



CLOSING THE

The Vats Fjord north of Stavanger was once a site for mating some of the largest concrete platforms on the NCS. Now redundant oil installations are being broken up there.



CIRCLE

SCRAPPER-IN-CHIEF, Site manager Arne Skogheim at the environmental base in Vats.

Row upon row of modules, support frames and steel jackets from Ekofisk stand in various stages of disassembly on the 6.8-hectare yard operated beside these sheltered waters by AF Decom Offshore.

Right at the end of the jetty, a couple of excavators are destroying the pitiful remains of the electrical module from the Albuskjell 2/4 F production, drilling and quarters platform.

This installation operated from 1979 to 1990, and then stood gradually decaying on the North Sea field until it was shipped to Vats in the summer of 2009.

Close at hand, a gang is working to cut up, drag out and pull down electrical cables and light fittings in a storage module from the same platform.

Some of these structures have been shut down since the early 1980s. Magnar Midtun stands by a yellow sign reading "Area blocked off" which hangs from a chain across one of the stairways. The steel is so rusted that it crumbles under his fingers.

As a frontrunner, Mr Midtun's role is to remove all equipment before the metal structures are left to the big cutters mounted on the site's five excavators.

"We take out what we must, and leave the steel," he explains. One job is to drill holes in the piping to empty out any water or oil before the machines get to work.

Finally, when winter sets in, the gang will go to work with flame cutters on the equipment which the excavators have not managed to chop up.

Mr Midtun tosses light fittings into containers, while colleagues Stian Berg and Torbjørn Bjåen focus on pulling power cables out of the module.

These contain copper, aluminium and other metals sought by the market. Piles of steel also lie around on the jetty, cut up and ready to be shipped out and resmelted.

Quadrupled

Site manager Arne Skogheim, who has been with AF Gruppen since its foundation in 1985, notes that steel prices have quadrupled over the past nine years. While the company got NOK 500

per square metre – double the normal strength of such facilities, according to Mr Skogheim.

Concrete platform builder Norwegian Contractors occupied the site from the 1970s to the 1990s, and gravity base structures for fields such as Statfjord, Gullfaks and Troll were mated with their topsides in the deep fjord.

After the era of the concrete giants came to an end in the mid-1990s, it was used both for fish farming and as a recycling plant for car tyres until Decom Offshore took over in 2004.

Jacket

A new consignment of scrap is expected the following day, and Mr Hundhammer checks that the area has been cleared and provides enough space for yet another Ekofisk jacket.

The yard already holds steel jackets and module support frames from two of the compressor platforms which once boosted oil through the Norpipe

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Operation manager Bjørn Hundhammer

per tonne in 2001, it now receives NOK 2 000.

"This steel's in demand because of its really good quality," agrees operations manager Bjørn Hundhammer. To avoid being hit by metal bits flying through the air, he has asked me to keep well away from the cutting machines.

A loud bang sounds as the jaws of the loud excavator – which the workers have naturally nicknamed "Hulk" – close around a large chunk of the module support frame from Albuskjell 2/4 F.

The Vats site was ready in 2009, after the company had spent NOK 600 million to expand it from 1.8 hectares to its present size and prepare it to handle redundant offshore structures.

Among other measures, the jetty is dimensioned for a weight of 10 tonnes

line from Ekofisk to Teesside in the UK.

The jackets were cut in two before being shipped to land. Totalling 5 000 tonnes, these two sections give off a rank odour of seawater and rotting seaweed.

Long beard-like growths hang from the uppermost bracings, and waving fishing lines bear witness to the leisure pursuits of people who once lived and worked on the platforms.

Senior adviser Evy M H Lærdal explains that installations which have been shut down for a long time out on the field are often in poor condition.

A number of measures are needed before they can be moved safely. Above-surface structures suffer particularly from rust, while those below water are usually in better condition.

Apart from the noise of the excava-



RECYCLED. Magnar Midtun removes light fittings.





POWER TOOL. The Hulk cuts up the module support frame from a compressor platform.

Offshore clear-up

About 500 fixed and floating steel and concrete installations and subsea systems are to be found on the NCS, and many of these are due to be retired over the next few years.

Some subsea and steel structures have already been removed from several of the oldest North Sea fields, but such activity is expected to increase sharply around 2020.

Since various operators are currently applying to extend the economic life of their installations, it is difficult to obtain exact figures on the number to be scrapped at any given time.

But Øystein Dretvik at the NPD says that the demand for expertise and equipment to remove such facilities in an acceptable manner will increase regardless.

Based on figures reported by the operators, the NPD has calculated that it will cost an estimated NOK 160 billion to remove these structures.

That excludes concrete gravity-based structures (GBSs), because techniques for removing and transporting them are relatively untested.

These 12 structures account for roughly 70 per cent of the total

weight of all Norway's offshore installations, which is 6.9 million tonnes. Three are not designed for removal.

The Oslo-Paris convention for the protection of the marine environment of the north-east Atlantic (Ospar) bans dumping or leaving offshore installations in place – with certain exceptions.

Concrete GBSs and mooring foundations, and steel jackets weighing more than 10 000 tonnes, can remain standing, but authorisation must nevertheless be sought in each case.



IN THE SEA FOR 35 YEARS. The closer to the sea surface these bracings have been, the more growth on them. (From left) Evy Lærdal, Bjørn Hundhammer and Arne Skogheim.

Heavyweight player

AF Decom Offshore is a sub-contractor to Dutch heavy-lift and transport specialist Heerema Marine Contractors. The latter contracted with Ekofisk operator ConocoPhillips to remove nine installations from the field by 2014.

Earlier scrapping assignments for Decom Offshore include the process plant on the Ekofisk tank and flare booms and bridges from the field.

With 90 employees, the environmental base at Vats is one of four Norwegian facilities with permits to receive and process redundant offshore structures.

The others are Aker Stord and Scandinavian Metall further north and Lyngdal Recycling in southern Norway. According to the Norwegian Climate and Pollution Agency (Klif), this quartet has the capacity to handle materials from the NCS for the next decade.

tors and the metal cutting, the site is fairly quiet. But a high and steady roar comes from the shop nearest the gate as high-pressure hoses clean Ekofisk process piping.

One operator controls this process, and entry is banned to others because the spent water contains hazardous substances deposited on the inside of the pipes.

These include radioactive mate-

Rana in northern Norway, while the remainder goes to Norsk Metallretur.

Although most of the equipment on the redundant offshore installations is old, turbine and engine components are often reused.

Nor is scrapping of offshore installations a new phenomenon in Vats. The Brent Spar storage and loading buoy ended its days there in the late 1990s.

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Senior adviser Evy Lærdal

rials, which the company has special approval from the Norwegian Radiation Protection Authority to handle and store.

Asbestos

Two men in white overalls and wearing breathing equipment have just removed asbestos from a process module and packed it into big sacks for transport to an approved depot.

According to Mr Lærdal, up to 98 per cent of the materials passing through the site are recycled. All metal is resmelted and recovered.

Most of the steel is shipped to recycler Celsa Armeringsstål at Mo i

Shell had originally – and controversially – wanted to sink this structure in the Atlantic, but extensive protests from environmentalists ensured that it was broken up on land.

That marked the start of a new recycling industry, with the remains of Brent Spar used as the foundation for the deepwater jetty at Mekjarvik outside Stavanger

The world's largest crane barge, *Thialf*, is about to up anchor from that port en route to Vats as the gang on the jetty get ready to receive the year's last consignment from Ekofisk. ❄

Permission required

Ceasing to use and disposing of offshore structures is governed by section 5-1 of Norway's Petroleum Activities Act, which specifies that operators must submit a cessation plan.

Sent to the Ministry of Petroleum and Energy, this has to be provided five years at the earliest and two years at the latest before an installation shuts down for good.

The plan, which must be copied to the Ministry of Labour and the Petroleum Safety Authority Norway, has to cover the cost and environmental impact of various disposal measures.

After considering the plan with the support of the NPD, the petroleum ministry will decide on the matter and set a deadline for when this decision has to be implemented.

Read more at www.npd.no



GOODBYE TO COMPRESSION. This platform was shut down in the North Sea from 1983 until it was returned to land last year.