Titanium Dioxide Pigment Plant
Kwinana

Environmental Management Programme
(Construction Phase)

Cooljarloo Joint Venture

Assessment by the
Environmental Protection Authority

Environmental Protection Authority
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COOLJARLOO JOINT VENTURE

TITANIUM DIOXIDE PIGMENT PLANT

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ENVIRONMENTAL MANAGEMENT PROGRAMME

CONSTRUCTION PHASE

ASSESSMENT BY THE ENVIRONMENTAL PROTECTION AUTHORITY

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1. SUMMARY

Cooljarloo Joint Venture Limited have submitted a Construction Phase Environmental Management Programme for assessment by the Environmental Protection Authority. This is the first stage of numerous documents making up the Environmental Management Programme.

The Authority considers that the proposals put forward by the company for management of vegetation, dust, noise, wastes, vehicle parking, equipment servicing, and workforce facilities to be acceptable.

Further information needs to be supplied on road access/egress requirements, and on-site and off-site emergency planning and response issues. The Authority considers that these issues are appropriately dealt with in a manner which reflects the increasing complexity of construction activities as construction proceeds.

2. INTRODUCTION

The Construction Phase Environmental Management Programme deals with construction management. The particular issues dealt with include scheduling, workforce requirements, initial site preparation and construction activities.

3. ASSESSMENT PROCESS

The Construction Phase Environmental Management Programme (EMP) was finalised by Coojarloo Joint Venture (CJV) and made available to the Environmental Protection Authority in March 1989.

4. CONSTRUCTION PROPOSAL

The Construction Phase EMP describes, in general terms, the constraints that CJV will observe during the construction period. The initial "civil" construction requirements (roads, concrete slabs, other infrastructure) can be put in place prior to completion of the design of the particular plants (chloride route, pigment production, chlor-alkali and air separation). The Construction Phase EMP applies to all construction activities, later stages of the EMP will go into more detail on specific mechanical site construction requirements. In assessing the latter, the Authority will be in a position to "fine tune" its construction stage requirements.

5. CONSTRUCTION SCHEDULE

The schedule for construction is outlined by CJV in the ERP. Civil construction is planned to commence in August 1989 and be completed in December 1989, after which pre-commissioning activities will extend the commencement of operations to December 1990.

During this period, workforce levels are expected to build up progressively from August 1989 to a peak in June 1990 of 300, with a decline upon completion of the principal construction activities in December 1990.

The Construction Phase EMP outlines the environmental impacts which will occur as a result of this construction activity.

In this assessment, the Authority has also taken cognisance of the effects of neighbouring activities, particularly the PICL plant which will be located immediately north of the Cooljarloo Joint Venture site. This is particularly so in relation to traffic and emergency procedures.

6. INITIAL SITE PREPARATION

The Construction Phase EMP outlines CJV's proposals for initial site preparation in terms of:

- removal and protection of vegetation;
- earthworks and equipment;
- dust control;
- noise;
- traffic estimates;
- on site vehicle parking and servicing;
- workforce facilities;
- site drainage; and
- waste disposal.

Apart from vegetation and earthworks, all the above elements are also applicable to actual construction.

The Environmental Protection Authority regards initial site preparation activities as construction activities.

6.1 VEGETATION

CJV proposes that vegetation will not be removed unless necessary, as it will be effective in mitigating the effects of dust. In addition, the rows of trees already planted along the eastern and northern boundaries of the site are to be retained except where access roads are required.

Several references throughout the document are made to landscape planning. The EPA considers that landscape planning and management will enhance the appearance of the complex. CJV also make a commitment in the ERMP to a landscape plan.

REQUIREMENT

The Environmental Protection Authority requires that CJV develop a landscape management plan for the construction phase, to be submitted within 2 months of commencement of construction, and to be to the satisfaction of the Environmental Protection Authority.

6.2 EARTHWORKS AND EQUIPMENT

CJV proposes that construction be on a 6 day per week basis. The Authority considers this to be acceptable, as long as dust and noise generation are within limits acceptable to the Authority and the local council.

6.3 DUST

CJV have made a commitment to comply with the requirements of the EPA Pollution Control Division on dust controls and ambient dust levels. The Authority finds this acceptable, and will ensure that the appropriate provisions are written into the works approval.

For dust control, CJV propose that (on-site) roads be sprayed with an appropriate agent. One section of the EMP indicates that oil will be used. The agent chosen must be such that no detrimental effects on the local environment will occur. The degraded environment of the site means that the use of oil emulsions would be acceptable. However should large quantities of oil result from servicing operations, off-site sale for recycling would be more appropriate.

6.4 NOISE

A noise study carried out for CJV concludes that construction noise is unlikely to cause annoyance in the Hope Valley residential area, which is most susceptible to noise pollution from the industrial area. The consultant suggests that equipment be tested prior to commencing work on site to ensure compliance with the levels used in the consultant's assessment. CJV have made a commitment to engage a noise consultant to assess general on-site noise levels, sound pressure levels of equipment and construction activities, and received noise levels at Hope Valley. These measurements will be made before and during construction.

The EPA finds the study and the commitment acceptable.

REQUIREMENT

The Environmental Protection Authority requires the proponent to provide details of its initial noise level assessment to the Authority prior to construction commencing.

The Authority also requires noise monitoring reports to be included in the regular 6 monthly reports which are to be provided to the Authority.

6.5 VEHICLE PARKING, EQUIPMENT SERVICING, WORKFORCE FACILITIES

The Authority considers that CJV's proposals for vehicle parking, equipment servicing and workforce facilities to be acceptable. The specific location of car parks, and therefore their access/egress points will impact on traffic flows in the different parts of Mason Road. This will have ramifications for the effectiveness of new roads into the area. CJV should take cognisance of this factor in planning their car parking requirements.

6.6 SITE DRAINAGE

CJV propose to construct V-drains, which will direct storm-water run-off from large compacted areas to soakage sumps which will later become part of the permanent drainage system. As there will be no requirements for hazardous chemicals on-site during construction, the Authority considers this proposal to be acceptable.

6.7 WASTE DISPOSAL

The proponent proposes to dispose of various waste steams:

Non-reusable vegetation is to be stockpiled and burnt on site. This should only occur if conditions are appropriate, and approval has been obtained from the local council.

It is proposed to remove "construction and domestic rubbish" to an approved landfill site. Health Department and local council advice should be sought by CJV on appropriate methods of disposal prior to disposal by such methods.

Waste oil is proposed to be used for dust control.

Dependent on quantities, off site sale of used oil for recycling could be more appropriate.

REQUIREMENT

The Environmental Protection Authority requires the proponent to liaise with the Health Department of Western Australia and the Town of Kwinana to ensure appropriate waste disposal procedures are utilised.

7. PLANT CONSTRUCTION

The issues discussed under "Initial Site Preparation" are also pertinent during the actual construction phase. For this reason, the following topics will not be discussed again:

- earthworks and equipment;
- dust control;
- vehicle parking and equipment;
- workforce facilities; and
- site drainage.

The aspects discussed below are noise, waste disposal, traffic issues and emergency planning requirements.

7.1 NOISE

Apart from the noise requirements outlined previously, hydraulic testing of pipes will be used, rather than pneumatic testing, which is extremely noisy. CJV have made a commitment in this regard, which the Authority considers acceptable.

7.2 WASTE DISPOSAL

The EMP identifies a scrap metal waste stream additional to the general rubbish identified in the site preparation stage. CJV propose to dispose of this material to scrap metal merchants. Should any further waste streams be identified during construction, they are to be disposed of in a manner acceptable to the Health Department and the local council.

8. TRAFFIC

Road traffic will be an important factor in the construction phase, given the sustained high workforce levels, particularly in 1990 (estimates range from 100 (minimum) to 300 (maximum)). A build-up will occur during 1989. The CJV workforce will add to the traffic which already uses Mason Road, ie workforces for other industry located off Mason Road, as well as service vehicles and trucks carrying product (eg LPG).

These measures include ensuring that existing roads have sufficient capacity to meet expected demand, as well as examining possibilities for constructing new roads, in order to reduce demand on Mason Road. In the initial stages of construction, it is expected that existing capacity will be sufficient to meet requirements. However this will change as workforce levels increase markedly during 1990 particularly with the additional workforce on the PICL plant just north of the CJV site.

There is a need to manage traffic in the area for two reasons: road safety, and in case of an emergency. For road safety, the traffic can be managed by (for example) staggering shift times, upgrading existing roads and infrastructure, or modifying the road system.

The Main Roads Department in its submission indicated that it proposed to realign the intersections of Mason Road and Mandurah Road with Rockingham Road, such that one intersection with traffic lights would result. This would provide control of the traffic entering and leaving Rockingham Road. It is not likely to solve the issue of large traffic volumes (at particular times of the day) on Mason Road. Potential solutions for the latter problem include staggering shift times (on the CJV site, and in conjunction with other industries), and building extra access roads.

It is expected that site clearing activities for the proposed petrochemical industries plant at Kwinana (immediately adjacent to the CJV site), will commence in April 1989, with mechanical construction commencing in May 1991.

It would appear that given the requirements of both the pigment plant and the PICL project, there will be large overlap of construction periods, and moreover, the scope for staggering shifts will be severely limited. This indicates that the principal emphasis will have to be on upgrading of roads, and an improvement in the road system. Practical considerations mean that this should happen in a staged manner.

The Authority is aware of the roads study coordinated by the Department of Resources Development to investigate this issue. In addition, the Kwinana Integrated Emergency Management System (KIEMS), coordinated by the State Emergency Service, has recently been established. The latter scheme will review emergency management requirements in the Kwinana industrial area, including access and egress. A number of submissions to the Authority have outlined the urgency of improving road access to facilities serviced by Mason Road. The Authority agrees with these comments, particularly given that it first highlighted these issues in its assessment of the ammonia/urea plant proposal in 1987.

Given that major physical improvements in the road system will not be feasible, nor necessary, until 1990, EPA considers that a staged approach is acceptable.

It would be appropriate for interim arrangements for road access and egress to CJV (and adjacent sites) to be developed as soon as possible. Such arrangements (in conjunction with off-site emergency planning and response requirements) can be developed readily in a "round table conference" format with relevant government agencies. Such a meeting should be convened by the Mines Department. The outcomes of the meeting would enable the company to develop an interim plan for road access and egress.

REQUIREMENT

The Environmental Protection Authority requires that CJV specify interim road access and egress arrangements for their site to the satisfaction of the Authority, prior to commencement of construction.

9. EMERGENCY PLANNING AND RESPONSE

The proponent put forward some ideas for emergency planning and response in the Construction Phase EMP, and acknowledges the need for close cooperation with other industrial facilities in the area, and emergency response organisations.

The potential emergency situations that could arise during construction would be accidental releases of chlorine or ammonia from the CSBP facilities, or flammable gas releases from CSBP or the BP refinery. Such releases, although of very small probability, must be allowed for in emergency planning for the industrial area. These incidents do not have any credible effects in areas beyond the industrial area.

The Mines Department considers that there is a need for provision of gas shelters, as has been arranged for the workforce on the silicon smelter construction, adjacent to a facility using chlorine gas at Kemerton. Gas shelters would allow workers to muster during the short duration of a toxic gas release. A site specific emergency management plan should be developed prior to commencement of construction. The plan should outline:

- the types of emergencies which could occur;
- alarm initiation;
- communications; and
- equipment requirements.

The communication systems should be tested prior to commencement of construction and at regular intervals thereafter.

The Authority agrees with this suggestion, and considers that the plan should also delineate roles and responsibilities of designated individuals. The plan should also integrate with site infrastructure, ensuring that sufficient points of egress from the site are in place, in case of emergencies which require evacuation. Provision for access by emergency services is also required. The plan may be developed in stages according to the extent and nature of the construction activities on site. Initially, the requirements of the plan will relate to the small workforce on site, but have the capacity to become more extensive as the site and complexity of activities increases. The plan should be developed to the standards required by the relevant government agencies.

REQUIREMENT

The Environmental Protection Authority requires the proponent to develop a site emergency plan for the construction phase. The plan should be submitted to the Environmental Protection Authority prior to commencement of construction, and be to the satisfaction of the Mines Department and DOSHWA. The plan is to be updated every six months to take account of the changing nature of the construction phase. The updates are to be to the satisfaction of the Mines Department and DOSHWA.

10. OFF-SITE EMERGENCY PLANNING AND RESPONSE

Off-site emergency planning and response arrangements are to be developed by the Kwinana Integrated Emergency Management System (KIEMS). These arrangements will include the road system requirements already mentioned, as well as communications and equipment requirements. The KIEMS will interact with companies (who are responsible for the development of their own on-site

plans) to ensure the optimum level of coordination for managing total area responses to emergencies. This regional planning and response system is to meet the standards required by the agencies represented on KIEMS.

REQUIREMENT

The Environmental Protection Authority requires that KIEMS specify, off-site emergency response requirements specific to the operations of PICL. The initial specifications should be prepared prior to the commencement of construction. These requirements are to be commensurate with the nature and scale of activities on the CJV site, and are to be to the satisfaction of the agencies represented on the KIEMS Working Group.

11. APPLICATION OF EPA REQUIREMENTS ON PETROCHEMICAL INDUSTRIES COMPANY LIMITED AND THEIR CONSTRUCTION CONTRACTORS

The proponents for the project (CJV) are the party responsible for the project, and have been nominated under Section 38 (6) of the Environmental Protection Act 1986.

The construction will be carried out by contractors to be selected by tender, will be responsible for site management during construction, and for implementation of environmental management requirements. CJV have stated in the EMP (p.17) that they are ultimately responsible to the EPA for environmental management. CJV have also stated that they will ensure compliance with the EMP. The Authority will require compliance not only with the commitments in the EMP, but also with the requirements which EPA sets in this assessment report.

12. APPLICATION OF PART V OF THE ENVIRONMENTAL PROTECTION ACT 1986

Part V of the Environmental Protection Act 1986, deals with pollution control, and the issuance of works approvals and licences. Works approvals are issued in order to allow construction to proceed, and licences allow operation. Each usually has conditions attached. The conditions on each are compatible with the outcomes of environmental impact assessment (and any following assessments, such as that of an EMP). Other conditions may be imposed as a result of assessment of project details by the Pollution Control Division of the Authority.

For this project the Authority will issue separate works approvals for each major part of the construction phase, viz:

- civil construction; and
- construction of the plant facilities (mechanical construction).