BRIEF

On The Technical Meeting Between Esso Exploration And Production Guyana Ltd, Operator For The Consortium Under The Stabroek Block Petroleum Prospecting Licence And Officials Representing The Guyana Geology And Mines Commission, At The Campus In The Woodlands, Texas – April 4, 5, 2016

Background

Esso Exploration and Production Guyana Ltd. (Esso) is the operator for the Stabroek Block Petroleum Prospecting Licence which has joint licencees China National Offshore Oil Company (Nexen) and Hess, In February 2015 – the Consortium drilled their first exploration well Liza #1, a deep target in deep water where a significant petroleum discovery was realized in May, 2015. Esso et. al has since embarked on an extensive data acquisition of regional 3D seismic, geotechnical and metaocean data, anticipating a commercially viable prognosis even as defining follow up wells in the Liza prospect will guide Esso to a decision point about an appraisal programme for the purpose of informing on the commercial details or lack thereof for the prospect.

Manager, Petroleum Division, Christopher Lynch, and Commissioner (ag) Newell Dennison were invited to visit Esso's very new corporate headquarters in the Woodlands Texas, for a technical meeting where certain important matters were discussed and possible solutions arrived at for consideration as the oil and gas exploration project in Stabroek Block transforms into what is expected to be Guyana's first oil production disposition in the intermediate term.

Objectives

The objectives for the Technical Meeting included:

- An introduction to and meeting with the expanding project team providing geology and geophysics, drilling, research and development, legal and laboratory support for the project in Guyana.
- An update on the overall exploration outcomes, current activities, deliverables and perspectives.
- A discussion on development options, challenges and opportunities.

- A discussion on considerations in event of commercial viability.
- Contract issues and solutions for an ongoing project in the Stabroek Block.
- A view of the facilities within the new corporate campus.

All the objectives were accomplished in a very hectic schedule.

Personnel

The key officials involved in this Technical Meeting aside from the GGMC named officials were:

Jeff Simons, (Country Manager Guyana), Kerry Moreland, Lawson Burns, Will Hinson, Tina Riley, Brooke Harris, Ed Harrison.

These were from geology and geophysics, drilling and engineering, legal, and development and production. The dedicated team for the Guyana project was approximately eighteen (18) persons.

Discussions

An overview of the Basin Analysis and in particular the model for the architecture of the basin with implications for provenance of the basin fill, speculation on the basin history pre-break up and syn-break up and the identification of geological risks were discussed. One very critical element which has emerged is in relation to the reservoir potential. The reservoir potential is influenced by massive slope instability forming turbiditie plumes and mounds To achieve a reliable signature from the seismic which could differentiate which of the plumes are of interest is the current focus.

The gradient of the basin floor where the deposits are located is less than one degree. This leads to lateral spread, where connectivity could be variable. In addition, the oil/water contact is perched which has serious implications for production, and the absence of an oil/gas contact has serious implications for sustaining the energy of the reservoir for production.

The lack of dip/gradient could imply that a typical option for reinjection of associated gas is potentially unfavourable as the gas could break through and segregate the reservoir. There is much more to be defined through the outcome of the wells to be drilled, the interpretation of recent 3D seismic survey (one of the largest in the world and the largest for Esso) and the integration of that data set into the current.
Esso is optimistic about the possibilities for the other prospect targeted and named “Ranger”.

After the geology and geophysics overview, the cores were visited and after an inspection which showed the rich impregnation of oil, Commissioner decided on the spot that the slabs which were prepared for shipment back to Guyana should remain until further notice, to preserve the richness and value for the time being. The repository in Guyana is rapidly filling and does not have the controlled environment for such a unique sample set for Guyana. The visualization tools used during the technical update were state of the art hence the value of the update in Houston.

Despite the risk which persists such as seal, facies variation, and reservoir compartmentalization, Esso was very upbeat about their ability to mitigate them. In addition to the discussion on the return of the core slabs, there were discussions on the timeline for the delivery of the seismic data and reports thereto.

Esso then confronted with GGMC the matter of their **Contract and Licence**. This was anticipated some years prior when it was obvious that in the remainder of the licence term, all the exploration work to be done could not be achieved. This was despite their escalated intensity from 2008 when the Guyana/Suriname boundary resolution facilitated their return to activity.

The discussed and accepted mechanism to deal with this situation was the use of a bridging Agreement while switching from the current licence and agreement to a new one. It was recognized that Esso was very uncomfortable with a transition. It requires an appreciation from Guyana’s side that Esso expects that the economics of Liza prospect and Ranger, or whichever other discovery may emerge from the exploration drilling that is being done alongside “pre-appraisal” definition, during the remaining 2 years of the current agreement would be preserved. Esso is keen to ensure that there is a grandfather arrangement in that regard. (My perspective is that it would be a fair expectation and Esso should be given that assurance). Esso also harbours the concern about acreage that has been under threat due to Venezuela. They consider that opportunity was lost and that in Guyana consideration of Guyana's need for support, they did not protect themselves via a defecto force majeure. Esso would like to preserve their interest over this portion of the Contract Area. (In any new arrangement, special language as regards to relinquishment terms would have to be included to address that matter pending Guyana/Venezuela boundary solution).

It was pointed out that the current agreement with Esso was in several ways out-of-date with what prevails administratively in Guyana and that an approach to Esso in 2010/11 to deal with that was politely declined. Esso is prepared to move to the current specimen format for their agreement and have actually gone some way in having a draft based on the specimen (a 2012 template) ready for GGMC to review. A perusal through the document with Esso revealed that there would be some minor adjustments generally. There would be a major issue with the concept of joint marketing of product that is a concept currently present since arm's length issues could arise (I do not rate that as a significant issue to circumvent).

I have put on the table that the rental would be significantly upgraded and opened at US$1 million per year. Esso was obviously ruffled but I believe my rationalization was sufficient for them to give serious consideration of it. We came to a position subject to Leadership's approval that there would be the introduction of a signature bonus payable to a stated Government of Guyana Bank account forUS$15 million, which caters to the associated issues.

It was put on the table that there were some fiscal reviews being done presently and while they would not be concluded before the contemplated finalizing of the new agreement and licence, it would be necessary to include certain principles. A provision for a royalty in a contemplated hybird PSA was mentioned and in the context of ensuring that Guyana is not at disadvantage in a high oil price environment in the future. Esso was not at all receptive to that, however, it was left on the table (I have the view that there may be a fair chance to model some notional improved royalty to kick in, but I also speculate that in the environment of deep water, deep target development, the price of oil would have to go up significantly before the departure of the financials that prevail now and what could materialize becomes of material consequence).

Outside of these contract issues was the conversation on local content and corporate social responsibility. Esso was of the view that these matters were enshrined in their corporate outlook. The matter of an expert to render technical support to GGMC since development plans have to be analysed and production proposals have to be looked at in detail and favour with Esso. They were disposed to financing that kind of assistance for GGMC at arm's length so that the consultant would be totally independent of Esso.

The time line for the new agreement was targeted for the end of May early June.

Esso then opened the discussion on the proposed development options. This was a stated primary issue for the GGMC. In short, there were three options all involving floating production and storage facilities.

1. A Single New Build system with 2020 startup ~200k bopd. Flaring until gas disposition is arranged (at least 5 years flaring).
2. New Conversion System where an FPSO was rebuilt, with 2020 startup; ~100K bopd. Same expectation for flaring. A phase 2 of ~100k bopd FPSO build will be necessary.
3. Vessel Of Opportunity to be converted; 2020 startup ~60,000K bopd. Same situation with flaring. A phase 2 of ~100kbopd. F PSO build will be necessary.

A New Conversion vessel is less cost than a new build. Rationalization in terms of top side engineering, work life, capacity must be done.

Vessel Of Opportunity is the most economical. The topside could be new, adding to work life and a phase 2 for additional production would also be necessary. This option is a truly phased approach. Esso has already identified two potential vessels. If these deals could be closed, then the engineering could begin and the 2020 time line be truly realistic. An estimate for this first phase of development is ~ US$5 billion.

Esso is concerned about the permitting process and approval process. For both, a timeline (once plans are submitted between September and November 2016) of March 2017 is critical. Esso has no difficulty with industry standards and tested scientific evaluations on environmental issues but they are concerned that non typical requirements could set them back at a time when significant investments would have been committed to. This is a risk that has been mentioned several times.

(The EPA in the treatment of Esso's issues may have been particularly invasive. Perhaps EPA may need an industry expert for guidance. As they try their best to be diligent, they may presently be going above and beyond what is typical for the industry).

The major risk for the intended development is in relation to the associated gas which has to be flared. The gas to oil ratio over the life of Liza being unsteady and diminishing renders economically risky, the concept of a phase of a floating LNG facility at this time.

The take away from this session where the options explored included power plants run on gas, gas to methanol; LNG, reinjection; pipeline infrastructure; was that Esso was targeting the Vessel of Opportunity option in a phased approach with a flaring programme as their immediate development solution. They have identified special engineering and fabrication needs due to depth of water and depth of target. These have long lead time. For Esso to start spending, the replacement petroleum licence and agreement is needed, along with the undertaking that the Development Plan and permitting would be done in good time.

Finally, the meeting was concluded and the visiting party departed.

The previous being for your attention please.

Newell Dennison
Commissioner (Ag)
GUYANA GEOLOGY & MINES COMMISSION

April 15, 2016