



GUIDELINES TO THE PROTOCOL CONCERNING MARINE POLLUTION
RESULTING FROM EXPLORATION AND EXPLOITATION OF THE
CONTINENTAL SHELF

GUIDELINES ON THE USE AND STORAGE OF CHEMICALS IN OFFSHORE OPERATIONS

Guidelines on the Use and Storage of Chemicals in Offshore Operations

1. Purpose of the Guidelines

1.1 The Protocol concerning Marine Pollution resulting from Exploration and Exploitation for the continental Shelf, at Article XI, provides that:

Each Contracting State shall take all appropriate measures to ensure, the following:

- (a) Each operator of an offshore installation shall prepare, and submit for approval to the competent state Authority, a “Chemical Use Plan”. Application for amendments to the plan may be submitted subsequently and approved. If at any time he wishes to use a chemical outside the scope of his approved plan, and that chemical may escape into the marine environment, he shall notify the Competent State Authority, except that in case of emergency to prevent the risk of injury to person or extensive damage to property, the notification need not be given prior to the use of the chemical.
- (b) The Competent State Authority has power to prohibit, limit or regulate the use of a chemical or product and to impose conditions on its storage and its use, for the purpose of protecting the marine environment. In exercising that power, the Authority shall have regard to any Guidelines issued by the Organization.

1.2 These guidelines are issued pursuant to paragraph (b) of that Article, and relate to the use of those powers.

The Chemical use plan is an instrument used in the prohibition, limitation or regulation of the use and storage of chemicals. Its contents and its application are therefore considered to be properly within the scope of these guidelines.

- 1.3 A secondary and associated service the organization may eventually be able to provide, will be to inform the operators of chemical products and their characteristics and to assist them so that they are better able to choose an acceptable chemical at the outset. Operators may consider obtaining such information from a data base which is to be developed by ROPME or by E & P Forum in consultation with ROPME (Annex1).
- 1.4 Once the Protocol is put into effect the operator should be allowed a period of three months for submission of applications for approval. Until approval there should be no constraint under Article XI on a continuation of their existing chemical uses, but for additional uses a provisional permit should be needed.

2. Interpretation

2.1 For the purpose of these guidelines :

“Approved list of Chemicals” means a list of chemicals to be published by the Organization , each being a chemical which may be used in provided it is used in accordance with an approved chemical use plan and is to be used in a quantity not greater than that specified in the list for that chemical.

“Discharge” includes but is not limited to any planned intentional release,spilling,leaking, pumping, pouring, and emptying.

“Notifiable chemical” means any chemical to be used in offshore operations, except:

- (a) Chemicals listed in Para 2.2 which are exempt from notification: and

- (b) Chemicals included in the approved list of chemicals if to be used in greater quantities than specified in the list.

“Notifiable product” means any product which contains a notifiable chemical other than a trace amount that has no significant impact on the environment.

“Significant” means in relation to an adverse effect of such severity that the Competent State Authority would consider it reasonable for the person threatened to take action to prevent it.

2.2 The following chemicals are “exempt from notification “ which means that an operator need not include them in his chemical use plan , nor need he notify the competent State Authority of his intention to use such chemical solely by reason of an obligation imposed pursuant to Article XI 1 (a) of the Protocol:

- (a) All forms of oil and oily mixtures, including oil bearing sludges and oily wastes, any refined products and drilling fluids the discharge of which is controlled under any other Article of the protocol.
- (b) Subject to specified maximum quantities, and to deposit or discharge in such in such areas as may be specified by the Competent State Authority:
 - i) Inorganic acids and alkalis used in mud formulations for pH modification ,provided they appear in a list of chemicals approved for this purpose, compiled by the organization with the help of competent State Authorities, to be known as the “approved (pH modification) list”

- ii) Natural, modified natural and synthetic anionic and non-ionic polymers which contain no added biocides and which have been specially developed for water based drilling fluids.
 - iii) Any other substance acknowledged by the Competent State Authority as having no significant adverse effect on the marine environment.
 - iv) Lost circulation materials.
 - v) Sodium and calcium chloride brine solution for completion fluids.
- (c) Any chemical used in offshore operations, of which there is no known possibility that it might escape into the marine environment so long as proper storage and use facilities are in operation.
- (d) All items listed in 6.1, not already listed above.

3. Chemical Use Plan

3.1 The Obligation

- 3.1.1 The Competent State Authority should take appropriate steps to ensure the following.
- a) Before an operator stores offshore or uses in offshore operations any chemical, subject to specified exceptions, he shall submit to the Competent State Authority a chemical use plan.

- b) No operator shall store offshore or use in offshore operations any notifiable chemical unless plan.
 - i) It falls within the chemical use plan submitted by him and approved by the Competent State Authority , and is stored or used in accordance with the terms of the approved plan, or
 - ii) Its storage or use, including purpose and manner of use and quantity to be used, has been approved by the Competent State Authority.

3.1.2. The Competent State Authority should be empowered to approve a revision of a chemical use plan on the application of the operator at any time.

3.1.3. The operator should be required to update his plan at least once every two years.

3.2 Application for Approval

3.2.1 The application should be required to show the following on his application for approval:

- a) Name of any chemical product to be used.
- b) Name of supplier.
- c) Whether the product is a gas,liquid, solid or a mixture, and their relative characteristics such as:
 - i) Specific gravity.
 - ii) Proportion of suspended solids to liquid (mg/liter).

- iii) If in liquid state, whether miscible in seawater .
- iv) Constituents which are soluble in seawater, starting solubility in mg/liter.

- v) Flash point.

- d) Chemical name, formula or generic type of active ingredients and applicable of any solvent, in so far as this information is available. To the extent that such information is not available, the chemical hazard data sheets prepared by the manufacturer should be obtained and submitted instead,

- e) Details of any toxicity test on any of the chemicals named and their results, as available from the supplier, manufacturer, or other sources.

The production of the results of toxicity tests should be compulsory. The minimum required should normally be the results of a 96 hour LC test on brown shrimp (Crangoncrangon). Where there are sensitive areas or endangered species, the requirement should be stricter, e.g. tests on specified species.

- f) If the chemical product is to be discharged into the marine environment:
 - i) rate of degradation in the sea, if known.
 - ii) intended place or places of discharge;
 - iii) estimated rate of discharge, in terms of volume or weight per day and per year;
 - iv) quantity intended to be discharged, on any occasion, i.e. during any particular operation, whether the discharge from that operation, is continuous or intermittent;

- vi) local conditions which are likely to affect dispersal of the chemical.
- g) If the plan is to cover storage of chemicals or products offshore:
 - i) the chemicals or products to be stored and whether or not they are to be stored in concentrated form.
 - ii) Quantities in which they are to be stored.
 - iii) Details of storage vessels.
 - iv) Details of any system of automatic alarm in the event of a leak, and any arrangements from preventing the leaked substance from reaching the marine environment.
 - v) Details of any precautions to be taken when the chemical is to be transferred to or from vessel.

3.2.2. In any application for revision of the chemical use plan the operator should be required to give the following information:

- a) Any new information, or change of information, which would have been needed for full disclosure on a first application.
- b) Any new circumstances which might justify the revision.
- c) Any other new circumstances of which the operator is aware, which might affect the consequence of the discharge in a way adverse to the marine environment, or the interest of any person in it.

3.3 Power of Approval

3.3.1 The competent State Authority should be given the following powers, which it may exercise on receipt on an application:

- a) To require from the operator further information falling within the scope of paragraph 3.3.1., or further and better particulars of information already given.
- b) To grant approval of the chemical use plan as submitted.
- c) To refuse to grant approval.
- d) To return the plan with an invitation to resubmit in amended form. Without prejudice to its power to refuse approval, the Competent State Authority may indicate amendments which it may consider acceptable.
- e) To attach to the approval such conditions relating to the protection of the marine environment as it thinks fit. Without prejudice to the generality of that power, conditions may relate to:
 - Point of discharge
 - Time of discharge
 - Manner of discharge
 - Maximum quantity to be discharge in any specified period.

3.4 Procedure

3.4.1 The applicant to submit the proposed plan and application for approval, as required under 3.2.

3.4.2 The competent State Authority to either:

- a) Approve the Plan or
- b) Notify the applicant of any recommended modification.

This procedure may be repeated until the Competent State Authority is satisfied with the Plan

On receipt of any recommended modifications, the applicant should have the right to a meeting with a representative of the Competent State Authority to discuss the recommendations.

4. Factors to be taken into account when considering approval

4.1 Chemical Constituents whose use should not be approved, save in Special circumstances.

The storage or use of chemical products relying on any of the following as active constituents should be approved only in special circumstances. Any storage or use of chemicals based on the following should be avoided:

- a) Mercury, cadmium, cyanide, chloro-phenols, poly-chlorinated biphenyls and terphenyls and other persistent organo-halogens organo-tins and other organo-metallic compounds.
- b) Any of the following likely to be discharged in concentrations of over 50 ppm:
arsenic, lead, copper, zinc, beryllium, nickel, vanadium, chromium.
- c) Any radioactive substances.
- d) Dioxin.

4.2. Toxicity

4.2.1 Where possible, precise details of the toxicity of chemicals should be obtained. They will normally be in terms of 96 hour LC₅₀, although in some circumstances a shorter period may be more appropriate.

4.2.2 Even a 96 hour time scale, however, will not necessarily reveal sufficient of long term effects. A low level discharge of a persistent chemical which tends to accumulate in plant or animal tissues can have effects discernible only after long exposure. For those suspected of such persistence, it would be prudent to have carried out laboratory assessment over longer periods.

Where there are animal breeding grounds, effects on fecundity and on the survival and growth of young should be considered.

4.2.3 The test will show effects on particular species. In many cases they will be valid, even though conducted in another region. Case must be taken, however, to allow for possible differences in closely related organisms. Species from the ROPME Sea Area, even though classed taxonomically as belonging to the same species, in their local environment may react to the chemicals differently. Separate test may therefore be advisable, made in controlled conditions on local species and sub-species suitable for bioassay tests. The results of those tests would be useful additions to the data bank referred to in 4.2.4 below.

4.2.4 The initial source of the data will normally be the manufacturer of the product. It may be advisable to inform manufacturers of the need for toxicity data on any of their products to be used in the Region. Any data provided on specific chemicals by a manufacturer, however, may need to be checked by the Competent State Authority using competent and independent scientists, preference being given to local institution.

For that purpose, the Organization may encourage the development of expertise of marine toxicity in local bodies such as universities and research institutes. It would be useful also for it to maintain an up to

date list of bodies elsewhere which are both competent and willing to do such work.

It would be helpful if state parties transmitted to the organization all toxicity data on local species which they obtained. A data bank useful to all parties could then be compiled and kept available for reference.

It would be useful also if the data bank could recommend the highest concentration of any chemical or group of chemicals which should be permitted in any specified area or type of area, e.g. coral reefs, salt flats.

4.2.5 The procedure outlined above will be satisfactory for long term purposes, but not necessarily for an operator waiting for a decision. For practical purposes, at least two courses of action should be available.

- a) Provisional permits may be issued until reliable toxicity data are available.
- b) The procedure outlined in the note to 6.2 may be used.

4.3 Rate of Degradation

4.3.1 The rate of degradation in the waters of the Protocol Area, taking into account the significant differences in temperature and salinity which can be found in various areas and at various depths, will always be an essential factor in assessing the effects of toxic constituents. A check should also be made on the substances into which they degrade.

4.3.2 The comments on the sources of data and the safeguard of independent checks made in 5.2.4 above, apply to data on degradability also.

4.4 Points of Discharge and Patterns of Dispersal and Concentration

4.4.1 All points of discharge to be covered by the approval should be known. Times of discharge may also be relevant.

The extent of dispersion, any resultant dilution, and the possible transport of pollutants to other areas under the local current regime, should all be taken into account.

Such information may be available from research carried out locally or from data, culled from various sources, e.g. environmental impact statements, monitoring carried out by operators, pollution incidents.

The possibility of an accumulation of chemicals in seabed silts and in plant and animal tissues should also be examined.

4.4.2 The provision of adequate data on the above, however, must be regarded as a long –term prospect. For practical purposes a decision must be made at an early date. If there are severe doubts about the effects of a discharge, a provisional permit may be issued.

4.5 Place and Manner of Storage

Special precaution will always be needed if any chemical is to be stored in concentrated form. The quantity to be stored in any one place will always be relevant. Consideration may be given to the continued use of existing

storage vessels and containers for the remainder of their working lives, with additional safeguards as may be considered necessary.

4.6 Sensitive Areas

As required by Article V 1 of the Protocol, regard must be had to the need for protecting sites of special ecological and cultural interest.

The sensitivity of the areas which may be reached by the chemicals, and both direct and consequential damage which might be suffered should always be considered, e.g. reduction in fish catches due to damage to fish breeding grounds.

4.7 Cumulative and Synergistic Effects

The possibility of cumulative Effects with discharges from other operations, whether conducted by the same operator or not , should always be considered.

5. Provisional Permits

- 5.1 In case in which it could take some time to obtain all the data necessary to reach a decision, consideration should be given to the grant of provisional approval of a chemical use plan. That would permit offshore storage or use of chemicals within the terms of the plan, subject to such limitations as the Competent State Authority thought fit, until the Plan was rejected or replaced by a fully approved Plan.

5.2 No such provisional approval should be granted for a chemical which could be used in such quantities that it might affect an area of special ecological or cultural interest. Otherwise, the decision on provisional approval would be a matter for the discretion of the Competent State Authority, taking into account the:

- Apparent toxicity of the chemical.
- Possible degree of damage to the marine environment.
- Possibility of irreversible or long term damage.
- Benefits which immediate use would bring to the operator.
- Estimated length of delay before final decision , and possible effect of that delay on the operator.

5.3 Provisional approval should not be granted unless there is at least prima facie evidence that the chemicals in question, and their related compounds, will have no significant adverse effect on the marine environment.

When used in the conditions and with the limitations under consideration, except where there are compelling reasons to support their use, e.g. the proposed use itself constitutes a safety precaution.

6. **Chemicals for which , subject to notification ,approval is deemed to have been granted**

6.1 There are some chemicals which the Competent State Authority may consider can normally be discharged into the marine environment within its jurisdiction without significant environmental damage, provided certain quantitative limits are not exceeded. They may be

included in a list of chemicals for the use or storage of which approval is deemed to have been given provided:

- a) The Competent State Authority is notified at least 21 days before the offshore storage or use of the chemical.
- b) The maximum quantity to be stored or used is given.

The list may include such substance as:

- Sand and gravel.
- Solids which have no significant reactions in the marine environment, including clays, bentonite, barytes and calcium chloride brine.
- Phosphate –based inorganic dispersants.
- Starch and cellulose formulations containing no biocides, synthetic or modified anionic and nonionic polymers which contain no added biocides and which have been specially developed for water based drilling fluids.

6.2 If, within that 21 days, the Competent State Authority decides that there should be no approval, that deemed consent should be withdrawn, or made subject to such conditions as the Competent State Authority thinks appropriate.

This may be done where the competent State Authority has evidence that significant damage could be caused, or where it is aware of the storage or use of the same chemical within the vicinity which makes the aggregate quantity unacceptable. The same may apply when there is a different chemical to be stored or used within the vicinity, which could lead to a damaging reaction between the two.

7. Criteria for approval

7.1 The Competent State Authority will need to have all the information necessary for reaching an informed decision on whether or not to grant approval.

Much of that information, including toxicity and rates of degradation will have been given by the operator in his initial application. Much else have already been given if an environmental impact statement has been submitted. If any further information is needed, the operator should be required to obtain it, provided it could be obtained without substantial cost or delay.

7.2 The range of information needed to make a reasonable adequate assessment of the potential damage of any escape or discharge may include details of:

- a) The nature of the chemicals to be used, the chemical name, formula or generic type of the active ingredients and if applicable of any solvent in the product, and the state or form in which they are present there.
- b) Their toxicities, their rates of degradation in the marine environment, and the natures and corresponding characteristics of the chemicals into which they will degrade.
- c) Total quantities of the chemical in question reaching the marine environment.
- d) Dispersal patterns and final concentrations in the environment.
- e) General chemical and physical properties of the water, and general state of the environment, before the discharge begins.
- f) The abundance and distribution of benthic, demersal and pelagic species.

- g) Seasonal variations in numbers and distribution.
- h) Organisms of commercial and scientific interest.
- i) In assessing the effects on habitat, the Competent State Authority should consider the likely consequent effects on any plants and animals dependent on that habitat.

7.3 The Competent State Authority should consider refusing approval for any product which, on release into the environment as planned, would cause”

- a) The extinction of any species of plant or animal.
- b) Significant adverse effect on any submarine area designated and maintained as a marine park or other kind of protected area.
- c) Significant adverse effect on any area of commercial or scientific interest.
- d) Significant adverse effect on public health.
- e) Any significant adverse effect within the jurisdiction of another Contracting State.

There need not be an outright refusal, however, if limitations on quantities or use, or if conditions, can provide satisfactory safeguards.

8 Storage of Chemicals Offshore

If any notifiable chemical or notifiable product is to be stored offshore, the Competent State Authority should take appropriate steps to ensure that the following precautions are taken:

- a) Maximum quantity for any one storage place should be laid down. The quantity:

- i) In the case of a chemical for which approval may be deemed to have been given under section 6 of the Guidelines on the Use of Chemicals in Offshore Operations, should be no higher than the maximum for deemed approval.
- ii) In the case of any other chemical, should be fixed in accordance with:
 - Concentration in which the chemical or product is to be stored.
 - Toxicity and rate of degradation.
 - Sensitivity of any area which could be effected by an escape.
 - Possibility of transfrontier pollution
- b) Every container has an overflow outlet, and there is provision for any overflow to be retained automatically on the installation.
- c) In the case of highly toxic concentration, a double shelled container is used, and there is provision for an audible warning to be given automatically if there is a leak from the inner shell. A maximum storage time for such chemicals of three months is recommended. Regular inspection of storage vessels to prevent spillage / contamination through leakage resulting from corrosion is also recommended.
- d) In case other than those falling within (c) above , all liquids leaked from the container will automatically be held on the installation.

Case must be taken to avoid conflict with precautions to be taken for the health and safety of workmen. If conflict is unavoidable, paramount consideration must be given to public health, including the health and safety of workmen.

The need for operators to store chemicals in such a way as to maintain their qualities must be taken into account .Such considerations must not be permitted to prejudice the protection of public health or the safety of workmen.

7.1@ regulatory requirements

Indicate if the product contains any compounds regulated under Paris Convention Annex A

metals	Yes/No
organohalogens	Yes/No
organophosphorus compounds	Yes/No
organotin compounds	Yes/No
others listed	Yes/No

If yes:

Item	Concentration	Trace* Yes / No	Intentional Additive Yes / No
.....
.....
.....

* Trace containment defines as less than 0.1% less than 1000 ppm.

PART III

1.2	physical form and appearance		solid/liquid/gas
	odour		
	colour		
1.4	Physical properties		
	density (kg/m ³)		
	boiling point/range (°C)		
	soluble in water	YES / NO	soluble in oil YES/NO

solubility in water (kg/m³)
 pH (of saturated solution in water)
 vapour pressure (mbar)
 flash point (°C)

7.2.3. Bioaccumulation / potential (composite products data on components are preferred)
n-octanol / water partition coefficient

Part IV Toxicological Data

(Based on existing literature / existing test data / e.g. previously approved products / new experimental data / experience).

6.2 experimental animal data

6.2.1 acute toxicity

inhalation LC₅₀, rat

percutaneous LD₅₀, rat

oral LD₅₀, rat

other species highly toxic/toxic/slightly toxic/non-toxic

6.2.2 skin irritation
method
rating

corrosive/severe irritant/irritant/slightly irritant

6.2.3 eye irritation

method
rating

corrosive/irritant/
slightly irritant

7.2 Environmental data

7.2.1 acute toxicity –

a) Fish*

b) Invertebrates*

growth inhibition –

a) algae

b) microorganisms

7.2.2. Biodegradability

(for composite products data on components are preferred)

give % biodegradation, time and method used

This submission is accompanied by

(must have one)

SHOC Document Yes / No

MSDS Yes / No

- * If LC₅₀ for one species is >1000 mg/l and material is biodegradable and does not contain priority pollutants above trace quantities, no other acute toxicity or growth inhibition data required.
