

Offshore Environmental Monitoring and Research

Drill cuttings



The problem

Drill cuttings are produced when oil and gas wells are drilled. They contain rock fragments and drilling muds, and may be contaminated with toxic hydrocarbons. When the cuttings are discharged to sea they often form distinct piles underneath the platform, a feature of many of the platforms in the North Sea. These piles of drill cuttings are our legacy from years of oil and gas production. Do they pose a risk to the environment, should they be left undisturbed, or be removed and disposed of elsewhere?

Case study

UKOOA (United Kingdom Offshore Operators Association) recognised that the information available on cuttings piles, such as the physical and chemical characteristics, was insufficient for decommissioning purposes. Oil and gas industry stakeholder groups are concerned about the environmental impact of cuttings when disturbed. To resolve this, UKOOA commissioned a research programme to evaluate various management options for the cuttings piles.

The project considered the long-term environmental impacts of leaving the cuttings piles undisturbed on the sea floor. Alternatively it considered the environmental risks of lifting the cuttings and disposing of them elsewhere. Field trials were conducted, at the North West Hutton platform in the North Sea, to test the technology available for removing the drill cuttings. An environmental impact assessment was also undertaken.

Services

- Environmental impact assessment
- Current data collection
- Sediment dispersion studies
- Tracer studies
- Chemical analysis
- Water and sediment sample collection
- Partition experiment

Our contribution

Cefas conducted an extensive environmental monitoring programme during the field trials to remove cuttings from beneath the North West Hutton platform. Our main objective was to monitor and quantify the environmental impacts of disturbing the cuttings pile, such as the release of contaminants to the local environment and dispersion of suspended sediment.

Specific objectives were to monitor:

- Resuspension of sediment and associated contaminants from the cuttings pile during removal
- Transport of cuttings in suspension
- Deposition of cuttings observed using tracer studies
- Surface oil sheen

Equipment deployed by Cefas:

- MiniLander to monitor suspended sediment, tide and wave climate
- AquaLander to take water samples for hydrocarbon analysis
- Tracer to measure the spatial footprint of suspended material

1 Minilander on NW Hutton

Contact us

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- 2 Aqualander deployment
3 Minilander deployment
4 Oil rig

About us

Cefas is a multidisciplinary scientific research and consultancy centre providing a comprehensive range of services in fisheries management, environmental monitoring and assessment, and aquaculture to a large number of clients worldwide. We have more than 500 staff based in 3 laboratories, our own ocean-going research vessel, and over 100 years of fisheries experience. We have a long and successful track record in delivering high-quality services to clients in a confidential and impartial manner. (www.cefas.co.uk)

Cefas Technology Limited (CTL) is a wholly owned subsidiary of Cefas specialising in the application of Cefas technology to specific customer needs in a cost-effective and focussed manner. CTL systems are developed by teams that are experienced in fisheries and environmental management and in working closely with clients to ensure that their needs are fully met. (www.cefastechnology.co.uk)

Customer focus

With our unique facilities and breadth of expertise in environmental and fisheries management, we can rapidly put together a multi-disciplinary team of experienced specialists, fully supported by our comprehensive in-house resources.

Our existing customers are drawn from a broad spectrum with wide ranging interests. Clients include:

- international and UK government departments
- the European Commission
- the World Bank
- United Nations Food and Agriculture Organisation (UNFAO)
- oil, water, chemical, pharmaceutical, agro-chemical, aggregate and marine industries
- non-governmental and environmental organisations
- regulators and enforcement agencies
- local authorities and other public bodies

We also work successfully in partnership with other organisations, operate in international consortia and have several joint ventures commercialising our intellectual property.