

EPA Permit number: IPDE00297105B11

Section 3.5.15 Integrated Planning Act 1997**EPA Permit¹ number: IPDE00297105B11**

EPA Permit¹ number:	IPDE00297105B11
Assessment Manager reference:	as above
Date application received by EPA:	09-AUG-2007
Permit¹ Type:	Development Approval for a MCU involving an ERA
Date of Decision:	01-October-2007
Decision:	Granted in full with conditions
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i> and any subordinate legislation

This is a consolidated list of conditions amalgamated from;

- the original decision notice CG0201DA approved on 31 August 2004,
- Notice of Decision – Change to an existing approval (application to change or cancel a condition of the development approval) approved on 1 October 2007 and
- Notice to Change an existing approval (application to change or cancel a condition of the development approval) approved on 8 February 2008.

Note - This is not a Statutory document; please refer to the documents listed above when referencing statutory documents in any correspondence.

Development Description

Property	Lot/Plan	Aspect of Development
975 Hanson Road, YARWUN QLD 4694	See attached Table	<p>ERA 11(b) Crude oil storing or petroleum product storing - storing crude oil or petroleum product in tanks or containers having a combined total storage capacity of 500 000 L or more.</p> <p>ERA 17 Fuel burning - any process involving the use of fuel burning equipment (including for example, a standby power generator) that is capable of burning (whether alone or in total) 500 kg or more of fuel an hour.</p> <p>ERA 18(a) Power station - generating power by consuming fuel at a rated capacity of 10 MW electrical or more - if the fuel used is natural gas.</p> <p>ERA 20(c) Extracting rock or other material - extracting rock (other than rock mined in block or slab form for building purposes), sand (other than foundry sand), clay (other than clay used for its ceramic properties, kaolin or bentonite), gravel, loam or other material (other than gravel, loam or other material under a</p>

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service

	<p>mining tenement or petroleum authority) from a pit or quarry using plant or equipment having a design capacity of 100 000 t or more a year.</p> <p>ERA 28 Motor vehicle workshop - operating a workshop or mobile workshop in the course of which motor vehicle mechanical or panel repairs are carried out in the course of a commercial or municipal enterprise (other than on a farm or under a mining tenement) or on a commercial basis.</p> <p>ERA 42(b) Mineral processing - commercially processing, classification, mixing or concentration of mineral ores to produce mineral concentrates in works having a design production capacity of more than 100 000 t a year.</p> <p>ERA 67(a) Sawmilling or woodchipping - sawing, cutting, chipping, compressing, milling or machining logs, drying logs in a kiln, or manufacturing secondary wooden products, in a mill or works having a design production capacity of more than 500 t or more but less than 5 000 t a year.</p> <p>ERA 7(b) Chemical storage - storing chemicals (other than crude oil, natural gas and petroleum products), including ozone depleting substances, gases, dangerous goods under the dangerous goods code in containers having a design storage volume of more than 1 000 m3.</p> <p>ERA 74 Stockpiling, loading or unloading goods in bulk - commercially loading, unloading or stockpiling materials or goods in association with an activity mentioned in item 71, using a crane, conveyor or pump or other similar way at a rate of more than 100 t a day.</p> <p>ERA 75(a)(ix) Waste disposal - operating a facility for - disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 200 000 t or more a year.</p> <p>ERA 75(b)(iv) Waste disposal - disposing of regulated waste (other than limited regulated waste) whether alone or in combination with any waste mentioned in paragraph (a), if the facility is designed to receive waste at the rate of 200 000 t or more a year.</p> <p>ERA 84(b) Regulated waste storage - operating a facility for receiving and storing regulated waste [other than 84(a)] - excepting (i) on a farm for use as a soil conditioner or fertiliser in carrying out an agricultural activity; or (ii) for use in manufacturing a saleable product under another item of this schedule; or (iii) for incineration under item 76; or (iv) recycling, reprocessing or reconditioning under items 77 to 79 or 81).</p>
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Additional information for applicants

The standard currency periods stated in section 3.5.21 of the Integrated Planning Act 1997 or the nominated currency period, apply to each aspect of development in this permit¹. For information on when this permit¹ takes effect and the relevant currency periods, please see point 3 in the Notice of Decision.

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 30 days after becoming so aware, give notice to the Environmental Protection Agency.

Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the Environmental Protection Act 1994. For the person to become a registered operator, they must apply for a registration certificate under section 73F of the Environmental Protection Act 1994.

John Sherriff
Delegate
Environmental Protection Agency
27-SEP-2007

Conditions of the development approval

This development approval consists of the following schedules of conditions relevant to various issues:

The abovementioned descriptions of the environmentally relevant activities (ERA) for which this development approval is issued are simply a restatement of the activities as prescribed in the legislation at the time of issuing this development approval. Where there is any conflict between the above descriptions of the ERAs for which this development approval is issued and the conditions as specified in this development approval as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This development approval authorises the ERA. It does not authorise environmental harm unless a condition within this development approval explicitly authorises that harm. Where there is no condition or the development approval is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

- Schedule A – Activity
- Schedule B – Air
- Schedule C – Water
- Schedule D – Noise
- Schedule E – Waste
- Schedule F – Land (Not Applicable)
- Schedule G – Community (Not Applicable)
- Schedule H – Definitions
- Schedule I – Maps / Plans

Schedule A – Activity

This development approval authorises the operation of the Stage 1 plant only. All three stages of this project have been granted Preliminary Approval by reason of the Calliope Shire Council, Negotiated Decision Notice number 99/0417 dated 14 September 2000, and the holder of this development approval is entitled to apply for further development approvals covering Stages 2 and 3 of the project, at such times as those stages are constructed and brought into operation.

Integrated Environmental Management System

- (A1-1) Prior to and following the commencement of any environmentally relevant activity under this development approval, the holder of this development approval must plan and conduct the authorised activities in accordance with a documented integrated environmental management system (IEMS) that conforms with the requirements of this authority and incorporates:
- a) an environmental management system that conforms with ISO 14001:1996 (Environmental management systems – Specification with guidance for use) and;
 - b) a risk management system that conforms with AS/NZS 4360:1999 (Risk management) involving at least the following:
 - i. risk identification & analysis;
 - ii. risk assessment;
 - iii. risk evaluation;
 - iv. risk criteria and thresholds;
 - v. the preparation, maintenance and operation of a risk register that includes environmental aspects, impacts and risks;
 - vi. risk treatment options for each identified risk;
 - vii. monitoring and audit; and
 - viii. risk reviews at intervals not greater than every two years.
- (A1-2) Prior to the commencement of any environmentally relevant activity under this development approval the administering authority shall be provided with an independent statement by a competent person verifying that the IEMS conforms with (A1-1) (a) and (b).

Investigation when a risk threshold is exceeded

- (A1-3) When an environmental risk threshold is exceeded, written notice shall be given to the administering authority within five (5) business days of the exceedence occurring. An investigation must be undertaken and a written report of the investigation prepared and given to the administering authority within twenty (20) business days of the exceedence occurring, unless otherwise agreed in writing by the administering authority.

The report is to include:

- a) a description of the situation causing the risk threshold to be exceeded;

- b) the circumstances leading to the situation described in A1-3 a);
- c) the results of any investigations undertaken about the situation;
- d) the treatment options for managing the risk; and
- e) the specific treatment to be taken.

Action to be taken when a risk threshold is exceeded

(A1-4) When an environmental risk threshold is exceeded, a risk treatment must be implemented.

Environmental Studies

(A1-5) Environmental studies must be conducted where the activities authorised by this development approval give rise to environmental risks that in the risk management system required by (A1-1 b) are categorised as high or critical, and have the potential to have a significant impact on receiving environments and sensitive places. The environmental studies must survey the constituents, condition and functionalities of the environment in the relevant zone of impact.

Terms of Reference

- (A1-6) The following process must be followed for carrying out environmental studies:
- a) Terms of reference must be prepared prior to commencing the environmental studies, and must address the matters that are to be studied as part of the environmental studies.
 - b) There must be consultation about the draft terms of reference. Views resulting from consultation will be given consideration in finalising the terms of reference.
 - c) The administering authority may require the inclusion of matters in the terms of reference.

Environmental studies report register

(A1-7) As part of the IEMS, an Environmental Studies Report Register must be prepared, maintained and updated on a regular basis (not less frequently than every two (2) years) to include details of all environmental studies undertaken.

Monitoring plan

- (A1-8) As part of the IEMS, a documented monitoring plan that describes the monitoring activities to be undertaken, shall be prepared, implemented and updated on a regular basis, but not less frequently than every five (5) years. The monitoring plan shall include as a minimum:
- a) locations for monitoring/sampling;
 - b) parameters monitored to determine exceedences of the risk thresholds used in the risk management system;
 - c) parameters nominated under any specific condition of this development approval; and
 - d) frequency of monitoring/sampling.
- (A1-9) The documented monitoring plan must be submitted to the administering authority one (1) month prior to the commencement of any environmentally relevant activity under this development approval, and at each review.
- (A1-10) All monitoring results shall be kept for a minimum of twenty (20) years, and shall be made available for inspection by the administering authority upon request.
- (A1-11) A competent person responsible for monitoring must undertake the activity using best practice procedures, and monitoring equipment that is accurately calibrated and maintained in good working order and condition.

Complaint response

(A1-12) The IEMS shall provide for the recording (and this may be done electronically) of all complaints received relating to the carrying out of the environmentally relevant activities including the following details:

- a) time and date of complaint;
- b) type of communication (telephone, letter, personal etc);
- c) name, contact address and contact number of the complainant if provided;
- d) nature of the complaint;
- e) details of the response and investigation undertaken as a result of the complaint;
- f) name of person investigating the complaint; and
- g) action taken as a result of the complaint investigation.

Third party environmental auditing

(A1-13) The implementation and ongoing performance of the IEMS must be audited by a suitably qualified third party auditor each year for the first three (3) years from the commencement of the environmentally relevant activities.

(A1-14) A copy of the auditor's report shall be provided to the administering authority within thirty (30) days of the audit report being completed together with a statement by the auditor affirming that the report has been prepared independently of the development approval holder and is the independently held opinion of the auditor.

(A1-15) Annual third party audits are required for the first three (3) years, and thereafter every two (2) years. If in the opinion of the auditor, more frequent audits are required, annual audits will resume, until in the opinion of the auditor, audits can return to every two (2) years.

(A1-16) The auditors report must give consideration to performance in relation to the objectives, targets and performance indicators stated in the Integrated Environmental Management System.

END OF CONDITIONS FOR SCHEDULE - A

Schedule B – Air

Odour Nuisance

(B1-1) The release of noxious or offensive odours resulting from the activity must not cause an environmental nuisance at any sensitive place.

Dust Nuisance

(B2-1) The release of dust and/or particulate matter resulting from the activity must not cause an environmental nuisance at any sensitive place.

(B2-2) Exceedence of any of the following levels when measured at any sensitive place is an environmental nuisance for the purposes of condition (B2-1):

- a) Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with AS 3580.10 of 1991; or
- b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a sensitive place when monitored in accordance with:
 - i. AS/NZS 3580.9.6: Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM(sub)10(/sub) high volume sampler with size-selective inlet - Gravimetric method; or
 - ii. any alternative method of monitoring PM10 that may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

- (B2-3) When requested by the administering authority dust and particulate monitoring must be carried out to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, with results notified to the administering authority within ten (10) working days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to determining impacts on the affected sensitive place and at suitably located control sites, and must include:
- a) for a complaint alleging dust nuisance, dust deposition; and
 - b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

The release of contaminants to the atmosphere

- (B3-1) The release of contaminants to the atmosphere from a point source must only occur from those release points identified in Schedule B – Table 1.
- (B3-2) Contaminants must be released to the atmosphere from a release point in accordance with the design flow rate and at a height not less than the corresponding height stated for that release point in Schedule B – Table 1 and must, for each release point be directed vertically upwards without any impedance or hindrance.
- (B3-3) Contaminants must not be released to the atmosphere from a release point at a mass emission concentration, as measured at a monitoring point, in excess of that stated in Schedule B - Table 1 and monitored not less frequently than Schedule B Table 1.
- (B3-4) Total contaminants released from all boiler release points, identified in Schedule B Table 1, must not exceed the sum of the boiler mass emission rates assigned to the individual boiler release points.

Monitoring

(B4-1) The monitoring plan referred to in condition A1-8 shall provide for monitoring of the contaminants and sampling frequency as shown in Schedule B, Table 1 (subject to clause B4-3 and B4-4).

Schedule B - Table 1 (Release of contaminants)

Release point, source, activity	Minimum release height (metres)	Design velocity (m/sec)	Contaminant release	Average release limit (rolling 12 month average calculation)	Maximum Release Limit (hourly average)	Sampling frequency
Boiler 1	120 m RL 141 m AHD	23 m/s	SO ₂	161 g/s	258 g/s	Continuous
			NO _x	93 g/s		Continuous
			Particulates	13.2 g/s		Continuous
Boiler 2	120 m RL 141 m AHD	23 m/s	SO ₂	161 g/s	258 g/s	Continuous
			NO _x	93 g/s		Continuous
			Particulates	13.2 g/s		Continuous
Calciner 1	60 m RL 81.00 m AHD	17 m/s	NO _x	2.24 g/s		Quarterly
			Particulates	2.0 g/s		Continuous
Calciner 2	60 m RL 81.00 m AHD	17 m/s	NO _x	2.24 g/s		Quarterly
			Particulates	2.0 g/s		Continuous

- (B4-2) When requested by the administering authority, contaminant monitoring and recording must be carried out to investigate any complaint of contamination, and the results notified to the administering authority within ten (10) working days. When monitoring is requested, the following must be complied with: monitoring methods for the release points listed in Schedule B - Table 1 must comply with AS 4323.1 - 1995 (Stationary source emissions - Selection of sampling positions - Method 1);
- a) the following tests must be performed for each release point and contaminant specified in Schedule B - Table 1:
 - i. gas velocity and volume flow rate;
 - ii. temperature;
 - iii. water vapour concentration (moisture content);
 - b) where technically practicable, samples must be taken when emissions are expected to be at maximum rates;
 - c) during the sampling period the following additional information must be gathered:
 - i. production rate at the time of sampling;
 - ii. raw materials used;
 - iii. number of equipment and mixing vessels operating;
 - iv. operating or mixing temperature;
 - v. product made; and
 - vi. reference to the actual test methods and the accuracy of each method.
- (B4-3) The obligation for continuous monitoring of contaminants SO₂ and NO_x for Boiler 1 and Boiler 2 shall commence not later than one (1) year after the commencement of the carrying out of the environmentally relevant activity, or the commencement of this development approval.
- (B4-4) Prior to the commencement of continuous monitoring of SO₂ and NO_x for Boiler 1 and Boiler 2, these contaminants shall be monitored on a quarterly basis and at the commencement of the environmentally relevant activities.

END OF CONDITIONS FOR SCHEDULE – B

Schedule C – Water

Release to waters

- (C1-1) Contaminants must only be released to waters from the discharge location listed in Schedule C Table 1 (Discharge locations) and in compliance with the release limits listed in Schedule C Table 2 (Release limits):
- A) Discharge location W1 from alumina plant Effluent Pond to Port Curtis at Fisherman's Landing.
 - B) Discharge location W2 – from Eastern 1st Flush Pond to an unnamed tributary of Boat Creek at the site boundary.
 - C) Discharge location W3 – from Northern 1st Flush Pond to an unnamed tributary of Boat Creek at the boundary .
 - D) Discharge W4 from residue management dam to Gravel Creek.
 - E) Discharge location W5 from stormwater to Gladstone Harbour from the Caustic Storage Facility located at Fisherman's Landing.
 - F) Discharge location W6 from sediment dam to southern bund drain at Fisherman's Landing.
 - G) Discharge location W7 – from Northern Laydown Area Sedimentation Pond to an unnamed tributary of Boat Creek to the south of Port Curtis Way.
 - H) Discharge location W8 – from Southern Laydown Area Sedimentation Pond to diversion gully west of RTA 670 pond, to an unnamed tributary of Boat Creek south of Port Curtis Way adjacent to the RTA Yarwun Refinery site northern boundary.

Schedule C - Table 1 (Discharge locations)

Discharge location	Monitoring point
W1	Discharge from alumina plant Effluent Pond to Port Curtis at Fisherman's Landing
W2	Discharge from Eastern 1st Flush Pond to an unnamed tributary of Boat Creek at the site boundary
W3	Discharge from Northern 1st Flush Pond to an unnamed tributary of Boat Creek at the site boundary
W4	Discharge from residue management dam to Gravel Creek
W5	Discharge from stormwater to Gladstone Harbour from the Caustic Storage Facility located at Fisherman's Landing
W6	Discharge from sediment dam to southern bund drain at Fishermans Landing
W7	Discharge from Northern Laydown Area Sedimentation Pond to an unnamed tributary of Boat Creek to the south of Port Curtis Way
W8	Discharge from Southern Laydown Area Sedimentation Pond to diversion gully west of RTA 670 pond, to an unnamed tributary of Boat Creek south of Port Curtis Way adjacent the RTA Yarwun Refinery site northern boundary
W9	Diffuser at wharf (GPS co-ordinate: S2347.426 E15110.696)

Schedule C - Table 2 (Release limits)

Monitoring point	Discharge location	Quality characteristics	Release limit		Monitoring frequency
			Min	Max	
Discharge pipe from alumina plant effluent pond	W1	pH	6.5	9.5	Continuous
Discharge pipe from alumina plant effluent pond	W1	Suspended solids	-	50 mg/L	Quarterly
Discharge pipe from alumina plant effluent pond	W1	Turbidity	-	150 NTUs	12 hourly
Discharge pipe from alumina plant effluent pond	W1.	Aluminium Fluoride	-	3 mg/l (filtered) 8 mg/l (filtered)	Quarterly
Eastern 1 st Flush Pond at spillway	W2	pH	6.5	9.5	Each flow event
Eastern 1 st Flush Pond at spillway	W2	TDS	-	110% of background	Each flow event
Eastern 1 st Flush Pond at spillway	W2	Aluminium Fluoride	-	3 mg/l (filtered) 8 mg/l (filtered)	Each flow event
Northern 1 st Flush Pond at spillway	W3	pH	6.5	9.5	Each flow event
Northern 1 st Flush Pond at spillway	W3	TDS	-	110% of background	Each flow event
Northern 1 st Flush Pond at spillway	W3	Aluminium Fluoride	-	3 mg/l (filtered) 8 mg/l (filtered)	Each flow event
500 m downstream of both 1 st Flush Pond spillways	W2 & W3	pH	6.5	8.5	Each flow event
500 m downstream of both 1 st Flush Pond spillways	W2 & W3	TDS	-	110% of background	Each flow event
Residue management dam at spillway	W4	pH	6.5	9.5	Each flow event
Residue management dam at spillway	W4	Aluminium Fluoride	-	3 mg/l (filtered) 8 mg/l (filtered)	Each flow event
Gravel Creek 500 m downstream of residue management dam spillway	W4	pH	6.5	8.5	Each flow event
Caustic storage facility at spillway	W5	pH	6.5	9.5	Each flow event
Sediment Pond at discharge to drain	W6	pH	6.5	9.5	Each flow event
Sediment Pond at discharge to drain	W6	TDS	-	110% of seawater inlet	Each flow event
Northern Laydown Area Sediment Pond discharge to drain	W7	TSS	-	Within 10% of TSS at background location at S: 23o49.237; E:151o08.753	Each flow event
Southern Laydown Area Sediment Pond discharge to drain	W8	TSS	-	Within 10% of TSS at background location at S: 23o49.237; E:151o08.753	Each flow event
Diffuser at wharf (GPS coordinate: S2347.426 E15110.696)	W9	Temperature	2° below seawater inlet temperature	2° above seawater inlet temperature	Weekly

NB:

CSGW – Caustic Storage Groundwater Bore

RGW – Refinery Groundwater Bore

580BH – Area 580 (Residue Management Area) Groundwater Bore

Volume released

- (C2-1) The daily volume of contaminants released to waters from discharge location W1 must be measured and records kept.
- (C2-2) The volume of contaminants released to waters from discharge location W4 must be measured for each flow event and records kept.

Monitoring

- (C3-1) Monitoring must be carried out and records kept of contaminant releases to waters from the monitoring points specified for each discharge locations, for the parameters, and not less frequently than specified in Schedule C - Table 2 (Release limits). All determinations of the quality of contaminants released must be:
- a) made in accordance with methods prescribed in the latest edition of the Water Quality Sampling Manual as published from time to time by the administering authority; and
 - b) carried out on samples that are representative of the discharge.
- (C3-2) The holder of this environmental authority will carry out or arrange for the analysis of water samples for the contaminants defined in Schedule C – Table 3 (Monitoring) at the monitoring points defined in Schedule C – Table 1 (Discharge locations).
- (C3-3) The administering authority shall be notified by telephone or facsimile within 24 hours of a flow event commencing.
- (C3-4) The holder of this environmental authority shall remove deposited sediment from Northern Laydown Area sedimentation ponds when the active depth is less than two metres.
- (C3-5) The holder of this environmental authority shall remove deposited sediment from Southern Laydown Area sedimentation ponds when the active depth is less than 2.4 metres.
- (C3-6) The holder of this environmental authority shall visually inspect the ponds, embankments, spillway and local receiving environment within 24 hours of each flow event or as directed by the administering authority.

Schedule C - Table 3 (Monitoring)

Quality Characteristic Determination	Release Points	Frequency
Surface Water Releases		
Vanadium, Gallium, Molybdenum (all filtered) Alkalinity, Salinity, Dissolved Oxygen	W1	Quarterly
Vanadium, Gallium, Molybdenum (all filtered) Alkalinity, Salinity, Dissolved Oxygen	W2, W3, W4	flow event dependent

Schedule C - Table 4 (Alumina Refinery, Caustic Storage, and Residue Management Dam ground water monitoring locations, frequency and parameters)

Monitoring Point	AMG Coords (WGS84)	AMG Coords (WGS84)	Surface RL (m)	Monitoring frequency	Parameter
CSGW1	312725.7E	7367008.84N	4	Quarterly	Water level pH
RGW1	312078.0E	7363834.76N	10.4	Quarterly	Water level pH
RGW5	312056.29E	7363148.93N	15.3	Quarterly	Water level pH
580BH31	303254.50E	7360242.00N	54.6	Quarterly	Water level pH
580BH32	303534.60E	7360408.00N	54.5	Quarterly	Water level pH
580BH30	305040.60E	7359249.00N	77.5	Quarterly	Water level pH
580BH37	304462.20E	7357367.00N	66.3	Quarterly	Water level pH
580BH07	303025.40E	7358597.40	83.5	Quarterly	Water level pH

Groundwater monitoring

- (C4-1) Groundwater, affected by the Environmentally Relevant Activities must be monitored, as defined in condition A1-8, at the locations and frequencies and for the parameters defined in Schedule C - Table 3 (Alumina Refinery, Caustic Storage, and Residue Management Dam ground water monitoring locations, frequency and parameters).
- (C4-2) The method of sampling of groundwater must comply with that set out in the latest edition of the Water Quality Sampling Manual as published from time to time by the administering authority.
- (C4-3) The holder of this environmental authority will carry out or arrange for the analysis of water samples for the contaminants defined in Schedule C – Table 5 (Groundwater Monitoring) at the monitoring points defined in Schedule C – Table 4 (Alumina Refinery, Caustic Storage, and Residue Management Dam ground water monitoring locations, frequency and parameters).
- (C4-4) The administering authority shall be notified within 24 hours of a flow event commencing.
- (C4-5) The holder of this environmental authority shall remove deposited sediment from Northern Laydown Area sedimentation ponds when the active depth is less than two meters.
- (C4-6) The holder of this environmental authority shall remove deposited sediment from Sothern laydown Area sedimentation ponds when the active depth is less than two meters.
- (C4-7) The holder of this environmental authority shall visually inspect the ponds, embankments, spillway and local receiving environment within 24hours of a flow event or as directed by the authority.

Schedule C - Table 5 (Groundwater Monitoring)

Quality Characteristic Determination	Release Points	Frequency
Groundwater Bores		
Aluminium, Fluoride, Vanadium, Gallium, Molybdenum (all filtered) Alkalinity, Salinity	All bores listed in Schedule C – Table 2	Quarterly

END OF CONDITIONS FOR SCHEDULE – C

Schedule D - Noise and vibration

Noise Release

- (D1-1) All noise from, the development approval holder's, activities must not exceed an $L_{Aeq\ 1\ hour}$ of 43 dB(A), adj at all sensitive places other than those located on Lot 11 plan SP108408 and Lot 1 plan MPH32292.
- (D1-2) If the noise from, the development approval holder's, activities exceeds an of $L_{Aeq\ 1\ hour}$ of 44 dB(A), adj and noise complaints are received from residents at the sensitive places located on Lot 11 plan SP108408 and Lot 1 plan MPH32292 then measures must be taken that are acceptable to those residents, or noise attenuation measures must be installed, to reduce noise levels at the sensitive places to a maximum of $L_{Aeq\ 1\ hour}$ of 44 dB(A), adj.

Noise monitoring

- (D2-1) When requested by the administering authority, noise monitoring must be carried out to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include:
 $L_{Aeq\ 1\ hour}$, adj;
the level and frequency of occurrence of impulsive or tonal noise;
atmospheric conditions including wind speed and direction;
effects due to extraneous factors such as traffic noise; and
location, date and time of recording.
- (D2-2) The method of measurement and reporting of noise levels must comply with the latest edition of the Noise Measurement Manual as published from time to time by the administering authority.

END OF CONDITIONS FOR SCHEDULE - D

Schedule E - Land

Description of the residue management dam

(E1-1) The construction and operation of any dam containing hazardous waste within the operational land must comply with Schedule E – Table 1.

Schedule E — Table 1 (Dam Description)

Name of dam containing hazardous waste	Maximum surface area of dam (ha)	Maximum volume of dam (m³)	Maximum depth of dam (m)⁽¹⁾	Purpose of dam
Residue Management Dam	225 Ha	87 Million m ³	55 m	<i>the permanent containment of residues resulting from refining of bauxite, burning of fuel at or acid sulfate soils from the Comalco Alumina Refinery.</i>

Note: (1) Measured from the natural surface at the bottom of the dam wall to the surface of the crest of the dam.

(E1-2) The holder of this development approval shall develop and implement an acid sulfate soil disposal management plan for the disposal into the Residue Management Dam of any acid sulfate soil, disturbed through excavation on the refinery site.

Location and dimensions of the residue management dam

(E2-1) The location of any dam containing hazardous waste within the operational land must be located within the polygonal area defined by the co-ordinates defined in Schedule E - Table 2.

Schedule E — Table 2 (Waste Storage Disposal Location)

Waste	Coordinates	Northing/Easting
Residues resulting from refining of bauxite, burning of fuel or acid sulfate soils.	North-west	N7359850; E302731
	North-east	N7360310; E304508
	South-west	N7357609; E303270
	South-east	N7357459; E305841

Standards and criteria for the residue management dam

(E3-1) The holder of this development approval must design, construct, repair, maintain, operate and decommission the Residue Management Dam in accordance with the “Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste” as published from time to time by the administering authority in accordance with s.549 of the *Environmental Protection Act 1994*.

Decommissioning objective for the residue management dam

(E4-1) The residue management dam must be decommissioned to a situation where water can no longer be stored in the dam and the dam and its contained waste(s) are stable, where after the dam is no longer a dam and becomes a landform that must comply with the rehabilitation requirements of this Development Approval.

Documentation and compliance for decommissioning of the residue management dam

- (E5-1) Decommissioning activities for the residue management dam must be documented in detail in the IEMS. Where detailed documentation is not already contained in the accepted Design Plan for the dam, the detailed documentation is considered to be an amendment to the Design Plan and must be submitted as an amendment to the Design Plan in accordance with the requirements of the “Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste” as published from time to time by the administering authority in accordance with s.549 of the *Environmental Protection Act 1994*.

Rehabilitation of the residue management dam

- (E6-1) The development approval holder must complete an investigation into rehabilitation of disturbed areas in the residue management dam and surrounding area and submit a report to the administering authority proposing acceptance criteria within five (5) years of commencement of operations. The report must address within a time frame of greater than 100 years:
- land use after operations cease;
 - landform geotechnical stability criteria including surface settlement, sustainability of drainage works, susceptibility to erosion processes, leachate production, and surface water contamination;
 - revegetation acceptance criteria if applicable, taking into consideration the surrounding land use;
 - receiving and run-off water standards; and
 - post operations closure, maintenance and monitoring requirements.
- (E6-2) All areas significantly disturbed by residue disposal must be rehabilitated in accordance with the acceptance criteria, referred to in the report provided in condition (E6-1). If no modifications are notified by the administering authority to the development approval holder within six months of the receipt of the report by the administering authority, then the acceptance criteria referred to in the report will apply.

Inspection of the residue management dam

- (E7-1) The embankments and operation of the Residue Management Dam shall be inspected by a suitably qualified and experienced engineer on or about 1st October but definitely before 1st November each year, or at any time if disturbing, unusual or otherwise unsatisfactory conditions or changes to the Residue Management Dam are observed or as directed by the administering authority.
- (E7-2) For each inspection, the engineer shall review the risk evaluation criteria and monitoring results required by Schedule A of this development approval, and assess the condition of the dam and its foundations, determine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety and containment of waste.
- (E7-3) For each inspection, two copies of the engineer’s report and any recommendations as to measures to be taken to ensure the integrity of the dam shall be furnished to the administering authority within 28 days of the inspection.

Stormwater management of the residue management dam

- (E8-1) The design storage allowance on 1st November of each year for the residue management dam must comply with Schedule E – Table 3

Schedule E - Table 3 (Storage design for the residue management dam)

Design Storage Allowance ⁽²⁾	Minimum Spillway Capacity ⁽³⁾	Mandatory Reporting Level ⁽⁴⁾
<i>Runoff volume from a 1 in 50 Year ARI⁽¹⁾ 3 month wet season for the 3 month wet season plus expected annual process inputs</i>	<i>Peak discharge from a Probable Maximum Flood (PMF)</i>	<i>Lowest level below spillway to keep the risk of discharge to less than 1 in 50 ARI⁽¹⁾ for single natural events.</i>

Notes:

- 1) *ARI means annual recurrence interval.*
- 2) *The design storage allowance on 1st November of each year for any high hazard dam containing hazardous waste constructed within the operational land must be equivalent to the run-off from a 1 in 50 ARI 3 month wet season plus process inputs for the year. Process inputs refers to hazardous minerals, process waste and water, which is being disposed of in the storage facility.*
- 3) *The critical design storm has a duration that produces the peak discharge for the catchments.*
- 4) *The mandatory reporting level refers to the level below the spillway crest, either the 1 in 50 ARI 72 hour storm or the 1 in 50 ARI wave allowance, whichever is lower.*

(E8-2) The spillway for the residue management dam must be designed and maintained to withstand the peak flow for the spillway critical design storm defined in Schedule E - Table 3.

(E8-3) The holder of the development approval must mark the mandatory reporting level defined in Schedule E - Table 3 on the upstream side of the spillway of the residue management dam.

(E8-4) The holder of the development approval must notify the administering authority when the pondage level of the residue management dam, reaches the mandatory reporting level defined in Schedule E - Table 3.

END OF CONDITIONS FOR SCHEDULE - E**Schedule F - Land**

Not applicable

END OF CONDITIONS FOR SCHEDULE - F**Schedule G - Community**

Not applicable

END OF CONDITIONS FOR SCHEDULE - G

Schedule H – Definitions

Words and phrases used throughout this licence or development approval are defined below:

Where a definition for a term used in this <authority/approval> is sought and the term is not defined within this <authority/approval> the definitions provided in the Environmental Protection Act 1994, its regulations, and Environmental Protection Policies shall be used.

Word Definitions

“administering authority” - means the Environmental Protection Agency or its successor.

“competent person” - means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

“dam” - means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.

“design plan” - in the context of a dam design is the documentation required under the “Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste” to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissioning and rehabilitation objectives in terms procedures, works and outcomes at the end of dam life. The documents can include design and investigation reports, drawings, specifications and certifications.

“development approval holder” - means the holder of this development approval.

“documented” – means all forms of documentation including printed and electronic forms.

“dwelling” - means any of the following structures or vehicles that is principally used as a residence:

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land; and
- a water craft in a marina.

“environmental aspect” - means an element of the activities, products or services that can interact with the environment. A significant environmental aspect is one that can have a significant environmental impact or may cause unlawful environmental harm.

“environmental harm” - has the meaning given in the *Environmental Protection Act 1994*.

“environmental impacts” - means changes that occur in the environment as a result of the activities. Impacts could be positive, negative or neutral.

“environmental management system” means the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy, objectives and targets.

“environmental value” has the meaning given in the *Environmental Protection Act 1994*;

“flowable substance” means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

“hazardous waste” means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

“holder” means as per section 3.5.28 (1) of the Integrated Planning Act 1997 which states “The development approval attaches to the land, the subject of the application, and binds the owner, the owners successors in title and any occupier of the land”.

“ $L_{Aeq\ 1\ hour}$, adj” - means the A-weighted equivalent sound pressure level, (adjusted for tonal character and impulsiveness of the sound) measured over 1 hour using Fast response.

“mg/L” - means milligrams per litre.

“noxious” - means harmful or injurious to health or physical well being, other than trivial harm.

“NTU” - means nephelometric turbidity units

“risk assessment” - means the overall process of risk analysis and risk evaluation as shown in the AS/NZS 4360:1999 (Risk management).

“risk evaluation” - means the risk evaluation criteria that prioritises and categorises risks either as low, moderate, high or critical

“risk management” - means the culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects.

“risk threshold” means the level of change in an environmental value that is categorised as either high or critical by the holder of the environmental authority which initiates a risk management response to prevent a significant environmental impact. High and critical (extreme) risks are defined as per AS/NZS 4360:1999 (Risk management).

“risk treatment” - means selection and implementation of appropriate options for dealing with risk, as described in the Australian Standard for Risk Management (AS/NZS 4360:1999)

“sensitive place” - means;

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
 - a motel, hotel or hostel; or
 - an educational institution; or
 - a medical centre or hospital; or
 - a public park or gardens (including a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area); or
- a place used as a workplace, an office or for business or commercial purposes and includes the curtilage of such place.

“site” - means the place to which this development approval relates or the premises to which this development approval relates.

“spillway” - means passage or outlet from the dam through which surplus water flows.

“stable” means land form dimensions are or will be stable now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (traffic ability), erosion resistance and geochemical stability with respect to seepage and contaminant generation.

“suitably qualified and experienced engineer” - means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 1988*, or a Corporate Member of the Institution of Engineers Australia, or holds equivalent professional qualifications and has the following:

knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams;
and at least a total of five (5) years of suitable experience and demonstrated expertise in at least four (4) of the following areas:

investigation, design or construction of dams;

operation and maintenance of dams;

geomechanics with particular emphasis stability, geology and geochemistry;

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hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;

hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;

hydrogeology with particular reference to seepage, groundwater,

solute transport processes and monitoring thereof; or

dam safety.

“waters” - includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

“zone of impact” means those areas, whether on or off the site where operations could or do result in a significant change in the environment. See also definition for environmental impacts.

END OF DEFINITIONS FOR SCHEDULE – H

Schedule I – Maps/Plans

An A4 sized plan is to be included by Comalco Alumina Refinery in its application. This plan is to highlight stage 1 in relation to stags 2 and 3. The plan will be scanned in and placed here.

END OF CONDITIONS FOR SCHEDULE - I

**END OF CONDITIONS
END OF DEVELOPMENT APPROVAL**