

I have reviewed the PHA and the Hazards/Risk related section of the Environmental Assessment for the proposed LPG pipeline from the Cavern to the neighbouring Qenos Hydrocarbons Terminal at Port Botany.

The PHA has been carried out in accordance with HIPAP 6, and the recommendations from the Port Botany LUSS Overview Report. In this case, the PHA was in the form of a Quantitative Risk Assessment (QRA) .

The Location Specific Individual Risk of Fatality (LSIR of fatality) contours from the proposed modification were superimposed on the pipeline route, and demonstrate that the 1 in a million per year contour was contained within the existing pipeline corridor. The fatality risk contour for 50 in a million per year was not generated. The latter is the relevant criterion for fatality risk for industrial land use, and since the facility and pipeline route is surrounded by industrial land, is the applicable Land Use Safety Planning quantitative fatality risk criterion. Therefore, the proposed modification satisfies the risk criteria specified in HIPAP 4.

Although the report has reproduced the risk of fatality contours from the existing cavern facility, prepared for the MHF Safety Case Report, this was only for the sole purpose of comparison. The PHA did not attempt to combine the proposed LPG pipeline generated contours with those of the existing Cavern, or common user pipeline corridor. This is acceptable since the 50 in a million per year fatality risk contour was not generated by the proposed modification alone, and therefore the incremental risk from the proposed pipeline will not alter the complying risk profile of the existing Cavern facility.

The report determined that the total likelihood of a pipeline incident did not exceed 50 in a million per year, and therefore the risk of injury (i.e. heat radiation > 4.7 kW/m², explosion overpressure > 7 kPa, or injury / irritation due to exposure to toxic gas/vapour) at 50 in a million per year was also not generated. Similarly, the risk for property damage and accident propagation and neighbouring land use at 50 in a million per year was not reached. Compliance with the recommendations from Port Botany LUSS Overview report was demonstrated in Section 9.3 of the report.

The report has raised a number of relevant recommendations for Elgas and Qenos to implement, and those are mostly in line with Planning & Infrastructure Conditions of Approval listed below.

I recommend that the PHA is approved subject to the implementation of the recommendations in Section 10.2 of the report. Nonetheless, the following Conditions of Approval are recommended in order to ensure the ongoing management of the identified risks and associated risk controls;

Pre-construction

1. The Applicant shall prepare the studies set out under subsections 1(a) to 1(d) (the pre-construction studies). Construction, other than of preliminary works that are outside the scope of the hazard studies, shall not commence until study recommendations have been considered and, where appropriate, acted upon. The Applicant shall submit the studies to the Director-General no later than one month prior to the commencement of construction of the proposed project (other than preliminary works), or within such further period as the Director-General may agree.

(a) FIRE SAFETY STUDY

The company's Fire Safety Study shall be updated to include any changes due to the MOD. The study shall cover the relevant aspects of the Department of Planning's Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines' and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The updated study shall meet the requirements of Fire and Rescue NSW.

(b) HAZARD AND OPERABILITY STUDY

A Hazard and Operability Study for the proposed project, chaired by a qualified person, independent of the project. The study shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'.

(c) FINAL HAZARD ANALYSIS

A Final Hazard Analysis of the proposed project, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'.

(d) CONSTRUCTION SAFETY STUDY

A Construction Safety Study, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety'.

Pre-commissioning

2. Prior to commissioning, the Applicant shall develop and implement the plans and systems set out under subsections 2(a) to 2(b). The Applicant shall submit to the Director-General documentation describing the plans and systems no later than two months prior to the commencement of commissioning of the proposed project, or within such further period as the Director-General may agree.

(a) EMERGENCY PLAN

The company's Emergency Plan and detailed emergency procedures shall be updated to incorporate any changes due to the MOD. The plan shall include detailed procedures for the safety of all people outside of the project who may be at risk from the project. The plan shall be in accordance with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Industry Emergency Planning Guidelines'.

(b) SAFETY MANAGEMENT SYSTEM

The company's Safety Management System shall be updated to include any changes due to the MOD. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records shall be kept on-site and shall be available for inspection by the Director General upon request. The Safety Management System shall be developed in accordance with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

An inspection, testing, and preventive maintenance program should be developed, implemented, and maintained to ensure the reliability and availability of the key safety critical controls is, at a minimum, consistent with the data estimated in the PHA.

Pre-startup

3. PRE-STARTUP COMPLIANCE REPORT

One month prior to the commencement of operation of the project, the Applicant shall submit to the Director-General, a report detailing compliance with conditions 1 and 2, including:

- (a) dates of study/plan/system completion, commencement of construction and commissioning; and
- (b) actions taken or proposed, to implement recommendations made in the studies/plans/systems; and
- (c) responses to each requirement imposed by the Director-General under condition 5.

Ongoing

4. HAZARD AUDIT

Changes to the exiting development as introduced by the proposed MOD shall be included in the periodic (three yearly) comprehensive Hazard Audit of the existing facilities. (Refer Condition XXX in Approval XXXX ***Check with Ashley***).

5. FURTHER REQUIREMENTS

The Applicant shall comply with all reasonable requirements of the Director-General in respect of the implementation of any measures arising from the reports submitted in respect of conditions 1 to 4 inclusive, within such time as the Director-General may agree.

Let me know if you have any questions regarding the above.

Regards,

Ramez