

# PROJECT MANAGEMENT

## Project Management

International

### RASA CBM MOORING FACILITY, EL SALVADOR – UPGRADE PROJECT

Client: Puma Energy  
Location: RASA, El Salvador  
Period: July - October 2014

#### RASA CBM Mooring Facility, El Salvador, - Upgrade Project.

Puma Energy is operating the RASA facility in El Salvador. The facility was originally constructed in 1962, able to accommodate a maximum vessel size of 35 000 DWT. Over the years, the facility has been upgraded and is currently accepting vessels up to 69 000 DWT with a draft restriction of 11.5m.

The existing facility has some operability limitations and a number of technical studies have been performed over the years to further improve the facility.

Puma is considering relocating the facility into deeper water able to accommodate LR2 vessels (120 000 DWT with a draft of 16m and LOA of 250m). Furthermore, the orientation of the CBM is to be optimised for the best operability.

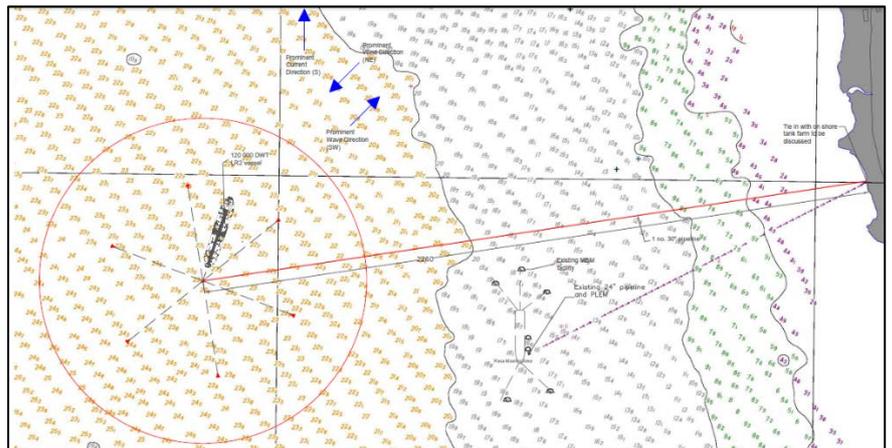
#### Scope of Works

##### Phase 1: Review Data

Data gathering and review all data and propose additional surveys and site investigations if required. Prepare a scoping document for the additional data gathering etc.

##### Phase 2: High level Concept Engineering: New CBM Facility with new pipeline

Prepare and agree design basis for the new facility. Develop best concept



for relocation to deeper water accommodating 120 000DWT Vessels. Provide BOQ and Project Budget, CBM and pipeline installation / methodology etc.

##### Phase 3: Detail Engineering

To follow.

#### The Works

PMI has reviewed the data and recommended any further data which was required. This predominantly consisted of additional site investigation work which was required to verify historical information and previous studies. This information will also provide the basis for the design in subsequent stages of the design process.

Using the information available, PMI also recommended three conceptual designs for discussions.

Option 1: CBM option, re-orientated and relocated into deeper water. This option makes use of existing 24" pipeline which will be extended to the

deeper location as well as the addition of a new pipeline with separate PLEM.

Option 2: CBM option, re-orientated and relocated into deeper water. This facility will be located north of the existing facility and have two new pipelines connected to a single PLEM.

Option 3: SPM option with single pipeline, located north of existing facility. (pictured above)

#### Conclusion

Due to the severity of the ocean climate, PMI have recommended that Puma Energy consider the SPM option.

Further site investigation work is also required and was recommended. This includes an offshore survey (bathymetric and geophysical) of a larger area surrounding the water areas off the coast at the RASA refinery.