Overview of international standards and principles of waste management within the oil & gas sector

Module 5a

Contents

1. International Tools
2. European Waste Framework Directive
3. Environmental Controls:
    1. Permitting
    2. Trip Tickets
4. Compliance Monitoring
5. Contingency Planning
6. HSSE & PPE

UN environment programme

International legislation, conventions, and guidelines

MARPOL 73/78

International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978

MARPOL 73/78 ratifying states

Effective	2 October 1983
Parties	156[1]

- International Convention for the prevention of pollution from ships (MARPOL) - International Convention for the prevention of pollution from ships.
- MARPOL places various restrictions and requirements on the disposal of waste from ships and to the marine environment.

UN environment programme

International legislation, conventions, and guidelines

- The Basel Convention - controls the movement, storage, transport, treatment, reuse, recycling, recovery and final disposal of hazardous waste.
- It requires producers of hazardous waste to dispose of their waste in an environmentally responsible manner – preferably close to where it is generated.

UN environment programme

International legislation, conventions, and guidelines

- Any transboundary movements of hazardous waste must be pre-notified to the authorities of the prospective States of import and transit.
- The movement may only proceed when all the States concerned have given their written consent to the movement.

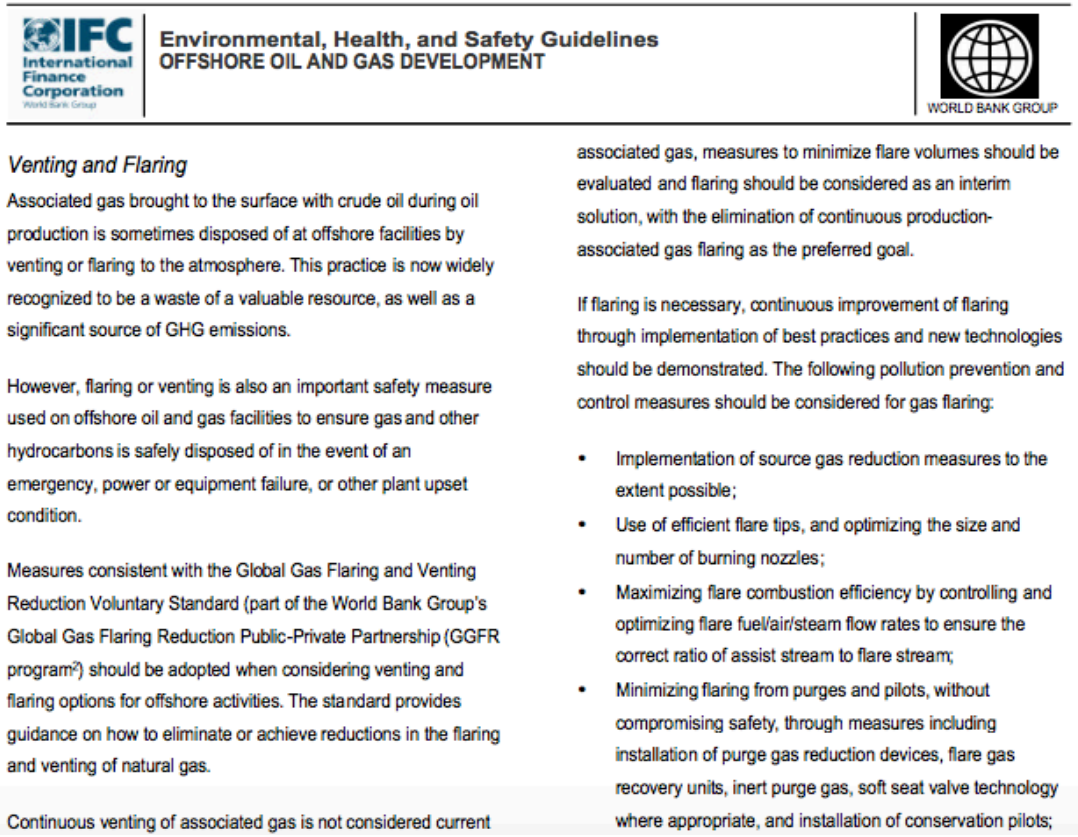
UN environment programme

International legislation, conventions, and guidelines

- The International Association of Oil and Gas Producers (OGP) Waste Management Guidelines.
- They provide advice and examples of good practice for how wastes from oil and gas exploration and production activities should be managed.

UN environment programme

International legislation, conventions, and guidelines



IFC International Finance Corporation

Environmental, Health, and Safety Guidelines
OFFSHORE OIL AND GAS DEVELOPMENT

WORLD BANK GROUP

Venting and Flaring

Associated gas brought to the surface with crude oil during oil production is sometimes disposed of at offshore facilities by venting or flaring to the atmosphere. This practice is now widely recognized to be a waste of a valuable resource, as well as a significant source of GHG emissions.

However, flaring or venting is also an important safety measure used on offshore oil and gas facilities to ensure gas and other hydrocarbons is safely disposed of in the event of an emergency, power or equipment failure, or other plant upset condition.

Measures consistent with the Global Gas Flaring and Venting Reduction Voluntary Standard (part of the World Bank Group's Global Gas Flaring Reduction Public-Private Partnership (GGFR program[2]) should be adopted when considering venting and flaring options for offshore activities. The standard provides guidance on how to eliminate or achieve reductions in the flaring and venting of natural gas.

Continuous venting of associated gas is not considered current

associated gas, measures to minimize flare volumes should be evaluated and flaring should be considered as an interim solution, with the elimination of continuous production-associated gas flaring as the preferred goal.

If flaring is necessary, continuous improvement of flaring through implementation of best practices and new technologies should be demonstrated. The following pollution prevention and control measures should be considered for gas flaring:

- Implementation of source gas reduction measures to the extent possible;
- Use of efficient flare tips, and optimizing the size and number of burning nozzles;
- Maximizing flare combustion efficiency by controlling and optimizing flare fuel/air/steam flow rates to ensure the correct ratio of assist stream to flare stream;
- Minimizing flaring from purges and pilots, without compromising safety, through measures including installation of purge gas reduction devices, flare gas recovery units, inert purge gas, soft seat valve technology where appropriate, and installation of conservation pilots;

International Finance Corporation (IFC) (part of the World Bank Group) EHS Guidelines (General Guidelines and those specific to Oil and Gas developments) – provides industry advice and best practice on waste management operations.

UN environment programme

The European Waste Framework Directive (2008/98/EC)

- Sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, when a waste ceases to be waste and becomes a secondary raw material.
- It establishes basic waste management principles including the protection of health and the environment.

UN environment programme

The European Waste Framework Directive (2008/98/EC)

Waste legislation and policy of the EU Member States shall apply as a priority this waste management hierarchy.

UN environment programme

The European Waste Framework Directive (2008/98/EC)

The Directive also introduces:

- The "polluter pays principle"
- The "extended producer responsibility"
- New recycling and recovery targets;
- Requires Member States to adopt waste management plans and waste prevention programmes

UN environment programme

The European Waste List (EWL)

WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL

05 01	Refinery wastes:
05 01 02*	Desalter sludges
05 01 03*	Tank bottom sludges
05 01 04*	Acid alkyl sludges
05 01 05*	Oil spills
05 01 06*	Maintenance sludges
05 01 07*	Acid tars
05 01 08*	Other tars
05 01 09*	Effluent treatment sludge

UN environment programme

UN's Global Harmonisation System – GHS (1)

- Application of United Nations' criteria for Classification and Labelling of chemicals (UN GHS) in Europe.
- Necessary to harmonize use of different terms from country to country – to avoid confusion and accidents.

GHS	Danger
EU	Harmful
USA	Toxic
Canada	Toxic
Australia	Harmful
Japan	Toxic
Malaysia	Harmful
Thailand	Harmful
NZ	Hazardous
Korea	Toxic

UN environment programme

Environmental controls permitting

UN environment programme

Different types of permits

Several permits may be in place to regulate environmental aspects of the O&G sector:

- Water Abstraction and Use
- Solid Waste Disposal
- Waste Water Disposal
- Noise Control
- Certificates of Approval for ESIA Study.

UN environment programme

Different types of permits

- The conditions within the permits form basis for enforcement and compliance monitoring.
- The ESIA should also provide for:
  - Environmental Restoration Plans
  - Environmental Management Plans
  - Waste Management Plans
  - Social Management Plans

UN environment programme

Permits for waste reception, storing, and treatment

Elements in permits:

1. Waste category – what can and cannot be accepted at the site
2. Control of received waste
3. Limitation on volumes received and stored
4. Competence of management and operational staff
5. Treatment facilities (application of Best Available Technology - BAT)
6. Maximum emissions to air, water and ground (sampling and analyses)
7. Reporting requirement and frequencies to the authorities

UN environment programme

Permitting: roles and responsibilities

Companies generating O&G waste, including hazardous waste, shall:

1. Store hazardous waste securely
2. Deliver hazardous waste to licensed entity
3. Pay for treatment
4. Complete declaration forms

UN environment programme

Compliance monitoring – environmental inspections and audits

UN environment programme

Environmental inspections

1. Environmental inspections are routine and frequent activities
2. The operators are usually not notified – but must give access to inspectors.
3. During inspection:
    1. Interviews with key personnel
    2. Verification
    3. On-site inspection
4. Short summary meeting in the end - presentation of findings
5. Usually one day with 1-2 persons
6. Inspection report to be sent to the operator within 2 weeks

UN environment programme

Environmental audit

An environmental audit has been defined as: ‘A management tool comprising a systematic, documented, periodic and objective evaluation of how well an organization, its management and equipment are performing, with the aim of helping to safeguard the environment'

UN environment programme

Environmental audit

Audit Topics

- Line management system
- Awareness and training
- Procedures, standards, targets
- Plans: waste, contingency, pollution control, compliance
- Monitoring programmes
- Verify EIA
- Review mitigation measures
- Reporting and communication
- Documentation
- Feedback

Audits serve to substantiate and verify inspection programmes and compliance, and to ensure that site environmental plans, procedures and standards are both effective and fit for purpose.

UN environment programme

Preparation for environmental audits

1. Written notice to the operator in advance giving information on:
    1. Legal basis for the audit
    2. Topics
    3. Proposed time schedule
2. Preparations, studying documents:
    1. Permit
    2. Procedures of internal control relevant for the specified topics
    3. Annual reports on discharges
    4. Accidental discharges
    5. Organization
    6. Prior audit reports
3. Preparation of checklists
4. Duration: 3-5 days with an audit team of 2-3 persons

UN environment programme

Carrying out environmental audits

1. In the beginning of the audit (opening meeting) the operator gives information on:
    1. Activities
    2. Processes
    3. Discharges
    4. Procedures for environmental management
2. During the audit:
    1. Interviews with key personnel, both management and people on the floor
    2. Verification, documentation and on-site inspection
3. Closing meeting
    1. Presentation of findings
4. Audit findings to be sent to operator within two weeks

UN environment programme

Environmental audit – means of enforcement

- Open and persistent dialogue
- Non-conformances must be corrected:
  - Pollution fees
  - Fines
  - Prosecution
  - Temporarily stopping the activities
  - Withdrawal of licence
- Agree a schedule when matters cannot be corrected quickly
- Evaluate the final feedback from the industry

UN environment programme

Contingency planning

- All operations should properly examine the risk, size, nature and potential consequences of oil, chemical and waste spills and develop appropriate contingency plans.
- Contingency planning should facilitate the rapid mobilization and effective use of manpower and equipment necessary to carry out and support emergency response operations.

UN environment programme

Contingency planning

Responsibility for contingency plans, their implementation, training and exercise and periodic audit and review should be clearly delegated to the site management – senior management are ultimately responsible.

UN environment programme

Elements of contingency plans

- Identify risks and objectives
- Establish response strategy;
- Establish communications and reporting
- Determine resource requirements
- Determine action plans
- Define training and exercise requirements
- Provide data directory and supporting information

UN environment programme

Use of Personal Protective Equipment (PPE)

Use of Personal Protective Equipment (PPE)

UN environment programme

Use of Personal Protective Equipment (PPE)

UN environment programme

Thank you

UNEP-Norway Partnership

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org