Appendix 3

The Harmonised Offshore Chemical Notifications Format (HOCNF) Scheme

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The HOCNF Scheme is an Oslo and Paris Commission (OSPARCOM) initiative established under cover of the Paris Commission Decision 96/3. The aim of the HOCNF initiative is to harmonise the measures and criteria used by the signatory states to regulate chemicals management by the offshore oil and gas industry.

The objective of the HOCNF Scheme is to prevent unacceptable damage to the marine environment as a consequence of use, discharge and accidental loss of exploration and production chemicals.

The HOCNF Scheme standardises the requirements for the testing and reporting of all chemicals used by the offshore oil and gas industry operating within the North Sea and northeast Atlantic.

The classification system places chemicals into one of five categories, A to E. Chemicals in category A have the potential to cause the greatest damage to the environment, and category E chemicals have the potential to cause the least damage to the environment.

The method of classification used is a two-stage process. Chemicals are first assigned an initial grouping on the basis of toxicity, determined in accordance with the parameters presented in Table A3.1 below.

Table A3.1 Toxicity classification parameters for the HOCNF Scheme

Initial grouping	A	B	C	D	E
Result for aquatic toxicity data (ppm)	<1	>1 to 10	>10 to 100	>100 to 1,000	>1,000
Result for sediment toxicity data (ppm)	<10	>10 to 100	>100 to 1,000	>1,000 to 10,000	>10,000

The ecotoxicology data used are the results of laboratory tests on aquatic indicator organisms. Acute toxicity is assessed and expressed as either:

An LC_{50} test – the concentration of the test substance in seawater that kills 50% of the test batch; or

Na EC_{50} test – the concentration with a specified sub-lethal effect on 50% of the test batch.

The subject organisms and test protocols that form the basis of the toxicity testing programme are as follows:

Algae test: *Skeltonema costatum* (EC50 72 hour test)

Crustacean test: *Acartia tonsa* (LC50 48 hour)

Sediment reworker test: *Corophium volutator* (LC50 10 days)

The second stage of the classification process allows for an adjustment of the preliminary first stage grouping to reflect the environmental performance criteria, as outlined in Table A3.2 below.

Table A3.2 Environmental performance parameters for the HOCNF Scheme

Increase by 2 groups (eg from C to E)	Increase by 1 groups (eg from C to D)	Do not adjust initial grouping	Decrease by 1 groups (eg from C to B)	Decrease by 2 groups (eg from C to A)
Substance is readily biodegradable and is non bio-accumulative.	Substance in inherently biodegradable and is non bio-accumulative.	Substance is not biodegradable and is non bio-accumulative; or substance is readily biodegradable and bio-accumulates.	Substance is inherently biodegradable and bio-accumulates.	Substance does not biodegrade and bio-accumulates.

The definitions used for the environmental performance criteria used in the second stage of the HOCNF classification process are presented in Table A3.3 below.

Table A3.3 Environmental performance criteria definitions

Criteria	Definition
Readily biodegradable	Results of >60% biodegradation in 28 days to OSPARCOM HOCNF accepted biodegradation protocol.
Inherently biodegradable	Results of >20% and <60% to an OSPARCOM HOCNF accepted ready biodegradation protocol; or result of >20% by OSPARCOM HOCNF accepted inherent biodegradation study.
Not biodegradable	Results from OSPARCOM HOCNF accepted ready biodegradation protocol; or inherent biodegradation protocol are <20%.
Non bio-accumulative/ non bio-accumulating	Log P_{ow}<3, or results from a bio-accumulation test (preferably using *Mytilus edulis*) demonstrates a satisfactory rate of uptake and depuration; or the molecular mass is >600.
Bio-accumulative/ bio-accumulates	Log P_{ow}>3, or results from a bio-accumulation test (preferably using *Mytilus edulis*) demonstrates an unsatisfactory rate of uptake and depuration and the molecular mass is <600.
Aquatic toxicity data result	LC/EC_{50} data for *Skeletonema costatum*, *Acartia tonsa* or juvenile turbo (units = ppm or mg/l).
Sediment toxicity data results	LC/EC_{50} data for *Abra alba* (generated pre 11 February 1994) or preferably, C*orophium volutator* (units = ppm or mg/kg).

Annual tonnage limits that trigger the requirement for an operator to provide prior notification of use of chemicals can also be set for each category of chemical used for each installation.

Under such a notification system, if the suite of chemicals proposed for a particular installation results in the use of a cumulative total of production chemicals above the trigger value, for a particular category of categories, the operator can be required by the regulatory body, who administer the scheme, to undertake an environmental risk assessment and to provide justification for their selection where alternatives are available (see Table A3.4 below).

In addition to the basic classification scheme provided above, specific requirements have been set for the testing of drilling fluid types, as outlined in Table A3.4 below.

Table A3.4 Specific requirements for testing of drilling fluids

Mud system	Parameter	Testing requirements
Water based drill-mud systems	Containing <5% water-immiscible liquid.	Individual component products. Each component product will be classified separately after assessment under the HOCNF.
Oil based muds*	>5% v/v water-immiscible liquid.	Generic 'worst-case' mud systems (ie likely most toxic, persistent, or otherwise environmentally damaging).
Synthetic muds*	>5% v/v water-immiscible liquid.	As above.
Emulsified water based muds*	>5% v/v water-immiscible liquid.	As above.

**Full HOCNF data set required as follows:*

- Toxicity test for *Skeletonema costatum*, *Acartia tonsa* and *Corophium volutator*, for the whole mud system with an agreed 'worst-case' formulation;
- Log P_{ow} and K_{oc} (base fluid and all knowingly added wholly organic substances of the whole mud);
- Aerobic degradation (base fluid and all knowingly added wholly organic substances of the whole mud);
- Anaerobic biodegradation tests may be conducted in addition to aerobic tests;
- Anaerobic biodegradation data have also been proved to be irrelevant for water soluble materials which do not adsorb to surfaces.

Presence of surfactants may increase the bio-availability of other substances within a preparation. Evidence is required to show that the surfactants within a mud system are sufficiently degradable and will no increase the bio-availability of the bas fluid. Otherwise a bio-concentration test may be required for both the base fluid and whole preparation to demonstrate that the surfactants do not significantly increase bio-accumulation potential of the base.