The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Visit to Shell's Brutus Off-shore Oil/Gas Platform and New Orleans Facility

Posted by Gail the Actuary on November 26, 2007 - 4:30pm
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On November 9 and 10, the American Petroleum Institute (API) invited several bloggers to visit Shell's facilities in New Orleans, and also its Brutus Tension-leg Platform, 165 miles south of New Orleans, in the Gulf of Mexico. The purpose of this post is to tell you a little about my trip.

(More below the fold).

First, I need to disclose that API paid for my trip.

> API has underwritten Gail Tverberg's travel expenses to attend the Shell location tour in New Orleans. Gail is not required to blog about API initiatives. The only requirement as a condition of underwriting these expenses was to include this disclosure of this relationship on her blog.

There were only three bloggers on this trip:

- Mark Hemingway of National Review
- Margot Gerritsen who teaches energy resources engineering at Stanford University
- Gail Tverberg of The Oil Drum

Also on the trip were Jane Van Ryan of API, Ignacio Gonzalas from Shell Oil, and plus two women assisting Jane with the trip.

Visit to Shell Facility in New Orleans

On Saturday, November 9, we started by having lunch together and talking a little about the reason for the trip. Shell and API would like to be more open about oil company operations and would like to have at least a few bloggers understand their operations better. Also, we talked a little about their view of the future of oil production. I would describe the views of both Ignacio and Jane to be "peak lite" views. With rising demand, and many of the older fields now in decline, they have real concerns about developing adequate energy resources to meet tomorrow's needs.

After lunch, we visited three areas in Shell's New Orleans facility that are involved with visualization of new sites and monitoring of existing oil fields. At each of these stops, we saw specially prepared presentations on how the centers operate.

Our first stop was SEPCoVE 3-D (Shell Exploration and Production Collaborative Virtual Environment). This is a virtual reality center where a team of specialists can meet to study a particular field's structure and plan a course of action. The room has a curved 24 foot screen. People viewing the images wear special three-D glasses, to get a better 3-D effect. We were told that Shell has about a dozen rooms like this around the world. The visualization centers were developed by the same companies that make 3D animation for amusement park rides. We saw some seismic 3-D images, so got a little feel for what the teams are looking at.

While in the SEPCoVE room, we heard a little about Shell's ventures into newer sources of energy. One they are particularly optimistic about is a shale oil extraction method using heating and freezing. It seemed to me that it was likely to be very energy intensive.

Next we visited the Shell/Halliburton Real Time Operations Center (RTOC). This is a center that can monitor up to 12 critical fields at a time. This is a large room filled with 75 monitors and 12 large screens. One of the goals in both SEPCoVE and RTOC is to minimize down-time of drilling rigs, since they are very expensive.

Third, we visited the Production Operations Management Center (POMC). We were told that a better name would be the Production Operations Monitoring Center, since what this group really does is monitoring, rather than management. In this room, a large number of less critical fields are monitored, to make certain that they are operating within expected parameters.

Part of the reason for POMC is to get maximum use from the limited number of people trained to do this kind of monitoring. By having both the recent graduates and the more experienced workers together in the same room, it is possible for the more experienced to help train the less experienced, and to leverage their knowledge to handle a large number of fields at a time.

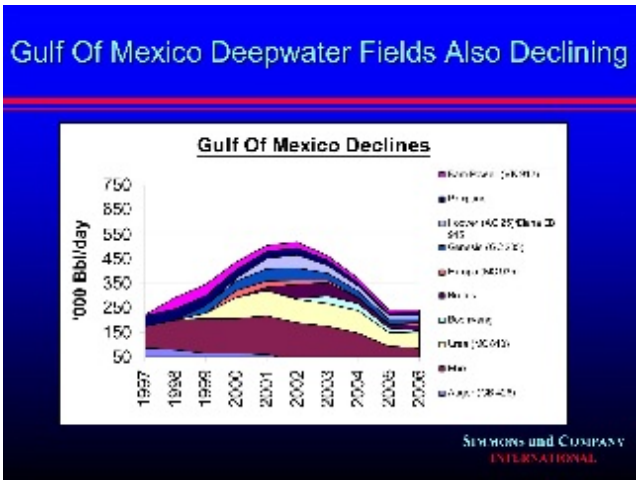
Trip to Brutus TLP

Saturday morning, we took a helicopter to visit the Brutus Tension-Leg Platform (TLP). A TLP has four "hulls" (like legs) at the corners, and is tethered to the sea floor by 12 "tendons". The facility makes all its own power -- generally from the natural gas it produces -- and desalinates sea water for drinking.

We had a beautiful day for the visit--temperature in the upper 70's, sunny, with little wind. On the day we visited, the platform was perfectly still. We were told that on windy days, it moves in figure 8's. The platform cost a little under $1 billion to make, and was designed with a 30-year lifetime. The management of the platform spent the day showing us around. This was much more attention than I had expected.

One of the first things I asked was how much Brutus was producing. I had read in the literature that it began operation in 2001, and was designed with a maximum capacity of 100,000 barrels of oil and 150 million cubic feet of gas per day. I was told that the previous day's production was 28,000 barrels of oil and 40 million cubic feet of gas. This production may not have been entirely representative, but it was clear that the platform is producing quite a bit less than it was designed for. We were told that Shell has plans to add some type of gas lift in the second quarter of 2008, to enhance recovery.

When I got back, I looked at Matt Simmons' slide from the Houston ASPO conference regarding Gulf of Mexico production.



Click to enlarge. Brutus is the black sliver starting in 2001. It rises to a quick peak, and starts declining, like the other GOM sites shown on the graph. On the trip, I was told that other Shell GOM sites are also planning some type of secondary recovery, starting in the next year or so. If I understood correctly, many of these are to be water injection.

It seems to me that Gulf of Mexico production will drop to non-economic levels for many of these fields within the next few years, even with secondary recovery methods. I asked whether the Brutus platform could be moved to another location, since it still has most of its 30-year lifetime left. I was told that the only way this would work is if a new location is found that is of approximately the same depth (2,985 feet) as the current location.

At this point, few new drilling sites are opening up in the 3,000 foot depth range. I expect that this is one reason that Shell (and others) are very interested in getting the portion of the Gull of Mexico near Florida opened up for exploration. If further Gulf exploration is delayed for 15 or 20 years, it may be necessary to start over with new platforms. By that time, onshore pipelines may also have deteriorated with disuse, and trained personnel may be unavailable.

The facility was much nicer than I had expected. Workers have rooms with bunk-beds, a desk and a television. Each room has a private bathroom for the two workers in the room. (I was told that this is unusual--most platforms have group bathrooms). The dining room is open for snacks as well as meals, and offers several choices of entrees. There were a couple of large gathering

rooms, with large television screens. I noticed a "Wii" video game box next to one. No alcohol is permitted on board, and random drug testing is required. We were told that our group doubled the number of women on board, so about five out of the 90 or so workers on the platform must be women.

It seems like the Brutus platform would be a good place to work, at least for the next few years, before its operations cease. Workers spend two weeks on the platform, then two weeks on shore. Pay is good enough that some live in other states, and fly to New Orleans for two-week tours of duty. (If air travel becomes less available, workers may have to move closer to the platforms.) During the two-week tours of duty, the workers work 12 hours on, and then have 12 hours off.

Safety is given a very high priority -- we were told that there is fewer than one injury per year on the platform. One program that seems to work well is requiring any worker who sees a co-worker doing some activity in an unsafe (like forgetting safety goggles) to immediately counsel the co-worker on his behavior. There is no retribution against the person doing the unsafe activity. The number and types of these events is tabulated, and used in designing future safety (re)training sessions.

Ignacio from Shell took a number of pictures on the trip. His pictures can be found here.

These are a few pictures from the trip. Most will enlarge when clicked.

This is the helicopter we took to the platform. The 165 mile trip took about an hour. Margot from Stanford is standing in front with a microphone. She made a narrated movie of our trip, and plans to post it to her site.

This is a picture of the drilling floor. We watched the pipe drilling operation for several minutes.

This is a picture of a worker holding a drill bit. There are three rotating heads on it, and plus some nozzles.

This is a picture of one of the platform hulls. The bottoms of these have ballast tanks whose volume can be adjusted to keep the platform floating correctly.

This is the view from inside one of the hulls, looking downward. The hull is several stories tall.

This is one area in the dining room, with a selection of cereal boxes, a microwave, and a soup pot.

Hofmeister Speech/Town Hall Meeting in Atlanta

After I got back from the New Orleans/Brutus trip, I went to see John Hofmeister, president of Shell, speak in downtown Atlanta on "Meeting the Energy Challenge". He was in town for the last stop on a 50-city tour, giving this speech and conducting town-hall meetings. I would guess there were 300 or more attendees - all of the chairs were taken, and people were standing in the back of the room. Most of the invitees were from the general public, and were not peak-oil aware.

Mr. Hofmeister made what he called several outrageous statements. He said that the energy market had stopped working, so that increased price was not leading to increased supply. He blamed this on a variety of factors - greater demand from China and India; countries subsidizing the cost of fuels; resource nationalism; and oil exporters acting in their own self-interest.

Another "outrageous" statement he made was, "America is the only oil-importing nation that prohibits the development of its own resources." He credits this prohibition with moving jobs out of the country and worsening the balance of payment situation.

He went on to talk about various alternatives to oil production that are being considered (including hydrogen). He asked the audience for their input regarding alternatives in the town-hall session that followed. I thought Shell was to be commended for bringing the issue of energy security to the American people in the 50-city tour. I was disappointed that Hofmeister didn't mention peak oil as a concern, and didn't go into any pros or cons of the various alternatives.