MINISTER FOR THE ENVIRONMENT;
LABOUR RELATIONS

Statement No.

000501

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

EXPANSION OF EXISTING TITANIUM DIOXIDE PIGMENT FACILITY TO 195,000 TPA KEMERTON INDUSTRIAL PARK

Proposal: Expansion of the existing titanium dioxide plant, to increase the plant production capacity from 79,000 tonne per annum (tpa) to 195,000 tpa of finished titanium dioxide pigment, at the Kemerton Industrial Park, within the Shire of Harvey, 140 kilometres south of Perth, 17 kilometres north-east of Bunbury and 4 kilometres east of the Leschenault Estuary, as documented in schedule 1 of this statement.

Proponent: Millennium Inorganic Chemicals Ltd

Proponent Address: Australind

Assessment Number: 1006

Report of the Environmental Protection Authority: Bulletin 920

Previous Relevant Statements: Nos. 1 and 225 published on 25 August 1987 and 6 March 1992, respectively.

The proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following conditions and procedures:

1 Implementation

1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.

1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.

1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

Published on

29 MAR 1999

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2 Proponent Commitments

2-1 The proponent shall implement the consolidated environmental management commitments documented in schedule 2 of this statement.

2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of conditions and procedures in this statement.

3 Environmental Management System

3-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to construction of the expanded plant, the proponent shall demonstrate to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection that the environmental management system in place includes the following elements:

1 An environmental policy and corporate commitment to it;

2 Mechanisms and processes to ensure: -

(1) planning to meet environmental requirements;
(2) implementation and operation of actions to meet environmental requirements;
(3) measurement and evaluation of environmental performance; and

3 Review and improvement of environmental outcomes.

3-2 The proponent shall implement the environmental management system referred to in condition 3-1.

4 Decommissioning and Rehabilitation Management Plan

4-1 At least six months prior to decommissioning, the proponent shall prepare a Decommissioning and Rehabilitation Management Plan, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

This Plan shall address:

1 removal or, if appropriate, retention of plant and infrastructure;

2 (final) rehabilitation of all disturbed areas to a standard suitable for agreed new land use/s; and

3 identification of contaminated areas, including provision of evidence of notification to relevant statutory authorities.

4-2 The proponent shall implement the Decommissioning and Rehabilitation Management Plan required by condition 4-1 until such time as the Minister for the Environment determines that decommissioning and/or rehabilitation is/are complete.

4-3 The proponent shall make the Decommissioning and Rehabilitation Management Plan required by condition 4-1 publicly available, to the requirements of the Environmental Protection Authority.

5 Performance Review

5-1 Each six years following the commencement of construction of the expanded plant, the proponent shall submit a Performance Review to the Department of Environmental Protection:

- to document the outcomes, beneficial or otherwise;
- to review the success of goals, objectives and targets; and
- to evaluate the environmental performance over the six years;

relevant to the following:

1 environmental objectives reported on in Environmental Protection Authority Bulletin 920;

2 proponent's consolidated environmental management commitments documented in schedule 2 of this statement and those arising from the fulfilment of conditions and procedures in this statement;

3 environmental management system environmental management targets;

4 environmental management programs and plans; and/or

5 environmental performance indicators;

to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

Note: The Environmental Protection Authority may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review.

6 Proponent

6-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.

6-2 Any request for the exercise of that power of the Minister referred to in condition 6-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.

6-3 The proponent shall notify the Department of Environmental Protection of any change of proponent contact name and address within 30 days of such change.

7 Commencement

7-1 The proponent shall provide evidence to the Minister for the Environment within five years of the date of this statement that the proposal has been substantially commenced.

7-2 Where the proposal has not been substantially commenced within five years of the date of this statement, the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.

7-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement at least six months prior to the expiration of the five year period referred to in conditions 7-1 and 7-2.

7-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.

8 Compliance Auditing

8-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.

8-2 Unless otherwise specified, the Chief Executive Officer of the Department of Environmental Protection is responsible for assessing compliance with the conditions, procedures and commitments contained in this statement and for issuing formal clearances.

8-3 Where compliance with any condition, procedure or commitment is in dispute, the matter will be determined by the Minister for the Environment.

Note

1 The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the Environmental Protection Act.

CHERYL EDWARDES (Mrs) MLA
MINISTER FOR THE ENVIRONMENT

29 MAR 1999

Schedule 1

PROPOSAL (1006)

The expansion proposal is to increase the nominal production capacity of the existing Kemerton/Australind operations from the current level of 79,000 tpa to 195,000 tpa of finished titanium dioxide, by modifying the existing titanium dioxide chloride process plant and establishing a new finishing plant (with a capacity to produce an additional 116,000 tpa of finished pigment) at Kemerton.

The existing titanium dioxide chloride process plant is located in the Kemerton Industrial Park (Figure 1).

The process used for the expanded facilities will be identical to the existing process, which is the chloride process. The chloride process can be separated into eight distinct sections, which are: ore handling (Unit 100), chlorination, purification (Unit 200), oxidation (Unit 300), Pre-finishing (Unit 400), gaseous effluent handling (Unit 500), effluent treatment (Unit 550) and utilities (Figure 2).

The new finishing plant includes pigment treatment and vacuum filters, driers, pigment mills and packaging equipment (Figure 3).

The location of the expanded plant is shown in Figure 4.

Extra chlorine, compressed nitrogen and oxygen will be required, through either replacement of the existing pipelines or installation of additional pipelines.

In addition to its own process water, the expanded plant will continue to accept wastewater from other sources (the chlor-alkali plant, air separation plant and lime plant) for treatment and subsequent ocean disposal via pipeline (Figure 5).

Components of the expanded plant are shown in Table 1. Estimated inputs and outputs for the expansion, in comparison with the existing plant, are shown in Table 2.

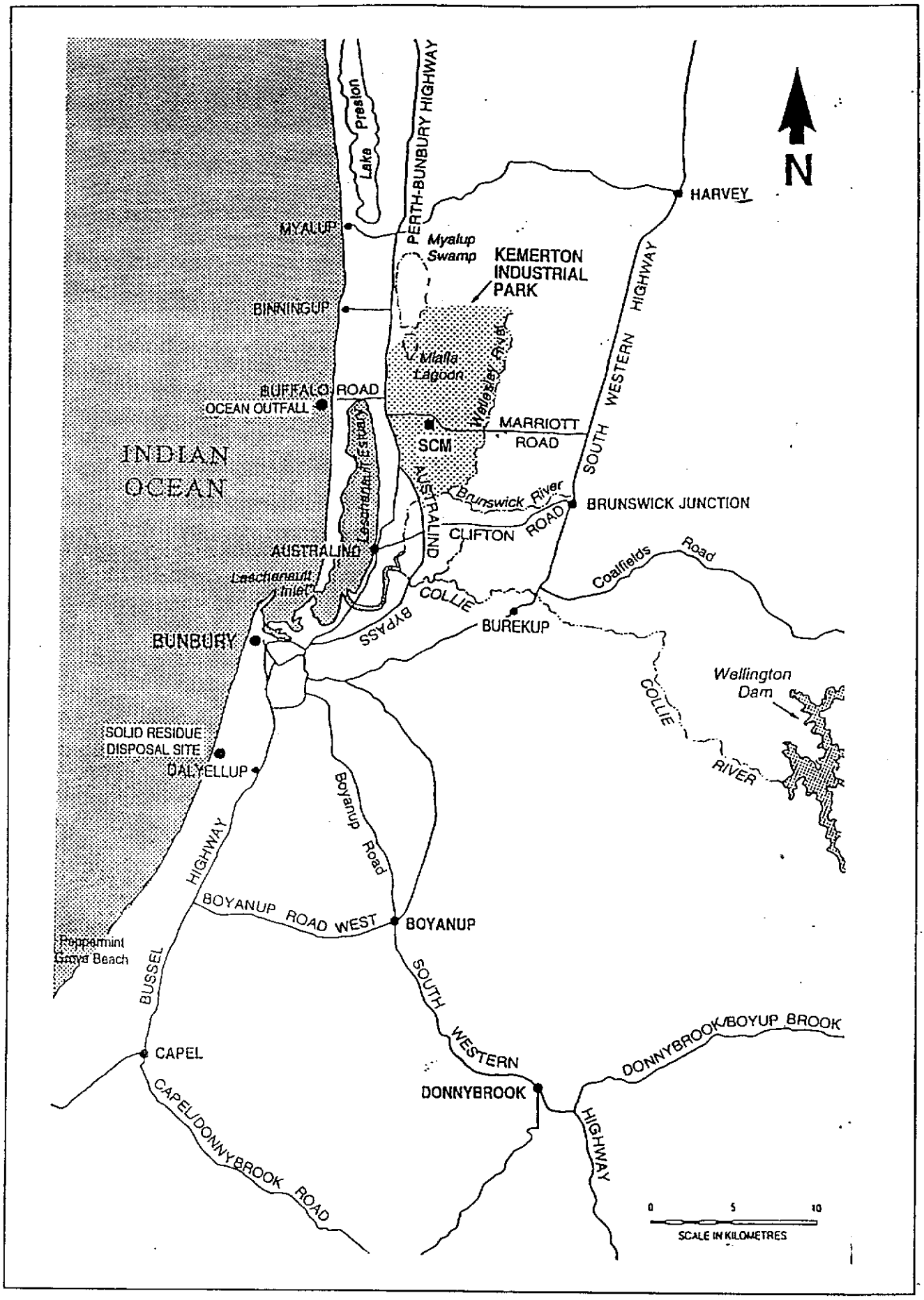

Figure 1. Regional location

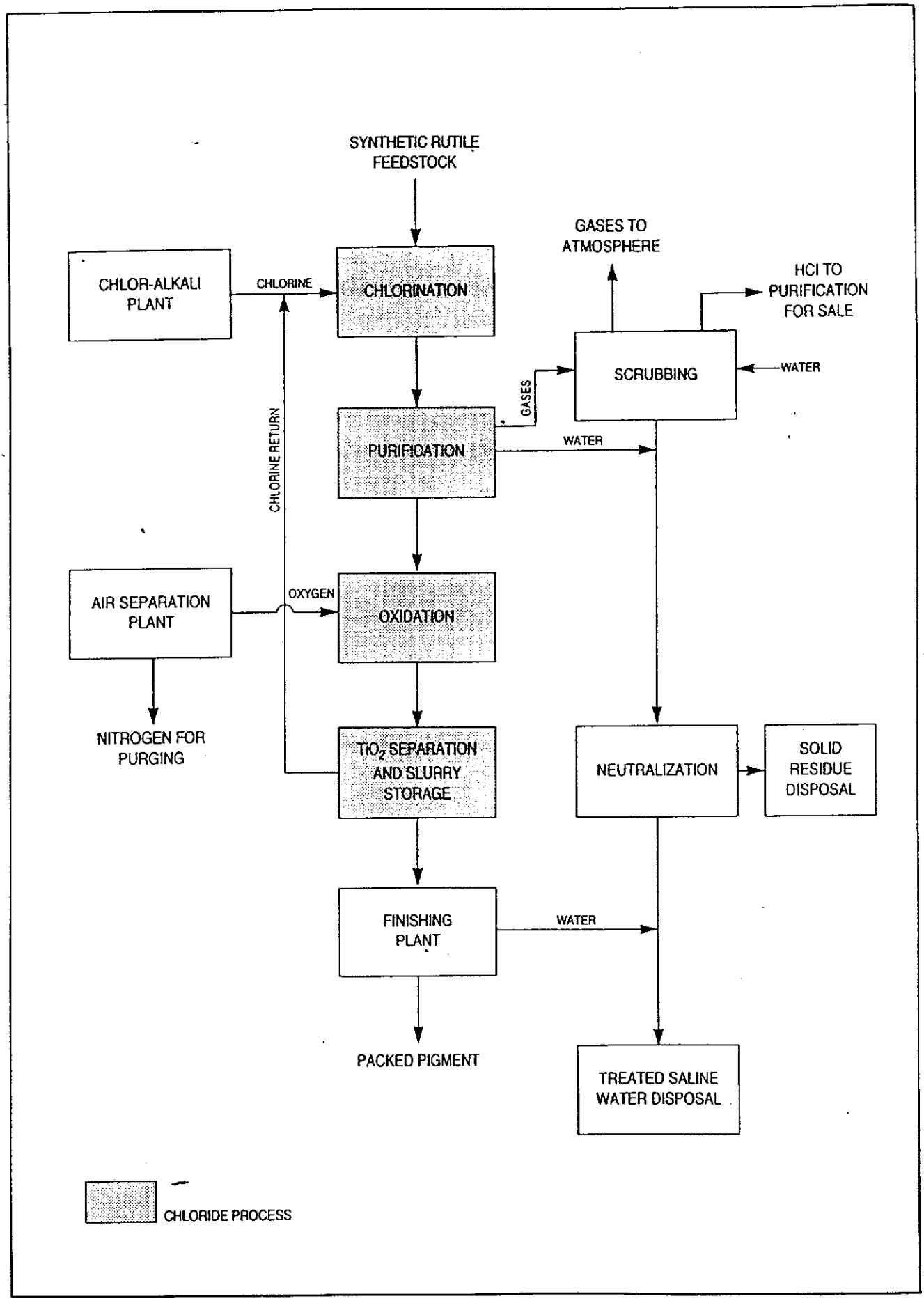

Figure 2. Titanium dioxide chloride process.

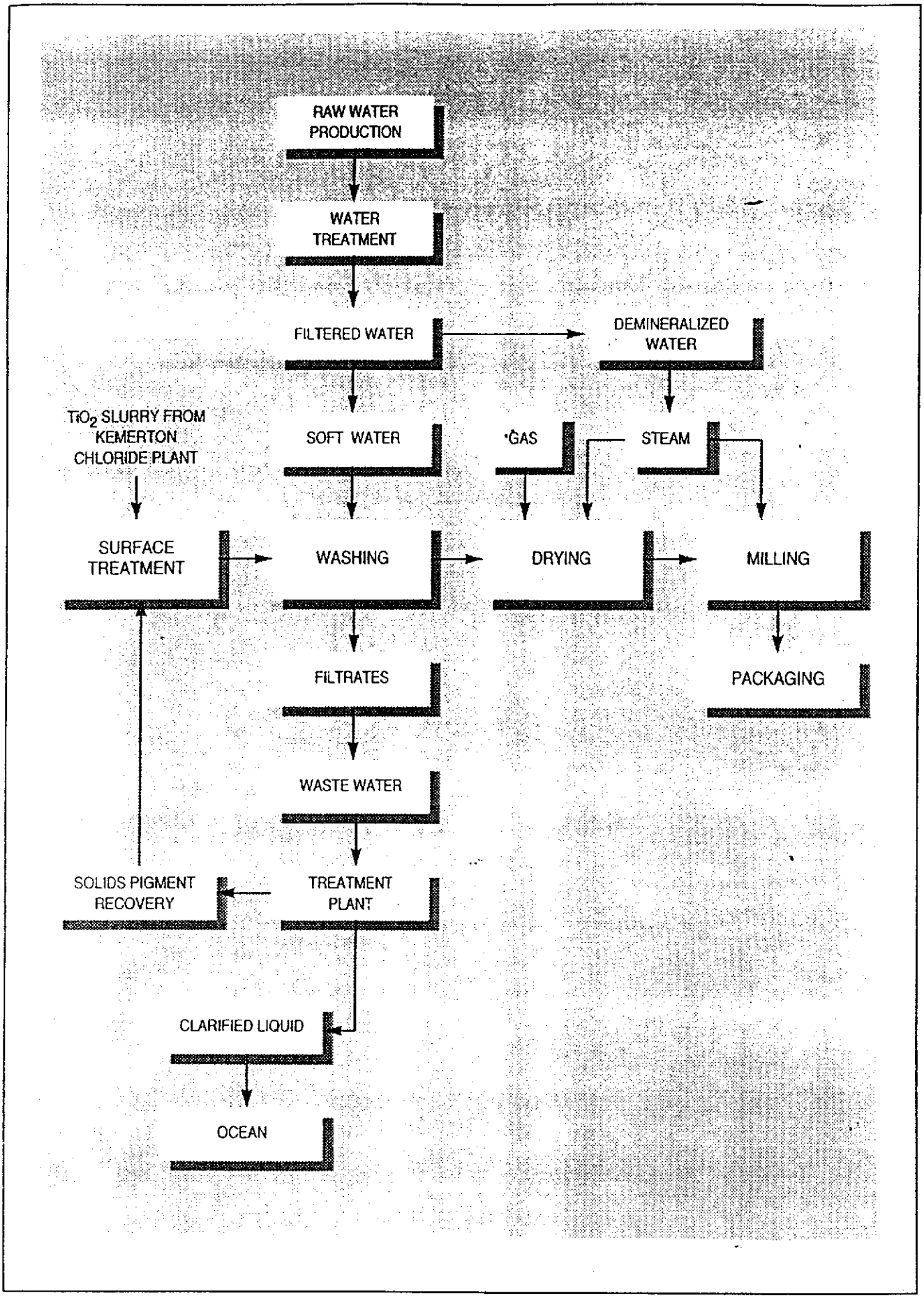

Figure 3. Finishing process.

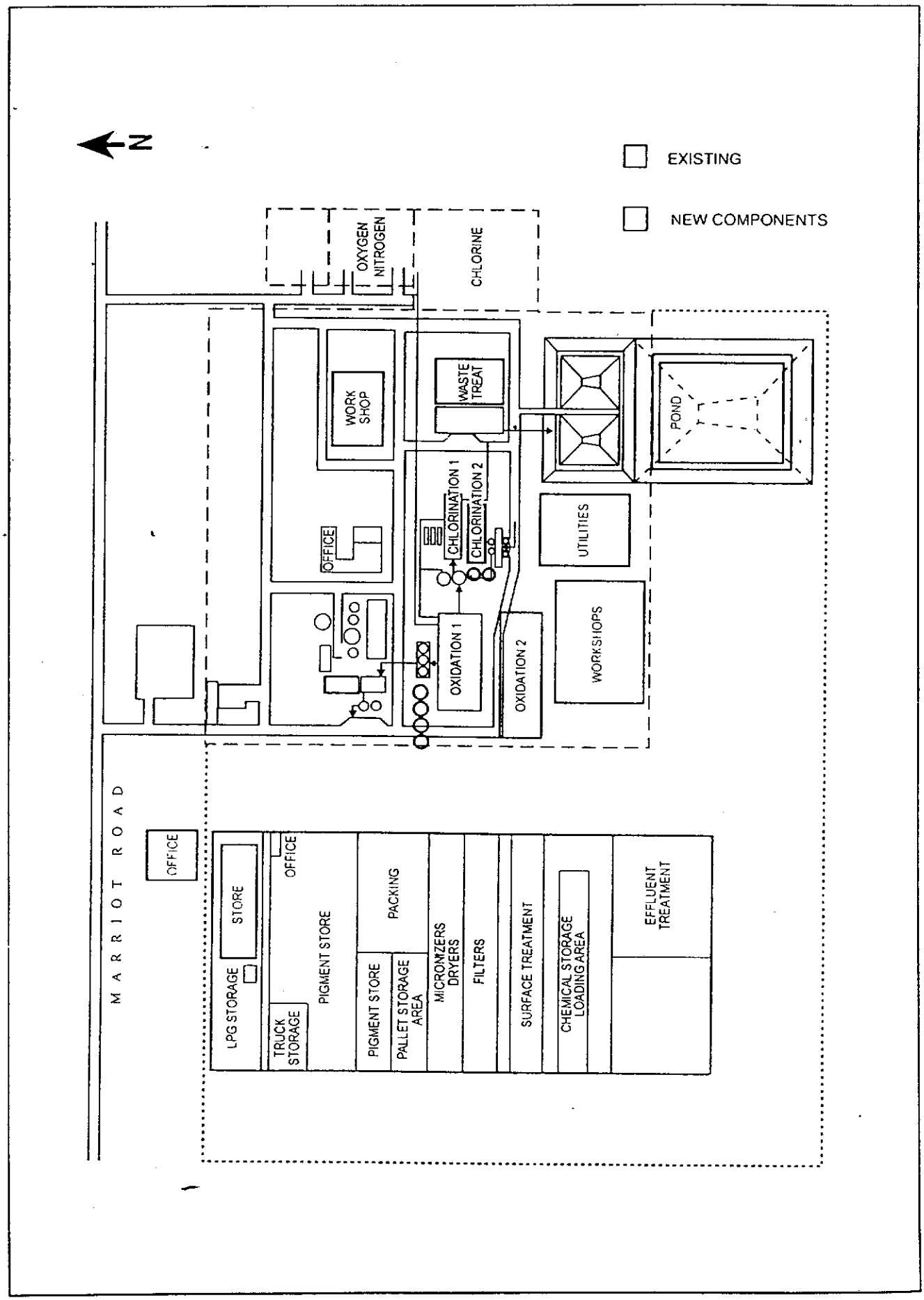

Figure 4. Proposed plant layout.

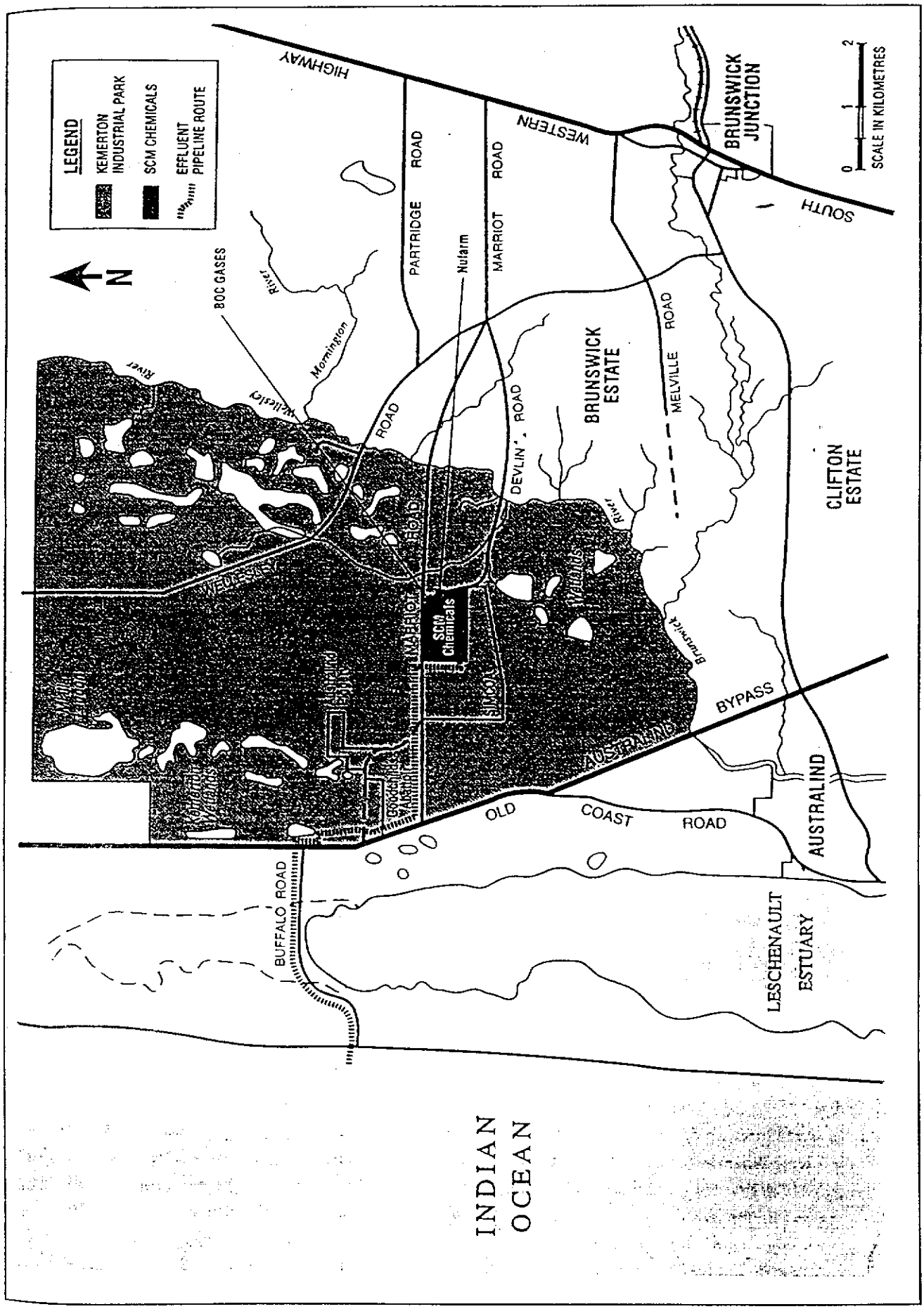

Figure 5. Water pipeline route.

PROPOSAL TABLES AND FIGURES

Table 1: Components of expanded chloride process plant and new finishing plant

Section	Components
Ore and coke handling	Add two new storage silos Add five new conveying systems Modify ore elevator to feed new silos
Chlorination	Add two new chlorinators Add one new cold cyclone Add one new sluice system
Condensation/purification	Add one new primary condenser Add one new secondary water cooled condenser Add one new brine cooled condenser Add two new brine refrigeration systems Add new purification system
Oxidation	Add new $TiCl_4$ and oxygen heaters Add new aluminium chloride generator Add one new reactor Add new bag filter Add four new slurry storage tanks Add ten new media mills
Finishing	Build two identical lines consisting of:- • one treatment tank; • three wash filters; • one drier; and • two fluid energy mills Add four pigment recovery thickeners Add chemicals make-up and storage facilities Add four bag packaging machines Add one semi-bulk packaging machine
Waste treatment	Add new process stack and scrubber Extend piping from existing maintenance scrubber Add thermal converter and waste heat boiler Extend suction vent system Add one new neutralisation system Upgrade pipeline to ocean
Utilities	Upgrade primary electrical substation Replace water treatment system Replace boiler Add new five-cell cooling tower Upgrade utility distribution system
Buildings	Expand workshops Expand laboratories Add new offices Add lunch room, change rooms and toilets Upgrade technical and engineering offices Add finished product warehouse Add materials stores Upgrade computer system

Table 2: Estimated inputs and outputs from existing and expanded titanium dioxide plant*

Material	Unit	Existing (pre-1999)	Expanded plant	Absolute Variance	% Variance
Production	tpa	79,000	195,000	116,000	147
Inputs					
Synthetic Rutile	tpa	84,000	206,000	122,000	145
Petroleum Coke	tpa	18,000	42,000	24,000	133
Chlorine	tpa	16,000	35,000	19,000	119
Oxygen	tpa	39,000	96,000	57,000	146
Nitrogen	tpa	59,000	145,000	86,000	146
Water	tpa	1,500,000	5,000,000	3,500,000	233
Natural Gas	Gjpa	370,000	980,000	610,000	165
Electricity	Mwh	29,000	97,000	68,000	234
Outputs					
Wastewater	m^3	950,000	3,000,000	2,050,000	216
Residue Slurry	tpa	141,000	397,000	256,000	182
CO	tpa	6,700	3,600	(-)3,100	(-)46
CO_2	tpa	70,000	194,000	124,000	177
$TiCl_4$	tpa	<0.5	<0.5	nil	nil
Cl_2	tpa	<0.5	<0.5	nil	nil
HCl	tpa	<0.5	<0.5	nil	nil
COS	tpa	540	540	nil	nil
SO_2	tpa	200	240	40	20
H_2S	tpa	<0.5	<0.5	nil	nil
NO_X	tpa	25	60	35	140
N_2	tpa	59,000	145,000	86,000	146

* Assumes thermal converter on-line 75% of the time

Abbreviations:

tpa = tonnes per annum

Gjpa = giga joules per annum

Mwh = mega watts per hour

m^3 = cubic metres

< = less than

Schedule 2

Proponent's Consolidated Environmental Management Commitments

March 1999

EXPANSION OF EXISTING TITANIUM DIOXIDE PIGMENT FACILITY TO 195,000TPA, KEMERTON INDUSTRIAL PARK (1006)

MILLENNIUM INORGANIC CHEMICALS LTD

EXPANSION OF EXISTING TITANIUM DIOXIDE PIGMENT FACILITY TO 195,000TPA, KEMERTON INDUSTRIAL PARK (1006)

MANAGEMENT PLANS

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
1. Amend and implement changes to environmental management plan and Manuals to reflect any changes to the operation.	To ensure that "Best Practice" environmental systems are in place that will result in minimal impact upon the receiving environment.	Amend, develop and implement changes as deemed necessary by changes to the operation and impacts. Train personnel in the procedures.	Prior to commissioning the expanded plant and where deemed necessary due to operational changes.	Department of Environmental Protection.	Audit systems to satisfaction of the DEP.
2. Continue to implement the Company's environmental systems manuals and audit their effectiveness.	To ensure that systems manuals are effective for the operation and that personnel have a competent understanding and adhere to the procedures.	Conduct audits and performance review of systems manuals and conduct training on the requirements of the procedures.	Annual audits and performance review. Environmental awareness training courses as deemed necessary.	Department of Environmental Protection	Manual audit of systems.
3. Amend and facilitate training programs for safety, environmental awareness and operational procedures to reflect changes to the operations.	To ensure that personnel are familiar with all facets of safety, environmental and operational procedures for the expanded operation to minimise occurrences.	Regular training sessions will be held as required to induct new staff and for retaining.	As deemed necessary.	Department of Environmental Protection	Internal audit Progress and compliance audit
4. Continue current monitoring programs and modify or expand where appropriate.	To ensure that the operations are not impacting on the receiving environment (air, land, water).	Design and submit programs to DEP for approval and conduct monitoring as specified on licence conditions or additional monitoring and deemed necessary by the Company or Department of Environmental Protection.	Prior to commissioning the expanded plant.	Department of Environmental Protection, Radiological Council of WA, Waters and Rivers Commission	Monitoring reports Audits

ATMOSPHERIC EMISSIONS

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
5. Install an integrated thermal converter system to reduce the volume of COS, H_2S and CO emissions and recycle waste heat.	Ensure that atmospheric emissions comply with current standards and do not adversely effect the environment, or the health, welfare or amenity of nearby land users.	Install a thermal converter to oxidise CO, COS and H_2S to CO_2, and SO_2. Utilise hot waste gases from the thermal converter to produce steam.	Initial design and construction phase. Prior to commissioning.	Department of Environmental Protection	Precommissioning report to the Department of Environmental Protection
6. Install a scrubber system capable of removing about 95% of SO_2 emissions	To reduce emissions of SO_2 to the atmosphere when the thermal converter is operating.	Install a scrubber system to remove 95% of resultant SO_2	Initial design and construction phase. Prior to commissioning.	Department of Environmental Protection	Monitoring and reporting to Department of Environmental Protection
7. Design the new process stack and emergency stack to ensure that gaseous emissions from the plant, including odorous gases, do not unreasonably interfere with the health, welfare, convenience or amenity of nearby residences (outside the Kemerton Industrial Park (KIP) boundary) even with the thermal converter on by-pass.	To ensure design of the stack is such that emission levels (both gaseous and odorous) comply with current standards and do not interfere with or adversely effect the environment, health, welfare or amenity of nearby land users.	Use appropriate computer modelling techniques at the works approval stage to confirm that ground level concentrations of licenced emissions meet DEP requirements and that the stack design is sufficient to meet the criteria.	Design stage confirm at works approval stage.	Department of Environmental Protection	Submission to Department of Environmental Protection at Works Approval stage. Monitoring and reporting to Department of Environmental Protection.
8. Ensure dust generation within the construction site does not exceed environmental limits and minimise dust emissions from the site during operations so that the health, welfare or amenities of nearby land users are not adversely effected.	To minimise dust generation to within acceptable community and regulatory standards.	Suppress dust generation during site preparation by the use of water sprays/trucks as required. Rehabilitate all areas that may generate wind blown dust. Install filters on finishing plant stack(s). Regularly monitor bag filter integrity.	During construction. Post-commissioning Throughout the life of the plant	Department of Environmental Protection.	Monitoring and reporting. Progress and compliance audits. Monitoring and reporting.

GREENHOUSE GASES

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
9. To enter into the Commonwealth Government's "Greenhouse Challenge" voluntary cooperative agreement program on a project-specific basis.	To voluntarily reduce greenhouse gas emissions and cooperate with Greenhouse Challenge office	• Letter of Intent to join Greenhouse Challenge • Greenhouse agreement	• Signed by CEO and forwarded September 1998 • By June 1999	Department of Environmental Protection	• Initial report • Progress and compliance audit
10. Using methodology acceptable to the Greenhouse Challenge office, estimate the gross emissions of greenhouse gases that may be emitted from the proposed project for each year of its operation in absolute and in CO_2 equivalent figures.	To quantify greenhouse gas emissions in absolute and CO_2 equivalent figures.	• Develop method • Reach agreement on method with Greenhouse Challenge office • Use method to assess greenhouse gas emissions	Within six months of completing commissioning phase	Department of Environmental Protection	• Report to Greenhouse Challenge office • Initial report to DEP • Progress and compliance audits
11. Using methodology acceptable to the Greenhouse Challenge office estimate: (1) The gross removals of greenhouse gases from either sink enhancement programs or CO_2 stabilising techniques, and (2) Loss of sink through land clearing.	To quantify gross removals of greenhouse gases from either sink enhancement programs or CO_2 stabilising techniques and loss of sink through land clearing.	• Develop method • Reach agreement on method with Greenhouse Challenge office • Use method to assess greenhouse removals or loss as per (1) and (2)	Within six months of completing commissioning phase	Department of Environmental Protection	• Initial report • Progress and compliance audits
12. To indicate the intended measures and efficient technologies to be adopted to minimise total greenhouse gas emissions in the proposed project including appropriate abatement measures where it does not conflict with commercial confidentiality.	To reduce greenhouse gases through the use of efficient technology where it is shown to be economically feasible and within the constraints of the design criteria and indicate these measures to the DEP and Greenhouse Challenge office.	• Use, where feasible, efficient technologies in design • Indicate the measures to the DEP	• During design stage • Throughout the life of the project • Within six months of completing commissioning phase	Department of Environmental Protection	• Initial report • Progress and compliance

NOISE

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
13. The proposed final plant design will comply with the assigned noise levels stipulated in the noise regulations.	Ensure that noise levels due to the company's operations meet acceptable criteria at residential areas, adjacent industries and boundaries.	Noise modelling. Consider noise emissions from machinery in plant design. Undertake regular ambient and source noise monitoring.	Completed for approvals process during plant design and construction. Throughout the life of the project. Both in-house and consultants.	Department of Environmental Protection (Noise Branch)	Department of Environmental Protection approval for expansion. Monitoring reports as required.

MARINE DISCHARGE

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
14. Continue to operate and monitor the neutralisation plant and discharge wastewater to the ocean.	Maintain saline water quality to a standard consistent with current DEP licence conditions.	Treat all wastewater prior to discharge and monitor prior to discharge for current DEP licence conditions.	Throughout the life of the project.	Department of Environmental Protection	Monitoring reports to Department of Environmental Protection (monthly).
15. Develop the ocean outfall diffusion system to maintain or improve dispersion of wastewater into the marine environment.	Maintain ocean water quality within the levels specified in the draft WA Water Quality Guidelines for Fresh and Marine waters (EPA Bulletin 711)	Develop outfall diffusion system using computer modelling techniques. Test outcome following commissioning by monitoring.	During design stage. Construction prior to commissioning.	Department of Environmental Protection	Department of Environmental Protection Works Approval Stage Receiving environment reports.
16. Continue to monitor the receiving environment	To minimise impact of saline water disposal on the marine environment.	Design monitoring program to encompass the additional discharge from the expanded plant and seek approval from the DEP to implement. Conduct a "current status" study of the receiving environment.	Prior to commissioning. On-going.	Department of Environmental Protection	Monitoring reports to Department of Environmental Protection "Current status" report to Department of Environmental Protection.
17. Alter the wastewater disposal system if problems are detected.	To continue to minimise impact of saline water disposal on the marine environment.	Redesign system if deemed necessary.	If problems should occur.	Department of Environmental Protection.	Monitoring reports to the satisfaction of the Department of Environmental Protection.
18. Submit a detailed wastewater disposal system proposal for the expansion to the DEP/EPA for assessment, if the wastewater disposal system is not provided by the Water Corporation.	To minimise environmental impacts through coordinated management and control of ocean dicharges	Prepare and submit a detailed wastewater disposal system proposal	Prior to commissioning of the expanded plant	Department of Environmental Protection. Environmental Protection Authority	Department of Environmental Protection.

SOLID RESIDUE

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
19. Continue to investigate and operate waste minimisation programs and undertake research into beneficial uses and options for solid residue.	To reduce the amount of solid residue produced per tonne of product and find alternative uses for the solid residue.	Pursue the residue minimisation program. Pursue use of solid residue for road construction, tip capping and soil amendment and pursue other alternatives and markets.	Throughout the life of the project.	Department of Environmental Protection.	Annual Dalyellup Audit Report to Department of Environmental Protection.
20. Continue to liaise with the Government Task Force to establish alternative residue disposal options and sites.	To co-operate with Government departments and consultants in locating future disposal options or site(s).	Ongoing discussion with Department of Resource and Development. Alternative sites investigations being carried out through DRD and consultants.	On-going	Department of Environmental Protection Department of Resource Development.	Annual Dalyellup Audit Report to Department of Environmental Protection.
21. Continue to monitor and undertake audits of the solid residue storage area at Dalyellup.	To dispose of solid residue by utilising methods that minimise environmental impact and have in place measurable systems to confirm.	Continue radiation and groundwater monitoring in accordance with Environmental Management Plan and systems manuals and Radiation Management Plan and submit an annual audit report and groundwater monitoring report.	Throughout the life of the Dalyellup site.	Department of Environmental Protection.	Annual audit report to Department of Environmental protection, Capel Shire. Annual Groundwater Monitoring Report to Department of Environmental Protection, Capel Shire and Landcorp.

RADIATION

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
22. Continue to implement the Company's Radiation Management Plan (RMP) and audit its effectiveness.	To ensure all radiological impacts are in accordance with the ALARA Principle and comply with currently accepted standards and codes of practice.	Maintain an up-to-date Radiation Management Plan and ensure personnel are aware of its content and responsibilities. Revise the RMP to include changes from the expansion. Advise all personnel of changes and provide specific training where required. Audit the RMP annually.	Throughout the life of the project. Prior to commissioning. On-going Annually	Radiological Council of WA	Annual audit by Radiological Health Branch of Health Department of WA. Reports to Radiological Council of WA. Dalyellup report biennial to Radiological Council of WA Recommendations to be produced in annual report to DEP

GROUND WATER

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
23. Continue to control surface run-off from the plant site.	To prevent ground water contamination from process areas.	Direct stormwater to infiltration ponds seal and bund process area. Direct all process area drainage to wastewater treatment plant. Monitor groundwater.	Initial design and construction phase. Throughout the life of the project.	Department of Environmental Protection Waters and Rivers Commission	Monitoring reports to Waters and Rivers Commission. Annual reports to DEP to verify submission of report to Water and Rivers Commission

WATER RESOURCES

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
24. Continue to explore opportunities to further recycle and reuse process water within the expanded plant.	Reduce overall water usage on a tonne per tonne of product produced.	Continue recycling of process water and investigate potential for reuse and recycling within the expanded plant.	Throughout the life of the project.	Department of Environmental Protection Waters and Rivers Commission	Monitoring reports to Waters and Rivers Commission
25. Submit a detailed groundwater supply proposal for the expansion, to the DEP/EPA for assessment, if the water supply for the expansion is not provided by the Water Corporation.	Optimise water resources and minimise environmental impacts.	Prepare and submit a detailed groundwater supply proposal.	Prior to commissioning of the expanded plant	Department of Environmental Protection Waters and Rivers Commission Water Corporation	Department of Environmental Protection Environmental Protection Authority

RISKS AND HAZARDS

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
26. Undertake technical and hazard reviews at all significant process changes and continue to implement the Centralised Control Policy regarding changes to plant detail.	To ensure that any process change does not impact adversely on the environment, workforce or nearby land users.	Review any significant changes to process through review committee and change order process.	Throughout the life of the project.	Department of Minerals and Energy DEP	Report to DEP with Department of Minerals and Energy's advice
27. Amend and implement the company's Total Hazard Control Plan (THCP) – now called Safety Report) to reflect any changes to the operation and audit its effectiveness.	To ensure off-site risk is as low as reasonably achievable.	Prepare and maintain THCP (now called the Safety Report) Maintain high plant safety rating through plant design and maintenance planning. Undertake regular internal and external audits to ensure THCP (now called the Safety Report) remains effective. Undertake a full Quantitative Risk Assessment (QRA) as part of the Safety Report	Prior to commissioning Throughout the life of the plant As required by Department of Minerals and Energy Completion of detailed project design	Department of Minerals and Energy Department of Minerals and Energy. Department of Environmental Protection	Internal audits External audits approved by Department of Minerals and Energy. Recommendations of external audits to be included in annual reports to DEP Meet the EPA's criteria for individual fatality risk off-site
28. Continue to conduct regular safety audits.	To ensure that the company has in place systems and procedures that are auditable and effective in maintaining safeguards to both people and property.	Monitor the effectiveness of the system to safeguard people and property and to ensure that the systems are being adhered to.	Throughout the life of the project.	Department of Minerals and Energy Department of Environmental Protection.	Records maintained of audits. Progress and compliance report.
29. Ensure safe plant layout and operate the plant in a safe manner.	To design and operate the expanded plant in a manner that will be safe and not cause detrimental effects to the workforce, other industries or nearby land users.	•Design the plant to incorporate features described in EPA Bulletin 283 for layout, maintenance, general conditions and emergency plans. • Implement risk mitigation measures as identified in risk assessments, HAZOP reviews and safety audits.	Initial design and throughout the life of the project.	Department of Minerals and Energy Department of Environmental Protection.	Progress and compliance report. Department of Environmental Protection audit Department of Minerals and Energy/THCP (now called the Safety Report) Audit Internal audits

30. Amend procedures manual (Standard Operating Instructions, Process Control, Maintenance and Safety Procedures) to reflect any changes to the operations.	To ensure safe operation of the process plant and minimise incidents.	Amend, develop and implement procedures manuals to reflect changes to operation and train personnel in these procedures.	Prior to commissioning the expanded plant and where deemed necessary due to operational changes during the life of the operations.	Department of Minerals and Energy Department of Environmental Protection.	Audit systems to satisfaction of DEP, Department of Minerals and Energy
31. Minimise risk to persons involved in the construction of the expansion, from the operation of the existing plant	To protect health and safety of construction people	Prepare and implement a Construction Safety Plan	Before construction	Department of Minerals and Energy Department of Environmental Protection.	Approval of the plan by Department of Minerals and Energy. Auditing and reporting as required by the plan Precommissioning report to DEP
32. Continue to carry out preventative maintenance which includes replacement of sensors in oxidation system, testing of sensors in tail gas line, maintenance and testing of all sensors.	To ensure proper operation of all equipment and reduce the likelihood of incidents.	Programmed maintenance schedules using Maintracker maintenance system.	As per maintenance schedules.	Department of Environmental Protection	Audit by Department of Environmental Protection Audit by Department of Minerals and Energy Report on maintenance in annual reports to DEP

REHABILITATION

COMMITMENT	OBJECTIVE	ACTION	TIMING	WHOSE ADVICE	COMPLIANCE CRITERIA
33. To carry out rehabilitation and landscaping of the expanded plant to create an aesthetically pleasing operation that is complimentary to and maintains the integrity of the surrounding environs and meets the requirement of the Kemerton Industrial Park.	To operate an industrial process within a parkland concept that is aesthetically pleasing and maintains the integrity of the natural surroundings.	Prepare a Rehabilitation Management Plan. Implement the plan. Monitor progress of rehabilitation using criteria described in current systems manual.	Following commissioning of the expanded plant. Annual assessment.	Conservation and Land Management Shire of Harvey	Appoval by Conservation and Land Management or Shire of Harvey. Progress and compliance reports.