fluids will be delivered from the wells via pipeline to a centralized Tank Battery for separation and storage. It is expected the project could produce up to 4,000 barrels of native oil per day at peak production. Produced oil will be transported offsite via tanker truck or the recently approved ERG Pipeline Project to a refinery.*

*The Tank Battery will serve as the centralized processing facility for all of the wells. It will include tanks, loading racks, separators, heater treaters, a steam generator, offices and other ancillary equipment. Monitoring equipment will be installed at the wells and Tank Battery and on-site operators will be present for daily operations management.*

*Site development is minimal due to reuse of previous sites. The project is expected to be developed over a fifteen year period, with operations continuing until the resource is not capable of economically producing or operations are deemed undesirable by the owner. Upon cessation of operations, the wells will be plugged and abandoned and equipment removed and the sites restored.*

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## **II. Master Fire Protection Plan Requirements:**

Upon the approval by the Santa Barbara Planning Commission of the proposed development plan application, a detailed Master Fire Protection Plan (MFPP) for the project will be required to be prepared and submitted to the Santa Barbara County Fire Department. The following items will be addressed in the (MFPP) for the site:

1. Site fire protection to include fire protection water storage, hydrants, pressurized lines, fire pumps and associated fire protection systems as required, per SBCFD, NFPA and API standards.
2. AFFF foam fire protection will likely be required due to the size of the crude oil tanks and capacities, for both the tanks and the containment area. These requirements will be addressed in detail.
3. Fire protection storage water to be provided in accordance with SBCFD Development Standards and a performance based fire protection hazard analysis.
4. Road access, design and maintenance, including Knox box provisions, to comply with SBCFD Development Standards.
5. Defensible space and vegetation management to comply with SBCFD Development Standards.
6. Fire extinguishers and general fire protection requirements per the California Fire Code.
7. Hazard identification signage per the requirements of NFPA 704

The Master Fire Protection Plan would also include the following:

- Engineering recommendations in accordance with NFPA codes, API standards, the California Fire Code, and Santa Barbara County Fire Department (SBCFD) requirements.
- Schematic level drawings, as required to illustrate proposed fire protection systems, requirements and recommendations.
- Completion of a Fire Protection Plan summary report and schematic drawing packages for submittal to the SBCFD. Respond to SBCFD comments, and incorporate revisions as required into final fire protection plan submittal for County approval.

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Thank you for the opportunity to provide this preliminary evaluation. Please contact our office with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack Collings". The signature is written in a cursive style with a long, sweeping tail on the final letter.

Jack Collings, F.P.E.