Environmental Protection Authority

Guidance for the Assessment of Environmental Factors

(in accordance with the Environmental Protection Act 1986)

Guidance for Risk Assessment and Management: Off-site individual risk from Hazardous Industrial Plant

No. 2

July 2000

Western Australia

FOREWORD

The Environmental Protection Authority (EPA) is an independent statutory authority and is the key provider of independent environmental advice to Government.

The EPA's objectives are to protect the environment and to prevent, control and abate pollution. The EPA aims to achieve some of this through the development of environmental protection Guidance Statements for the environmental impact assessment (EIA) of proposals.

This document is one in a series being issued by the EPA to assist proponents, consultants and the public generally to gain additional information about the EPA's thinking in relation to aspects of the EIA process. The series provides the basis for EPA's evaluation of, and advice on, development proposals subject to EIA. The Guidance Statements are one part of assisting proponents in achieving an environmentally acceptable proposal. Consistent with the notion of continuous environmental improvement and adaptive environmental management, the EPA expects all proponents to take all reasonable and practicable measures to protect the environment and to view the requirements of this Guidance as representing the minimum necessary process required to achieve the appropriate level of environmental protection.

The EPA has set the off-site individual risk criteria for fatalities from hazardous industrial plant at the following levels:

(a) *A risk level in residential areas of one in a million per year or less, is so small as to be acceptable to the EPA.*

(b) *A risk level in "sensitive developments", such as hospitals, schools, child care facilities and aged care housing developments, of one half in a million per year or less is so small as to be acceptable to the EPA.*

In the case of risk generators within the grounds of the "sensitive development" necessary for the amenity of the residents, the risk level can exceed the risk level of one half in a million per year up to a maximum of one in a million per year, for areas that are intermittently occupied, such as garden areas and car parks.

(c) *Risk levels from industrial facilities should not exceed a target of fifty in a million per year at the site boundary for each individual industry, and the cumulative risk level imposed upon an industry should not exceed a target of one hundred in a million per year.*

(d) *A risk level for any non-industrial activity or active open spaces located in buffer areas between industrial facilities and residential areas of ten in a million per year or less, is so small as to be acceptable to the EPA.*

(e) *A risk level for commercial developments,including offices, retail centres, showrooms, restaurants and entertainment centres, located in buffer areas between industrial facilities and residential areas,of five in a million per year or less, is so small as to be acceptable to the EPA.*

For industrial plant proposals with the potential for generating off-site risk, the following guidance will be used by the EPA.

Best Practice: The EPA's position on risk management is that where there are hazards and risks associated with the development of new industrial plant, the new plant should be designed using best practicable engineering design and operated using best industry practice management systems.

Risk minimisation: In addition to industry best practice, there is a corporate responsibility that wherever possible, regardless of calculated risk levels and criteria, risks should be reduced to as low as reasonably practicable (ALARP). This means that as an input in its decision making for a proposal, the proponent should consider alternative sites or alternative technologies or management systems which may reduce or eliminate public or environmental risks.

Public expectation: The community expects anticipated levels of risk to meet some accepted community standard or criterion. Specifically, people need to know why the proposed site was chosen in favour of some alternative site, why certain technologies were chosen, and what checks and balances, safety and emergency measures are in place. These issues need to be addressed in any submission to the EPA.

Management objectives: The overall objectives in the management of hazardous industrial plant are:

- to minimise the risk - individual, societal and environmental - associated with new developments;
- to ensure that hazardous industry and land-use planning in the vicinity meet acceptable criteria for individual fatality risk and that separation distances are established in the planning process (EPA Guidance No:3, 1998A); and
- to ensure the plant continues to operate in such a manner that the emissions and risks are managed within the accepted criteria and licence conditions.

Risk assessment of new proposals: Where the EPA is of the opinion that a new project involves a significant element of risk, either public or environmental, it will require a quantitative risk assessment at an early stage of the EIA process. The need for such an assessment will be determined on a case-by-case basis and will depend on the hazardous nature of the project and the sensitivity of the surrounding land use.

This Guidance Statement has the status of "**Final**" which means it has been reviewed by stakeholders and the public. The EPA has signed off the Guidance Statement and published it, although it will be updated regularly as new documents come to hand.

I am pleased to release this document which now supercedes the Interim version.

Bernard Bowen
CHAIRMAN
ENVIRONMENTAL PROTECTION AUTHORITY

28 July 2000

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Guidance for Risk Assessment and Management: Off-site individual risk from Hazardous Industrial Plant

Keywords: hazard, risk, individual risk, risk assessment, risk criteria, industrial plant, hazardous industrial plant, risk management

1 PURPOSE

1.1 Guidance Statements generally are developed by the EPA to provide advice to proponents, and the public generally, about the minimum requirements for environmental management which the EPA would expect to be met when the Authority considers a proposal during the assessment process.

This is a final Guidance Statement, and thus the EPA expects that proponents will give full attention to the information provided when they submit proposals for assessment.

1.2 This Guidance Statement specifically addresses off-site individual risk criteria for fatalities from hazardous industrial plant. The Guidance provides information which the EPA will consider when assessing proposals where off-site risk is a relevant environmental factor in an assessment to ensure the off-site individual risk from new hazardous industrial plant is assessed and managed to assure public safety. It takes into account:

(a) the factor of risk assessment and management of off-site individual risk from hazardous industrial plant as a major environmental determinant in the environmental impact assessment (EIA) process in Western Australia; and

(b) protection of the environment as defined by the *Environmental Protection Act 1986* (WA) with focus on people and the environment.

1.3 Proponents are encouraged to consider their proposals in the light of the guidance given. A proponent who wishes to deviate from the minimum level of performance set out in this Guidance Statement would be expected to put a well researched and clear justification to the EPA arguing the need for that deviation.

2 THE ISSUE

2.1 Background

The Environmental Protection Authority (EPA) continues to recognise the importance of risk assessment in the EIA process for new hazardous industrial plant proposals. Accordingly, the EPA considers the assessment of off-site risk to individuals, the community and the environment as an essential factor to be

addressed by proponents whose development proposals contain hazardous materials. With any major industrial plant, even with the best technical and operational safeguards, there is always an element of residual risk which needs to be assessed and then managed.

With proper land use planning, plant design, commissioning, operation and communication with the community, these residual risks can be minimised and managed to acceptable levels.

The EPA considers that off-site risk is well managed in Western Australia. The EPA recognises that there is likely to be an increase in hazardous industry in the Kwinana, Burrup, Karratha, Kemerton, Geraldton, Port Hedland, Kalgoorlie and Collie areas of Western Australia over the next 25 years. The EPA desires to maintain and improve the quality of the environment by ensuring that the potential additional impacts are properly managed. To this end, the EPA has consolidated its previous position on off-site risk into this Guidance Statement.

2.2 Where does this Guidance Statement fit?

Proposals for industrial development which involve the storage, transportation or processing of hazardous substances can pose risks to employees, the public and the environment from potential hazardous events, as shown in the chart on the following page. Any such proposal submitted to the EPA needs to clearly identify the potential hazardous events, assess the outcomes and concomitant risks, and propose management systems which the proponent intends to put in place to minimise and manage the risks. The sequence of hazard identification, outcome determination, risk assessment and management is shown in the diagram on the following page.

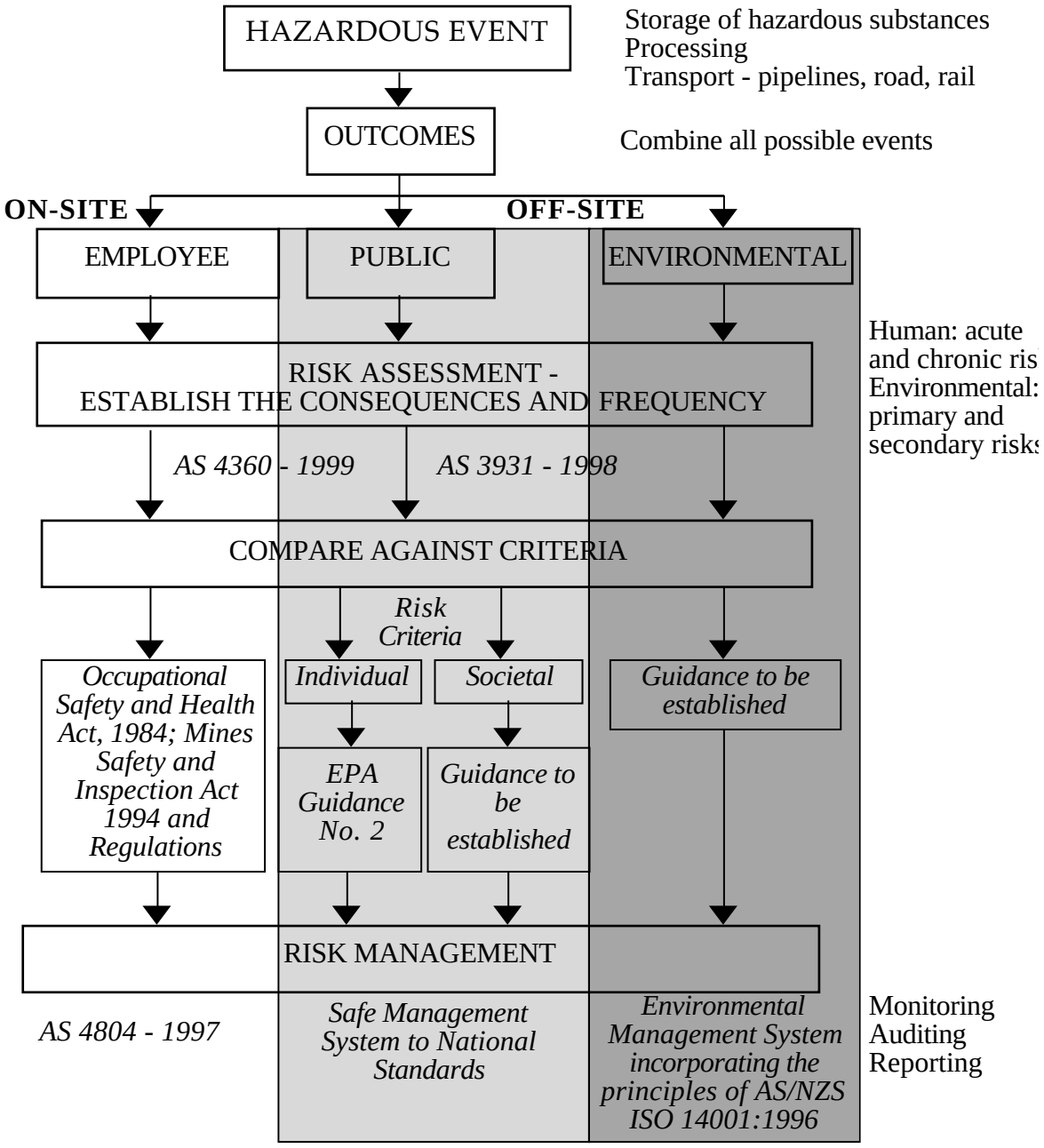
The on-site risks to employees are managed under the Occupational Safety and Health Act 1984 and Mines Safety and Inspection Act 1994 and Regulations and are not covered in this Guidance Statement.

As for off-site risks to the public and the environment, the primary purpose of this document is to provide guidance for the assessment of risk to an individual person.

Guidance has not yet been established for the assessment of risk to many people (societal risk) or to the environment. It is the intention of the EPA to develop guidance on societal and environmental risk in the near future. Notwithstanding the absence of guidance, if the societal or environmental outcomes are potentially significant, a degree of societal and environmental risk assessment should still be undertaken to demonstrate risk minimisation.

The proponent needs to consider all possible hazardous event outcomes from its proposal and to propose risk management strategies to address residual risks.

Off-site individual risk is the risk of a certain outcome to an individual at a specific location. Outcomes can be measured in terms of fatality, injury or exposure level. The Environmental Protection Authority criteria relate specifically to acceptable levels for an outcome of fatality. Other outcomes might need to be evaluated depending on the type of hazardous event, for example, a fire with carcinogenic chemicals in the smoke would require additional evaluation as to health effects.



This Guidance Statement should be read in conjunction with the State Industrial Buffer Policy issued by the Western Australian Planning Commission (1997) and the Environmental Protection Authority Preliminary Guidance No.3 on Industrial - Residential Buffer Areas (1998A). The purpose of the State Industrial Buffer Policy is to provide a consistent statewide approach for the protection and long term security of industrial areas, transport terminals (including ports), other utilities and special uses. The buffer policy will also provide for the safety and amenity of surrounding land uses while having regard to the rights of landowners who may be affected by residual emissions and risk.

This Guidance Statement outlines the expectations of the EPA in the EIA process with regard to off-site risk assessment and management.

2.3 EPA's Previous Position Statements on Individual Risk

The EPA has since 1986, required proponents of industrial projects to assess the off-site individual risks from its plant. Since that time the EPA has issued the following guidance to provide the background for the setting of individual fatality risk criteria and also discussing aspects on societal risk:

- Bulletin 278, May 1987: Risks and hazards of industrial developments on residential areas in Western Australia
- Guideline, December 1990: Review of the guidelines for risk assessment in Western Australia
- Bulletin 611, February 1992: Criteria for assessment of risk from industry
- Bulletin 627, May 1992: Criteria for assessment of risk from industry - expanded discussion
- Bulletin 730, January 1994: Risk Criteria - on site risk generation for sensitive developments

2.4 Off-site Individual Fatality Risk Criteria

The EPA has, in the above Bulletins, set the off-site individual risk criteria for fatalities at the following levels:

(a) A risk level in residential zones of one in a million per year or less, is so small as to be acceptable to the EPA.

(b) A risk level in "sensitive developments", such as hospitals, schools, child care facilities and aged care housing developments of between one half and one in a million per year is so small as to be acceptable to the EPA.

(c) Risk levels from industrial facilities should not exceed a target of fifty in a million per year at the site boundary for each individual industry, and the cumulative risk level imposed upon an industry should not exceed a target of one hundred in a million per year.

(d) A risk level for any non-industrial activity located in buffer zones between industrial facilities and residential zones of ten in a million per year or lower, is so small as to be acceptable to the EPA.

The foregoing criteria to individual fatality risk have been tested since 1987 and the EPA's approach in meeting the individual fatality risk criteria is now used as a standard requirement during EIA for hazardous activities and also has the acceptance of relevant government agencies, various industrial bodies and the community. The EPA confirms that the previous individual fatality risk criteria used to assess new development proposals will continue to be used. The EPA will also use the same individual fatality risk criteria to provide advice on land use planning around hazardous industrial plant and for proposing buffer areas.

In the use of the foregoing individual fatality risk criteria it should be noted that:

1. The individual fatality risk criteria were established on the basis that the person was present 100 per cent of the time and that no protection, escape or mitigation measures were allowed for in the calculation of risk.
2. The calculation of individual risk is based on annualised risk and therefore special consideration of intermittent high risk operations is required, eg. ship unloading.
3. Specific consideration of societal risk should be given where there are concentrations of people present, even for a short period of time. eg. sporting functions, bus transfer stations.
4. The risk criterion for sensitive developments *(b)* is further qualified in EPA Bulletin 730 (1994) for where risk generators need to be within the grounds (eg LPG vessels) to have the one half in a million per year risk criterion apply to areas that are continuously occupied (eg. hospital wards, school classrooms, dining rooms etc), and the risk criterion of one in a million per year apply to areas which are intermittently occupied (eg. garden areas, car parks etc).
5. The risk criterion *(c)* for major hazardous industrial plant of fifty in a million per year at the site boundary would only apply to a neighbouring industry which has a high level of preparedness and training to respond in the event of an incident. This criterion would not generally apply to industrial areas zoned for 'general industry' or commercial use where larger numbers of less prepared employees are present. A risk level of around five in a million per year is more appropriate for commercial areas where there is no coordinated emergency response in place.

Accordingly the original off-site individual risk criteria have been revised to that shown below:

(a) A risk level in residential areas of one in a million per year or less, is so small as to be acceptable to the EPA.

(b) A risk level in "sensitive developments", such as hospitals, schools, child care facilities and aged care housing developments, of one half in a million per year or less is so small as to be acceptable to the EPA.

In the case of risk generators within the grounds of the "sensitive development" necessary for the amenity of the residents, the risk level can exceed the risk level of one half in a million per year up to a maximum of one in a million per year, for areas that are intermittently occupied, such as garden areas and car parks.

(c) Risk levels from industrial facilities should not exceed a target of fifty in a million per year at the site boundary for each individual industry, and the cumulative risk level imposed upon an industry should not exceed a target of one hundred in a million per year.

(d) A risk level for any non-industrial activity or active open spaces located in buffer areas between industrial facilities and residential areas of ten in a million per year or less, is so small as to be acceptable to the EPA.

(e) A risk level for commercial developments, including offices, retail centres, showrooms, restaurants and entertainment centres, located in buffer areas between industrial facilities and residential areas, of five in a million per year or less, is so small as to be acceptable to the EPA.

In addition to meeting the above criteria, risk minimisation must be demonstrated in all new proposals.

2.5 Application of Risk Criteria

The EPA is mindful that it has two responsibilities in relation to the application of risk criteria. One is to protect existing land uses with respect to exposure to risk from hazardous industrial plant. The second is to protect land use zones as a long term planning goal.

For current risk exposure it is appropriate to protect existing uses whether or not they conform to zoning. However for long term planning, unless land use zones are protected from risk exposure then future development potential is constrained.

Thus the term “areas” can be interpreted in two ways:

- area can refer to the boundary of existing uses for residential, sensitive, industrial or commercial developments; or

- area can refer to the boundary of land use zones for residential, sensitive, industrial or commercial developments.

3 GUIDANCE FOR ASSESSMENT

3.1 Off-site Individual Risk as a Relevant Factor

It is an objective of the EPA to prevent, abate and control off-site risk from hazardous industrial plant for the protection and management of the environment.

To achieve this objective the EPA applies three complementary tests when assessing emissions and risk from hazardous industrial plant:

(a) The off-site individual fatality risk criteria set by the EPA are met;

(b) All reasonable and practicable measures are taken to minimise the off-site emissions and individual risk from industrial plant; and

(c) Cumulative off-site emissions and individual risk from several industrial plants, or several risk generators on one operator's site, must not cause cumulative impacts beyond the off-site individual fatality risk criteria.

3.2 Approaches for Achieving Desired Outcomes

3.2.1 Methods

For the purposes of implementing the above objective, the following guidance will be used by the EPA during the assessment of any proposal relating to hazardous industrial plant:

Best Practice: The EPA's position on risk management is that where there are hazards and risks associated with the development of new industrial plant, the new plant should be designed using best practicable engineering design and operated using best industry practice management systems.

Risk minimisation: In addition to industry best practice, there is a corporate responsibility that wherever possible, regardless of calculated risk levels and criteria, risks should be reduced to as low as reasonably practicable (ALARP). This means that as an input in its decision making for a proposal, the proponent should consider alternative sites or alternative technologies or management systems which may reduce or eliminate public or environmental risks.

Public expectation: The community expects anticipated levels of risk to meet some accepted community standard or criterion. Specifically, people need to know why the proposed site was chosen in favour of some alternative site, why certain technologies were chosen, and what checks and balances, safety and emergency measures are in place. These issues need to be addressed in any submission to the EPA.

Management objectives: The overall objectives in the management of hazardous industrial plant are:

- to minimise the risk - individual, societal and environmental - associated with new developments;
- to ensure that hazardous industry and land-use planning in the vicinity meet acceptable criteria for individual fatality risk and that land use

compatibility in relation to separation distances is established in the planning process (EPA Guidance No.3, 1998A); and

- to ensure the plant continues to operate in such a manner that the emissions and risks are managed within the accepted criteria and licence conditions.

Existing industry: The EPA is aware that some existing industry may give rise to risk levels which exceed the criteria in this statement. In such cases a program shall be agreed between the relevant agencies and the industry in order to reduce the impact of major risk generators. This may entail recommendations for action by either the industry or government or both. The EPA believes that the long term targets for individual risk levels for existing industry should be the same as those proposed for new industry.

Risk assessment of new proposals: Where the EPA is of the opinion that a new project involves a significant element of risk, either public or environmental, it will require a quantitative risk assessment at an early stage of the EIA process. The need for such an assessment will be determined on a case-by-case basis and will depend on the hazardous nature of the project and the sensitivity of the surrounding land use. In other cases a qualitative risk assessment could be all that is required.

The risk assessment should be undertaken and certified to the EPA's satisfaction by a competent and reputable analyst accepted by the EPA and at the proponent's expense. This process requires the risk analyst to satisfy the EPA that the assessment was done objectively and independently.

The EPA will seek technical advice from the Department of Minerals and Energy on public risk under its memorandum of understanding. Under some circumstances considered justified by the EPA, the EPA could request separate verification of the risk assessment, at the proponent's expense. This is especially so if there is an affiliation between the risk assessor and the proponent.

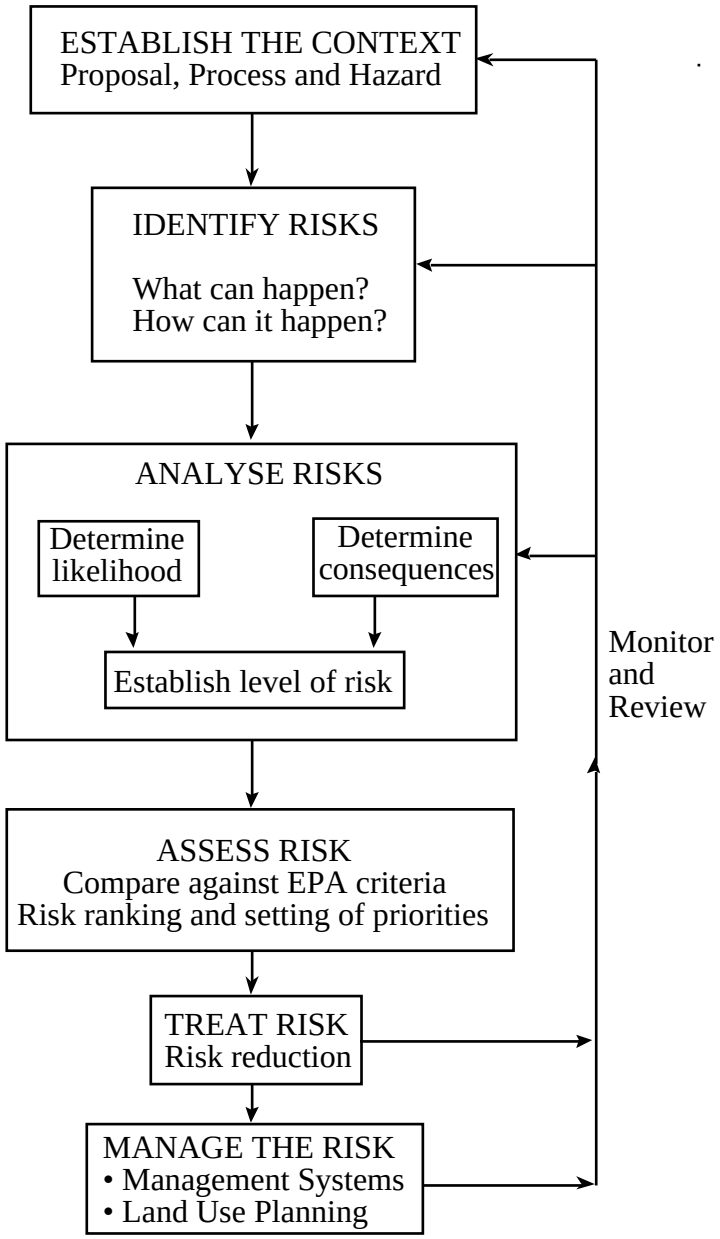
The scope and extent of the risk assessment will vary from project to project, and the EPA will provide specific advice to each proponent. In general, the EPA requires that a preliminary risk assessment be carried out as outlined in the Department of Environmental Protection document entitled 'Guidelines for a preliminary risk assessment', (May 1993). These guidelines provide an overview of the issues to be addressed in the preliminary risk assessment.

In conjunction with the risk assessment, the EPA expects the proponent to recognise and to address perceived risk as part of the proponent's risk management plan. Community consultation in the decision making process is important in the management of perceived risk.

The EPA may require the proponent to make public all or part of the risk assessment as part of the EIA documentation. Key findings of the risk assessment will be required to be published in the proposal documentation submitted to the EPA.

Steps in Risk Assessment: The following flow chart adapted from Standards Australia AS 4360 (1999), outlines the steps required in any risk assessment submitted to the Authority.

In the assessment of public risk, incidents with both acute and chronic health effects should be considered in the determination of individual and societal risk. In the assessment of environmental risks, both primary and longer term secondary risks should be addressed.



Any analysis conducted in the risk assessment must be transparent, assumptions made clear and be fully referenced. Where uncertainty exists in the assessment, sensitivity analysis should be conducted. Recommendations made for risk reduction must be capable of being implemented and audited with priorities attached. The evaluation and selection of risk reduction options by the proponent may involve the balancing of costs against the benefits expected.

Where a number of hazardous industries or activities exist in a region it is appropriate that a cumulative hazard and risk analysis be conducted for the existing and proposed developments in the region before assessing the acceptability of any new developments in the region.

To meet the objective of managing the risk from hazardous industrial plant to ensure that the risk level remains within the EPA criteria, it is necessary that land use planning for the surrounding area be compatible with the proposal and that management systems to manage the plant risk are in place.

3.2.2 Management System

If the risk assessment identifies risks to the public or the environment, the proponent is required to minimise and manage risks.

Public risk from major hazardous industrial plant is managed in accordance with the National Standard and Code of Practice for the "Control of Major Hazard Facilities" (Worksafe Australia, September 1996). The Facility will be licensed pursuant to the Explosives and Dangerous Goods Act 1961 and the safety management system will need to be agreed by the Department of Minerals and Energy prior to commissioning of the plant.

A number of safety management system models are available for these major hazardous industrial plant. The proponent may use an existing in-house model or choose one from the Worksafe National Standard (Appendix 1) which provides examples of core elements from five different models. For less hazardous industrial plant some form of safe management system will still be required to systematically control risks.

Environmental risks are to be managed in accordance with an environmental management system incorporating the principles of Standards Australia AS/NZS ISO 14001 (1996) and the Department of Environmental Protection document 'Achieving Best Practice Environmental Management' (August 1996), to the satisfaction of the EPA. Risks should be managed to achieve the objectives agreed with the EPA, with appropriate monitoring, auditing and reporting to ensure compliance with environmental conditions, works approval and licence conditions.

3.2.3 Community Information

The proponent should consult with the local community, the neighbours and the emergency response services as to plant hazards and risks, and in the development of emergency response plans.

4 APPLICATION

4.1 Area

This Guidance Statement applies to all applications for new hazardous industrial plant and extensions to existing hazardous industrial plant, and planning matters in the State of Western Australia.

4.2 Duration and review

The duration of this Guidance Statement is for five years unless some unforseen circumstances require it to be revised earlier.

5 RESPONSIBILITIES

5.1 Environmental Protection Authority Responsibilities

The EPA will apply this Guidance Statement during the assessment of proposals under Part IV of the *Environmental Protection Act 1986* where public or environmental risk is a factor.

5.2 Department of Environmental Protection Responsibilities

The DEP will assist the EPA in applying this Guidance Statement in environmental impact assessment and in conducting its functions under Part V of the *Environmental Protection Act 1986.*

5.3 Proponent Responsibilities

Where proponents demonstrate to the EPA that the requirements of this Guidance Statement are incorporated into proposals, in a manner which ensures that they are enforced and audited, the assessment of such proposals is likely to be assisted.

6 DEFINITIONS

Hazard: The intrinsic property of a dangerous substance or physical situation at an establishment, with a potential for creating damage to man and the environment. (Commission of European Communities directive, 19/6/95).

Hazardous Event: An event which can cause harm (to employees, the public or the environment). (Standards Australia, AS 3931, 1998).

Individual Risk (of Fatality)**:** The chance (likelihood or probability) per year that any one member of the general public will be killed as a result of the exposure to an activity (IAEA, 1996).

Hazardous Industrial Plant: Plant used for the storage, transportation (including pipelines, road or rail) or processing of hazardous substances which may pose a significant risk to the employees, the surrounding community and the environment (EPA, this Guidance, 2000).

Major Hazardous Industrial Plant: Industrial plant which is classified as a major hazard facility according to the Standard for the Control of Major Hazard Facilities (Worksafe Australia, 1996).

Risk: The likelihood that specific effects harmful to man and the environment will occur within a specified period or in specified circumstances (Commission of European Communities directive, 19/6/95).

Risk can be expressed in terms of fatality (acute effects), or injury (chronic effects), or damage to the environment (primary risk for the likelihood of a release to the environment and secondary risk for the likelihood of the release contacting environmentally sensitive areas: EPA Guidance No.9, 1998B)

Societal Risk: The relation between the number of people killed in a single accident and the chance or likelihood that this number will be exceeded (IAEA, 1996).

7 LIMITATIONS

This Guidance Statement has been prepared by the Environmental Protection Authority to assist proponents and the public. While it represents the contemporary views of the Environmental Protection Authority, each proposal which comes before the Environmental Protection Authority for environmental impact assessment will be judged on its merits. Proponents who wish to deviate from the Guidance provided in this document should provide robust justification for the proposed departure.

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Contact Officer	Keith Collins, Telephone, (08) 9222 7181 e-mail: keith_collins@environ.wa.gov.au

APPENDIX 1

Examples of Safety Management System Core Elements, 'Control of Major Hazard Facilities', National Standard and Code of Practice, Worksafe Australia, September 1996.

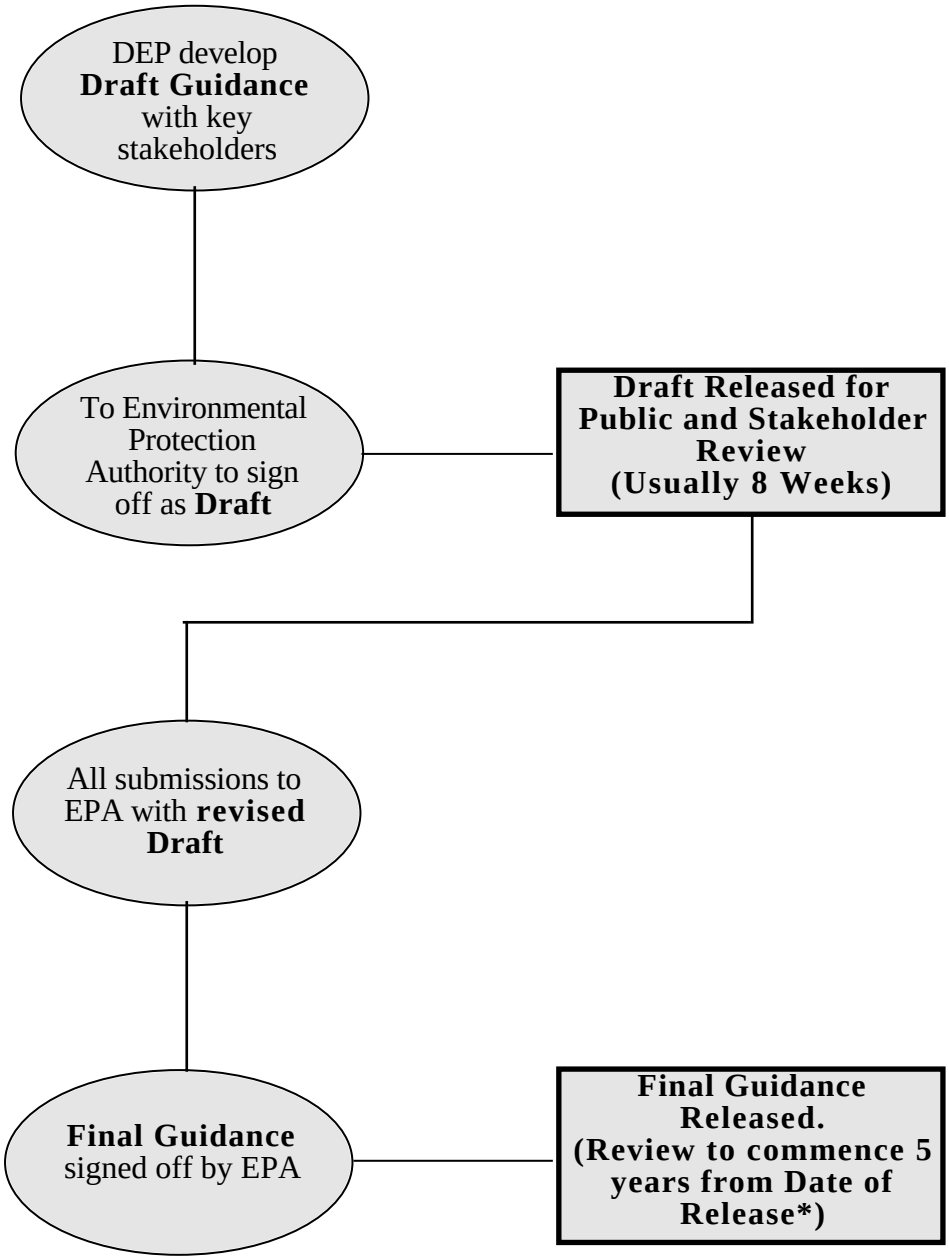
EXAMPLES OF SAFETY MANAGEMENT SYSTEM CORE ELEMENTS

(extract from National Standard, Worksafe Australia, "Control of Major Hazard Facilities" (Worksafe Australia, 1996)

EXAMPLE ONE (Centre for Chemical Process Safety, 1992)	**EXAMPLE TWO** (United States OSHA, 1992)	**EXAMPLE THREE** (Australia & NZ HIPT, 1995)	**EXAMPLE FOUR** (Oil Industry International, E & P Forum, 1994)	**EXAMPLE FIVE** (Australian Chemical Industry Council, 1991)
Accountability: Objectives and Goals	Employee Participation	Policy and Objectives	Leadership and Commitment	Manufacturing Management Systems, that is :
Process Knowledge and Documentation	Process Safety Information	Core System Elements, that is :	Policy and Strategic Objectives	* management of hazards
Project Reviews and Design Procedures	Process Hazard Analysis	* scope of safety management system * summary of operations, hazards and safety issues * management structure, organisation and human resources	Organisation, Resources and Documentation	* setting standards * performance review * communication and consultation
Process Risk Management	Operating Procedures	* accountabilities and responsibilities * performance standards and guidelines	Evaluation and Risk Management	* system features
Management of Change	Training	* safety assurance process * training philosophy	Planning	Operations Integrity, that is :
Process and Equipment Integrity	Contractors	* SMC documentation integrity * SMC review and improvement	Implementation and Monitoring	* design and construction of facilities
Human Factors	Pre-start up safety reviews	* relationship to occupational health and safety and environmental management systems	Auditing and Reviewing	* operation of facilities
Training and Performance (includes operating procedures)	Mechanical Integrity	* management of change		
	Hot Work Permits	* list of procedures		Health, Safety and Environment Awareness, that is :
Investigation of Major Accidents and Near Misses	Management of Change	Procedures, that is :		
Standards, Codes and Laws	Investigation of major accidents and near misses	* design and construction * operations and maintenance		* management leadership * employee health and safety
Audits and Corrective Actions	Emergency Planning and Response	* human resources * changes, modifications, records		* contractor health and safety * environment protection and awareness
Enhancement of Process Safety Knowledge	Compliance Audits	* monitoring, reporting, auditing and reviewing * abnormal operations, major accidents and near misses		* community impact * community awareness
	Trade Secrets	* surrounding community		* emergency response

APPENDIX 2

Generic Flow Diagram for the Guidance Statement Process



* Guidance may be reviewed earlier if circumstances require it.