

APPENDIX A

**HAZARD AND RISK ASSESSMENT
FOR THE PROPOSED
JOINT USER PETROLEUM TERMINAL AT EAST ARM PORT**

The PER should include a preliminary hazard analysis and risk assessment for the risks to people and nearby facilities from potential accidents associated with the operation of the facility, storage, and transport of materials to and from the facility. Contingency plans for dealing with spillages of any hazardous materials should be detailed.

The study should include:

Hazard identification

- . identification of the materials involved, quantities and their properties (flammability, toxicity, volatility etc);
- . identification of transport modes and routes of hazardous materials to and from the proposed facility and storage areas at the facility;
- . identification of the human populations at risk, vulnerable areas, hazardous facilities which might be affected by an accident; and
- . likely occurrences leading to potentially hazardous events originating both from the operation of the facility and external sources such as cyclones, earthquake, aircraft strike, sabotage etc.

Consequence Analysis

- . Estimation of the effects of potential hazards identified above eg explosion, fire tank rupture; predicted concentrations of hazardous materials in air, water or soil; and the resultant effects on nearby populations and facilities/activities.
- . Estimation of potential accumulative consequences should an accident at the tank farm trigger nearby hazardous developments to become unstable.

Frequency Analysis

- . Estimation of the likelihood (probability) of hazardous incidents occurring and the likelihood of particular outcomes if those events occur, having regard to all the proposed technical, organisational and operational safety controls.

Quantified Risk Assessment

- . The overall risk associated with the proposal should be quantified by combining cumulatively the consequences and probabilities of hazardous events.

The acceptability of predicted risks should be based on established criteria and compared to the existing risk profile in the study area.