Notice

Environmental Protection Act 1994

Environmental Evaluation

Notice to conduct or commission an environmental evaluation

This notice to conduct or commission an environmental evaluation is issued by the administering authority pursuant to section 326B of the Environmental Protection Act 1994.

Barcaldine Regional Council
71 Ash Street
BARCALDINE QLD 4725

Your reference: EPPR00750513

Our reference: STAT-E-100001432; STAT-E-100001412; STAT-E-100001489.

28 April 2019

Take notice: that under the *Environmental Protection Act 1994* (the Act) a notice to conduct or commission an environmental investigation is issued to Barcaldine Regional Council (you) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Science (the department).

The notice to conduct or commission an environmental investigation is issued with respect to the activities of Barcaldine Regional Council on land described as Lot 86 Plan RY77 (Barcaldine STP), Lot 4 Plan A1841 (Aramac STP) and Lot 37 Plan CM96 (Muttaburra STP).

A. Grounds

The notice to conduct or commission an environmental investigation is issued on the following grounds:

1. The department may give written notice under section 326B of the Act requiring the person to conduct or commission an environmental investigation about an event or activity and submit an environmental report about the investigation to the department.
2. The department believes, on reasonable grounds, that the activities being carried out at the Barcaldine STP, Aramac STP and Muttaburra STP (the premises) are causing or are likely to cause environmental harm.
3. The department also believes, on reasonable grounds, that an event (or events) have happened at the premises causing environmental harm while an activity was being carried out.

The facts and circumstances forming the basis for these grounds are:

1. Barcaldine Regional Council (BRC) is the holder of environmental authority (EA) EPPR00750513, which authorises the following environmentally relevant activities (ERA):

Queensland Government

a. ERA 63-(1d) Sewage Treatment >4000 to 10000EP at Barcaldine Sewage Treatment Plant (STP) located at Bauhinia Street, BARCALDINE QLD 4725 Lot 86 Plan RY77 (Barcaldine STP); and

b. ERA 63-(1b)(ii) Sewage Treatment >100 to 1500EP at Aramac and Muttaburra STPs located at Muttaburra Road, ARAMAC QLD 4726 Lot 4 Plan A1841 (Aramac STP) and Cornish Street, MUTTABURRA QLD 4726 Lot 37 Plan CM96 (Muttaburra STP) respectively.

2. The EA authorises BRC to release treated effluent to surface waters in accordance with contaminant release limits set out in the EA at all three sites.

   a. Barcaldine STP releases to Lagoon Creek (release point W1) prior to discharge to the Alice River (approximately 14km downstream).

   b. Aramac STP releases to Aramac Creek (release point W1) prior to discharge to the Thompson River (approximately 74km downstream).

   c. Muttaburra STP releases to an unnamed lagoon prior to discharge to the Thompson River (approximately 800m downstream). EA EPPR00750513 states that Muttaburra STP releases to Landsborough River, however on review of mapping it was determined that Muttaburra STP releases to an unnamed Lagoon prior to release to the Thompson River.

3. EA condition WT1-4 in Part 4 states *'The only contaminants to be released to surface waters are from release points W1 and W2 associated with the Aramac and Muttaburra Sewage Treatment Plants and in accordance with Table 1.4 - Surface water release limits and the associated requirements.*
   Release point W1 - Aramac Sewage Treatment Plant - Aramac Creek prior to discharge to the Thomson River.
   Sampling point S1 - Aramac Sewage Treatment Plant - discharge point from number 3 settling pond.
   Release point W2 - Muttaburra Sewage Treatment Plant - Landsborough River
   Sampling point S2 - Muttaburra Sewage Treatment Plant - discharge point from settling pond'.

4. EA condition WT1-5 in Part 5 states *'The only contaminants to be released to surface waters are from release point W1 associated with the Barcaldine Sewage Treatment Plant and in accordance with Table 2.4 - Surface water release limits and the associated requirements.*
   Release point W1 - Lagoon Creek prior to discharge to the Alice River.
   Sampling point S1 - Barcaldine Sewage Treatment Plant - discharge canal from the settling ponds'.

5. 'Table 1.4 – Surface water release limits and the associated requirements' in Part 4 and 'Table 2.4 – Surface water release limits and the associated requirements' in Part 5 require BRC to sample treated effluent at sample points described in Part 5 as S1 (Barcaldine STP), and described in Part 4 as S1 (Aramac STP) and S2 (Muttaburra STP) on a quarterly basis.

6. The release limits for treated effluent quality in Table 1.4 in Part 4 and Table 2.4 in Part 5 of the EA include:

   a. Maximum 5 day Biochemical Oxygen Demand (BOD) of 40mg/L;

   b. Long term 80th percentile compliance for BOD of 20mg/L;

   c. Maximum Total Suspended Solids (TSS) of 60mg/L;

   d. Long term 80th percentile compliance for TSS of 30mg/L;

   e. Minimum pH of 6.5 and maximum pH of 9.0;

f. Minimum Dissolved Oxygen (DO) of 2mg/L; and

g. Maximum Faecal Coliforms of 1000 organisms per 100mL as a median number (minimum of 5 samples taken at not less than half-hourly intervals in any one day, with 4 out of the 5 samples containing less than 4000 organisms per 100mL) as per Part 5 'Table 2.4 – Release Quality Characteristic Limits' of the EA.

7. BRC has notified the department via email of exceedances of treated effluent quality limits specified in the EA from the Barcaldine, Aramac and Muttaburra STPs on the following dates:

   a. 12 July 2018 – Barcaldine STP
   b. 2 August 2018 – Aramac and Muttaburra STPs
   c. 19 September 2018 – Aramac STP
   d. 9 January 2019 – Barcaldine, Aramac and Muttaburra STPs
   e. 29 March 2019 – Barcaldine STP
   f. 26 June 2019 – Barcaldine, Aramac and Muttaburra STPs
   g. 21 August 2019 – Barcaldine, Aramac and Muttaburra STPs
   h. 16 December 2019 – Barcaldine, Aramac and Muttaburra STPs

8. On 1 July 2019 and 3 September 2019 the department requested the previous five (5) years of surface monitoring results for the Barcaldine, Aramac and Muttaburra STPs. On receipt of this information the department has identified exceedances of the EA release quality characteristic limits as stated in tables 1.4 and 2.4 of BRC's EA.

9. Currently BRC receive approximately 1,450,000L of effluent daily over all three (3) STPs. After effluent travels through the sewage treatment systems it is discharged into settlement/aeration ponds prior to chlorine dosing. There is no ability at any of the STPs to prevent treated effluent from leaving the site if it does not meet the surface water quality limits.

10. At Barcaldine STP, treated effluent that is released to surface waters has exceeded the following contaminant limits:

    a. Faecal Coliform contaminant limit of 1000 organisms per 100mL.
    b. Suspended Solid maximum contaminant limit of 60mg/L;
    c. BOD maximum contaminant limit of 40mg/L; and
    d. Dissolved Oxygen minimum contaminant limit of 2mg/L.

DATE	Dissolved Oxygen mg/L	BOD 5 mg/L	pH value at 25°C	Suspended Solids mg/L	Faecal Coliforms CFU/100IL
	EA Limit: >2	**40**	**6.5 to 9.0**	**60**	**1000 median**
05/02/2014	2.9	22.4	8.20	26	700,000
03/04/2014	4.3	13	8.30	43	570,000
07/05/2014	2.2	6	8.00	5	440,000
04/062014	6.9	14	8.40	22	530,000
06/08/2014	5.3	5	8.40	16	58,000
03/12/2014	6.9	13	8.50	29	50,000
10/06/2015	4.6	9.0	8.20	33.0	15,000

02/09/2015	4.2	7.0	8.40	11.0	18,000
02/12/2015	8.8	14.0	8.80	31.0	5700
06/04/2016	0.5	8.0	8.00	9.0	10,400
08/06/2016	3.4	16.0	8.20	24.0	19,400
08/09/2016	7.9	6.0	8.40	11.0	1800
09/12/2016	0.5	59.0	8.20	44.0	4600
01/03/2017	4.6	44.0	8.00	22.0	48,000
07/06/2017	0.9	17	8.00	8	9000
06/09/2017	4.8	21	8.20	23	8000
07/03/2018	3.7	13	8.10	7	1200
06/06/2018	2.7	16	8.10	9	200,000
05/12/2018	9.3	52	8.20	77	45,000
11/03/2019	3	16	8.10	7	5600
12/06/2019	7.1	17	8.10	6	12,000
21/08/2019	7.4	8	8.1	<5	47,000

Exceedance of Maximum or Minimum value

11. At Aramac STP, treated effluent that is released to surface waters has exceeded the following contaminant limits:

    a. Faecal coliform maximum contaminant limit of 1000 organisms per 100mL;
    b. Suspended Solid maximum contaminant limit of 60mg/L;
    c. pH contaminant limit range of 6.5 – 9.0;
    d. BOD maximum contaminant limit of 40mg/L; and
    e. Dissolved Oxygen minimum contaminant limit of 2mg/L.

DATE	Dissolved Oxygen mg/L	BOD 5 mg/L	pH value at 25°C	Suspended Solids mg/L	Faecal Coliforms CFU/100IL
	EA Limit: >2	40	6.5 to 9.0	60	1000 median
03/12/2014	8.7	>2	7.5	16	12,000
18/03/2015	1.6	34	7.5	40	2,000,000
10/06/2015	9.3	7	8.3	57	4000
02/09/2015	7.5	19	9.0	140	5
02/12/2015	0.3	7	9.5	110	
06/04/2016	7.7	5	8.6	36	2400
08/09/2016	1.1	29	8.5	76	1
07/12/2016	1.3	16	9.1	65	5

07/06/2017	3.9	110	8.7	32	500
06/09/2017	3.2	54	10.2	150	10
14/03/2018	4.4	21	9.4	83	8
06/06/2018	8.5	17	9.1	7	12
05/09/2018	7.9	30	9.2	69	880
05/12/2018	4	14	9.3	27	80
12/06/2019	5.7	27	8.0	33	3000
21/08/2019	5.4	46	9.6	120	80

Exceedance of Maximum or Minimum value

12. At Muttaburra STP, treated effluent that is released to surface waters has exceeded the following contaminant limits:

    a. Faecal coliform maximum contaminant limit of 1000 organisms per 100mL;
    b. Suspended Solid maximum contaminant limit of 60mg/L;
    c. pH contaminant limit range of 6.5 – 9.0;
    d. BOD maximum contaminant limit of 40mg/L; and
    e. Dissolved Oxygen minimum contaminant limit of 2mg/L.

DATE	Dissolved Oxygen mg/L	BOD 5 mg/L	pH value at 25°C	Suspended Solids mg/L	Faecal Coliforms CFU/100IL
	EA Limit: >2	40	6.5 to 9.0	60	1000 median
03/12/2014	8.7	1	4.5	16	12,000
19/03/2015	4	29	9.7	19	20
10/06/2015	6.4	4.0	8.1	25.0	5
02/09/2015	5.5	5.0	8.4	5.0	70
02/12/2015	8.3	3.0	9.0	12.0	1
06/04/2016	6.9	17.0	9.4	18.0	1
06/06/2016	6.6	11.0	8.4	75.0	5960
08/09/2016	5.4	1	8.1	13.0	1
07/12/2016	0.3	8.0	8.8	21.0	5
01/01/2017	5.3	75	9.5	70	10
07/06/2017	3.8	120	8.6	59	90
06/09/2017	6.9	2.5	8	<5	2
12/06/2018	2.2	42	9.3	51	160
05/09/2018	9	5	8.1	23	170
05/12/2018	4.2	36	9.6	130	180

11/03/2019	2.1	2.5	8.9	11	24
12/06/2019	6.3	13	8.2	40	20,000
21/08/2019	2.2	49	8.4	330	170

Exceedance of Maximum or Minimum value

13. Additionally, on 9 May 2019, authorised persons Lachlan McKenzie and Dianne Hales conducted water sampling at the Barcaldine STP. Four sites were sampled including STP release point, Lagoon Creek downstream, Lagoon Creek upstream and the Soap Hole (in line with entry point of Lagoon Creek). On receipt of water analysis, the samples showed a high contaminant release rate for Ammonia (as N), with a value of 13.7mg/L. Ammonia was still high at the Lagoon Creek downstream location with a value of 6.02mg/L. Lagoon Creek upstream showed an Ammonia value of 0.12mg/L.

14. Environmental harm is defined in section 14 of the Act as follows:

    (1) Environmental harm *is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.*

    (2) Environmental harm *may be caused by an activity—*

    a) whether the harm is a direct or indirect result of the activity; or

    b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.

15. Environmental Value is defined in section 9 of the Act as follows:

    a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or

    b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

16. Surface waters that receive treated effluent from the Barcaldine, Aramac and Muttaburra STPs do not have any defined water quality objectives, pursuant to the *Environmental Protection (Water) Policy 2009*. It is however known to the department that these surface waters support aquatic ecosystems and can be used for recreational purposes. It is the department's view that the health of aquatic ecosystems is a quality or physical characteristic of the environment such that it amounts to a relevant environmental value for waters downstream of BRC's STPS. Additionally, that the health of waters used for recreational purposes is also a relevant environmental value for such waters, in that the quality or physical characteristic of the environment is conducive to public amenity or safety.

17. As per *The Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC 2000), Ammonia has the following guideline values for specific EVs. In an aquatic ecosystem, for a 95% species protection the trigger value for Ammonia (as Nitrogen) is 900ug/L (0.9mg/L). For recreational use areas, the ANZECC 2000 guideline value for Ammonia (as Nitrogen) is 10ug/L (0.01mg/L).

18. The recorded Ammonia levels in Lagoon Creek exceeded both the 95% species protection trigger value for aquatic ecosystems, as well as the guideline value for recreational use. The sampling locations are downstream of the release points for Barcaldine STP.

19. High concentration of ammonia (as nitrogen) in freshwater is known to be toxic and can lead to nutrient enrichment of water, which can then lead to changes in biotic community structure – see page 49,

ANZECC – Volume 2, Aquatic ecosystems / Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand.

20. The sampling results at Barcaldine STP, Aramac STP and Muttaburra STP, including the Ammonia results from sampling downstream of Barcaldine STP, supports the department's reasonable belief that the quality of the treated effluent released to waters from Barcaldine STP, Aramac STP and Muttaburra STP has the potential to cause environmental harm to environmental values, namely aquatic ecosystems. The sampling results also supports the department's reasonable belief that the exceedances identified would have the potential to cause environmental harm to recreational areas, with potential for adverse consequences for human health.
21. Further, the department considers that the activity conducted by you namely sewage treatment at Barcaldine STP, Aramac STP and Muttaburra STP is the likely cause of the exceedances giving rise to this potential environmental harm.
22. Based on the facts and circumstances outlined above, the department considers that it is reasonable to require you to conduct an environmental investigation which examines the source, cause and extent of environmental harm related to the sewage treatment at Barcaldine STP, Aramac STP and Muttaburra STP.

B. Requirements

The report on the environmental must address the following relevant matters:

1. **By 3 August 2020, you must engage an appropriately qualified person to prepare a Sample Analysis Plan (SAP) for the Barcaldine, Aramac and Muttaburra STPs**, using the latest version of the administering authority's 'Monitoring and Sampling Manual 2018' and the 'Application requirements for activities with impacts to water' guideline (ESR/2015/1837). The SAP must include but not be limited to:
    a) Sampling objectives and scope required to quantify factors that influence the exceedances in EA limits; and
    b) A sampling program created to target appropriate sampling locations in the receiving environment, that includes monitoring of the following parameters:
        i. Faecal Coliforms;
        ii. Ammonia (as N) and other relevant nutrients;
        iii. Biological Oxygen Demand;
        iv. Suspended Solids;
        v. pH; and
        vi. Dissolved Oxygen.

2. **By 2 November 2020, an appropriately qualified person must conduct an investigation into impacts and potential impacts** caused by elevated contaminant levels released to surface waters from the Barcaldine, Aramac and Muttaburra STPs. The investigation must include but not be limited to:
    a) The identification of environmental values and the water quality objectives of the land/waters affected by the release of treated effluent; and
    b) The identification and extent of actual or potential impacts to the environmental values identified in part a) from the past (up to 2 years), the current and the future (potential) treated effluent quality; and
    c) Implementation of the SAP.

3. **By 5 January 2021, an appropriately qualified person** must conduct an investigation into the cause of elevated contaminant levels, including a review of the current sewage treatment processes engaged in at the Barcaldine, Aramac and Muttaburra STPs. This investigation must include:
    a) A review of the current sewage treatment process and identification of what is causing elevated contaminant levels;
    b) A review of the current STPs' capacity, performance and ability to meet the current and future service needs of the relevant townships;
    c) The characterisation and idenfication of the effluent that enters the sewage treatment plant for parameters relevant to the review required by Requirement 3. b) listed above;
    d) Characterisation of the quality of the treated effluent released to surface waters as a result of the treatment process with the following parameters:
        i. Faecal Coliforms;
        ii. Ammonia (as N) and other relevant nutrients;
        iii. Biological Oxygen Demand;
        iv. Suspended Solids;
        v. pH; and
        vi. Dissolved Oxygen.

4. **By 1 March 2021, an appropriately qualitied person must conduct an investigation to understand all potential release options for treated effluent** at the Barcaldine, Aramac and Muttaburra STPs**.** In particular, review the current practice of releasing treated effluent to waters and assess the option to release treated effluent to land at each STP. The assessment must include but not be limited to:
    a) The assessment of land which has potential to receive treated effluent by irrigation; and
    b) The assessment of the effect of current treated effluent on soil qualities.

5. **The Environmental Investigation must provide recommendations on appropriate control measures** at the Barcaldine, Aramac and Muttaburra STPs which justify mitigation and remediation measures that are likely to resolve the elevated contaminant levels within the treated effluent released to waters and propose a suitable and justifiable timeframe for when these measures will be achieved by.

Reporting

6. By 5 **May 2021**, you must provide to the department a final report on the above matters as prepared by an appropriately qualified person that includes:

    a) Identification of short-term and long-term improvements and efficiencies to the sewage treatment and effluent management processes required to protect the relevant environmental values of waters at the Barcaldine, Aramac and Muttaburra STPs; and

    b) Timeframes for implementing the recommendations, and where a recommendation will not be implemented, provision of detailed justification explaining why that recommendation is not a reasonable or practicable measure to be adopted.

The environmental investigation must be carried out, and the environmental report prepared by an independent appropriately qualified person.

An independent appropriately qualified person is defined as a person or persons who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give an

authoritative assessment, advice and analysis of performance relative to the subject matter using the relevant protocols, standards, methods or literature.

The final environmental report must be submitted to the department on or before 5 **May2021**.

As the recipient of this notice, you are also required to provide a statutory declaration in the form attached, to accompany the environmental report submitted to the department.

The appropriately qualified person/s who prepare the environmental report must also provide a statutory declaration in the form attached to the environmental report submitted to the department.

Copies of the template statutory declarations can also be accessed from the Queensland Government website at www.qld.gov.au, using the publication number as a search term:

1. Statutory declaration environmental evaluation for recipient (ESR/2016/1997).
2. Statutory declaration for suitably qualified person (ESR/2016/2266).
3. Statutory declaration environmental evaluation for auditor (ESR/2016/2265).

Take notice:

1. The requirements of the notice to conduct or commission an environmental investigation take effect immediately upon service of this notice;
2. This notice remains in force until further notice from the department; and
3. You are responsible for meeting the costs of conducting or commissioning the environmental evaluation, preparing the environmental report and providing any further information as requested by the department.

C. Reviews and appeals

The provisions regarding reviews of decisions and appeals are found in sections 519 to 539 of the Act.

A person who is dissatisfied with certain decisions of the department, may be able to apply to have the department review that original decision.

Generally, a request to have a decision reviewed must:

- be made within 10 business days of the decision being notified to the person;
- be supported by enough information to enable the department to decide the application for review; and
- be made using the application form, Application for review of original decision (ESR/2015/1573) available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2015/1573) as a search term.

Where an application has been made for a decision to be reviewed, the applicant may also apply to the relevant court for a stay of the decision to secure the effectiveness of the review.

Once the original decision has been reviewed, a person who is dissatisfied with the review decision may be able to appeal against that decision to the relevant court within 22 business days after receiving notice of the review decision.

A person whose interests are or would be adversely affected by a decision of the department may also be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

For further information about reviews and appeals see the information sheet, Internal review and appeals (ESR/2015/1742) available on the Queensland Government website at www.qld.gov.au, using the publication number (ESR/2015/1742) as a search term.

The information sheets are available on the Queensland Government website at www.qld.gov.au, using the publication number as a search term.

You may have other legal rights or obligations and should seek your own legal advice.

D. Penalty

Failure to comply with a notice to conduct or commission an environmental evaluation is an offence.

1. The maximum penalty for an individual is 300 penalty units, totalling $40,035.00.
2. The maximum penalty for a corporation is 1500 penalty units, totalling $200,175.00.

Should you have any queries in relation to this notice, please contact Lachlan McKenzie of the department on telephone number (07) 4987 9355.

Signature

28 April 2020

Date

Tim Brain
Manager (Compliance)
Delegate of the Chief Executive
Department of Environment and Science
Environmental Protection Act 1994

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