



Department of
**Environment and
Heritage Protection**

Ref 101/0000698

29 October 2014

Ms Melanie Jarvis
Acting Manager Environmental Operations: North
Stanwell Corporation Limited
GPO Box 800
Brisbane QLD 4001

Email: melanie.JARVIS@stanwell.com

Dear Ms Jarvis,

Compliance inspection – Stanwell Power Station

I am writing to inform you that the Department of Environment and Heritage Protection (the department) will be carrying out a compliance inspection at the premises of Stanwell Corporation Limited (Stanwell), situated at Power Station Road, Stanwell on Thursday 27 November 2014 at 10:00 am. The inspection will be conducted pursuant to section 452 of the *Environmental Protection Act 1994*.

Objectives and scope of the inspection

The objectives and scope of the inspection include:

1. Assessing compliance with Environmental Authority (EA) EPPR00708913 (the EA).
2. The inspection will focus on assessing Stanwell's environmental management of the ash storage area and the coal receiving and stockpiling areas.
3. The inspection may also focus on areas of your operation not specifically covered by conditions in the EA, but instead covered by general environmental duty under the *Environmental Protection Act 1994*.

It is anticipated that, subject to site conditions and excluding any site induction, three departmental officers will be present on site for approximately four hours.

Requirements

Your assistance prior to and during the inspection process will be greatly appreciated. To help facilitate an efficient site inspection, please provide the department with the following information by the close of business on Tuesday 25 November 2014:

1. Any health and safety requirements, including site induction requirements and personal protection equipment (PPE) required for this visit; and
2. The name and contact details of the site representative who will accompany the departmental officers during the compliance inspection.

On the day of the inspection, please ensure that:

1. Key site personnel for managing the ash storage area and the coal receiving and stockpiling areas are available; and
2. Please also ensure any other relevant records and documents are available for viewing.

What will happen during the inspection?

During the inspection, the departmental officers may use photographic equipment to record details of the inspection and may take GPS location points.

They may also need to speak with your staff about their roles and responsibilities in relation to the environmental management requirements of your activities. During the inspection departmental officers may require the occupier of the place or any person in the place, to give the departmental officers reasonable help for the exercise of their powers under the *Environmental Protection Act 1994*.

Further information

To confirm your availability for the inspection or if you have any questions about the inspection, please contact Glenn Druery, Senior Environmental Officer of the department via phone number 48373509, or email glenn.druery@ehp.qld.gov.au.

Yours sincerely

sch4-Signature

Michael Allen

Compliance Delivery Manager – Rockhampton

Inspections Toolkit

Environmental Protection Act 1994

(Level A, B and C) Checklist, On-Site Record & Inspection Report

This Toolkit is for internal use to assist Environmental Services officers when conducting Level A, B and C site inspections to record general details of the site being inspected, pre-inspection considerations and planning, on-site observations and to document recommendations and obtain approval for compliance/enforcement action. For Levels B and C, refer to addendum sheets also. This document can be used in hard copy and taken with the officer to be completed on site. The soft copy document can be completed upon return to the office.

1. General information

Company name: Stanwell Corporation Limited	Date of inspection: 27 November 2014	Time: 10:00 am
Trading as: Stanwell Power Station		EA/DA number (if applicable): EPPR00708913
Description of business activity/ERAs: 14-(2b) Electricity generation >150MW fuel 60-(1d) Waste disposal >200000t/yr 63-(1b)(ii) Sewage treatment >100 to 1500EP - no IT or IR 64-(3) Water treatment >10ML raw water day 7-(3b) Chemical manufacturing >200t/yr agricultural 8-(3) Chemical storage >500m ³ class C1 or C2		File number: 101/0000698
Street address: Power Station Road, Stanwell 4702		Real property description (lot on plan): Lot 177 Plan LN2465, Lot 1 Plan SP140243, Lot 44 Plan SP140243, Lot 1 Plan RP608422, Lot 2 RP801218 and Lot 187 Plan SP210610.
Site representative/s:	Position/s:	Contact telephone:
Melanie Jarvis	Acting Manager Environmental Operations: North	4930 3425 (p4 (6) Personal information)
Chelsea Logan	Environmental Advisor	

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(Level A, B, and C) Checklist, On-Site Record & Inspection Report

Rhiannon Hossack	Graduate Environmental Officer	
Department's representatives: Glenn Druery (Snr Environmental Officer) and Penny Smith (Compliance Support Officer)		
Registered business address: Level 13, 42 Albert Street BRISBANE 4001		
Inspection level (check box): Level A ☐ Level B ☒ Level C ☐		

2. Pre-inspection considerations

Environmental risk	High
Last inspection date	17 December 2013
General description of location and surrounding environment	Stanwell Power Station has been operated on the site since the early 1990s and generally has a substantial buffer distancing it from sensitive receptors. There are some residences that remain close to the power station, some of which are privately owned, and others owned by Stanwell Corporation Limited.
History of the activity	Coal-fired power station since early 1990s. The station burns approximately 3M tonnes of coal per annum. The expected life of the station is to 2043.
Outstanding issues and/or non-compliances/enforcement (e.g. environmental protection orders)	There are no non-compliance issues and no enforcement tools in place. A persistent complainant continues to make allegations of environmental harm and environmental nuisance resulting from the activity, although extensive monitoring by Stanwell has consistently demonstrated compliance with the EA and legislation.
Industry specific hazards	
Engineering	Noisy equipment/infrastructure at the place. Hearing protection worn. Walking inside boiler sheds to access site offices presents a minor risk of being struck by falling objects. Hard hats worn.
Light manufacturing	N/A
Food processing	N/A
Waste	Waste is appropriately managed on site and does not pose a significant risk to personal safety.
Chemical production	N/A
Health/medical	N/A
Other	N/A
Farming	N/A
Mining	N/A
Quarrying	N/A
Other	N/A

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Personal protective equipment (PPE) – consider whether any PPE is required	
Safety helmet	Yes ☒ No ☐
Hearing protection	Yes ☒ No ☐
Eye protection	Yes ☒ No ☐
Protective clothing	Yes ☒ No ☐
Protective footwear	Yes ☒ No ☐
Respiratory protection	Yes ☐ No ☒
Other	Yes ☒ No ☐ If yes, describe PPE: Sun protection – broad brim and sunscreen
Arrange safety induction training with occupier of site before any work is done	Yes ☒ No ☐

3. Inspection plan including opening meeting checklist for level B and C inspections

<add or N/A lines as necessary>

Topic	Details	Confirmed in opening meeting
Objectives and scope	<ol style="list-style-type: none"> Assessing compliance with Environmental Authority (EA) EPPR00708913 (the EA). The inspection will focus on assessing Stanwell's environmental management of the ash storage area and the coal receiving and stockpiling areas. The inspection may also focus on areas of your operation not specifically covered by conditions in the EA, but instead covered by general environmental duty under the <i>Environmental Protection Act 1994</i>. 	Yes ☒ No ☐
Agenda and timeframe	Attached.	Yes ☒ No ☐
Audit team - roles and responsibilities of team members	Glenn Druery – inspection lead Penny Smith – assist lead	Yes ☒ No ☐
Methods and procedures to be used	Opening and closing meetings and physical inspection of the coal receiving/storage areas and the licenced waste disposal area (ash storage area)	Yes ☒ No ☐

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(Level A, B, and C) Checklist, On-Site Record & Inspection Report

	(ASA).	
Onsite staff accompanying audit/inspection team (names and positions)	As above	Yes ☒ No ☐

4. Conditions for assessment

Condition number: B1 Compliant: Yes ☒ No ☐ TBA ☐ Not inspected ☐ <i>Except as otherwise provided by the conditions described in the Agency Interest: Air section of this environmental authority the environmentally relevant activity/activities must be carried out by such reasonable and practicable means which may be necessary to prevent or minimise the release of contaminants to the atmosphere.</i>		Photos taken Y/N
Observations (include name and relevant comments made by any on-site staff)		
<p>Dust suppression techniques are utilised at both the coal stockpiling area and the ash storage area. The working face of the ash storage area is kept to a minimum so that the surface area exposed to the atmosphere is minimised. The walls of new cells and the main face of the ash storage area are sprayed with a chemical which binds any potential loose particles together, and thus minimises the volume of material escaping. Any work undertaken at the ASA that involves disturbing the settled ash is undertaken at times when wind conditions are considered appropriate so that an aerosol will not result. Stanwell has a weather sock located on top of the ASA, and also has its own weather station.</p> <p>The coal stockpiling area is located well within the confines of the power station and therefore an appropriate distance from sensitive receptors.</p>		Yes
Condition number: C1 Compliant: Yes ☒ No ☐ TBA ☐ Not inspected ☐ <i>Except as otherwise provided by the conditions of this environmental authority, the environmentally relevant activity/activities must be carried out by such practicable means which may be necessary to prevent or minimise the release of contaminants to waters.</i>		Photos taken Y/N
Element/question		
How is runoff from the coal stockpiling and receiving area managed?		
Observations		
<p>The entire area is drained to three storage dams – coal stockpile runoff ponds (CSRP) 1, 2 and 3. The CSRPs have height sensors and alarms, and when a set height is reached water is pumped from one dam into the next. In the event that all three dams are full, they overflow into another on site storage – the Drains Reclaim Dam (DRD).</p> <p>The ASA carries very little risk of unauthorised discharges to land given the technique that fly ash is deposited (dense-phase slurry), the available area of the evaporation pond, and the height of the spillway. The dense-phase slurry means very little water runs out of the fly ash slurry, and the exposed surface area of individual holding cells results in excess water evaporating rapidly. On the day of the inspection, the evaporation pond was completely dry and only a small volume of water was visible in one corner of the active slurry cell.</p>		Yes

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Condition number: C2 Compliant: Yes ☒ No ☐ TBA ☐ Not inspected ☐ <i>Other than in relation to the discharge to the Effluent Dam, Drains Reclaim Dam, Number 1, 2 or 3 Coal Stockpile Runoff Ponds and the Chemical Drains Pond, contaminants must not be directly or indirectly released from the licenced place to any waters or the bed and banks of any waters except as permitted under the Agency Interest: Water.</i>	Photos taken Y/N
Element/question	
Have there been any discharged to waters from the CSRPs or the DRD?	Yes
Observations (include name and relevant comments made by any on-site staff)	
There have been no unauthorised discharges from any of these storages. The CSRPs are routinely emptied of accumulated coal by first emptying an individual pond and excavating the accumulated material. The material is transported to the ASA where it is deposited for final storage. The area had experienced a prolonged period of dry weather in the lead up to the inspection.	
Condition number: C13 Compliant: Yes ☒ No ☐ TBA ☐ Not inspected ☐ <i>Other than in relation to runoff into the Drains Reclaim Dam, runoff from the Coal Stockpile into the Coal Stockpile Runoff Ponds and runoff from the former landfill site and except as provided by the conditions of this environmental authority, the environmentally relevant activities must be carried out by such practicable means necessary to prevent or minimise the contact of incident rainfall and stormwater runoff with wastes or other contaminants, and prevent or minimise the release or likelihood of release of any such contaminated runoff from the licenced place.</i>	Photos taken Y/N
Element/question	
How is rainwater prevented from coming into contact with boiler ash at the ASA?	
Observations (include name and relevant comments made by any on-site staff)	
The ASA is appropriately lined with clay and the size of the evaporation pond means that there is sufficient redundancy built into the system to be capable of handling a significant rainfall event. When ex-tropical cyclone Oswald impacted Stanwell in January 2013, the ASA did not discharge to land. Although it's not possible to prevent rainwater from contacting fly ash at the working face of the ASA, the amount of fly ash exposed to the atmosphere is kept to a minimum. No discharge of stormwater has occurred to land outside of the ASA.	Yes
Condition number: D1 Compliant: Yes ☒ No ☐ TBA ☐ Not inspected ☐ <i>Except as otherwise provided by the conditions of this environmental authority, the environmentally relevant activities must be carried out by such practicable means necessary to prevent or minimise the release or likelihood of release of contaminants to land.</i>	Photos taken Y/N
Element/question	
Are the coal stockpiling area and ASA managed so as to prevent the release of contaminants to land?	
Observations (include name and relevant comments made by any on-site staff)	
The various management techniques for preventing and/or minimising release of contaminants to	Yes

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land from these areas have been discussed above.		
Condition number: F15 Compliant: Yes ☒ No ☐ TBA ☐ Not Inspected ☐ The only wastes permitted for disposal in the ash disposal area (referred to hereafter as the ash storage area (ASA)) are: <ul style="list-style-type: none"> • bottom ash and fly ash mixed with chemical drains pond water and/or service water; • pulverised coal mill rejects; • coal combustion products; • silt recovered from the water treatment process; and • ash, coal and silt recovered from site dredging activities. 		Photos taken Y/N
Element/question		
Are any other wastes deposited at the ASA?		
Observations (include name and relevant comments made by any on-site staff)		
No other wastes were observed at the ASA. The only deposition occurring on the day was the dense-phase slurry into an active cell. Stanwell has indicated only wastes described in the EA condition are deposited at the ASA.		Yes
Condition number: F17 Compliant: Yes ☒ No ☐ TBA ☐ Not Inspected ☐ <i>Once the final lift height for an active zone has been reached, ash is to be capped with a minimum of 300 mm of cover material (including stored topsoil) suitable for supporting vegetative cover as required in Condition F18.</i>		Photos taken Y/N
Element/question		
Is capping of the ASA undertaken to a minimum of 300 mm thickness of cover material once the final lift height has been reached?		
Observations (include name and relevant comments made by any on-site staff)		
It was possible to observe the thickness of the cover during the inspection, and it was clear that the capping meets the minimum requirement.		Yes
Condition number: F18 Compliant: Yes ☒ No ☐ TBA ☐ Not Inspected ☐ <i>Once capped with cover material in accordance with condition F18, a suitable grass cover must be established as soon as reasonably practicable.</i>		Photos taken Y/N
Element/question		
Is a suitable grass cover over the capped area of the ASA?		
Observations (include name and relevant comments made by any on-site staff)		
The capped area of the ASA is well grassed and no evidence of erosion was observed.		Yes
Condition number: F19 Compliant: Yes ☒ No ☐ TBA ☐ Not Inspected ☐ <i>A minimum buffer of 25 metres must be maintained between ASA embankments and Stony Creek or Sandy Creek.</i>		Photos taken Y/N
Element/question		
Is a buffer of 25 m kept between the ASA embankments and Stony Creek and Sandy Creek?		No

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Observations (include name and relevant comments made by any on-site staff)		
There is at least 25 m between the ASA embankment and either creek.		
Condition number: F20 Compliant: Yes ☒ No ☐ TBA ☐ Not inspected ☐ <i>Rainfall and irrigation runoff originating on capped and grassed areas must be directed to the evaporation pond.</i>	Photos taken Y/N	
Element/question		
Is rainfall falling on the rehabilitated area directed to the evaporation pond?		
Observations (include name and relevant comments made by any on-site staff)		
Although it wasn't raining on the day, the table drain around the perimeter of the rehabilitated area was observed.		Yes

5. On-site observation – general items

1. Other issues identified	
Issue	Details (if applicable)
Are there issues with dust/odour/noise/contaminated land etc?	<p>There is a persistent complainant that owns a property</p> <p style="text-align: center;">Section 78B(2) RTI Act This person does not reside at the property, although continually alleges health impacts on their family from fugitive dust/particulate emissions from the ASA. Further, there have been allegations of impact on groundwater from "up to 900000 L of toxic water going into the aquifer per day". Stanwell has undertaken appropriate monitoring to investigate potential impact from its activity and after comparing results with legislation, EHP is satisfied there is no significant impact occurring. EHP has taken the position that it will not continue to answer the same questions posed by the complainant and considers the matter closed.</p>
Are there any unregistered ERAs?	No.
Is a follow-up inspection required (including date)?	No follow up inspection is recommended.
Are any enforcement actions required?	No.
Other?	No.

6. Closing meeting

Discuss preliminary findings, non-compliances, observations, further items to be provided, timing and any other matters (list names of all persons present).

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Discussed that no non-compliances were observed during the inspection. Commended Stanwell on its ongoing commitment to achieving environmental objectives and compliance with the EA.

Present during the closing meeting were Melanie Jarvis, Chelsea Logan and Rhiannon Hossack.

7. Inspection results summary (NB: Refer to parts D – F where relevant)

Overall Findings

General observation/s	The areas inspected appeared well managed and free from any issues. No non-compliances were observed.
Compliance level	☐ Environmental nuisance/minor non-compliance ☐ Actual or risk of material harm/repeat non-compliance ☒ Actual or risk of serious harm ☒ Compliant ☐ Fully compliant/best practice
Environmental risk	☐ (1) Very low ☐ (2) Low ☐ (3) Moderate ☒ (4) High ☐ (5) Very high

Client action/s required (from information in Part D)

Non-Compliances

Condition number & requirement legislation reference	Observations	Recommended action (Officers should document the evidence supporting the recommendation)	Client agreement
Nil			Yes ☐ No ☐ TBD ☐

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Further observations (Issues)

Condition number & requirement legislation reference	Observations	Recommended action (Officers should document the evidence supporting the recommendation)	Client agreement
Nil			Yes ☐ No ☐ TBD ☐

8. Natural justice

- ☐ The person has been provided with the opportunity to put their side of the story forward.
- ☐ List any information and/or defences provided.
- ☐ The Department has considered the information or defences provided.
- ☐ The decision-maker and environmental officer are free from bias or the perception of bias.

9. Ecotrack

Ecotrack case number	CA33346
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Activity	Time (hours)	Comments
Planning	2	Checking EA and preparing notification letter.
Inspection	5	On site time and travel time.
Reporting	5	Compiling inspection toolkit document and post-inspection letter.
Total	12	

10. Recommendation (complete where relevant)

Enforcement measure/s taken during inspection	Date issued: Nil	Type:	Next due date:
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Inspections Toolkit

(Level A, B, and C) Checklist, On-Site Record & Inspection Report

Further enforcement measures recommended (Note: Refer to relevant client action items listed above)	Nil
Justification	Actions required must be specific, measurable, achievable, relevant to the non-compliance identified and time-specific. In order to ensure the actions required are reasonable, officers are required to provide justification for the inclusion of this action
Further enforcement measures recommended (Note: Refer to relevant client action items listed above)	Nil
Justification	Actions required must be specific, measurable, achievable, relevant to the non-compliance identified and time-specific. In order to ensure the actions required are reasonable, officers are required to provide justification for the inclusion of this action
Other recommendations (e.g. permit amendments)	Nil
Next inspection date	Nil

11. Endorsement

The recommending officer and supervisor are required to sign and date below.

Recommending Officer	Supervisory Review
Signature: sch4-Signature	Signature: sch4-Signature
Print Name: Glenn Drury	Print Name: Angela Hendy
Position: Snr Environmental Officer	Position: Team Leader
Date: 17 December 2014	Date: 19 December 2014

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(Level A, B, and C) Checklist, On-Site Record & Inspection Report

12. Approval

The appropriate manager or supervisor is required to make a decision and sign and date below.

Decision for recommendation		approve
Reasons for decision I endorse this recommendation based upon the information set out above.		
Signature 	sch4-Signature	Print Name: Rebecca Allen
Position: Compliance Delivery Manager		Date: 19/12/2014.

RTI DL RELEASE - EHP

Photographs

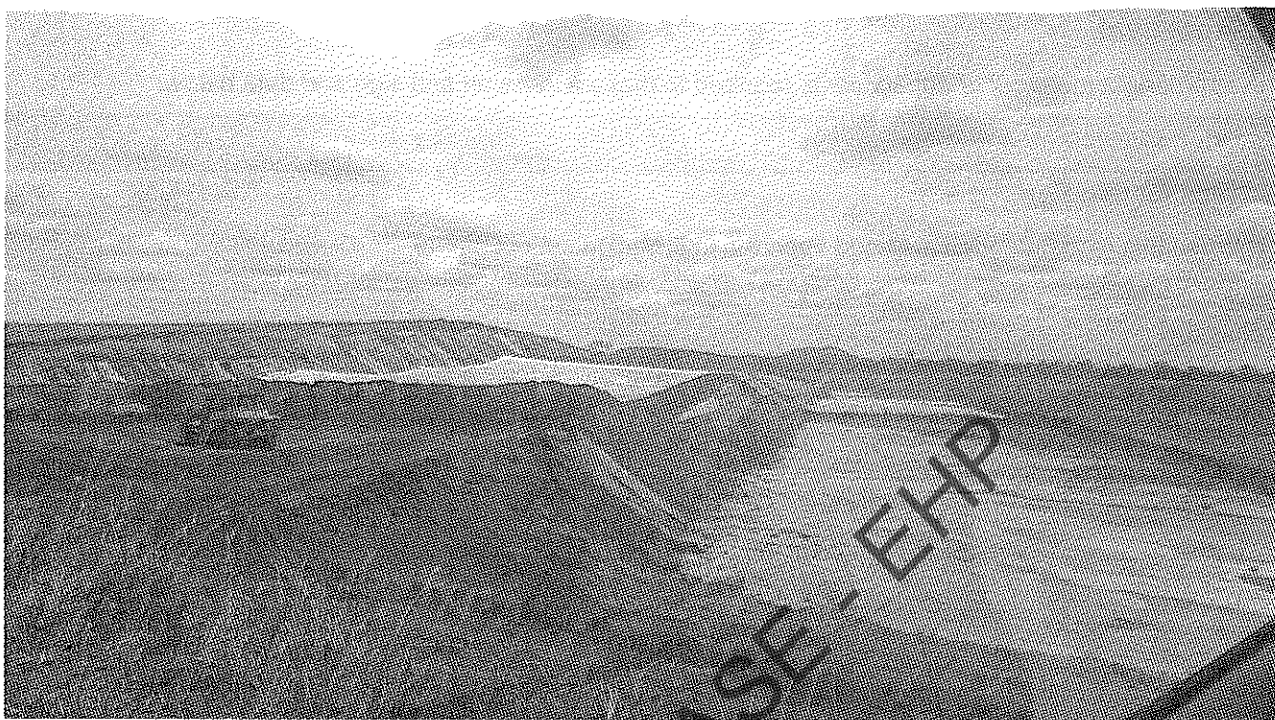


Photo 1. Ash storage area working face showing active cells (light grey)



Photo 2. Coal Stockpile Runoff Pond. Pump visible floating on surface and ultrasonic height recorder in background.



Photo 3. Capped and grassed area of ash storage area.



Photo 4. Vehicle fuelling point within coal stockpile catchment. IBCs individually bunded.



Photo 5. Coal receiving area

Notice

Environmental Protection Act 1994

Amendment of an environmental authority by the administering authority

This notice is issued by the administering authority¹, pursuant to section 211 of the Environmental Protection Act 1994 to advise that an environmental authority is being amended.

To: Stanwell Corporation Limited
C/- PO Box 800
BRISBANE QLD 4001

Email: bradley.perry@stanwell.com

Attention: Mr Bradley Perry

Your reference:

Our reference: 222451

Amendment of an environmental authority to correct a clerical or formal error

1. Environmental authority details

Environmental authority number EPPR00708913 dated 18 March 2014.

Land description: Stanwell Power Station, Capricorn Highway (Rockhampton Regional Shire) Lot 177 Plan LN2465, Lot 1 Plan SP140243, Lot 44 Plan SP140243, Lot 1 Plan RP608422, Lot 187 Plan SP210610, Lot 2 Plan RP801218.

2. Amendment

The administering authority has become aware that there are clerical errors on the environmental authority that require correction. This correction is minor in nature and will not adversely impact your interests or anyone else. As a result, the following amendments have been made to your environmental authority:

Schedule 3 – Release Limits

Table 1 – Release Point Maximum Permitted Concentration of Contaminant Release Limits has been amended to include the release limit units in column 4 as they appeared in previous versions of the licence.

¹ The Department of Environment and Heritage Protection is the administering authority under the *Environmental Protection Act 1994*.

Amendment of an environmental authority by the administering authority

Schedule 3 – Table 1 previously read as such:

Table 1

Release Point Maximum Permitted Concentration of Contaminant Release Limits

Release Point Number	Contaminant	Release Limit	Release Limit Units
RP1 RP2 RP3 RP4	Particulates	4-hour moving average shall not exceed 0.080 g/Nm ³ for 90% of the values during any week 4-hour moving average shall not exceed 0.230 g/Nm ³	g/Nm ³ of effluent gas
RP1 RP2 RP3 RP4	Nitrogen Oxides	4-hour moving average shall not exceed 1.3 gNO ₂ /Nm ³	gNO ₂ /Nm ³ of effluent gas

Schedule 3 – Table 1 has been amended to read as follows:

Table 1

Release Point Maximum Permitted Concentration of Contaminant Release Limits

Release Point Number	Contaminant	Release Limit	Release Limit Units
RP1 RP2 RP3 RP4	Particulates	4-hour moving average shall not exceed 0.080 g/Nm ³ for 90% of the values during any week 4-hour moving average shall not exceed 0.230 g/Nm ³	g/Nm ³ of effluent gas at 0°C and 101.32 kPa corrected to 12% by volume CO ₂
RP1 RP2 RP3 RP4	Nitrogen Oxides	4-hour moving average shall not exceed 1.3 gNO ₂ /Nm ³	gNO ₂ /Nm ³ of effluent gas at 0°C and 101.32 kPa corrected to 7% by volume O ₂

Amendment of an environmental authority by the administering authority

The amended environmental authority is enclosed with this notice.

3. Review and appeal rights

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Planning and Environment Court. Information about your review and appeal rights is attached to this notice. This information is guidance only and you may have other legal rights and obligations.

sch4-Signature

Signature

27 October 2014

Date

Michael Brian Allen
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Glenn Druery
Environmental Services & Regulation
Rockhampton
Level 2, 209 Bolsover Street
ROCKHAMPTON QLD 4700
Phone: (07) 4837 3488
Fax: (07) 4837 3750
Email: glenn.druery@ehp.qld.gov.au

Attachments

Amended environmental authority (reference EPPR00708913)

Permit¹

Environmental Protection Act 1994

Environmental authority EPPR00708913

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Permit¹ number: EPPR00708913

The anniversary date of this environmental authority is the 28 February and is the same day each year. An annual return and the payment of the annual fee which is currently \$35,711.50 will be due each year on this day.

Environmental authority holder(s)

Name	Registered address
Stanwell Corporation Limited	Level 13, 42 Albert Street BRISBANE QLD 4001

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
14-(2b) Electricity generation >150MW fuel 60-(1d) Waste disposal >200000t/yr 63-(1b)(ii) Sewage treatment >100 to 1500EP - no IT or IR 64-(3) Water treatment >10ML raw water day 7-(3b) Chemical manufacturing >200t/yr agricultural 8-(3) Chemical storage >500m ³ class C1 or C2	Stanwell Power Station, Capricorn Highway - Lot 177 Plan LN2465, Lot 1 Plan SP140243, Lot 44 Plan SP140243, Lot 1 Plan RP608422, Lot 2 RP801218 and Lot 187 Plan SP210610.

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental authority as to the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.

[sch4-Signature Signature	27 October 2014 Date
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Michael Allen
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Glenn Druery
Environmental Services & Regulation
PO Box 413
Level 2, 209 Bolsover St
ROCKHAMPTON QLD 4700
Phone: (07) 4837 3509
Fax: (07) 4837 3418
Email: glenn.druery@ehp.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Conditions of environmental authority

Agency interest: General	
Condition number	Condition
Prevent and/or minimise likelihood of environmental harm	
A1	All reasonable and practicable measures must be taken to minimise the likelihood of environmental harm being caused.
Maintenance of measures, plant and equipment	
A2	<p>You must:</p> <ul style="list-style-type: none"> a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and b) Maintain (which includes calibration) such measures, plant and equipment in a proper and efficient condition; and c) Operate such measures, plant and equipment in a proper and efficient manner.
A3	Contaminants must not be released to the environment other than in accordance with this environmental authority.

Records	
A4	All information and records that are required by the conditions of this environmental authority (except those as per condition A5) must be kept for a minimum of five (5) years.
A5	Environmental monitoring results must be kept until surrender of this environmental authority.
A6	Copies of any record required to be kept by a condition of this environmental authority must be provided to any authorised person or the administering authority on request.
Alterations	
A7	No change, replacement or operation of any plant or equipment is permitted if the change, alteration or operation of the plant or equipment increases, or is likely to substantially increase, the risk of environmental harm or environmental nuisance.
Procedures	
A8	<p>The activity must be undertaken in accordance with written procedures that:</p> <ul style="list-style-type: none"> a) identify potential risks to the environment from the activity during routine operations, closure and an emergency; b) establish and maintain control measures that minimise the potential for environmental harm; c) ensure plant, equipment and measures are maintained in a proper and effective condition; d) ensure plant, equipment and measures are operated in a proper and effective manner; e) ensure that staff are trained and aware of their obligations under the <i>Environmental Protection Act 1994</i>; and f) ensure that reviews of environmental performance are undertaken at least annually.

Agency interest: Air	
Condition number	Condition
Release of Contaminants to the Atmosphere	
B1	Except as otherwise provided by the conditions described in the <i>Agency Interest: Air</i> section of this environmental authority the environmentally relevant activity/activities must be carried out by such reasonable and practicable means which may be necessary to prevent or minimise the release of contaminants to the atmosphere.

B2	Contaminants must only be released to the atmosphere from those release points specified in Schedule 2 - Table 1.
B3	Contaminants released from each release point specified in Schedule 2 - Table 1 must be directed vertically upwards without any impedance or hindrance.
B4	Contaminants must be released to the atmosphere from a release point at a height not less than the corresponding height stated for that release point in Schedule 2 - Table 1.
B5	Contaminants must not be released to the atmosphere from a release point at a concentration in excess of that stated in Schedule 3 - Table 1.
Compliance with Emission Limits	
B6	The particulate emission and nitrogen oxide limits set out in Schedule 3 - Table 1 are applicable when the power generating units are synchronised with the electricity grid as indicated by the generator circuit breaker being closed.
B7	The particulate emission limits set out in Schedule 3 - Table 1 are not applicable during dust burden correlation of the particulate emission meters. The administering authority must be notified at least 7 days prior to undertaking dust burden correlation of the particulate emission meters.
Air Contaminant Monitoring Equipment Conditions	
B8	Monitoring and recording devices are to be installed and operated to indicate to the plant operator the particulate and nitrogen oxide emission concentrations in the effluent gas at the prescribed measurement point, to produce a record of that information and to warn the plant operator with audible and visual alarms when the emission exceeds a level that, based on calibration data for the monitoring devices, indicates that the limits in Schedule 3 - Table 1 have been reached or exceeded.
B9	Monitoring of nitrogen oxides and particulates will be undertaken in accordance with Schedule 2 - Table 2.
Liquid-Fuel Burning Conditions	
B10	The total sulphur content of any fuel burned in industrial fuel burning equipment is not to exceed 1.5% by weight.
Solid-Fuel Burning Conditions	
B11	The total sulphur content of coal burned in the boilers is not to exceed 0.8% on a monthly weighted average basis.
B12	Biomass is permitted to be co-fired with black coal in the coal-fired pulverised fuel boilers. The proportion of biomass burnt must not exceed 10% of the total fuel load at any one time.

Materials Handling Conditions	
B13	Water sprays are to be installed and operated on the coal receiving system taking into account all reasonable and practicable measures to minimise the release of dust and particulate matter to the atmosphere.
B14	All external dry material transfer conveyors must have a low profile roof with a troughed belt to minimise the exposed wind cross section.
Agency interest: Water	
Condition number	Condition
Release of Contaminants to Waters	
C1	Except as otherwise provided by the conditions of this environmental authority, the environmentally relevant activity/activities must be carried out by such practicable means which may be necessary to prevent or minimise the release of contaminants to waters.
C2	Other than in relation to the discharge to the Effluent Dam, Drains Reclaim Dam, Number 1, 2 or 3 Coal Stockpile Runoff Ponds and the Chemical Drains Pond, contaminants must not be directly or indirectly released from the licenced place to any waters or the bed and banks of any waters except as permitted under the <i>Agency Interest: Water</i> .
Release Point	
C3	The only contaminants permitted to be released from the licenced place at Monitoring Point 5 (MP5) are process waters and stormwater from the Northern Stormwater dam to waters described as an unnamed tributary of Quarry Creek.

Monitoring Points	
C4	<p>For the purposes of checking compliance with conditions of this environmental authority relating to quality of wastes discharged, the Monitoring Points are defined as follows:</p> <p>Monitoring Point 1 (MP1): Unit 1/2 Blowdown metering pit.</p> <p>Monitoring Point 2 (MP2): Unit 3/4 Blowdown metering pit.</p> <p>Monitoring Point 3 (MP3): Quarry Creek upstream from the Northern Stormwater Dam and within 100 metres of the dam.</p> <p>Monitoring Point 4 (MP4): The point where Brickworks Road crosses Neerkol Creek.</p> <p>Monitoring Point 5 (MP5): The meter pit adjacent to the Northern Stormwater Dam at Stanwell Power Station.</p> <p>Monitoring Point 6 (MP6): The point where the Capricorn Highway crosses Neerkol Creek, adjacent to the flow-gauging station weir structure.</p> <p>Monitoring Point 7 (MP7): Raw water sampling point. Sampling to be undertaken at the inlet of the Clarified Raw Water Plant, or if the Clarified Raw Water Plant is not in service, at the inlet of the Raw Water Treatment Plant.</p> <p>Monitoring Point 8 (MP8): Quarry Creek riffle water sampling point. Sampling to be undertaken at Quarry Creek on the downstream side of the bridge below MP5.</p> <p>(Monitoring Point locations are shown in Figures 1, 2 and 3 in Schedule 1.)</p>
Quantity of Process Waters Released	
C5	The quantity of process waters released during any day must not exceed 18,000 cubic metres measured as the combined total volume of water from Monitoring Points 1 and 2 except when Condition C6 is applicable.
C6	Where the EC of process water exceeds 500 $\mu\text{S}/\text{cm}$ at MP7, the quantity of process waters released during any one day must not exceed 40,000 cubic metres, measured as the combined total volume of water from Monitoring Points 1 and 2.
C7	If during the period where Condition C6 applies and the EC of process water measured at MP7 remains below 500 $\mu\text{S}/\text{cm}$ for 21 consecutive days, return to compliance with the release quantity detailed in Condition C5 must occur.
C8	Where the EC of process waters exceeds 500 $\mu\text{S}/\text{cm}$ at MP7, the monitoring point for sampling of total residual oxidant (as Cl) to waters must change to MP8.

C9	If during the period where Condition C8 applies and the EC of process water measured at MP7 remains below 500 µS/cm for 21 consecutive days, monitoring total residual oxidant (as Cl) must occur at MP5.
Quality Characteristics Of Release to Waters	
C10	The release of contaminants to waters must comply, at the sampling or measurement points, with each of the limits specified in Schedule 3 - Table 2 for each quality characteristic.
Pump Stations	
C11	Pump stations whose failure will result in a direct or indirect release of contaminants to waters must be fitted with stand-by pumps and pump-failure alarms. Pump failure alarms must be able to operate without mains power if such power failure occurs.
C12	You shall notify the administering authority in the event of a sewage overflow which has reached the Northern Stormwater Dam.
Contaminant Releases Caused by Rainfall	
C13	Other than in relation to runoff into the Drains Reclaim Dam, runoff from the Coal Stockpile into the Coal Stockpile Runoff Ponds and runoff from the former landfill site and except as provided by the conditions of this environmental authority, the environmentally relevant activities must be carried out by such practicable means necessary to prevent or minimise the contact of incident rainfall and stormwater runoff with wastes or other contaminants, and prevent or minimise the release or likelihood of release of any such contaminated runoff from the licenced place.
Agency interest: Land	
Condition number	Condition
D1	Except as otherwise provided by the conditions of this environmental authority, the environmentally relevant activities must be carried out by such practicable means necessary to prevent or minimise the release or likelihood of release of contaminants to land .
Agency interest: Noise	
Condition number	Condition
Release of noise	
E1	For the purposes of the Environmental Protection (Noise) Policy the Nature Refuge, as shown in Schedule 1 – Figure 4 is not a noise sensitive place.

Agency interest: Waste	
Condition number	Condition
General	
F1	Waste must not be released to the environment, stored, transferred or disposed contrary to any condition of this environmental authority.
F2	Waste must not be burnt or allowed to burn on the licenced site or removed and burnt elsewhere unless specifically permitted by this environmental authority.
F3	An area must be set aside for the segregation and storage of recyclable solid wastes.
F4	Where a no-cost recycling service is available, recyclable waste must not be deposited in the general waste stream.
Storage and Handling Conditions	
F5	All liquid waste, chemical and above-ground petroleum product storage areas shall be bunded and maintained so as to be impervious to the material stored within it.
F6	All liquid waste, chemical and above-ground petroleum product storage tanks must be bunded so that the capacity of the bund is sufficient to contain at least 110 % of the volume of the largest storage tank.
F7	You must ensure that any stormwater captured within bunded areas is treated to remove contaminants or wastes prior to any off-site release.
F8	You shall install, conduct and maintain all petroleum product storage tanks in accordance with the provisions of Australian Standard 1940, entitled "The storage and handling of flammable and combustible liquids".
F9	All loading/unloading of bulk materials must take place only within designated vehicle loading/unloading areas.
On-site Disposal of Wastes	
F10	You are permitted to dispose of on-site by combustion in the Station's boilers: <ul style="list-style-type: none"> • Used ion exchange resin from water treatment. • Exhausted oil and chemical sorbents. • Boiler and Superheater Chemical Clean iron and copper bearing waste solutions.

Regulated Wastes	
F11	All regulated wastes must only be stored, treated, or reprocessed within those areas designated for those purposes.
Off Site Movement of Regulated Wastes	
F12	<p>Where regulated waste is removed from the licenced place (other than by a release as permitted under another schedule of this environmental authority), you must monitor and record the following:</p> <ul style="list-style-type: none"> a) the date, quantity and type of waste removed; and b) name of the waste transporter and/or disposal operator that removed the waste; and c) the intended treatment/disposal destination of the waste. <p>(NOTE: Records of documents maintained in compliance with a waste tracking system established under the <i>Environmental Protection Act 1994</i> or any other law for regulated waste will be deemed to satisfy this condition).</p>
F13	Regulated waste must not be sent for disposal at any facility without the written approval of the person operating the facility.
F14	You must ensure that only a transporter possessing a current licence granted by the administering authority for the transport of regulated waste shall be used for the removal of the licenced waste from the facility.
Ash Disposal	
General	
F15	<p>The only wastes permitted for disposal in the ash disposal area (referred to hereafter as the ash storage area (ASA)) are:</p> <ul style="list-style-type: none"> • bottom ash and fly ash mixed with chemical drains pond water and/or service water; • pulverised coal mill rejects; • coal combustion products; • silt recovered from the water treatment process; and • ash, coal and silt recovered from site dredging activities.
F16	The evaporation pond in use at the ASA must be sized to assimilate a 1 in 20 Annual Exceedance Probability (AEP) rainfall event.
F17	Once the final lift height for an active zone has been reached, ash is to be capped with a minimum of 300 mm of cover material (including stored topsoil) suitable for supporting vegetative cover as required in Condition F18.
F18	Once capped with cover material in accordance with condition F17, a suitable grass cover must be established as soon as reasonably practicable.

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F19	A minimum buffer of 25 metres must be maintained between ASA embankments and Stony Creek or Sandy Creek.
F20	Rainfall and irrigation runoff originating on capped and grassed areas must be directed to the evaporation pond.
Agency Interest: Regulated structures	
Assessment of consequence category	
G1	The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> at the following times: <ul style="list-style-type: none"> a) prior to the design and construction of the structure, if it is not an existing structure; or b) if it is an existing structure, prior to the adoption of this Agency Interest; or c) prior to any change in its purpose or the nature of its stored contents.
G2	A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.
G3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment , in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> .
Design and construction¹ of a regulated structure	
G4	Conditions G5 to G9 inclusive do not apply to existing structures .
G5	All regulated structures must be designed by, and constructed² under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> .
G6	Construction of a regulated structure is prohibited unless the holder has submitted to the administering authority a consequence category assessment report and certification , the design and design plan , and the associated operating procedures, that have been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority .
G7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> , and must be recorded in the Regulated Dams/Levees register.

¹ **Construction** of a **dam** includes modification of an existing **dam** – refer to the definitions in EHP Guideline *Structures which are dams or levees constructed as part of environmentally relevant activities (EM634)*.

² **Certification** of design and **construction** may be undertaken by different persons.

G8	<p>Regulated structures must:</p> <ul style="list-style-type: none"> a) be designed and constructed in accordance with and conform to the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i>; b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: <ul style="list-style-type: none"> (i) floodwaters entering the regulated dam from any watercourse or drainage line; and (ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
G9	<p>Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:</p> <ul style="list-style-type: none"> a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; b) construction of the regulated structure is in accordance with the design plan.
Operation of a regulated structure	
G10	<p>Operation of a regulated structure, except for an existing structure, is prohibited unless:</p> <ul style="list-style-type: none"> a) the holder has submitted to the administering authority <ul style="list-style-type: none"> (i) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition G6; and (ii) a set of 'as constructed' drawings and specifications; and (iii) certification of those 'as constructed drawings and specifications' in accordance with condition G9; and (iv) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan. b) the requirements of this authority relating to the construction of the regulated structure have been met; c) the holder has entered the details required under this authority, into a Register of Regulated Dams; and d) there is a current operational plan for the regulated structures.

G11	<p>For existing structures that are regulated structures:</p> <p>a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and</p> <p>b) There must be a current operational plan for the existing structures.</p>
G12	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
Mandatory Reporting Level	
G13	Conditions G14 to G17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
G14	The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam , it is clearly observable.
G15	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
G16	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam .
G17	The holder must record any changes to the MRL in the Register of Regulated Structures.
Design Storage Allowance	
G18	Conditions G19 to G22 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
G19	The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.
G20	By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
G21	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority .

G22	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
Annual inspection report	
G23	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person .
G24	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure .
G25	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> .
G26	<p>The holder must:</p> <ul style="list-style-type: none"> a) Within 20 business days of receipt of the annual inspection report, provide to the administering authority: <ul style="list-style-type: none"> (i) the recommendations section of the annual inspection report; and (ii) if applicable, any actions being taken in response to those recommendations; and b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days³ of receipt of the request.
Decommissioning and rehabilitation	
G27	<p>Dams must not be abandoned but be either:</p> <ul style="list-style-type: none"> a) decommissioned and rehabilitated to achieve compliance with condition G28; or b) be left in-situ for a beneficial use(s) provided that: <ul style="list-style-type: none"> (i) it no longer contains contaminants that will migrate into the environment; and (ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and (iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

³ Please note that for some model conditions, such as model conditions for dams associated with a resource activity – non-mining activity, the notification requirements may be located in a separate part of the conditions of an environmental authority (e.g. under notification requirement conditions).

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Agency Interest: Monitoring and Reporting Requirements	
Condition number	Condition
Complaint Recording	
H1	<p>All complaints received by you relating to operations at the licenced place must be recorded in a log book with the following details:</p> <ul style="list-style-type: none"> a) time and date of complaint; b) type of communication (telephone, letter, personal etc.); c) name, contact address and contact telephone number of complainant (Note: if the complainant does not wish to be identified then "Not identified" is to be recorded); d) response and investigation undertaken as a result of the complaint; e) name of person responsible for investigating complaint; and f) action taken as a result of the complaint investigation and signature of responsible person.
Condition Breaches	
H2	<p>Any breach of a condition of this environmental authority, must be reported to the administering authority as soon as practicable, or at most, within 24 hours of you becoming aware of the breach. Records must be kept including full details of the breach and any subsequent actions undertaken.</p>
Requirement for an Appropriately Qualified Person	
H3	<p>An appropriately qualified person(s) must monitor, record and interpret all parameters that are required to be monitored by this environmental authority and in the manner specified by this environmental authority.</p>
Requests for monitoring by the administering authority	
H4	<p>When requested by the administering authority, you must undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental nuisance or environmental harm.</p>
H5	<p>The results of any monitoring requested under condition H4 must be analysed and interpreted by an appropriately qualified person.</p>
H6	<p>The results of any monitoring requested under condition H4 must be presented to the administering authority within 20 business days of receiving the final report from the appropriately qualified person who undertook the analysis and prepared the report.</p>

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G28	<p>After decommissioning, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria:</p> <ul style="list-style-type: none"> a) the landform is safe for humans and fauna; b) the landform is stable with no subsidence or erosion gullies for at least three (3) years; c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated; d) not allowing for acid mine drainage; or e) there is no ongoing contamination to waters (including groundwater); f) rehabilitation is undertaken in a manner such that any actual or potential acid sulphate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the <i>Instructions for the treatment and management of acid sulphate soils (2001)</i>; g) for land that is not being cultivated by the landholder: <ul style="list-style-type: none"> (i) groundcover, that is not a declared pest species is established and self-sustaining.
Register of Regulated Dams	
G29	A Register of Regulated Dams must be established and maintained by the holder for each regulated dam .
G30	The holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority .
G31	The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition G10 and G11 has been achieved.
G32	The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day .
G33	All entries in the Register of Regulated Dams must be approved by the chief executive officer for the holder of this authority , or their delegate, as being accurate and correct.
G34	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams , in the electronic format required by the administering authority .

H7	All analyses required under Condition H4 must be carried out by an appropriately qualified person(s) agreed to in writing by the administering authority .
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Monitoring of Contaminant Releases to the Atmosphere

H8	<p>You must conduct and keep records of a monitoring program of contaminant releases to the atmosphere at the release points, frequency, and for the parameters specified in Schedule 2 - Table 2 and which complies with the following:</p> <ul style="list-style-type: none"> a) Monitoring provisions for the release points listed in Schedule 2 - Table 2 must comply with the Australian Standard 4323.1-1995 "Stationary Source Emission Methods 1: Selection of sampling positions" or more recent editions. b) The following monitoring must be performed for each required determination specified in Schedule 2 – Table 2: <ul style="list-style-type: none"> (i) Particulates; and (ii) Nitrogen oxides. c) Where practicable, samples taken must be representative of the contaminants discharged under normal operating conditions.
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Dust and particulate matter

H9	You must take all reasonable and practicable measures to limit the release of dust and/or particulate matter resulting from the activity .
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Monitoring of Releases to Waters

H10	Convenient access and suitable facilities for sampling shall be maintained at all reasonable times at Monitoring Points MP1, MP2 and MP5.
H11	You are responsible for determinations of the volume of waters released in any one day from each of the release points described and at the frequency specified in Schedule 2 – Table 3.
H12	You are responsible for determinations of water quality parameters described in this environmental authority, and at the monitoring points and frequencies specified in Schedule 2 – Table 4.

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Receiving Environment Monitoring Program (REMP)	
H13	You must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values due to the discharge of blowdown water from the licenced place. The proposed monitoring program must include periodic monitoring of the potential effects of the discharge of blowdown water on the receiving environment following the issuing of this licence. For the purposes of the REMP, the receiving environment can be defined as the waters of Neerkol and Scrubby Creeks and connected or surrounding waterways within 16 km downstream of the licenced release point. The REMP should encompass regular monitoring of key indicators for recognised environmental values located adjacent to or downstream of the release point, and key ecosystem health indicators at sensitive receptor sites in the receiving waters that are likely to be directly affected or could potentially be indirectly affected by a release of water discharged from the licenced place.
H14	A REMP design document that details the requirements and inclusions of the REMP must be prepared in accordance with the latest version of the REMP Guideline and submitted for review to the administering authority within 6 months after this licence has been issued. You must take due consideration of any comments provided by the administering authority through revision of the REMP design document. The most current version of the REMP design document must be made available upon request to the administering authority .
H15	A REMP report outlining the findings of the program, including all monitoring results and interpretations in accordance with the REMP Guideline must be prepared annually and made available upon request to the administering authority .
Groundwater Monitoring Program	
H16	A Groundwater Monitoring Program (GMP) must be developed and implemented which is able to detect release of contaminants to groundwater from: <ul style="list-style-type: none"> a) the ASA; b) the coal stockpiling area; c) the Effluent Dam, Drains Reclaim Dam, Number 1, 2 and 3 Coal Stockpile Runoff Ponds and the Chemical Drains Pond; and d) the on-site sewage treatment plant and the sewage treatment plant holding ponds.
H17	The GMP must be developed and implemented by an appropriately qualified person .

H18	The GMP must include, but not necessarily be limited to: <ul style="list-style-type: none"> a) locations of monitoring sites; b) monitoring methodology; and c) the establishment of suitable water quality indicators for detecting impacts on groundwater quality.
H19	Groundwater must be monitored at the locations and frequencies defined in the GMP.
H20	The GMP must be developed and submitted to the administering authority for review within 6 months of the issue date of this environmental authority. You must take due consideration of any comments provided by the administering authority through revision of the GMP.
H21	The GMP must be reviewed by 30 June each year by an appropriately qualified person .
H22	The annual review of the GMP must at a minimum include an assessment of the adequacy of the monitoring program and recommend actions to ensure that any groundwater impacts are effectively managed.
H23	In relation to the annual review, you must: <ul style="list-style-type: none"> a) upon receipt of the annual review, consider the review and its recommendations; and b) within twenty (20) business days of receipt of the annual review, notify the administering authority in writing, of actions being taken to address any recommendations from the review.
H24	A copy of the annual review must be provided to the administering authority upon request.

Definitions

Key terms and/or phrases used in this document are defined in this section and **bolded** throughout this document. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Term	Definition
4-hour moving average	A calculation based upon data collected over the previous 4 hours. It is updated at an interval of not more than 10 minutes.
Activity	The environmentally relevant activities, whether resource activities or prescribed activities, to which the environmental authority relates.
Administering authority	The Department of Environment and Heritage Protection or its successor.
Appropriately qualified person	A person(s) who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.
Biomass	<p>Biomass consists of timber or timber products limited to:</p> <ul style="list-style-type: none"> (i) tree prunings, trimmings and other vegetation from municipal parks, gardens and private residences; (ii) other timber and vegetation wastes collected at waste transfer stations in municipalities; (iii) sawdust, shavings and by-products from manufactured wood operations; (iv) forest and mill residues from softwood plantations; and (v) demolition and construction waste materials such as broken timber, shipping pallets, packing crates and form-work; or (vi) other such biomass materials which may be approved by the Administering Authority. <p>Biomass must not include chemically treated timber except where this is a minor constituent of the biomass and has been commingled at the waste source.</p>
Continuous monitoring	The use of automatic monitoring and recording instrumentation where data is logged at regular intervals, with a minimum data capture rate of 80%.
Day	From 00:00 hrs to 24:00 hrs.
Land	Land excluding water and the atmosphere.
Maximum	The measured value of the quality characteristic or contaminant must not be greater than the release limit stated.

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Measures	Has the broadest interpretation and includes plant, equipment, physical objects, bunding, containment systems, monitoring, procedures, actions, directions and competency.
Minimum	The measured value of the quality characteristic or contaminant must not be less than the release limit stated.
Monthly	Once in each calendar month, and separated as close to as practically possible by thirty (30) days.
Normal cubic metre (Nm ³)	The volume of dry gas which occupies 1 cubic metre at a temperature of zero degrees Celsius and at an absolute pressure of 101.3 kilopascals.
Normal operating conditions	The normal operating state of the Unit and it means that the Unit is operating on a stable coal flame (three or more coal pulverisers in service and oil support is no longer necessary). For all practical purposes, this shall be defined as "at or above a load of 140MW" and when the power generating units are synchronised with the electricity grid as indicated by the generator circuit breaker being closed.
Week	From 00:00 hrs Monday to 24:00 hrs Sunday.
Weekly	Once in each week, and separated as close to as practically possible by seven (7) consecutive days.
You	The holder of the environmental authority.

The following definitions relate to words and terms used in Agency Interest: Regulated Structures

Term	Definition
Affected person	Is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

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Annual inspection report	<p>Means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);</p> <ul style="list-style-type: none"> a) against recommendations contained in previous annual inspections reports; b) against recognised dam safety deficiency indicators; c) for changes in circumstances potentially leading to a change in consequence category; d) for conformance with the conditions of this authority; e) for conformance with the 'as constructed' drawings; f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems); g) for evidence of conformance with the current operational plan.
Annual exceedance probability (EAP)	The probability that at least one event in excess of a particular magnitude will occur in any given year.
Assessed or assessment	<p>By a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:</p> <ul style="list-style-type: none"> a) exactly what has been assessed and the precise nature of that determination; b) the relevant legislative, regulatory and technical criteria on which the assessment has been based; c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.
Associated works	<p>In relation to a dam, means:</p> <ul style="list-style-type: none"> a) operations of any kind and all things constructed, erected or installed for that dam; and b) any land used for those operations.
Authority	An environmental authority or a development approval.

Certification	Means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).
Certifying, certify or certified	Have a corresponding meaning as 'certification'
Construction or constructed	In relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan.
Consequence	In relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.
Dam	A land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.
Dam crest volume	The volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).
Design plan	A document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.
Design storage allowance (DSA)	An available volume, estimated in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.
Designer	For the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.
Development approval	A development approval under the <i>Integrated Planning Act 1997</i> or the <i>Sustainable Planning Act 2009</i> in relation to a matter that involves an environmentally relevant activity under the <i>Environmental Protection Act 1994</i> .

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Emergency action plan	Documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact.
Existing structure	A structure that was in existence prior to the adoption of this schedule of conditions under the authority.
Flowable substance	Matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.
Holder	<ul style="list-style-type: none"> a) Where this document is an environmental authority, any person who is the holder of, or is acting under, that environmental authority; or b) where this document is a development approval, any person who is the registered operator for that development approval.
Hydraulic performance	The capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> .
Levee	An embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.
Low consequence dam	Any dam that is not a high or significant consequence category as assessed using the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i>
Mandatory reporting level	A warning and reporting level determined in accordance with the criteria in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> published by the administering authority.
Manual	The <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> published by the administering authority.
Modification or modifying	See definition of 'construction'.

Operational plan	<p>Includes:</p> <ul style="list-style-type: none">a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.
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RTI DL RELEASE - EHP

17/04

Register of regulated dams	<p>Includes:</p> <ul style="list-style-type: none"> a) date of entry in the register; b) name of the dam, its purpose and intended/actual contents; c) the consequence category of the dam as assessed using the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i>; d) dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam; e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings; f) for the regulated dam, other than in relation to any levees – <ul style="list-style-type: none"> i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam; ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area iii. Dam crest volume (megalitres); iv. Spillway crest level (metres AHD); v. Maximum operating level (metres AHD); vi. Storage rating table of stored volume versus level (metres AHD); vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD); viii. Mandatory reporting level (metres AHD); g) the design plan title and reference relevant to the dam; h) the date construction was certified as compliant with the design plan; i) the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan; j) details of the composition and construction of any liner; k) the system for the detection of any leakage through the floor and sides of the dam; l) dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year; m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority; n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.
Regulated dam	Any dam in the significant or high consequence category as assessed using the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> published by the administering authority.

Regulated structure	Includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.
Structure	Dam or levee.
Spillway	A weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.
Suitably qualified and experienced person	<p>In relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the <i>Professional Engineers Act 2002</i>, and has demonstrated competency and relevant experience:</p> <ul style="list-style-type: none"> • for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design. • for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments. <p>Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.</p>
System design plan	A plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.
Void	Any constructed, open excavation in the ground.
Watercourse	<p>Has the meaning in Schedule 4 of the Environmental Protection Act 1994 and means a river, creek or stream in which water flows permanently or intermittently—</p> <ul style="list-style-type: none"> a) in a natural channel, whether artificially improved or not; or b) in an artificial channel that has changed the course of the watercourse. <p>Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.</p>
Waters	Includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater.
Water year	The 12-month period from 1 July to 30 June.

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Wet season	The time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.
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RTI DL RELEASE - EHP

Schedules

Schedule 1 – Approved plans

Schedule 2 – Monitoring

Schedule 3 – Release limits

RTI DL RELEASE - EHP

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Schedule 1—Approved plans

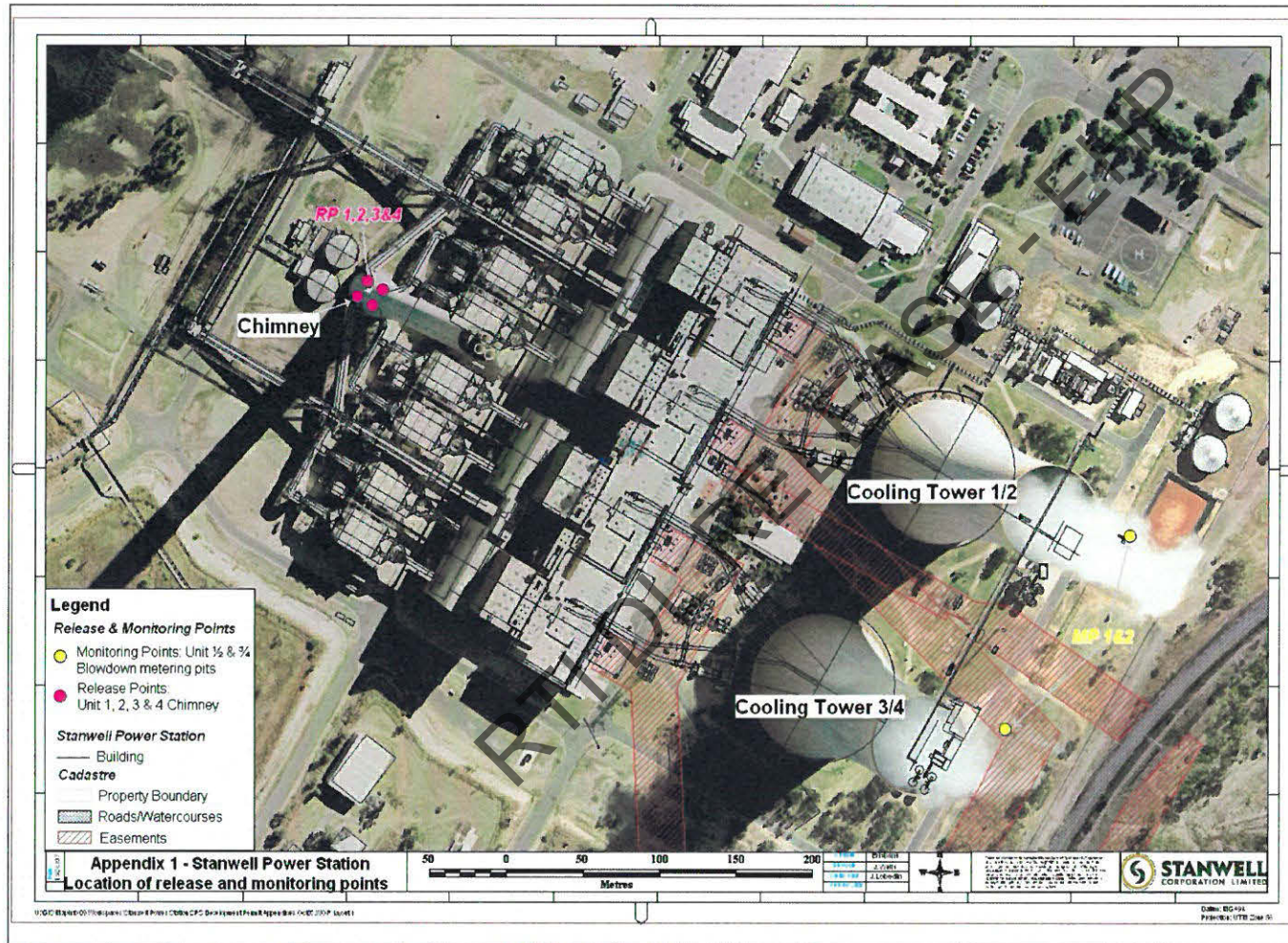


Figure 1 – Release Points 1, 2, 3 and 4 (RP1, RP2, RP3, RP4), and Monitoring Points 1 and 2 (MP1 and MP2)

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Figure 2. Location of monitoring points 1, 2, 3, 5, 7 and 8 (MP1, MP2, MP3, MP5, MP7 and MP8)

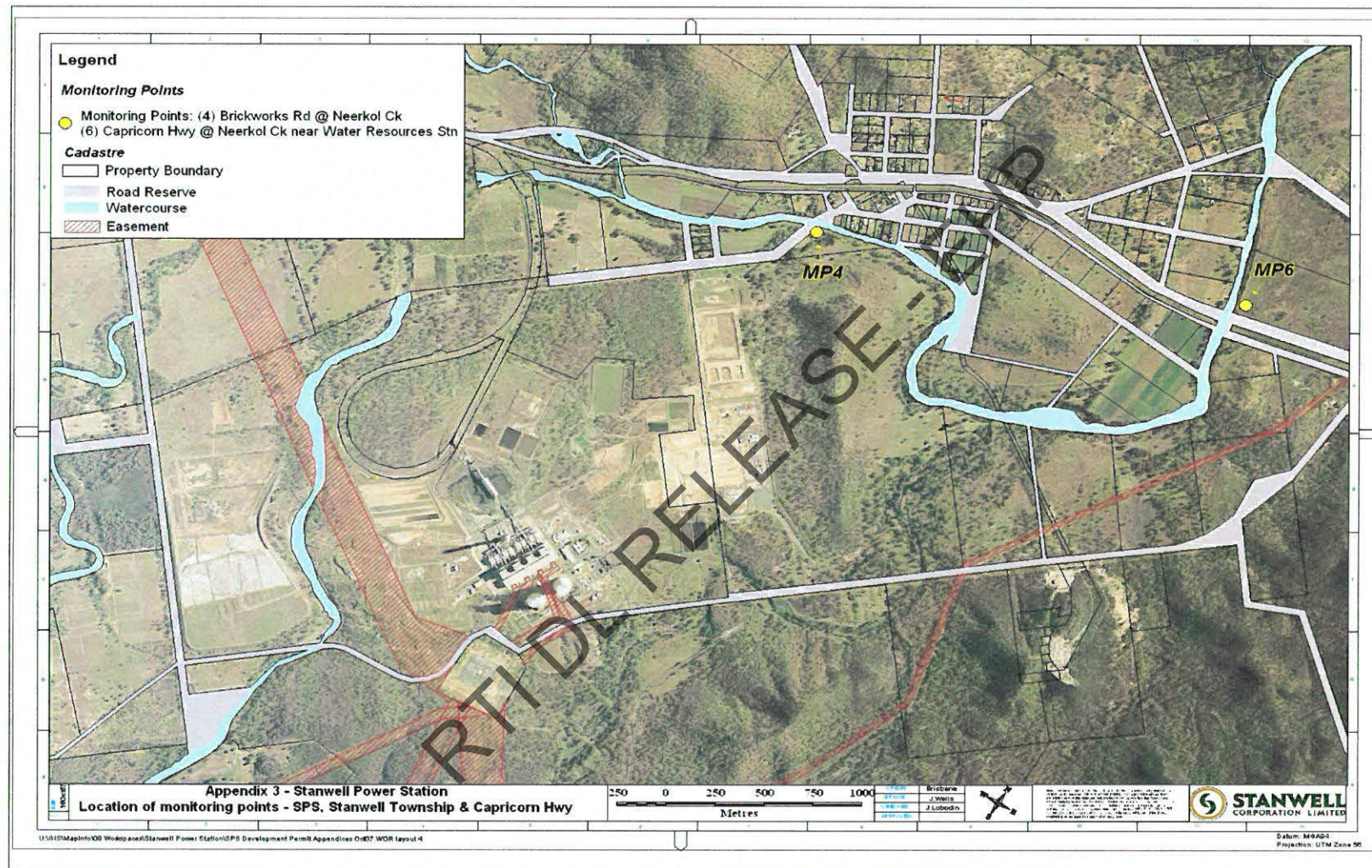


Figure 3 – Location of Monitoring Points 4 and 6 (MP4 and MP6)

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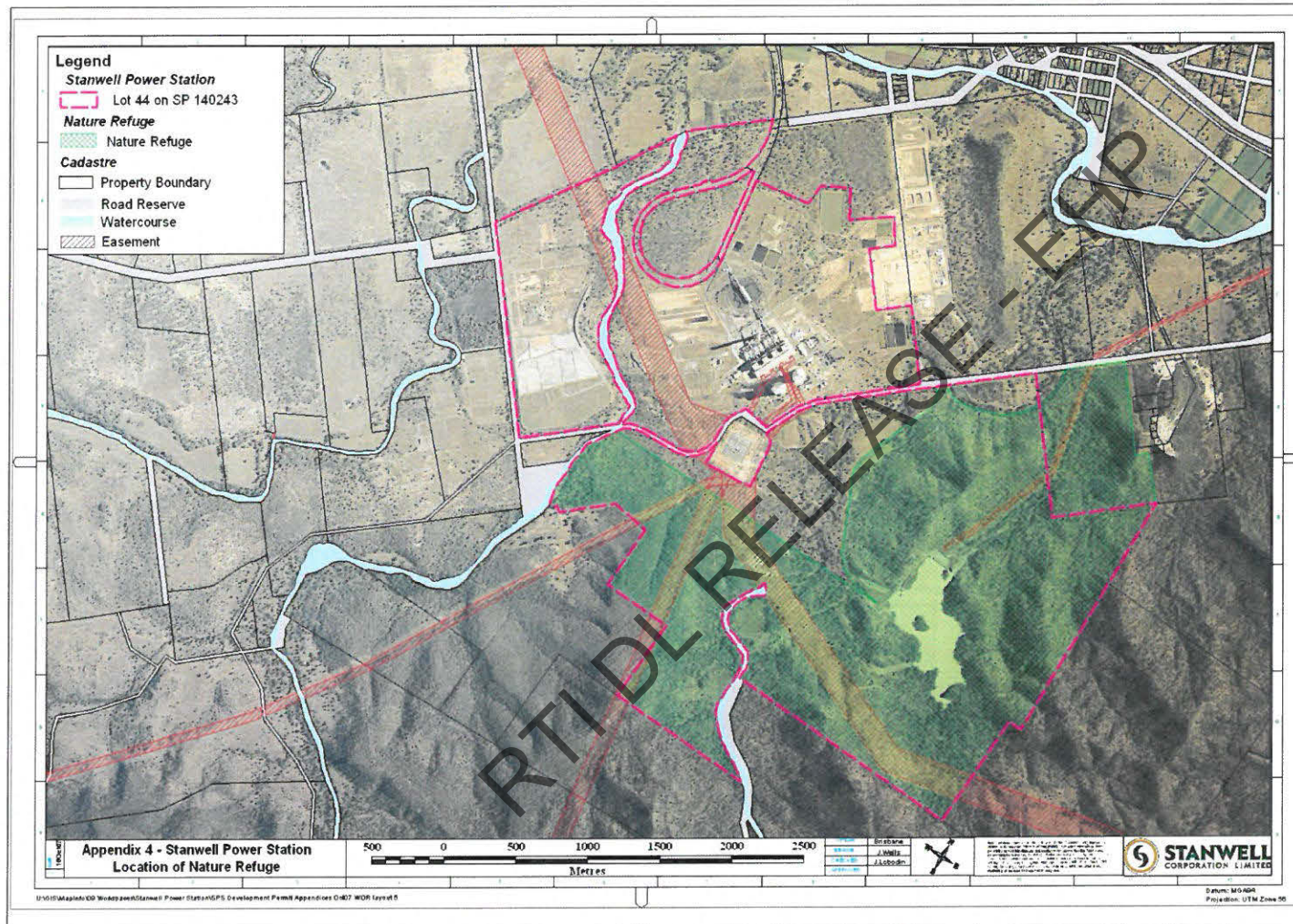


Figure 4 – Location of Nature Refuge

Schedule 2—Monitoring

Table 1
Release Point Description

Release Point (RP) Number	Source Description	Minimum Release Height (metres)
RP1 RP2 RP3 RP4	Unit 1 Chimney Unit 2 Chimney Unit 3 Chimney Unit 4 Chimney	210 m above ground level

Note: Refer to Schedule 1 – Figure 1 for location of the release points

Table 2
Required Release Point Determinations

Release Point Numbers	Determination	Frequency
RP1, RP2, RP3, RP4	Particulates	Continuous monitoring
RP1, RP2, RP3, RP4	Nitrogen Oxides	Continuous monitoring

Table 3
Release Points and Reporting Requirements for Waters Discharged

Characteristic	Release Point	Unit	Monitoring Method
Volume of waters released	MP1, MP2 & MP5	Cubic metres per day (cumecs)	Continuous monitoring

Note: Refer to Schedule 1 – Figure 2 for location of monitoring points.

Table 4
Water Quality Monitoring Locations and Monitoring Frequency

Characteristic	Monitoring Point	Monitoring Frequency
Suspended Solids	MP3 & MP5	Weekly
	MP4 & MP6	Monthly
pH ¹	MP5	Weekly
	MP4 & MP6	Monthly
Total Dissolved Salts (calculated)	MP5	Weekly
	MP4 & MP6	Monthly
Dissolved Oxygen ¹	MP5	Weekly
	MP4 & MP6	Monthly
Total Chloride	MP5	Weekly
	MP4 & MP6	Monthly
Temperature	MP5	Weekly
	MP4 & MP6	Monthly
Total Residual Oxidant (as Cl)	MP5 & MP8 ²	Weekly

Note: ¹ Quality characteristic monitored *in situ*.

² Monitoring to be conducted at MP8 when Condition C8 is applicable.

Note: Refer to Figure 2 in Schedule 1 for location of monitoring points.

RTI DL RELEASE - EPP

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Schedule 3—Release limits

Table 1
Release Point Maximum Permitted Concentration of Contaminant Release Limits

Release Point Number	Contaminant	Release Limit	Release Limit Units
RP1 RP2 RP3 RP4	Particulates	<p>4-hour moving average shall not exceed 0.080 g/Nm³ for 90% of the values during any week</p> <p>4-hour moving average shall not exceed 0.230 g/Nm³</p>	g/Nm ³ of effluent gas at 0°C and 101.32 kPa corrected to 12% by volume CO ₂
RP1 RP2 RP3 RP4	Nitrogen Oxides	4-hour moving average shall not exceed 1.3 gNO ₂ /Nm ³	gNO ₂ /Nm ³ of effluent gas at 0°C and 101.32 kPa corrected to 7% by volume O ₂

Table 2
Release Quality Characteristic Limits

Quality characteristics	Release/Monitoring Point Number	Discharge limit	Limit type
Suspended Solids (mg/l)	MP5	100 mg/L, except when the Suspended Solids level at Monitoring Point 3 (MP3) exceeds 100 mg/L	maximum
pH (pH Units) ¹	MP5	6.5	minimum
pH (pH Units) ¹	MP5	9.6	maximum
Total Dissolved Salts (calculated) (mg/l)	MP5	1450 mg/L	maximum
Dissolved Oxygen (mg/l) ¹	MP5	2 mg/L	minimum
Total Residual Oxidant (as Cl) (mg/l) ²	MP5 & MP8	0.05 mg/L	maximum
Total Chloride (mg/l)	MP5	400 mg/L	maximum
Suspended Solids	MP4 & MP6	-	-
pH ¹	MP4 & MP6	-	-
Total Dissolved Salts (calculated)	MP4 & MP6	-	-
Dissolved Oxygen ¹	MP4 & MP6	-	-
Total Chloride	MP4 & MP6	-	-
Temperature	MP4 & MP6	-	-

Note: ¹ Quality characteristic monitored in situ.

² Monitoring of Total Residual Oxidant at MP8 is only required when Condition C8 is applicable.

Note: Refer to Figure 2 in Schedule 1 for location of monitoring points.

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Parameter		Units	Location		Ash Storage Area																						Grape Farm		DERM Bores								State Farm			SBZ - Woodlands					
			Monitoring point	MW1D	MW1S	MW2	MW4	MW5	MW6D	MW6S	MW7	MW8	MW9	MW10	LMW19	LMW20	LMW21	MW25S	LMW26	LMW27	LMW28	MB113	ASA01D	ASA01S	ASA02D	ASA02S	ASA03	1901	1902	13000162	13000163	13000164	13000165	13000166	13000167	13000168	MW17 (State Farm 2801055F)	13000175	13000178	13000188	Woodlands Well (251005W)				
				Eastng	Northng																																								
				224774	224774	224938	225273	225235	225432	225433	224905	224965	225183	225371	224432	224548	224648	224350	225201	225101	225076	224332	224000	223995	224706	224696	224205	224437	224531	223287	223608	223762	223997	224198	224479	224839	223829	224882	224672	224816	223137				
7396490	7396487	7396256	7396330	7396906	7396714	7396723	7396410	7396306	7396442	7396711	7397178	7397180	7397313	7397618	7396712	7396712	7396530	7397605	7397794	7397805	7398082	7398076	7398474	7396350	7396230	7398606	7398142	7397864	7397532	7397292	7396885	7398348	7398902	7399307	7399117	7399270	7397794								
Field	pH	pH units	Field	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
	EC	ms/m	Field	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	Temperature	°C	Field	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	SWL	m	Field	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
Lab	pH @ 25°C	units	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	Conductivity @ 25°C	ms/m	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
Solids	TSS	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	TDS	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
Nutrients	Total N	mg / L	Lab	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
	Total P	mg / L	Lab	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
Major Ions	Sodium	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	Potassium	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	Calcium	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	Magnesium	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
	Bicarbonate	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B				
	Sulphate	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	B	B				
	Silica	mg / L	Lab	B	Q	B	Q	B	Q	Q	B	B	B	B	B	B	B	B	B	B	B	B	Q	Q	Q	Q	Q	B	B				Q	Q	Q	Q									
	Tracers	O18	mg / L	Lab	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	B	B	B	B	B	2Y	2Y				2Y	2Y	2Y										
H2		mg / L	Lab	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	B	B	B	B	B	2Y	2Y				2Y	2Y	2Y										
Dissolved Metals	Aluminium	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Arsenic	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Barium	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Boron	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Cadmium	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Chromium	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Copper	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Iron	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Lead	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Manganese	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Mercury	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Nickel	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Selenium	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Strontium	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
	Zinc	mg / L	Lab	A	Q	A	Q	A	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
Why monitor at this location				Monitored to detect any potential leachate migration from the ASA into the underlying groundwater (alluvial or bedrock).																																									

Symbol	Frequency
Q	Quarterly
B	Biannually
A	Annual
2Y	Every 2 Years

Parameter		Location	Ash Storage Area							Grape Farm		DERM Bores						State Farm	Old Landfill	Coal Stockpile Area and Coal		Fuel Storage		Chemical Drains Pond (CDP)	
		Monitoring Point	MW1D	MW1S	MW2	MW4	MW5	MW6D	MW6S	1901	1902	13000162	13000163	13000164	13000165	13000166	13000168	MW17 (State Farm 2801055 F)	MW15	MW19D	MW19S	MW12	MW13D	MW16	MW18
Field	Conductivity	µS/cm	1270	2810	2340	2170	3645	1080	5413	1330	1500	4655	1965	1028	2265	4358	550	3463	27528	12270	15715	3380	2320	10160	11535
	pH Field lower limit	pH units	6.23	6.15	6.26	6.24	6.4	6.79	6.47	6.28	6.32	6.68	6.65	6.69	6.33	6.42	6.59	6.57	6.34	6.47	6.5	7.15	6.42	6.58	6.23
	pH Field upper limit	pH units	7	6.71	6.71	6.81	6.87	7.36	7.17	7.14	7.04	7.7	7.14	7.36	7.29	6.99	7.16	6.9	7.45	7.39	7.63	7.87	6.72	7.03	6.59
	Dissolved Oxygen	mg/L	2.3	2.45	2.28	2.29	2.99	1.98	3.65	5.89	3.3	2.95	3.38	3.47	3.24	2.15	3.4	4.28	4.24	2.77	4.95	5.43	3.1	4.03	1.92
Solids	TDS	mg/L	741	1750	1446	1313	2512	908	3784	746	874	2922	1276	642	1722	2726	573	2290	19705	8323	10825	2368		6210	9040
Nutrients	Total Nitrogen	mg/L	0.39	1.47	0.38	0.75	0.3	0.16	0.415	0.19	0.1	0.88	0.66	3.93	0.98	0.81	0.49	0.9	1.5					3.1	
	Total Phosphorous	mg/L	30.82	1.81	50	26.26	25.16	12.93	12.98	1.06	12.94	0.27	57.94	1.44	0.89	26	50	0.07	0.08					26.56	
Major Ions	Calcium	mg/L	63	198	149	142	240	49	257	63	71	250	128	43	188	281	61	195	583	185	220	48		219	304
	Chloride	mg/L	257	745	599	501	929	285	1827	262	3.54	1283	497	134	755	1140	150	884	11753	4265	5390	516		3227	3875
	Fluoride	mg/L	0.3	0.3	0.2	0.13	0.3	0.8	0.57	0.4	0.3	0.3	0.33	0.3	0.28	0.4	0.2		0.6	0.6	0.3			0.8	
	m Alkalinity	mg/L	263	349	238	287	520	368	692	268	254	599	360	385	440	494	239	478	709	765	894	968		657	523
	Maganesium	mg/L	34	114	88	77	159	51	303	39	46	130	71	28	114	166	35	110	1259	346	447	94		415	476
	Potassium	mg/L	4	3	4.4	4.9	5	5.6	12	4	4	4	5	5	6	5	4.1	5.5	7	33.3	14.5	7		23	24.5
	Silica	mg/L	36	55	49	42	47	20	49	22	37	42	42	49	40	43	32	43	39	22	33	25		17	20
	Sodium	mg/L	164	281	229	201	452	204	756	162	183	634	235	151	269	459	108	384	5003	2108	3100	732		1559	1680
	Sulphate	mg/L	31	164	142	148	418	57	269	30	36	89	75	45	86	337	38	77	531	271	673	370		475	449
Dissolved Metals	Aluminium	µg/L	26.5	32.5	9.1	26.5	10	7.7	23	50	50	15		12	47.3	50			10.9			27			
	Arsenic	µg/L	1	5.5	1	4.1	1	1	1	2	1.5	1	1	7.1	1	1	1	1	2.8	8.8	17	1		1.5	8.3
	Barium	µg/L	17	113	53	136	110	41	110	20	18	59	110	124	100	186	110	73	400	116	91			15	22
	Boron	µg/L	130	135	120	103	200	290	430	140	140	130	145	200	130	168	103	150	1000	1463	1225			783	590
	Cadmium	µg/L	0.2	0.1	0.1	0.2	0.2	0.2	0.2	7.7	10	0.1	0.2	0.1	0.5	3	0.1	0.1	0.9	1	1	158.5		0.3	1
	Chromium	µg/L	2	2	2.3	2	2	2	2	5	7.5	4.3	4	2.8	5.5	5.8	2	1.8	4.2	3	5	3.5		5.7	2
	Copper	µg/L	2.2	1.8	1	2.1	2.2	3.4	4.3	9.5	10	2.7	1	2	6.7	10	1.1	50.5	5	2	13.3	4.2		3.1	3.3
	Iron	µg/L	1310	1200	50	1795	370	220	50	2350	2050	50	50	430	50	50	570	50	50	880	230	65		50	180
	Lead	µg/L	1	1	1	1	1.1	1	1	2	9.8	1.8	1	1	1	2.7	0.7	2	10	2	2	1	11.5	1	2
	Maganese	µg/L	101	245	25	685	310	124	28	80	79	10	78	1360	14	10	77	33	160	302	408	10		10	421
	Mercury	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	5	5	0.1		0.1	5
	Nickle	µg/L	5	5	5	5	5	5	5	20	20	5	5	5	5	5	5	4.5	5	4.3	6.3	5		5	4.3
	Seleniumic	µg/L	10	10	10	10	10	10	10	10	10	10	10	10	10	10	6.3	10	9	10	10	6		10	10
	Strontium	µg/L	600	1900	1500	1300	2300	630.25	3350	590	725	3300	1205	450	2450	2825	380.5	2140	16400	4350	5420			4630	4100
Zinc	µg/L	50	37	26	30	34	24	47	25	42	19	14	18	26	24	21	5	18	11	11	37		15	12	
BTEX	Benzene	µg/L																	1			1	1		
	Toluene	µg/L																	1			2	2		
	Ethyl Benzene	µg/L																	1			2	2		
	Xylene	µg/L																	2.6			2	3		

Notes:

These triggers have been developed by Waste Solutions Australia (WSA 2010) and are to be used as interim triggers for comparative purposes only.

A number of bores have not had interim triggers developed, for the reasons outlined below:

- * Bores (MW112, MW113, MW115 and MW116) were installed in 2012.
- * Bores (LMW19, LMW20, LMW21, LMW26, LMW27, LMW28, MW25S) were installed in 2013.
- * Bores (ASA01D, ASA01S, ASA02D, ASA02S, ASA03, CSRP01, CSRP02, CSRP03, EP01, EP02) were installed in 2014 with monitoring to begin at commencement of the GMP.
- * Bores (MW7 to MW10) are mostly dry and have limited monitoring data available.
- * Bores (13000175, 13000178, 13000188) have only been sampled since 2012.
- * Bores (MW11, MW14, MW112) have had little to no water since sampling commenced in 1999.

Parameter		Units	Location	Downstream of old landfill		Coal Stockpile Area and Coal Stockpile Release Ponds (CSRPs)					Sewage Treatment Area & Effluent Ponds		SPS - Fuel Storage				SPS - Chemical Drains Pond (CDP)				
			Monitoring point	MW15	MW112	MW19D	MW19S	CSRPO1	CSRPO2	CSRPO3	EP01	EP02	MW11	MW12	MW13D	MW13S	MW14	MW16	MW18	MB115	MB116
			Easting	225994	2225784	226005	226007	225893	225652	225822	226175	226216	226332	226406	225917	225915	226646	226647	226581	226639	226606
			Northing	7398444	7398631	7398163	7398161	7397982	7398050	7398127	7398341	7398171	7397433	7397586	7397569	7397570	7397436	7397440	7397368	7397379	7397457
Field	pH	pH units	Field	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	EC	mS/m	Field	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Temperature	°C	Field	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	DO	mg / L	Field					Q	Q	Q	Q	Q									
		%	Field					Q	Q	Q	Q	Q									
Lab	SWL	m	Field	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	pH @ 25°C	units	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
Solids	Conductivity @ 25°C	mS/m	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	TSS	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
Nitrogen Species	TDS	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Ammonium	mg / L	Lab					Q	Q	Q	Q	Q									
	Nitrite	mg / L	Lab					Q	Q	Q	Q	Q									
Nutrients	Nitrate	mg / L	Lab					Q	Q	Q	Q	Q									
	Total N	mg / L	Lab								Q	Q									
Major Ions	Total P	mg / L	Lab								Q	Q									
	Sodium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Potassium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Calcium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Magnesium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Chloride	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Sulphate	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
Silica	SiO2	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
Tracers	O18	mg / L	Lab	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y
	H2	mg / L	Lab	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y	2Y
Dissolved Metals	Aluminium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Arsenic	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Barium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Boron	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Cadmium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Chromium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Copper	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Iron	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Lead	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Manganese	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Mercury	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Nickel	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Selenium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Strontium	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
	Thallium	mg / L	Lab					Q	Q	Q											
	Zinc	mg / L	Lab	B	B	B	B	Q	Q	Q	Q	Q	B	B	B	B	B	B	B	B	B
BTEX	Benzene	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
	Toluene	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
	Ethyl Benzene	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
	Xylene	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
TPH	C6-9	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
	C10-14	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
	C15-28	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
	C20-36	ug/L	Lab	A	A	A	A	Q	Q	Q	Q	Q	B	B	B	B	A	A	A	A	A
Why monitor at the location				Monitored to determine if leachate is seeping from the old, disused landfill which was used during the construction of SPS, for the disposal of construction wastes.		Monitor for potential impact to groundwater from the coal stockpile and Coal Stockpile Runoff Ponds (CSRPs).					Monitor for potential impact to groundwater from the Sewage Treatment Plant and Effluent Ponds		Monitored to determine if any hydrocarbons are leaking from the Underground Storage Tanks (UST's) at the Fuel Storage.				Monitored to determine if there is any leakage from the Chemical Drains Pond, which receives chemical effluent from various water treatment processes.				

Symbol	Frequency
Q	Quarterly
B	Biannually
A	Annual