

Proposal Content Document

Table 1: General proposal content description

Proposal title	Sodium Cyanide Plants (Liquid and Solid) at Kwinana and Transport of Sodium Cyanide by Road and Rail from Kwinana
Proponent name	AUSTRALIAN GOLD REAGENTS PTY LTD ACN: 009 140 121
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: Proposal content elements

Proposal element	Location / description	Maximum extent, capacity or range	Proposed amendment	Maximum extent, capacity or range
Physical elements				
Plant area	Figure 1	Approximately 4 ha	Updated to specifically include: Gas purification plant, Maxitherm incinerator, liquid sodium cyanide plants 1 & 2, solids plant, and TO3 incinerator	0.56 ha
Development Envelope	Figure 1	Approximately 8.4 ha.	Use of development envelope delineates area of proposal operations	11.23 ha
Sodium Cyanide Liquid Plant 1 (SCP1)	Figure 1	Gas reactor, cooler, distillation column, and incinerator with combined header	unchanged	Gas reactor, cooler, distillation column, and incinerator with combined header
Sodium Cyanide Liquid Plant 2 (SCP2)	Figure 1	Gas reactor, cooler, distillation column, and incinerator with combined header	Existing Maxitherm incinerator to be replaced (TO3)	Gas reactor, cooler, distillation column, and incinerator with combined header

Sodium Cyanide Solids Plant (SCS)	Figure 1	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	Install a second evaporation and dryer train (see construction)	Dual evaporation and dryer train, vacuum pump incorporating a scrubber, condensate tank, slurry tank, two centrifuges, spin flash dryer incorporating scrubber system, two powder screw and two compacting machines
Gas Purification Plant	Figure 1	None specified	Dehydration bypass to be installed and upgrade pressure control valves.	CO ₂ absorber, CO ₂ Stripper, Reflux Accumulator, dehydration unit and bypass line around dehydration.
Construction elements				
Replacement of SCP2 incinerator	Figure 1	Construction of TO3 and decommissioning of existing Maxitherm incinerator	Existing Maxitherm incinerator at SCP2 to be replaced with 2-stage combustion incinerator.	The incinerators will continue to service SCP1 & 2, connected by a common header.
Upgrading (replacing) / modifying) existing equipment in both liquid cyanide plants.	Refer to Referral Supporting Document	Not specified in MS1196	Within existing infrastructure.	n/a
Additional evaporation and dryer train at Solids Plant.	Refer to Referral Supporting Document	Not specified in MS1196.	Duplication of the existing evaporation & drying train.	Two evaporation and dryer trains at Solids Plant.
Liquid Sodium Cyanide storage tank (TK04)	Figure 1	Not specified in MS1196	Up to 5,000 m ³ additional capacity	Combined storage capacity of 10,000 m ³ tonnes. (regulated under Dangerous Goods legislation)
Operational elements				
SCP1 and SCP2	Figure 1	Capacity to produce a combined total of 110,000 tpa sodium	Increase in combined production capacity	Capacity to produce a combined total of

		cyanide (expressed as 100% sodium cyanide)	of 40,000 tpa sodium cyanide (expressed as 100% sodium cyanide)	150,000 tpa sodium cyanide (expressed as 100% sodium cyanide)
SCS	Figure 1	Nominal production capacity 60,000 tpa (expressed as 100% sodium cyanide)	Increase in production capacity of 45,000 tpa	Production capacity 105,000 tpa (expressed as 100% sodium cyanide)
Gas Purification Plant		Nominal capacity 12 TJ per day	Dehydration bypass to be installed and upgrade pressure control valves.	Nominal capacity 12 TJ of Natural Gas per day
Air emissions: • SCP1 Incinerator stack • SCP2 Incinerator stack		<p>Oxides of nitrogen (NOx):</p> <ul style="list-style-type: none"> • Target 5.0 g/s (315 tpa) • Limit 12.0 g/s (757 tpa) <p>Ammonia (NH₃): Target 0.6 g/s (38 tpa)</p> <p>Total Cyanide (CN):</p> <ul style="list-style-type: none"> • Target 0.35 g/s (22 tpa) • Limit 0.58 g/s (36 tpa) <p>Regulated under Part V of the <i>Environmental Protection Act 1986</i></p>	<p>NOx changed to allow for combined incinerator header.</p> <p>NOx, NH₃ and HCN emissions amended to reflect new incinerator vendor guarantees.</p>	<p>Oxides of nitrogen (NOx) - combined limit 15 g/s for ≥ 95 % of operating time over the previous 12 months (473 tpa) and combined limit of 36 g/s for ≤ 5 % of the operating time over the previous 12 months (1,135 tpa).</p> <p>Ammonia (NH₃) - Target 0.6 g/s for SCP1(19 tpa) and 1.2 g/s for SCP2 (38 tpa).</p> <p>Hydrogen Cyanide (HCN):</p> <ul style="list-style-type: none"> • SCP1- Target 0.21 g/s (7 tpa) and Limit 0.3 g/s (9.5 tpa) • SCP2 - Target 0.5 g/s (16 tpa) and Limit 0.42 g/s (13 tpa) <p>Regulated under Part V of the <i>Environmental Protection Act 1986</i></p>
Air emissions • Sodium Cyanide Solids Plant stack 1		<p>Ammonia (NH₃): Target 1.5 g/s (47 tpa)</p> <p>Total Cyanide (CN):</p> <ul style="list-style-type: none"> • Target 0.35 g/s (11 tpa) 	<p>NH₃ unchanged</p> <p>CN targets and limits reduced</p>	Ammonia (NH ₃): Stack 1 Target 1.5 g/s (47 tpa)

• Sodium Cyanide Solids Plant stack 2		<ul style="list-style-type: none"> • Limit 0.58 g/s (18 tpa) Regulated under Part V of the Environmental Protection Act 1986		Stack 2 Target 1.5 g/s (47 tpa) Total Cyanide (CN): <ul style="list-style-type: none"> • Stack 1 Target 0.2 g/s (13 tpa) • Stack 1 Limit 0.3 g/s (19 tpa) • Stack 2 Target 0.2 g/s (13 tpa) • Stack 2 Limit 0.3 g/s (19 tpa) Regulated under Part V of the <i>Environmental Protection Act 1986</i>
Management of wastewater		Wastewater volume – 197 ML per year Cyanide – Limit 1.0 mg/L Regulated under Part V of the <i>Environmental Protection Act 1986</i>	Unchanged	Wastewater volume – 197 ML per year Cyanide – Limit 1.0 mg/L Regulated under Part V of the <i>Environmental Protection Act 1986</i>
Transport		Liquid cyanide containers – 7,367 per year Solid cyanide containers – 2,491 per year		Liquid cyanide containers – 20,000 per year Solid cyanide containers – 5,250 per year Regulated under Dangerous Goods legislation
Proposal elements with greenhouse gas emissions				
Construction elements:				
	Scope 1			Minimal, < 974 tCO ₂ -e. Anticipated to be less than one percent of project annual emissions.
	Scope 2			nil
	Scope 3			2,303.4 tCO ₂ -e
Operation elements:				
	Scope 1	Up to 97,460 tCO ₂ -e per annum	Unchanged	Up to 97,460 tCO ₂ -e per annum

	Scope 2	Not specified in MS1196	Nil, facility is a net generator of electricity	Nil.
	Scope 3	Not specified in MS1196	Unchanged	282,740 tCO ₂ -e/annum
Rehabilitation				
<i>details</i>			<i>n/a</i>	<i>n/a</i>
Commissioning				
<i>details</i>			<i>n/a</i>	<i>n/a</i>
Decommissioning				
Maxitherm incinerator will be decommissioned after the TO3 incinerator commissioning is complete			<i>n/a</i>	<i>n/a</i>
Other elements which affect extent of effects on the environment				
Proposal time*	Maximum project life	Nominal 30 years from 2022	unchanged	Nominal 30 years from 2022
	Construction phase	Not specified in MS1196	Fabrication and installation	Nominal 2 years
	Operations phase	Up to 30 years from the 2022	No change	Up to 25 years from 2022
	Decommissioning phase	Nominal 5 years	No change	Nominal 5 years

* Proponents should only provide realistic timeframes to avoid unnecessary change to proposal applications at referral (section 38C), assessment (section 43A) or post assessment (section 45C).

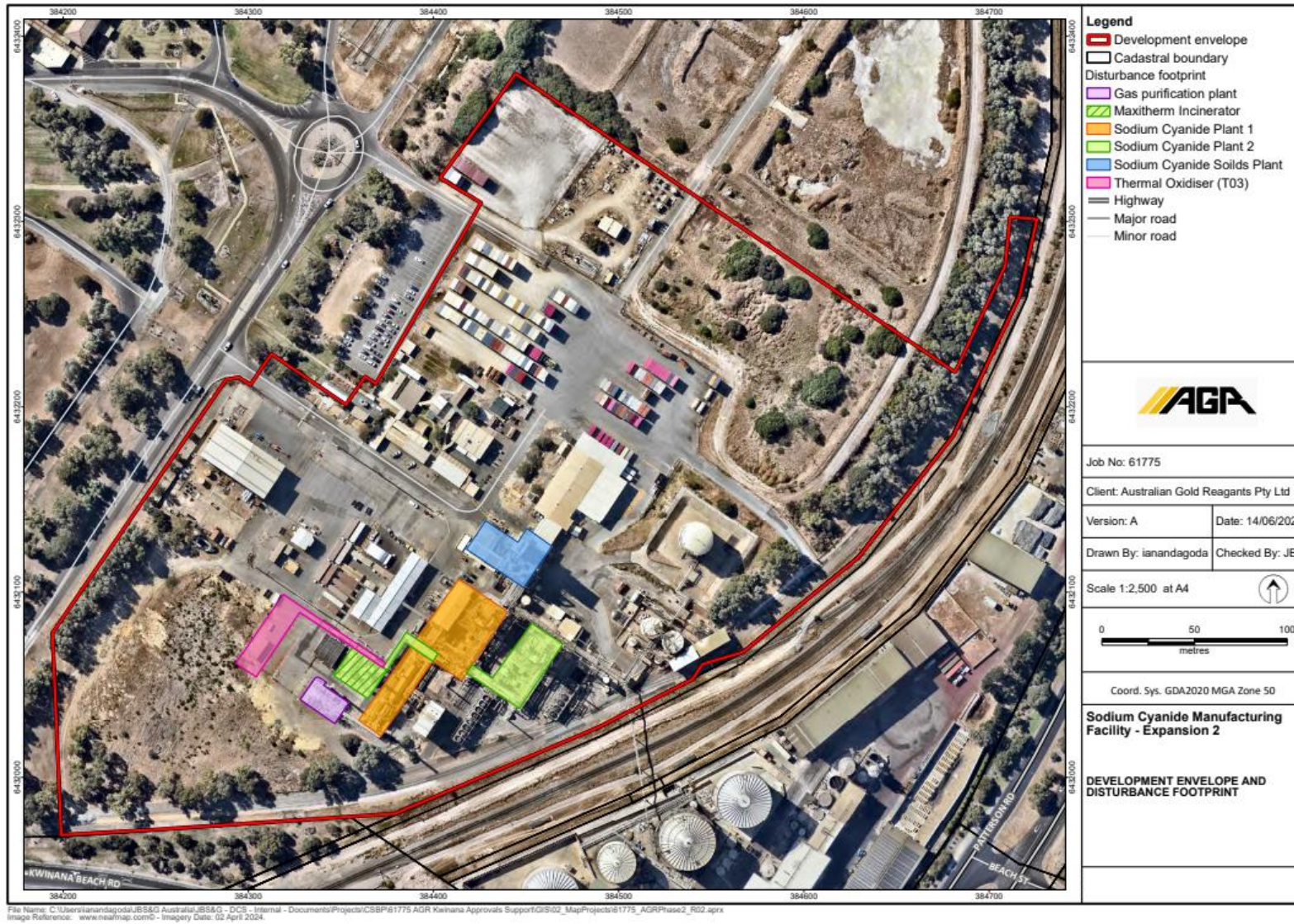


Figure 1: Sodium Cyanide Management Facility development envelope and plant infrastructure.