



Processing Facilities

Belize Natural Energy Ltd. Spanish Lookout Field Water Flood Project

The project objective was to install a new larger water injection facility to enhance oil recovery in the Spanish Lookout Field by means of expanding their water flood capacity to a total of 10,000 BBL per day. The oil recovery is estimated to be improved by over 2 million barrels over the life of the project. The main site (MU6) is located approximately 20 km west of Belmopan, Belize in an area called Iguana Creek, Cayo district.

The project included the installation of water storage, high pressure pumping facilities at the main site (MU6), water filtration and approximately 8 km high pressure water pipeline distribution system to four existing (phase I) and three future (phase II) injection wells. A source water pipeline approximately 4 km in length was constructed to transport water from new source water wells to the main site at MU6 and in addition to the existing 6" pipeline from Iguana Creek main facility, will provide water to MU6.

The following major equipment was installed:

- 4 x 500 BBL capacity low profile (sea can design) internally coated water storage tanks, complete with instrumentation and controls.
- Water injection pump skids: the injection pump skids consisted of three 5 hp electric motor driven centrifugal charge pumps and three 125 hp electric motor driven triplex plunger injection pumps complete with variable frequency drives (VFD's). The three injection pumps each deliver 45-108 GPM (540-3700 BBLD) at a maximum pressure of 1460 psig. Two of these pumps operate at 2500 BBLD each to provide the 5000 BBL design capacity for phase one, with one stand-by pump available. Phase two involves all three pumps operating at 3,700 BBLD for a combined total of 11,110 BBLD, simply by changing the speed of the electric motors using the VFD's.
- 4 km length source water pipeline, HDPE 4710 SDR11 pipe material.



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- 8 km length water injection trunk pipeline, 4" Flexpipe
601 material.

expediting, and arrangement of shipping logistics (for sea
shipment) were completed by our team.

Our scope of work included:

- Conceptual Design (pre-FEED)
- FEED
- DBM preparation
- Capital cost estimate (Appropriation Grade)
- Pump investigation scenarios
- Detailed engineering
- Procurement and expediting
- Constructability reviews
- Field construction support
- Shutdown Key reviews

Engineering deliverables and construction drawings/docu-
ments in the different engineering/design disciplines,
including Process, Mechanical, Piping, Instrumentation,
Electrical, Civil and Structural, design and 3D model,
sourcing of equipment and bulk items, procurement,