ANTRIM ENERGY (UK) LIMITED
ANTRIM ENERGY (VENTURES) LIMITED

Environmental Statement 2015
Operations

Contents

Annual Public Statement 2015

Purpose of Statement

This document presents the Antrim Energy (UK) Limited and Antrim Energy (Ventures) Limited Public Environmental Statement on 2015 operations. Prepared in line with the *Annual Public Statement Requirements* of *OSPAR Recommendation 2003/5*, the report provides details of Antrim's 2015 offshore operations on the United Kingdom Continental Shelf (UKCS), the management system by which the environmental aspects of those operations were managed and the environmental performance delivered.

Antrim Energy

Antrim Energy (UK) Limited and Antrim Energy (Ventures) Limited are wholly owned subsidiaries of Antrim Energy Inc. which is an international oil and gas exploration and production company headquartered in Calgary, Canada. Antrim Energy Inc. has operations offshore in the UK North Sea and offshore Ireland. Antrim Energy Inc. has a number of companies within its corporate structure, including on the United Kingdom Continental Shelf (UKCS), Antrim Energy (Ventures) Limited (AEVL) and Antrim Energy (UK) Limited (AEUKL).

AEVL and AEUKL assets on the (UKCS) are Blocks 21/28a (P077 Licence, the Fyne Field) and 21/29d (P1875 Licence, the Erne discovery) respectively. Offshore operations conducted during 2015 were under Antrim Energy (Ventures) Limited operatorship as much of the work carried out was in the Fyne Field.

Operations 2015

During 2015 AEVL contracted Offshore Installation Services Ltd (OIS) to perform permanent abandonment of four suspended wells. Three of these were in the P077 Licence, and one in the P1875 Licence. The suspended wells abandoned were:

1. Fyne well 21/28a-10z.
2. Fyne well 21/28a-9y.
3. Fyne well 21/28a-2.
4. Erne well 21/29d-11z

For the P1875 Licence, AEVL contracted OIS on behalf of AEUKL. The location of the suspended wells is shown in Figure 1.

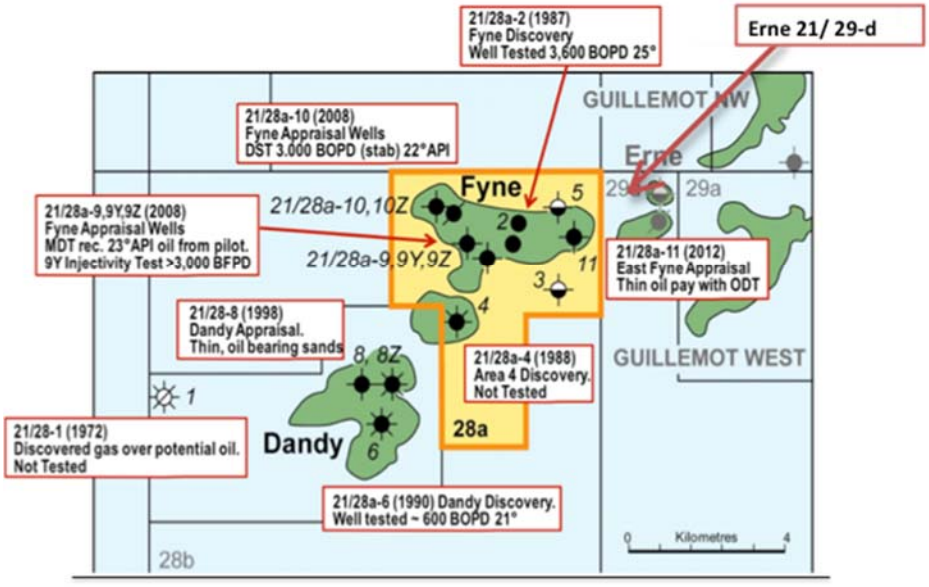


Figure 1: Location of Fyne and Erne Field Suspended Wells

The work required to abandon the P077 and P1875 suspended wells was carried out in accordance with *Oil and Gas UK's (OGUK) Well Suspension and Abandonment Guidelines (Issue 4 2012) (Issue 5 was released subsequently to the AEVL well abandonment planning).* The *Guidelines* provide guidance on the efficient, sound and safe abandonment of subsea wells in support of government regulation and advice.

The required standards for well abandonment involve an acceptable permanent barrier, the main characteristics of abandonment materials (plugging material), the location of the permanent barrier for isolation from the surface, minimum requirements for permanent barriers and a verification procedure. Two permanent barriers from surface/seabed are required by these *Guidelines* to achieve effective isolation of hydrocarbon bearing permeable zones.

The *Guidelines* provide a classification of suspended wells status and the work needed to achieve the required standards of well abandonment according to suspended status. The classification of the Fyne and Erne wells against these *Guidelines* and the work therefore required to permanently abandon them are outlined below:

Table.1. Summary of P077 Licence and P1875 Licence Suspended Well Status and Work Required

Well number	Well Suspension Status	Well category/ status
21/28a-2 21/28a-10z	These well has one cement plug set within the well. They therefore required an additional barrier before severance operations could take place. They all fall into the OGUK Category 2.1 well.	Subsea wells, suspended. OGUK Category 2.1 is for a well which has one annulus uncemented with the placement of an additional barrier required to complete abandonment of the well. An additional barrier was therefore required for this well followed by the abrasive severance of the casings and wellhead.
21/28a-9y 21/29d-11z	The reservoir sections have been fully isolated by cement to give 2 permanent barriers between the reservoir and seabed. These barriers meet the OGUK classification for Category 1 abandonment.	Suspended, subsea well. OGUK Category 1 is a well that has been sufficiently suspended that with the reservoir already fully isolated that final abandonment only required removal of the wellhead. Abandonment work on this well thus required only the wellhead and casings abrasively severed from 10ft below the seabed and recovered to the vessel for onshore disposal.

The four well abandonment programme was carried out as part of of multi-operator well abandonment campaign which took place over the three month period July- September 2015. The work programme was conducted from the *Island Valiant* light construction vessel which was operated by the Norwegian company *Island Offshore Management*. The work was conducted by the specialist well abandonment contractor *Offshore Installation Services Ltd. (OIS*).

The campaign was split into two phases, an intervention phase (Phase 1) and severance phase (Phase 2). The intervention phase (Phase 1) of the operation included all the well entry and downhole operations to emplace the second permanent barrier in order to leave the wells so that only severance work remains to be completed (at which point wells are re-classified as Category 1 under the *OGUK Guidance*). During the severance phase (Phase 2), the wellheads and casings at each wells were be abrasively severed 10-12 ft (3-3.5 m) below the seabed with the casings and wellheads retrieved to the vessel for onshore disposal.

The Island Valiant thus first mobilised with the intervention equipment and sailed to complete the intervention of all the Category 2.1 wells. The Vessel then returned to port to demobilize the intervention equipment and install the severance spread before sailing to conduct the severance phase of all the wells.

The time required at each well thus varied between approximately 1.5 days if severance only were required and approximately 3.5 days if well intervention and severance were both required.

The Island Valiant therefore transited between each operators wells and to port. Total time on station intermittently at the Antrim wells, plus time to transit to the wells and port visits from AEVL/AEUKL acreage was around 12 days. The remaining time of the campaign was spent at other operators wells, transiting between well locations and visits to port for equipment and crew change-outs and waiting on weather.

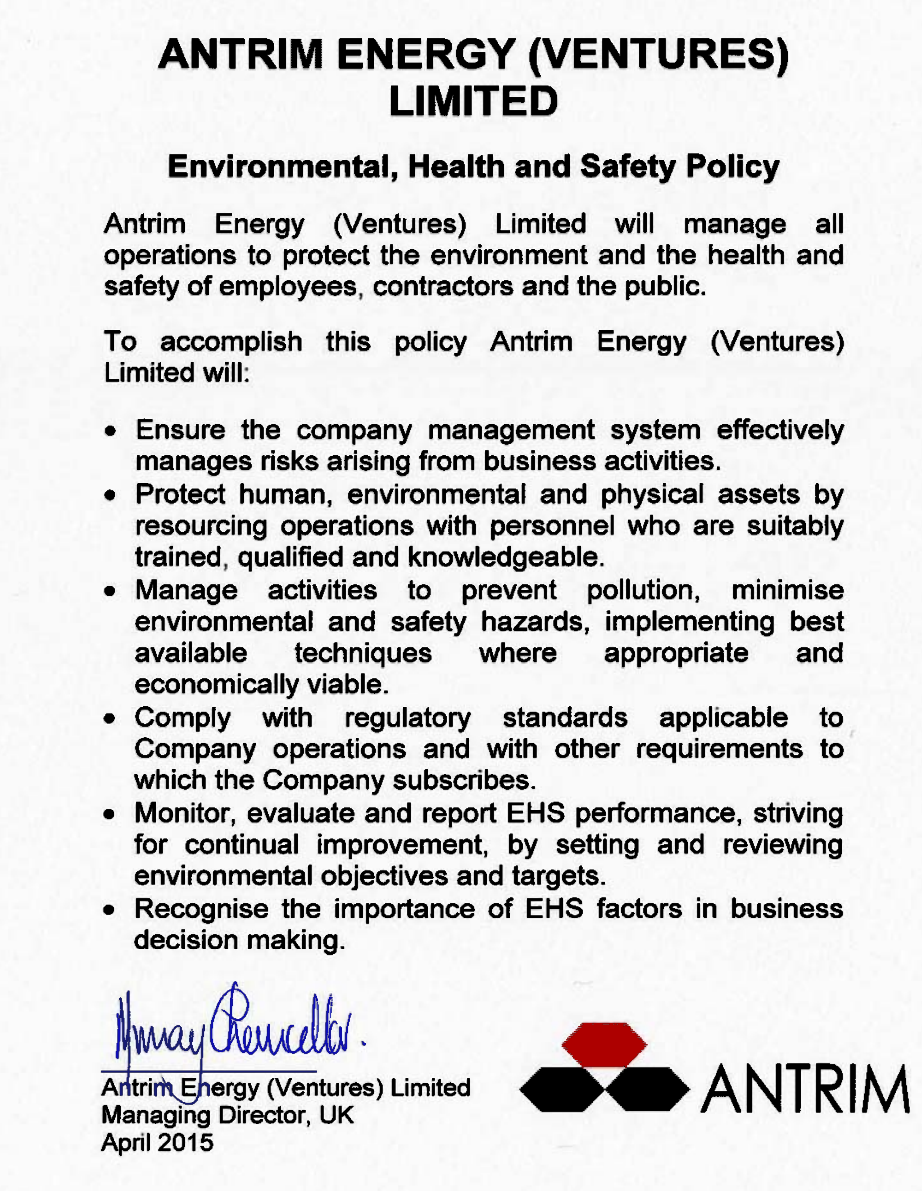
Environmental Management

Antrim Environmental Management Commitment and Policy

Antrim is committed to conservation of the marine environment, pollution prevention and minimising impact on the marine environment during the conduct of its offshore operations on the UKCS. This commitment is stated in the AEVL and AEUKL integrated Environment, Health and Safety (EHS) Policies. Approved by Antrim's Managing Director UK the EHS Policies provide a comprehensive statement of Antrim's environmental commitments and the objectives that Antrim set in order to work towards achieving these commitments.

The EHS Policies are reproduced in Figures 2a and 2b below.

Figure 2a: Antrim Energy (Ventures) Limited EHS Policy



ANTRIM ENERGY (VENTURES) LIMITED

Environmental, Health and Safety Policy

Antrim Energy (Ventures) Limited will manage all operations to protect the environment and the health and safety of employees, contractors and the public.

To accomplish this policy Antrim Energy (Ventures) Limited will:

- Ensure the company management system effectively manages risks arising from business activities.
- Protect human, environmental and physical assets by resourcing operations with personnel who are suitably trained, qualified and knowledgeable.
- Manage activities to prevent pollution, minimise environmental and safety hazards, implementing best available techniques where appropriate and economically viable.
- Comply with regulatory standards applicable to Company operations and with other requirements to which the Company subscribes.
- Monitor, evaluate and report EHS performance, striving for continual improvement, by setting and reviewing environmental objectives and targets.
- Recognise the importance of EHS factors in business decision making.

Antrim Energy (Ventures) Limited
Managing Director, UK
April 2015

ANTRIM

Figure 2b: Antrim Energy (UK) Limited EHS Policy

ANTRIM ENERGY (UK) LIMITED

Environmental, Health and Safety Policy

Antrim Energy (UK) Limited will manage all operations to protect the environment and the health and safety of employees, contractors and the public.

To accomplish this policy Antrim Energy (UK) Limited will:

- Ensure the company management system effectively manages risks arising from business activities.
- Protect human, environmental and physical assets by resourcing operations with personnel who are suitably trained, qualified and knowledgeable.
- Manage activities to prevent pollution, minimise environmental and safety hazards, implementing best available techniques where appropriate and economically viable.
- Comply with regulatory standards applicable to Company operations and with other requirements to which the Company subscribes.
- Monitor, evaluate and report EHS performance, striving for continual improvement, by setting and reviewing environmental objectives and targets.
- Recognise the importance of EHS factors in business decision making.

Antrim Energy (UK) Limited
Managing Director, UK
April 2015

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Environmental Management System

The AEUKL Environmental Management System (EMS) is the means by which offshore operations are managed in order to manage the environmental aspects associated with those operations and to work towards achievement of AEVL and AEUKL EHS Policies environmental commitments.

The AEUKL EMS has been externally accredited and notified to the Department of Energy and Climate Change (DECC) as meeting the OSPAR *Recommendation 2003/5 to Promote the Use and*

Implementation Environmental Management Systems by the Offshore Industry goals and requirements. First verified in 2007 the EMS has been subject since to regular successful re-accreditation.

In order to carry out the offshore work required for the permanent abandonment of the Antrim wells, AEVL contracted specialists Offshore Installation Services Ltd (OIS) as the main well abandonment contractor performing the offshore work. OIS in turn contracted and directly managed all sub-contractors. Environmental management of the planned campaign was thus a shared responsibility between AEVL and OIS and required their mutual co-operation.

While both AEVL and OIS have environmental management system either certified according to the international standard for Environmental Management Systems, ISO 14001 (OIS) or verified as aligned with ISO 14001 by meeting OSPAR Recommendation 2003/5 (AEVL) a *Management Interface Document* was been produced jointly by AEVL and OIS to provide the formal means for ensuring co-ordinated, operation specific environmental management of the AEVL well abandonment operations planned to be undertaken.

The effective application of the AEVL and OIS certified / verified environmental management systems to the well operations was thus provided by the Management Interface Document which addresses the following key areas of management bridging/interface:

1. Scope of services and accountability for work.
2. Environmental Management System primacy.
3. Management structure/organisational relationships, responsibilities and accountabilities.
4. Personnel training and competency.
5. Communication, communication interfaces, and operations reporting.
6. Environmental aspects identification and assessment.
7. Setting objectives and targets for the work.
8. Operational control, operational programmes and procedures.
9. Emergency procedures and incident response arrangement.
10. Performance environmental monitoring.
11. Environmental audit
12. Reporting accidents and incidents.

The Management Interface Document and the specific objectives and targets set for the AEVK well abandonments in the document *Antrim Energy (Ventures) Limited / Offshore Installation Services HSEQ Objectives & Targets (2015)* were circulated to all relevant onshore and offshore staff. The effectiveness Management Interface Document in providing for the effective operation specific environmental management was demonstrated by monitoring that operational controls needed to manage activities were effective, by monitoring of resultant environmental performance and by assessment of the environmental compliance of operations conducted.

Environmental Objectives and Targets 2015

Towards the end each calendar year, and once planned activity for following year is known, Antrim annually set environmental objectives and targets and timescales for their achievement. Antrim sets environmental objectives that target both the Company's own environmental management processes and objectives for operational performance whilst taking into account:

1. AEVL/AEUKL EHS Policy

2. Current legal and regulatory requirements, including changes expected before the next period of target setting.
3. Significant environmental aspects for forthcoming operations.
4. Aspiration towards continual environmental performance improvement.
5. Use of contractors to conduct operated activity.

For 2015 AEVL was currently planning a campaign of well abandonment to be undertaken during 2-3 Q 2015. Objectives and targets have been set, and a programme for their achievement were therefore developed in the following areas:

1. Environmental management processes AEVL/AEUKL
2. Well abandonment operations

The following environmental objectives were set:

1. Undertake OSPAR 2003/5 re-verification of AEUKL Environmental Management System.
2. Ensure all required permits in place for the planned abandonment operations and then assure operations legislative compliance.
3. Ensure appropriate consultations held with regulators and any key environmental stakeholders for the abandonment campaign.
4. Carry out environmental aspects assessment of the planned abandonment campaign and preparation of an Environmental Aspects Register.
5. Ensure effective environmental operational management of the planned abandonment operations by preparation of an effective management interface / bridging document, by ensuring effective operational control and by setting operation specific objectives and targets in conjunction with the specialist abandonment contractor.
6. Review contractors documentation key to effective environmental management of the well abandonment campaign.

All of the AEUKL environmental objectives set out above were met as were those that were developed in conjunction with OIS in the document *Antrim Energy (Ventures) Limited / Offshore Installation Services HSEQ Objectives & Targets (2015).*

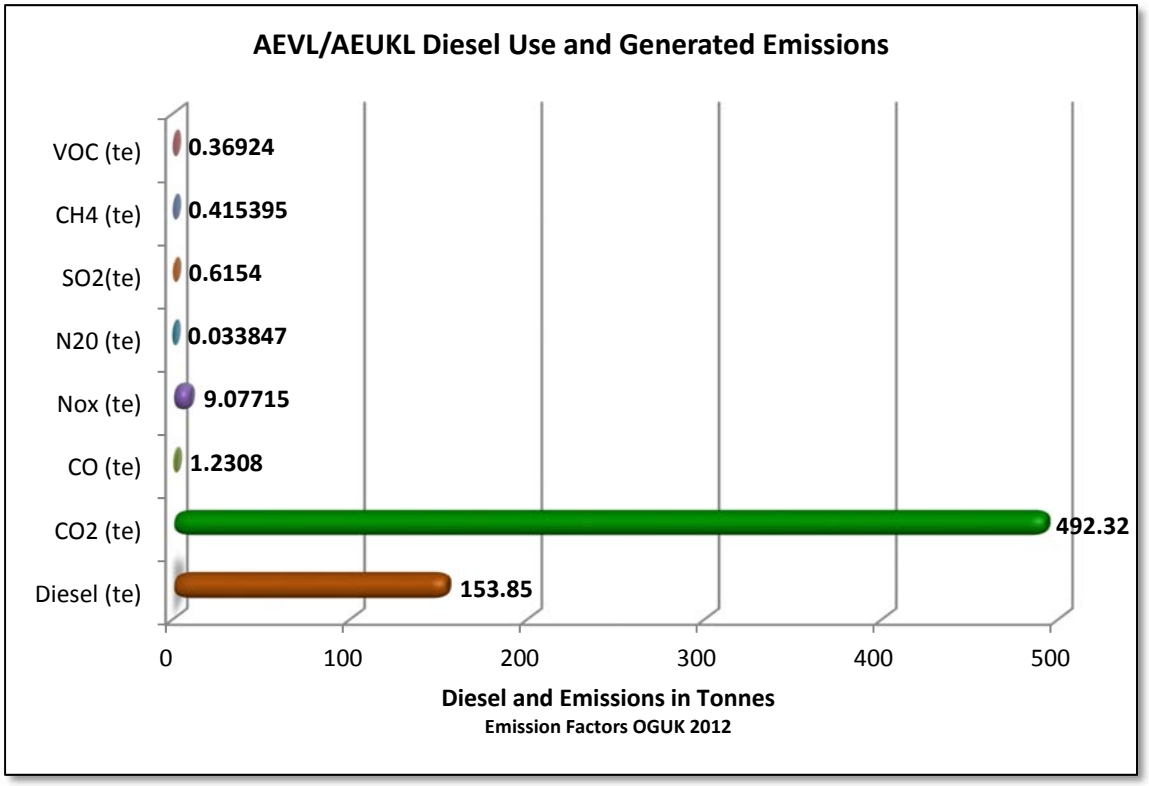
2015 Operations Environmental Performance

Atmospheric Emissions

The major sources of emissions to air from the well abandonment operations were combustion emissions from the *Island Valiant* power generation. As the well abandonment campaign was a multi-operator programme in which the AEVL wells were a minority, the diesel combustion emissions attributable to AEVL's share from the operation were calculated from the time the *Island Valiant* spent at the AEVL/AEUKL wells, the time to transit to and from these wells, and port visits from AEVL/AEUKL acreage (refer *Operations 2015*).

Total diesel used and resultant combustion emissions from the AEVL part of the campaign are shown in Figure 3 below.

Figure 3: AEVL Well Abandonment Emissions to Air

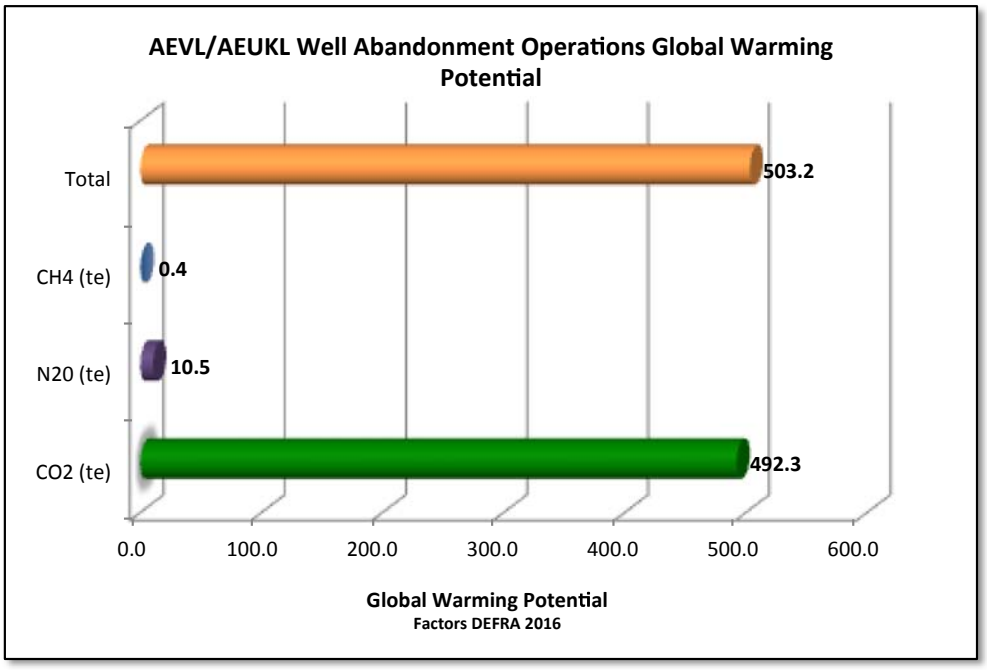


The most significant emissions from the well abandonment were carbon dioxide (CO_2) (492 tes) and oxides of nitrogen (NO_x) (9 tes). All other species of emissions were emitted in minor quantities that contributed less than 1% of the total. These were: carbon monoxide (CO) at 1.2 tes; nitrous oxide (N_2O) at 0.03 tes; sulphur dioxide (SO_x) at 0.6 tes ; methane (CH4) at 0.04 tes; and 0.3 tes Volatile Organic Compounds (VOC) (Figure 5).

CO_2 , CH_4 and N_2O are emissions particularly implicated as greenhouse gases and contributors to global warming. Other combustion gases - CO, VOCs,and SO_2 - although not greenhouse gases, are reactive and impact upon abundance of greenhouse gases. The main impact of AEVL's well abandonment emissions is as a single point, transient contributor to global warming or climate change.

The most commonly used general indicator of contribution to climate change is the global warming potential (GWP), expressed in tonnes of carbon dioxide (CO2) equivalents. The GWP of a specific gas is a measure of its climate change impact relative to CO2. All gaseous substances that contribute towards global warming (for example, CO2, CH4, and N_2O) have a GWP factor that allows the conversion of individual emissions into CO2 equivalents. Taking the calculated combustion emissions and expressing them in terms of their GWP allows an estimate to be made of the potential future impacts of gaseous emissions upon the climate system. The AEVL well abandonment calculated GWP for the main greenhouse gases is shown in Figure 5 below:

Figure 4: AEVL/AEUKL Well Abandonment GWP



A 12 day well abandonment operation makes a minor contribution to UKCS oil and gas offshore operations global warming potential. The bulk of the GWP for oil and gas operations is contributed by CO2 emissions with those generated by the AEVL well abandonment operations a fractional percentage of the 12,585,700 tonnes generated by UKCS operations in 2014 (latest available data *OGUK Limited Environmental Report 2015*) with the later in turn adding only 3% to total UK domestic CO2 discharge (*OGUK Limited Environmental Report 2015*).

Discharges to Sea

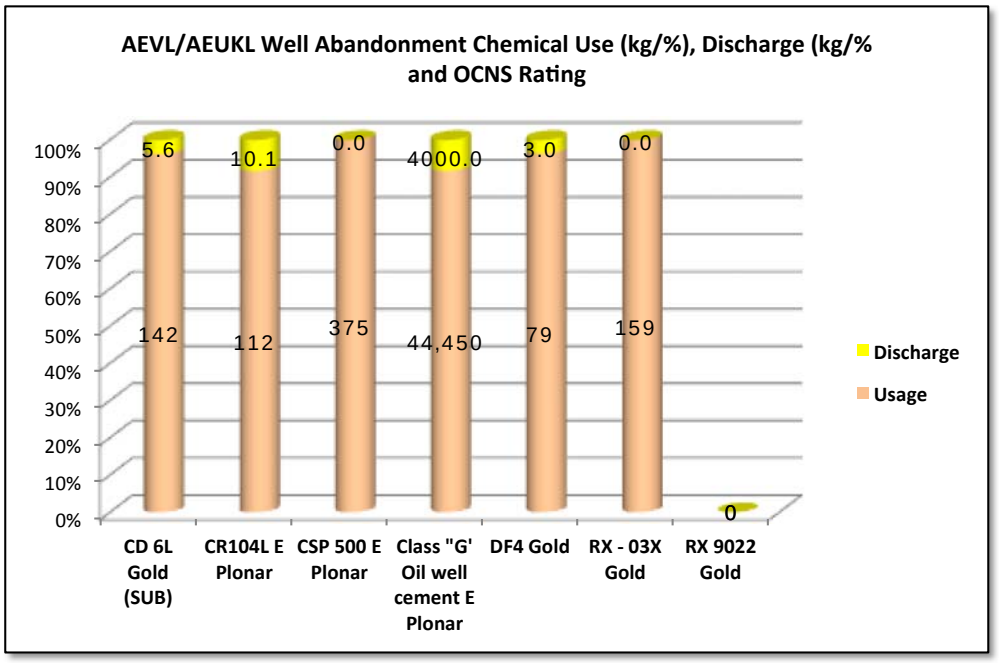
Discharges to sea from the well abandonment operations were limited to chemicals used in the Phase 1 (Intervention Phase) of the abandonment operations.

All well intervention work was carried out using the the Suspended Well Abandonment Tool (SWAT™) and Claxton Deep Set Plug Launch System which conducted all work downhole. This essentially involved perforating casing as appropriate, circulating out suspension brine and in the case of 21/28 10z, oil based mud, cleaning the annulus using chemical wash and pills, followed by pumping spacer fluids down the circulating line prior to pumping cement mix to create the needed second barrier.

All returns from suspension fluids were returned to a metering tank on the Island Valiant with OBM transferred to the vessel OBM tank for onshore disposal.

Chemicals used and discharged during these operations are detailed in Figure 5 below, together with their OCNS rating.

Figure 5: AEVL/AEUKL Well Abandonment Chemical Use and Discharge by Ranking



Use and discharge of chemicals offshore on the UKCS is controlled via the Offshore Chemical Regulations (OCR) 2002 (as amended) which requires the management of chemical use and discharge under the Offshore Chemical Notification Scheme (OCNS) regulated in the UK by the Department of Energy and Climate Change using scientific and environmental advice from Cefas and Marine Scotland.

The OCNS uses the OSPAR Harmonised Mandatory Control Scheme (HMCS) developed through the OSPAR Decision 2000/2 on a Harmonised Mandatory Control System for the Use and Discharge of Offshore Chemicals (as amended by OSPAR Decision 2005/1) and its supporting Recommendations. This ranks chemical products according to Hazard Quotient (HQ), calculated using the Chemical Hazard and Risk Management (CHARM) model. Ranked chemicals are a signed either a colour band (from lowest to highest hazard) of Gold, Silver, White, Blue, Orange and Purple, or a letter grouping, (from lowest to highest hazard) E, D, C, B or A. The use of "Substitute' chemicals which pose particular risks to the environment (such as high toxicity or the potential to accumulate in the marine environment), must be justified.

All the chemicals used in the AEVL/AEUKL operations were ranked as having the lowest environmental hazard, that is E or Gold. One of the chemicals used as a cement additive, CD6, carried a substitute warning. Prior to their inclusion in the mud system, a risk assessment was conducted on the use and discharge of these chemicals. While containing components with a substitute warning the overall environmental risk of the chemicals use and discharge has been ranked in the OCNS system as Gold.

The severance phase (Phase 2) of the abandonment operations comprised severing the well casing 10-12 feet below the mud and retrieving the casing and wellhead to the Island Valiant. This was achieved using the Proserv Multi String Cutting Tool (MSCT). This allowed all severance to be carried out downhole and from within the well casing. Abrasion was provided by a seawater and grit slurry that was mixed at surface and then flowed downhole to the cutting nozzle at cutting pressure. Cutting continued until severance was confirmed by observing upward movement of well stub of 2 to 3 feet. The well stub was then pulled from the seabed and recovered to the vessel for disposal onshore. The three tonnes of grit used for the cutting remained downhole.

Waste

Wastes generated that were associated with the abandonment operation work were the oil contaminated wastes that were returned to the metering tank, before transfer to the OBM tank for onshore disposal at Taylors Industrial Services in Aberdeen, Scotland. There were just over 1.5 tonnes of this waste.

Responsibility for routine /domestic waste associated with vessel operations remained with the vessel operator Island Offshore Management.

Unplanned Releases

There were no unplanned releases from the AEVL well abandonment operations.

Environmental Objectives and Targets 2016/7

Following the suspended well abandonment programme that was completed in September 2015 neither AEVL nor AEUKL have plans for any future offshore activity. The Companies continue to maintain the ongoing environmental management processes required by the AEUKL EMS and relevant regulators but without planned offshore activity have set no objectives and targets for the conduct of such activity.

In the event that this situation changes, and accordance with the AEUKL EMS then environmental objectives in relation to offshore activity would be set, targets for their achievement established and programmes for their delivery developed.