

Statement No.

MINISTER FOR THE ENVIRONMENT; SCIENCE

000700

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

SODIUM CYANIDE PLANTS (LIQUID AND SOLID) AT KWINANA AND TRANSPORT OF SODIUM CYANIDE BY ROAD AND RAIL FROM KWINANA

Proposal:

The operation of liquid and solid sodium cyanide production plants at Kwinana, and the transport of sodium cyanide by road and rail from Kwinana, as documented in schedule 1 of this statement.

Proponent: Australian Gold Reagents Pty Ltd

Proponent Address: PO Box 345, KWINANA WA 6167

Assessment Number: 1541

Previous Assessment Numbers: 113, 197, 300, 300-1, 846, 908, 1390, 1422 and 1497

Previous Statements:

Statement No. 006 published on 15 October 1987, Statement No. 073 published on 24 August 1989, Statement No. 099 published on 1 June 1990, Statement No. 129 published on 15 March 1991, Statement No. 347 published on 17 March 1994, Statement No. 384 published on 12 May 1995, Statement No. 579 published on 6 December 2001, Statement No. 602 published on 2 August 2002, and Statement No. 668 published on 11 November 2004.

Report of the Environmental Protection Authority: Bulletin 1186

Previous Reports of the Environmental Protection Authority: Bulletins 274, 284, 387, 427, 450, 727, 772, 1028, 1047 and 1132.

The conditions and procedures of this statement supersede the conditions and procedures of Statement No. 668 in accordance with section 45B of the *Environmental Protection Act 1986*.

The revised proposal to which the above reports of the Environmental Protection Authority relate may be implemented subject to the following conditions and procedures:

Published on 2 2 NOV 2005

1 Implementation

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1-1 The proponent shall implement the revised proposal referred to above and documented in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 **Proponent Commitments**

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

3 Proponent Nomination and Contact Details

- 3-1 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 as the proponent for the proposal.
- 3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.
- 3-3 The nominated proponent shall notify the Department of Environment of any change of contact name and address within 60 days of such change.

4 Compliance Audit and Performance Review

- 4-1 The proponent shall prepare an audit program and submit compliance reports to the Department of Environment which address:
 - 1. the status of implementation of the proposal as defined in schedule 1 of this statement;
 - 2. evidence of compliance with the conditions and commitments; and
 - 3. the performance of the environmental management plans and programs.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environment is empowered to monitor the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

- 4-2 The proponent shall submit a performance review report within three years following the date of publication of this statement and every five years thereafter, which addresses:
 - 1. the major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives;
 - 2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable;
 - 3. significant improvements gained in environmental management, including the use of external peer reviews;
 - 4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
 - 5. the proposed environmental objectives over the next five years, including improvements in technology and management processes.
- 4-3 The proponent may submit a report prepared by an independent auditor to the Chief Executive Officer of the Department of Environment on each condition/commitment of this statement which requires the preparation of a management plan, programme, strategy or system, stating whether the requirements of each condition/commitment have been fulfilled within the timeframe stated within each condition/commitment.

5 Decommissioning Plans

5-1 Within six months following the date of publication of this statement, the proponent shall prepare a Preliminary Decommissioning Plan, which provides the framework to ensure that the plant site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The Preliminary Decommissioning Plan shall address:

- 1. conceptual plans for the removal or, if appropriate, retention of plant and infrastructure;
- 2. a conceptual rehabilitation plan for all disturbed areas and a description of a process to agree on the end land use(s) with all stakeholders;
- 3. a conceptual plan for a care and maintenance phase; and
- 4. management of noxious materials to avoid the creation of contaminated areas.

5-2 At least 12 months prior to the anticipated date of decommissioning, or at a time agreed with the Environmental Protection Authority, the proponent shall prepare a Final Decommissioning Plan designed to ensure that the plant site is left in an environmentally acceptable condition to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The Final Decommissioning Plan shall address:

- 1. removal or, if appropriate, retention of plant and infrastructure in consultation with relevant stakeholders;
- 2. rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and
- 3. identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.
- 5-3 The proponent shall implement the Final Decommissioning Plan required by condition 5-2 until such time as the Minister for the Environment determines, on advice of the Environmental Protection Authority, that the proponent's decommissioning responsibilities have been fulfilled.
- 5-4 The proponent shall make the Final Decommissioning Plan required by condition 5-2 publicly available.

6 Review of Options for the Transport of Solid Sodium Cyanide (Kwinana to Fremantle)

6-1 The proponent shall review the transport options and related matters referred to in commitment 12 (schedule 2 attached) by 31 August 2007 and at intervals of two years thereafter, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, until such time as the Minister for the Environment determines that the review is no longer required.

7 Transport of Solid Sodium Cyanide (Kwinana to Fremantle)

7-1 The proponent shall transport solid sodium cyanide in a manner that is consistent with the findings of the reviews required by condition 6-1 to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

8 Transport of Liquid Sodium Cyanide

8-1 The proponent shall use rail transport of liquid sodium cyanide from Kwinana wherever practicable, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

- 8-2 The proponent may use road transport of liquid sodium cyanide from Kwinana in the following circumstances:
 - 1. When there is temporary interruption of rail service, such as industrial disputes and rail washaways;
 - 2. When there is no rail service or when scheduled rail services have been terminated; or
 - 3. Where goldmines cannot be serviced practicably and/or efficiently by rail from Kwinana.
- 8-3 At intervals not exceeding two years from the date of publication of this statement, the proponent shall undertake a review of and report to the Environmental Protection Authority on the transport options for liquid sodium cyanide referred to in conditions 8-1 and 8-2.

9 Noise Management

9-1 Within six months following the formal authority issued to the decision-making authorities under section 45(7) of the *Environmental Protection Act 1986*, the proponent shall prepare, in liaison with the Kwinana Noise Reference Group, a Noise Management Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

This Plan shall include:

1 (a) noise reduction measures to be implemented during the following 12 months for the purpose of complying with the *Environmental Protection (Noise) Regulations* 1997 by 30 December 2008; or

(b) noise reduction measures to be implemented for the purpose of complying with the amended Noise Regulations within 12 months following their gazettal;

- 2 the acoustical model of the plant;
- 3 best practicable measures to minimise noise emissions;
- 4 operating procedures to be adopted for particular activities to minimise noise impacts;
- 5 the noise monitoring program;
- 6 the complaint management procedure; and
- 7 the procedure for the annual review and updating of the Noise Management Plan.
- 9-2 The proponent shall implement the Noise Management Plan required by condition 9-1.

9-3 The proponent shall make the Noise Management Plan required by condition 9-1 publicly available.

10 Emissions Verification

10-1 Within three months following the date of publication of this statement, the proponent shall prepare an Emissions Verification Plan to the requirements of the Minister for the Environment.

The objective of this Plan is to verify that cyanide, ammonia and total particulate emissions from the upgraded plant are consistent with emission estimates used to model impacts on the air quality in the vicinity of the operations.

This verification shall take place when the plant throughput reaches 30,000 tonnes per annum and 45,000 tonnes per annum.

This Plan shall include procedures and measures to:

- 1. determine exit stack emissions of cyanide (hydrogen cyanide gas and sodium cyanide particulates), ammonia and total particulates from the upgraded solid sodium cyanide plant;
- 2. specify the duration of the verification period, sampling frequency, sampling methods, analytical test methods and quality assurance and quality control procedures for monitoring of emissions from the plant stack; and
- 3. determine whether stack emissions are similar to or below those forming the basis for upgraded assessment / performance claims and modelling results as detailed in the Public Environmental Review document, *Proposed Solid Sodium Cyanide Plant Upgrade Public Environmental Review, Version 5, April 2005.*
- 10-2 The proponent shall commence implementation of the Emissions Verification Plan required by condition 10-1 as soon as possible following the commissioning of the upgraded solid sodium cyanide plant, but no later than two months following the approval of the Plan.
- 10-3 During implementation of the Emissions Verification Plan required by condition 10-1, the proponent shall report monitoring results of cyanide, ammonia or total particulate emissions which are greater than 20 per cent higher than those presented in the Public Environmental Review document referred to in condition 10-1(3) to the Department of Environment within one week following validation of the result.
- 10-4 Within three months following the completion of monitoring, the proponent shall submit a report on the outcome of the implementation of the Emissions Verification Plan, including all monitoring results, to the Department of Environment.
- 10-5 The proponent shall implement measures to reduce cyanide, ammonia and/or particulate emissions to acceptable levels in the event that emissions exceed levels specified in the Public Environmental Review document referred to in condition 10-1(3).

11 Cyanide Monitoring

11-1 Within three months following the date of publication of this statement, the proponent shall prepare a Cyanide Monitoring Plan to the requirements of the Minister for the Environment.

The objective of this Plan is to confirm that ambient ground level concentrations of cyanide in the vicinity of the operations meet relevant environmental and public health criteria.

This confirmation shall take place when the plant throughput reaches 30,000 tonnes per annum and 45,000 tonnes per annum.

This Plan shall include procedures and measures to:

- 1. determine ambient ground level concentrations of cyanide in the vicinity of the operations; and
- 2. specify the duration of the monitoring period, sampling frequency, sampling methods, analytical test methods and quality assurance and quality control procedures for monitoring of cyanide concentrations.
- 11-2 The proponent shall commence implementation of the Cyanide Monitoring Plan required by condition 11-1 within two months following the approval of the Plan.
- 11-3 Within three months following the completion of monitoring, the proponent shall submit a report on the outcome of the implementation of the Cyanide Monitoring Plan, including all ambient monitoring results, to the Department of Environment.
- 11-4 The proponent shall implement contingency measures to reduce cyanide emissions to acceptable levels in the event that ambient monitoring data indicate that relevant health or environmental criteria are exceeded during normal operation of the sodium cyanide plants.

Note 1: In the preparation of the Plan, the proponent should liaise with the following agencies or organisations:

- Department of Health;
- Department of Consumer and Employment Protection;
- Department of Industry and Resources;
- Kwinana Industries Council;
- Town of Kwinana; and
- Department of Environment.

Note 2: The Cyanide Monitoring Plan referred to in conditions 11-1 to 11-3 should be a campaign sampling program undertaken, whenever possible, while the solid and liquid sodium cyanide plants are operating at or near capacity. Cyanide concentrations should be determined at sites in the vicinity of the plant which are accessible to the public,

particularly sites which are likely to represent worst-case ambient cyanide concentrations for the given meteorological conditions, based on modelling simulations.

Procedures

- 1 Where a condition states "to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment for the preparation of written notice to the proponent.
- 2 The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment.
- 3 Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment.

Notes

- 1 The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment over the fulfilment of the requirements of the conditions.
- 2 Within this statement, to "have in place" means to "prepare, implement, document and maintain for the duration of the proposal".
- 3 The Department of Consumer and Employment Protection manages all safety aspects of the storage and transport of dangerous goods under the *Explosives and Dangerous Goods Act 1961* and relevant regulations.
- 4 In order to meet the requirements of the Department of Consumer and Employment Protection in terms of dangerous goods licensing, the proponent is required to prepare and submit to that Department a Safety Report in accordance with the *National Standard for the Control of Major Hazard Facilities*, National Occupational Health and Safety Commission: 1014 (2002).

Judy Edwards

Dr Judy Edwards MLA MINISTER FOR THE ENVIRONMENT; SCIENCE

2 2 NOV 2005

The Proposal (Assessment No. 1541)

The main characteristics of the proposal are summarised in Table 1 below.

Table 1 - Key Proposal Characterist	ics
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Characteristic	Description				
	General				
Location	Kwinana Beach Road – Kwinana South east corner of the CSBP site and west of Coogee Chemicals – Kwinana Industrial Area (See figure 2).				
Disturbance Areas					
Plant areas	Approx 4 hectares				
Total area disturbed	4.3 hectares				
L	iquid Sodium Cyanide Plants				
Plant 1 Commissioned	1988				
Plant 2 Commissioned	1998				
Plant facilities (x2)	Gas reactor, cooler, absorber, distillation column, and incinerator.				
Process Description	 Natural gas, air and ammonia are mixed in the correct ratio; The mixed gases enter a high temperature reactor where hydrogen cyanide is produced using a catalyst; Caustic soda is then used to absorb the hydrogen cyanide gas in an absorption tower to produce a 30% sodium cyanide solution; The gas leaving the absorption tower is burnt in a continuously operating incinerator. 				
Production Capacity (Plants 1 & 2	Capacity to produce a combined total of 70,000 tpa sodium cyanide				
combined)	(expressed as 100% sodium cyanide) as a 30% solution				
Inputs (nominal)	 2,200 1J per year natural gas 40,000 t per year ammonia 60,000 dmt per year caustic soda 24,500 MWhr electricity 				
Outputs (nominal)	14,500 t of steam60,000 MWhr electricity				
Storage – liquid sodium cyanide	 steel tanks with total capacity of 5,500 m³ (2,000 t of 100% sodium cyanide) on site. Up to 140 t in ISO-tainers in transit 				
Gaseous Emissions	 Tail gases from the incinerator; Discharge gases from the start-up blower; and Discharge gases from the shut down stack 				
Liquid Effluent Discharges	Up to 16 m ³ /hr cooling tower blowdown Stormwater				
	Solid Sodium Cyanide Plant				
Plant Commissioned	2002				
Plant Facilities	Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, centrifuge, spin flash dryer incorporating scrubber system, powder hopper and compacting machine.				
Process Description	 The solids plant receives a continuous feed of sodium cyanide solution produced at the liquid sodium cyanide plants which will be directed to one of two or three batch evaporation units. Following concentration by evaporation, the sodium cyanide crystals are centrifuged, dried and compressed into briquettes. The briquettes are then packaged and transported. 				
Production Capacity	Nominal 45,000 tpa				
Inputs 30% sodium cyanide solution					
Outputs	Briquettes containing >97% sodium cyanide.				

Characteristic	Description		
Storage	Area designed to store a maximum of 7 140 tonnes of solid sodium cyanide. Solid sodium cyanide will be stored in IBCs packed into sea containers or a warehouse.		
	Small quantities may be stored in ISO-tainers (equipped to allow injection of water to dissolve the sodium cyanide at the mine site).		
Gaseous Emissions	• Ammonia to a maximum of 1.5 grams per second.		
	• Hydrogen cyanide and sodium cyanide (combined) to a maximum of 0.58 grams per second.		
Liquid Effluent Discharges	 16 m³/hour wastewater, containing up to 19 kg/day of nitrogen. All liquid effluent is treated and then pumped to CSBP's effluent pond. 		
Transport			
Liquid Sodium Cyanide	By road and rail. <i>The Dangerous Goods (Transport) (Road and Rail) Regulations 1999</i> , Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Area" are adhered to at all times for transport and packaging.		
Solid Sodium Cyanide	The Dangerous Goods (Transport) (Road and Rail) Regulations 1999, Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Area" are adhered to at all times for transport and packaging.		

Key

dmt -- dry metric tonne kg/day -- kilograms per day m³ - cubic metres m³/hr - cubic metres per hour MWhr - megawatt hours t - tonnes Tj -- terajoules tpa - tonnes per annum IBC -- intermediate bulk container

Figures (attached).

Figure 1 - Project location Figure 2 - Site Layout.









Schedule 2

Proponent's Environmental Management Commitments

November 2005

SODIUM CYANIDE PLANTS (LIQUID AND SOLID) AT KWINANA ^{AND} TRANSPORT OF SODIUM CYANIDE BY ROAD AND RAIL FROM KWINANA

(Assessment No. 1541)

AUSTRALIAN GOLD REAGENTS PTY LTD

SODIUM CYANIDE PLANTS (LIQUID AND SOLID) AND TRANSPORT OF SODIUM CYANIDE BY ROAD AND RAIL FROM KWINANA (ASSESSMENT NO. 1541) November 2005

Note: The term "commitment" as used in this schedule includes the entire row of the table and its six separate parts as follows:

- a commitment number;
- a commitment topic;
- the 'action' to be undertaken by the proponent;
- the objective of the commitment;
- the timing requirements of the commitment; and
- the body/agency to provide technical advice to the Department of Environment.

NO.	TOPIC	ACTION	OBJECTIVE/S	TIMING	ADVICE
		Manufacture and Storage of Sod	ium Cyanide		l., ,
1	Environmental Management	Have in place an Environmental Monitoring and Management System, which details procedures for the management and monitoring of the solid and liquid sodium cyanide manufacturing facility.	To protect the environment in the event of an incident.	Implemented and on-going.	
		This System will include the following:			
		 Water (Surface and Waste) Management Plan (see commitment 3); Solid Waste Management Plan (see commitment 5); Noise Management Plan (when required) (see condition 9); Transport Management Plan (see commitment 9); and All monitoring and management procedures for cyanide manufacture and storage. 			
2	Environmental Management	Review the Environmental Monitoring and Management System as described in commitment 1.	To protect the environment in the event of an incident.	At intervals not exceeding 3 years.	

NO.	TOPIC	ACTION	OBJECTIVE/S	TIMING	ADVICE
3	Water Management	 Have in place a Water (Surface and Waste) Management Plan, which details procedures for the management of water discharge from the site. This plan includes the following: Management of contaminated stormwater; Management of liquid spills and washdown water; Liquid waste storage requirements; Process and storage area sealing and bunding requirements; Requirements for monitoring/testing prior to disposal; Discharge requirements including concentration of cyanide and copper each to be less than 1 ppm and emission of nitrogen to be no greater than 19 kg/day on monthly average; Contingency/emergency procedures, including notification of the Water Corporation; and Reporting requirements. 	To protect marine flora and fauna and groundwater.	Implemented and on-going.	Water Corporation Cockburn Sound Management Council
4	Water Management	Review the Water (Surface and Waste) Management Plan referred to in commitment 3.	To protect marine flora and fauna and groundwater.	At intervals not exceeding 3 years.	
5	Solid Waste Management	 Have in place a Solid Waste Management Plan, which details procedures for the management of solid waste disposal from the site. This plan will include the following: 1. Recyclable wastes will be removed by an approved contractor; 2. General refuse (domestic and industrial solid waste) will be disposed of at an appropriate landfill; 3. Solid waste storage requirements; and 4. Reporting and review requirements. 	To ensure that waste is relocated to the correct locations to minimise potential contamination to the receiving environment.	Implemented and on-going.	
6	Solid Waste Management	Review the Solid Waste Management Plan referred to in commitment 5.	To ensure that waste is relocated to the correct locations to minimise potential contamination to the receiving environment.	At intervals not exceeding 3 years.	

0.	TOPIC	ACTION	OBJECTIVE/S	TIMING	ADVICE
	Atmospheric Emissions	Maintain emission rate of total cyanide (gaseous and particulate) at or below 0.58 grams per second.	To minimise discharge of waste to the environment.	Implemented and on-going	
	Facility Emergency Response	Be represented in KIMA and KIPS and maintain emergency response capabilities in accord with the Safety Report and approved Transport Management Plan.	To ensure that the emergency response and fire-fighting capability is appropriate to respond to all emergency and fire scenarios.	Implemented and on-going.	DOCEP
	1	Transport of Sodium Cy:	anide	<u></u>]
	Transport Management Plan	 Have in place a Transport Management Plan, which details procedures for the management of the transport of solid and liquid sodium cyanide. This plan will include: Procedure for Transport Emergency Response for both liquid and solid sodium cyanide; Procedure for obtaining DOCEP authorisation for changes to the approved (as outlined in submission) sodium cyanide transport routes; Process for liaison with Local Government Authorities, relevant government departments, the Water Corporation, State emergency authorities and the local emergency management advisory committees before transport commences along approved transport routes, to address local and specific issues, including setting up emergency plans and training programs; Procedure for reviewing the approved transport routes and updating the transport risk assessment based on updates to Dangerous Goods Transport Routes, changes to facilities adjoining the route and a review of traffic data as required or otherwise three yearly; Specifications for the use of Intermediate Bulk Containers which meet the IMDG Code for the transport of solid sodium cyanide; 	To protect the environment in the event of an incident.	Implemented and on-going.	DOCEP Water Corporation FESA

NO.	TOPIC	ACTION	OBJECTIVE/S	TIMING	ADVICE
	*	 Procedure for Port disruption; Procedure for communications with the transport operations base as each vehicle travels along a transport route to a mine and until that vehicle logs off; Procedure for maintenance of a log, which includes time of departure from the Kwinana area, and a general goal will be to clear the metropolitan area before significant traffic build-ups occur. Location and description of the most effective and suitable neutralising agents used to treat any spilled sodium cyanide; Procedure for external and internal audits of all aspects of the TMP; Procedure for annual emergency exercises in association with FESA; Procedure for incident follow-up; and Procedure for review and update of the plan every two years or 			
0	Transport Management Plan	when required. Review Transport Management Plan described in commitment 9 above.		Two yearly	DOCEP
1	Solids Export Emergency Response	Audit the Stevedore's operations, Safety Management System and Emergency Response Plans for handling of solid sodium cyanide.	 To verify that: control measures and assumptions identified in the QRA are provided and/or implemented; the Port operations are compliant with Dangerous Goods in Ports Regulations with respect to solid sodium cyanide; and 	At intervals not exceeding 2 years (from November 2002).	DOCEP FPA

NO.	TOPIC	ACTION	OBJECTIVE/S	TIMING	ADVICE
			 drainage from the solid sodium cyanide laydown area is contained and emergency response is adequate. 		
12	Transport Options	Review other transport options, including road/rail viability and risk assessment.	To ensure that the most effective transport mode is used and public safety is protected.	Within three years from 31 August 2002.	DOCEP City of Fremantle

¹ CSBP Limited is a full member of KIMA and is AGR's representative. .

Abbreviations:

- Department of Consumer & Employment Protection Environmental Protection Authority Fire and Emergency Services Authority Fremantle Port Authority International Marine and Dangerous Goods DOCEP
- EPA
- FESA
- FPA
- IMDG

- KIMA Kwinana Industries Mutual Aid
- KIPS Kwinana Industries Public Safety
- QRA Qualitative Risk Assessment
- ТМР Transport Management Plan

Attachment 1 to Ministerial Statement 700

Change to proposal under s45C of the Environmental Protection Act 1986

Proposal: Sodium Cyanide Plants (Liquid and Solid) at Kwinana and Transport of Sodium Cyanide by Road and Rail from Kwinana

Proponent: Australian Gold Reagents Pty Ltd

Changes:

- Increase in the liquid sodium cyanide production capacity from 70,000 to 85,000 tpa;
- Minor changes to the solid sodium cyanide plant facilities to reflect what will be required to achieve the approved production capacity of 45,000 tpa; and
- Deletion of a number of elements as they do not constitute a key characteristic, are not environmentally significant, or are regulated by other legislation.

<u>Element</u>	Description of proposal	Description of approved change to proposal
	General	
Location	Kwinana Beach Road, Kwinana South east corner of the CSBP site and west of Coogee Chemicals – Kwinana Industrial Area (see figure 2).	Kwinana Beach Road, Kwinana South east corner of the CSBP site and west of Coogee Chemicals – Kwinana Industrial Area (see figure 2).
Disturbance area		
Plan Areas	Approximately 4 ha	Approximately 4 ha
Total area disturbed	4.3 ha	4.3 ha
	Liquid Sodium Cyanide Plan	ts
Plant 1 Commissioned	1988	Deleted as not environmentally significant
Plant 2 Commissioned	1998	Deleted as not environmentally significant
Plant Facilities (x2)	Gas reactor, cooler, absorber, distillation column, and incinerator.	Gas reactor, cooler, absorber, distillation column, and incinerator.
Process Description	 Natural gas, air and ammonia are mixed in the correct ratio; The mixed gases enter a high temperature reactor where hydrogen cyanide is produced using a catalyst; Caustic soda is then used to absorb the hydrogen cyanide gas in an absorption tower to produce a 30% sodium cyanide solution; The gas leaving the absorption tower is burnt in a continuously operating incinerator. 	Deleted as a process description only and not environmentally significant
Production Capacity (Plants 1&2 combined)	Capacity to produce a combined total of 70,000 tpa sodium cyanide (expressed as 100% sodium cyanide).	Capacity to produce a combined total of 85,000 tpa sodium cyanide (expressed as 100% sodium cyanide).

Key Characteristics Table: This table replaces Table 1 in Schedule 1

Element	Description of proposal	Description of approved change t proposal	
Inputs (nominal) Outputs (nominal)	 2,200 TJ per year natural gas 40,000 t per year ammonia 60,000 dmt per year caustic soda 24,500 MWhr electricity 14,500 t of steam 60,000 MWhr electricity 	Deleted as these elements are not considered to constitute significant key characteristics. Deleted as these elements are not considered to constitute significant key characteristics.	
Storage – liquid sodium cyanide	 Steel tanks with total capacity of 5,500 m³ (2,000 to of 100% sodium cyanide) on site. Up to 140 t in ISO-tainers in transit. 	 Steel tanks with total capacity of 5,500 m³ (2,000 to of 100% sodium cyanide) on site. Up to 305 t in ISO-tainers in transit 	
Gaseous Emissions Liquid Effluent Discharges	 Tail gases from the incinerator; Discharge gases from the start- up blower; Discharge gases from the incinerator shutdown stack. Up to 16 m³/hr cooling tower blowdown Stormwater 	 Tail gases from the incinerator; Discharge gases from the start- up blower; Discharge gases from the incinerator shutdown stack. Deleted as discharge water quality is regulated under Part V of the EP Act 1986	
	Solid Sodium Cyanide Plan	t	
Plant Commissioned	2002	Deleted as not environmentally significant	
Plant Facilities	Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, centrifuge, spin flash dryer incorporating scrubber system, powder hopper and compacting machine.	Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, two centrifuges , spin flash dryer incorporating scrubber system, two powder screws and two compacting machines .	
Process Description	 The solids plant receives a continuous feed of sodium cyanide solution produced at the liquid sodium cyanide plants which will be directed to one of two or three batch evaporation units. Following concentration by evaporation, the sodium cyanide crystals are centrifuged, dried and compressed into briquettes. The briquettes are then packaged and transported. 	Deleted as a process description only and not environmentally significant	
Production Capacity	Nominal 45,000 tpa	Nominal 45,000 tpa	
Inputs	30% sodium cyanide solution	30% to 38% sodium cyanide solution	
Outputs	Briquettes containing > 97% sodium cyanide	Briquettes containing > 97% sodium cyanide	
Storage	Area designed to store a maximum of 7140 tonnes of solid sodium cyanide. Solid sodium cyanide will be stored in IBC's packed into sea containers or a warehouse. Small quantities may be stored in ISO-tainers (equipped to allow injection of water to dissolve the sodium cyanide at the mine site).	Area designed to store a maximum of 7140 tonnes of solid sodium cyanide. Solid sodium cyanide will be stored in IBC's packed into sea containers or a warehouse. Small quantities may be stored in ISO-tainers (equipped to allow injection of water to dissolve the sodium cyanide at the mine site).	

Element	Description of proposal	Description of approved change to proposal
Gaseous Emissions	 Ammonia to maximum of 1.5 grams per second. Hydrogen cyanide and sodium cyanide (combined) to a maximum of 0.58 grams per second. 	 Ammonia to maximum of 1.5 grams per second. Hydrogen cyanide and sodium cyanide (combined) to a maximum of 0.58 grams per second.
Liquid Effluent Discharges	 16 m³/hr wastewater, containing up to 19 kg/day of nitrogen. All liquid effluent is treated and then pumped to CSBP's effluent pond. 	Deleted as discharge water quality is regulated under Part V of the <i>EP</i> <i>Act 1986</i>
	Transport	
Liquid Sodium Cyanide	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and Rail)</i> <i>Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Are" are adhered to at all times for transport and packaging.	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and Rail)</i> <i>Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Are" are adhered to at all times for transport and packaging.
Solid Sodium Cyanide	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and Rail)</i> <i>Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Are" are adhered to at all times for transport and packaging.	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and Rail)</i> <i>Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Are" are adhered to at all times for transport and packaging.

Note: Text in **bold** in the Key Characteristics Table, indicates change/s to the proposal.

Abbreviations

Dmt	dry metric tonne	t	tonnes
m ³	cubic metres	Tj	terajoules
MWhr	megawatt hours	Тра	tonnes per annum
Kg/day	kilograms per day	IBC	intermediate bulk container
m ³ /hr	cubic metres per hour		

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MINISTER FOR ENVIRONMENT; WATER

Approval date: 4 February 2013

Attachment 2 to Ministerial Statement 700

Change to proposal approved under section 45C of the Environmental Protection Act 1986

This Attachment replaces Table 1 in Schedule 1 and Attachment 1 of Ministerial Statement 700

Proposal: Sodium Cyanide Plants (Liquid and Solid) at Kwinana and transport of sodium cyanide by road and rail from Kwinana

Proponent: Australian Gold Reagents Pty Ltd

Changes:

Remove reference to:

- the storage capacity of liquid sodium cyanide,
- the storage area for liquid sodium cyanide, and
- atmospheric emissions of ammonia and hydrogen cyanide and sodium cyanide (combined).

Summary of the Proposal

The operation of liquid and solid sodium cyanide production plants at Kwinana, and the transport of sodium cyanide by road and rail from Kwinana, as documented in schedule 1 of this statement.

Element	Description of proposal	Description of approved change to proposal	
	General		
Location	Kwinana Beach Road, Kwinana South east corner of the CSBP site and west of Coogee Chemicals – Kwinana Industrial Area (see figure 2).	Kwinana Beach Road, Kwinana South east corner of the CSBP site and west of Coogee Chemicals – Kwinana Industrial Area (see figure 2).	
Disturbance area			
Plan Areas	Approximately 4 ha	Approximately 4 ha	
Total area disturbed	4.3 ha	4.3 ha	
Liquid Sodium Cyanide Plants			
Plant Facilities (x2)	Gas reactor, cooler, absorber, distillation column, and incinerator.	Gas reactor, cooler, absorber, distillation column, and incinerator.	
Production Capacity (Plants 1&2 combined)	Capacity to produce a combined total of 85,000 tpa sodium cyanide (expressed as 100% sodium cyanide).	Capacity to produce a combined total of 85,000 tpa sodium cyanide (expressed as 100% sodium cyanide).	

Table 1: Key Characteristics Table

Element	Description of proposal	Description of approved change to
Storage – liquid sodium cyanide	 Steel tanks with total capacity of 5,500 m³ (2,000 to of 100% sodium cyanide) on site. Up to 305 t in ISO-tainers in transit 	Removed as storage of liquid sodium cyanide is regulated under the Dangerous Goods Safety Act 2004, administered by the Department of Mines and Petroleum.
Gaseous Emissions	 Tail gases from the incinerator; Discharge gases from the start- up blower; Discharge gases from the incinerator shutdown stack. 	 Tail gases from the incinerator; Discharge gases from the start- up blower; Discharge gases from the incinerator shutdown stack.
	Solid Sodium Cyanide Plan	t
Plant Facilities	Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, two centrifuges, spin flash dryer incorporating scrubber system, two powder screws and two compacting machines.	Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, two centrifuges, spin flash dryer incorporating scrubber system, two powder screws and two compacting machines.
Production Capacity	Nominal 45,000 tpa	Nominal 45,000 tpa
Inputs	30% to 38% sodium cyanide solution	30% to 38% sodium cyanide solution
Outputs	Briquettes containing > 97% sodium cyanide	Briquettes containing > 97% sodium cyanide
Storage	Area designed to store a maximum of 7140 tonnes of solid sodium cyanide. Solid sodium cyanide will be stored in IBC's packed into sea containers or a warehouse. Small quantities may be stored in ISO-tainers (equipped to allow injection of water to dissolve the sodium cyanide at the mine site).	Removed as storage of liquid sodium cyanide is regulated under the Dangerous Goods Safety Act 2004, administered by the Department of Mines and Petroleum.
Gaseous Emissions	 Ammonia to maximum of 1.5 grams per second. Hydrogen cyanide and sodium cyanide (combined) to a maximum of 0.58 grams per second. 	Removed as managed under the conditions of Licence issued under Part V of the Environmental Protection Act 1986 (EP Act).
	Transport	
Liquid Sodium Cyanide	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and Rail)</i> <i>Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Are" are adhered to at all times for transport and packaging.	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and Rail)</i> <i>Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Are" are adhered to at all times for transport and packaging.
Solid Sodium Cyanide	By road and rail. The Dangerous Goods (Transport) (Road and Rail)	By road and rail. <i>The Dangerous</i> Goods (Transport) (Road and Rail)

Element	Description of proposal	Description of approved change to
		proposal
	Regulations 1999, Australian	Regulations 1999, Australian
	Dangerous Goods Code and	Dangerous Goods Code and
	recommendations of the Department	recommendations of the Department
	of Industry and Resources Guidance	of Industry and Resources Guidance
	Note T117 "Recommendations for	Note T117 "Recommendations for
	Route Selection for the Transport of	Route Selection for the Transport of
8	Dangerous Goods in the Perth	Dangerous Goods in the Perth
	Metropolitan Are" are adhered to at	Metropolitan Are" are adhered to at
	all times for transport and packaging.	all times for transport and packaging.

Note: Text in **bold** in Table 2 indicates a change to the proposal.

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Dr Paul Vogel CHAIRMAN Environmental Protection Authority under delegated authority

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Attachment 3 to Ministerial Statement 700

Change to proposal approved under section 45C of the Environmental Protection Act 1986

This Attachment replaces Schedule 1 and Attachment 2 of Ministerial Statement 700

Proposal: Sodium Cyanide Plants (Liquid and Solid) at Kwinana and Transport of Sodium Cyanide by Road and Rail from Kwinana

Proponent: Australian Gold Reagents Pty Ltd

Changes:

- Increase capacity of total liquid sodium cyanide production from 85,000 tonnes per annum (tpa) to 91,000 tpa
- Removal of the following elements from the key characteristics table:
 - o Location
 - Inputs (Solid Sodium Cyanide Plant)
 - Outputs (Solid Sodium Cyanide Plant)
 - Transport (Liquid Sodium Cyanide Plant and Solid Sodium Cyanide Plant)
- Updated Figure 1: Regional Location and Figure 2: Site Layout

Table 1: Summary of the Proposal

Proposal Title	Sodium Cyanide Plants (Liquid and Solid) at Kwinana and Transport of Sodium Cyanide by Road and Rail from Kwinana
Short Description	The operation of liquid and solid sodium cyanide production plants at Kwinana, and the transport of sodium cyanide by road and rail from Kwinana.

Table 2: Location and authorised extent of physical and operational elements

Element	Previously Authorised Extent	Authorised Extent
General		
Location	Kwinana Beach Road, Kwinana South east corner of the CSBP site and west of Coogee Chemicals – Kwinana Industrial Area (see figure 2).	Removed as this detail has been included in Table 1: Summary of the Proposal and presented in Figure 1 – Regional location.
Disturbance area		
Plant	Approximately 4 ha	Approximately 4 ha
Total area disturbed	4.3 ha	4.3 ha
Liquid Sodium Cyanide Plants		
Plant Facilities (x2)	Gas reactor, cooler, absorber, distillation column, and	Gas reactor, cooler, absorber, distillation column, and

Element	Previously Authorised Extent	Authorised Extent
	incinerator.	incinerator.
Production Capacity (Plants 1&2 combined)	Capacity to produce a combined total of 85,000 tpa sodium cyanide (expressed as 100% sodium cyanide)	Capacity to produce a combined total of 91,000 tpa sodium cyanide (expressed as 100% sodium cyanide)
Gaseous Emissions Plant Facilities	 Tail gases from the incinerator; Discharge gases from the start-up blower; Discharge gases from the incinerator shutdown stack. Solid Sodium Cyanide F Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, two centrifuges, spin flash dryer incorporating scrubber system, two powder 	 Tail gases from the incinerator; Discharge gases from the start-up blower; Discharge gases from the incinerator shutdown stack. Plant Two or three batch evaporators, vacuum pump incorporating a scrubber, condensate tank, slurry tank, two centrifuges, spin flash dryer incorporating scrubber system, two powder
Production	screws and two compacting machines. Nominal 45,000 tpa	screws and two compacting machines. Nominal 45,000 tpa
Inputs	30% to 38% sodium cyanide solution	Removed as not a key characteristic relevant to the environment.
Outputs	Briquettes containing > 97% sodium cyanide	Removed as not a key characteristic relevant to the environment.
	Transport	
Liquid Sodium Cyanide	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and</i> <i>Rail) Regulations 1999</i> , Australian Dangerous Goods Code and recommendations of the Department of Industry and Resources Guidance Note T117 "Recommendations for Route Selection for the Transport of Dangerous Goods in the Perth Metropolitan Area" are adhered to at all times for transport and packaging.	Removed as transport of dangerous goods is regulated under the <i>Dangerous Goods</i> <i>and Safety Act 2004</i> administered by the Department of Mines, Industry Regulation and Safety.
Solid Sodium Cyanide	By road and rail. <i>The Dangerous</i> <i>Goods (Transport) (Road and</i> <i>Rail) Regulations 1999,</i> Australian Dangerous Goods Code and recommendations of the Department of Industry and	Removed as transport of dangerous goods is regulated under the <i>Dangerous Goods</i> <i>and Safety Act 2004</i> administered by the Department of Mines, Industry

Element	Previously Authorised Extent	Authorised Extent
	Resources Guidance Note T117	Regulation and Safety.
	"Recommendations for Route	
	Selection for the Transport of	
	Dangerous Goods in the Perth	
	Metropolitan Area" are adhered	
	to at all times for transport and	
	packaging.	

Note: Text in **bold** in Table 2 indicates a change to the proposal.

Table 3: Abbreviations

Abbreviation	Term
ha	hectare
tpa	tonnes per annum

Figures (attached)

Figure 1 Regional location Figure 2 Plant layout

Coordinates defining the development envelope are held by the Department of Water and Environmental Regulation, Document Reference Number DWERDT221356

Dr Tom Hatton CHAIRMAN Environmental Protection Authority under delegated authority

Approval date: 8 Nov 2019



Figure 1: Regional location



Figure 2: Site layout