

Shell People stories

Transcript

My name's **Andy Brown**, I'm the Managing Director of Pearl GTL. I'm Shell's Country Chairman in Qatar as well. And here we are, we're in the middle of the Pearl GTL project. We have here the GTL reactors which are the heart of our process. Pearl GTL is based in Ras Laffan city, industrial city. It's an enormous complex of 20 kilometres by 10 kilometres, which is about 80 kilometres north of Doha. And where we are, well, it's actually on the sea side as well, because offshore here is the North Field, it's the largest gas reserve in the world; 900 TCF of gas, and we've been allocated a block in the North Field 24 kilometres long by 12 kilometres wide in which we are now drilling wells, yeah, that will produce gas, that will come about 60 kilometres from offshore through a pipeline here to the Pearl GTL plant when we start up. Now with that gas, the first thing we need to do is clean up the gas. And what we can do is we take out condensate; we take out LPG which is then sold – exported from Ras Laffan here, but also we take out all the sulphur, and what we then get is clean natural gas that can go into our GTL process here. The other ingredient we need for GTL is oxygen, and if we look over here, what we can see here are these big white tall white boxes is called our 'cold box'. And what happens in the cold box is we take air and we compress it and we chill it to about minus 180°C, and that means that the oxygen and the nitrogen separates and in the cold box we take the oxygen away from the air. We will produce 28,800 tonnes per day of oxygen, and that's the largest oxygen plant ever constructed in one place in the world ever. That oxygen then comes into the GTL process. Now behind these reactors we have what's called the Shell Gasification Process, and we actually put the gas and the oxygen together in this reactor. Now that runs at about 1300°C that reactor, so metallurgy around that reactor is absolutely crucial, and that produces – you know what we call syngas? It's just a ... it's carbon monoxide and hydrogen; it's a bit of an intermediate product in the GTL process, and that carbon monoxide and hydrogen comes into these reactors here. Now each of these reactors - we're going to have 24 of these - is 1200 tonnes in weight, and so the syngas comes in the top and reacts with our proprietary catalyst that we make in our own facilities in Germany and out the bottom comes the GTL waxes, and these then are the GTL waxes that go across into what we call our Liquid Processing Unit. This is where the wax is converted into all sorts of useful products. First, I think you can just see there, there's the Hydrocracker - two of the world's largest Hydrocrackers are now in place in the plant there. That converts this wax into things like diesel fuels, lubricant oils, detergent feed stocks, petrochemical feed stocks; all these GTL products that we make, very high quality products. Now, when we do this reaction we actually make water as well as wax. We make as much water as we do hydrocarbon products. And over the other side of the plant we have our effluent treatment plant. And that actually cleans up all the water and we reuse all that water with no discharge of water to the sea whatsoever, so a complete reuse system - We think the largest process water reuse system ever built in the world before now. It has a total capacity of 300,000 barrels a day. That's enough capacity for a city of one million people. Now, that water comes back and one thing that we use it for is the steam system. Now in this plant there are lots of reactions going on that produce heat, we need to capture that heat and reuse it, and we do that through steam. Now, we produce 8,000 tonnes per hour of steam, it's the largest steam system we think has been put together anywhere in the world before. And that steam then is used to do things like run the air compressors on the air separation units here, so each of these eight air separation units has a 70-megawatt air compressor, which is driven by steam. So in this way we kind of integrate the processes, the rotating

equipment needs, to make sure we have the best efficiency on the plant we possibly can. And we have on this plant rotating equipment, we have over 1,000 megawatts of rotating equipment. So, really an enormous amount of equipment and a real need for us to be as efficient as we can when we design and now build this fantastic project. So, what I'm really proud of is you know really the team work here, just the feeling that everyone is driving towards one goal and that's delivering Pearl GTL on time and on budget. And a project which will be one of the kind of engineering marvels of the world, but also will provide clean fuels and products for customers right across the world for many many decades, because we're linking this project to the North Field with 900 TCF of gas, that's over 14% of the whole world's gas resource hardwired to this plant. So, you can imagine, this plant has a very, very long-term future, and so our children and our children's children will take benefit from what we will be able to produce here on Pearl GTL.