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*.*

CS Energy Limited
Level 2, HQ (North Tower) 540 Wickham Street
FORTITUDE VALLEY QLD 4006

Your reference: EPPR00536313 | C-CPLRC-100046232 | E-100046349

Wednesday, 15 December 2021

Take notice: that under the *Environmental Protection Act 1994* (the Act) a notice to conduct or commission an environmental investigation is issued to CS Energy Limited (you) (CS Energy) 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 in respect of the activities of CS Energy on land described as Lot 1/RP615528 and Lot 4/SP103557 (the premises).

A. Grounds

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

1. Under section 326BA of the Act, the department is satisfied on reasonable grounds that:
   (a) particulars of the land are recorded in the environmental management register or contaminated land register,
   (b) the hazardous contaminant contaminating the land is in a concentration that has the potential to cause serious environmental harm or material environmental harm,
   (c) a person, animal or another part of the environment may be exposed to the hazardous contaminant, whether on the land or not.

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

1) CS Energy hold Environmental Authority EPPR00536313 (the EA) which authorises Environmentally Relevant Activities (ERA):
   - 14 – Electricity Generation, 2: Generating electricity by using a fuel, other than gas, at a rating capacity of, (b) more than 150MW electrical.
   - 08 – Chemical Storage, 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a).
   - 08 - Chemical Storage, 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c).
   - 56 – Regulated Waste Storage, Receiving and storing regulated waste.

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- 60 - Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1) (a), (d) more than 200,000t.
- 63 – Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily design capacity of, (b-ii) more than 100 but not more than 1500EP otherwise.

2) Lot 1/RP615528 and Lot 4/SP103557 are listed on the Environmental Management Register.

3) On 13 August 2019 CS Energy engaged an independent suitably qualified person (**SQP**) under the *Environmental Protection Act 1994* (the Act) to commence investigation works into potential impacts and risks associated with the historical use of aqueous film-forming foam (AFFF) at the premises.

4) On 23 July 2020 CS Energy provided the department with a preliminary site investigation (**PSI)** titled *Preliminary PFAS Environmental Investigation – Callide Power Station* which identified potential onsite risks associated with the historical use of AFFF at the premises. The report recommended completion of an onsite sampling program to quantify potential risks identified, including sampling of surface water, groundwater, soils and sediment.

5) On 1 October 2020 CS Energy provided the department with a sampling analysis and quality plan (**SAQP)** titled *Sampling Analysis and Quality Plan (PFAS) – Callide Power Station* detailing proposed investigation of potential AFFF at the premises and potential migration pathways, targeting groundwater, surface water, soil and sediment.

6) On 17 November 2020 CS Energy notified the department of preliminary PFAS sampling results from the Callide Power Station which indicated that onsite groundwater, surface water, soils and sediments contained varying levels of PFAS contamination, including the detection of PFAS in groundwater monitoring wells located along the southern boundary of the premises.

7) On 18 December 2020 CS Energy provided the department with a monitoring plan titled *Addendum Monitoring Plan – Callide Power Station SAQP (PFAS)*. The addendum monitoring plan detailed proposed investigation at offsite groundwater and surface water monitoring locations following detection of PFAS in groundwater monitoring wells located along the southern boundary of the premises.

8) On 29 January 2021 CS Energy provided the department with a report titled *Callide Power Station – Targeted PFAS Environmental Investigation* which states 'Historical information available for the site identifies that potential historical use of AFFF at the Callide B and C Power Station site is likely to be less than 1,000L, including use of up to 300L of AFFF concentrate in training activities, system tests and use/maintenance of extinguishers, and a further approximately 500L of AFFF concentrate used in emergency response associated with coal fires at the Coal Plant.

9) The report also stated that 'the most likely potential onsite pathway comprised the potential migration from primary to secondary source areas to offsite receptors including surface waters (Callide Creek, Dunn Creek and Callide Dam) and fractured rock aquifers located beneath the site (connected to alluvial aquifers and surface water)'.

10) On 4 February 2021 CS Energy notified the department of detection of PFAS exceeding the Australian Drinking Water Guideline (ADWG) for PFOS + PFHxS (0.07 µg/L) in offsite groundwater monitoring wells downstream of the site following implementation of the Addendum Monitoring Plan.

11) On 10 February 2021 CS Energy engaged an approved contaminated land auditor to oversee the implementation of the investigation.

12) On 24 September 2021 CS Energy submitted sampling results to the department which indicated that concentrations of PFOS + PFHxS monitored in 9 onsite groundwater bores were above the ADWG.

13) Sampling results submitted on 24 September 2021 also indicate concentrations of PFOS + PFHxS above the ADWG in private groundwater bores downstream of the site with concentrations up to 0.369ug/L.

14) On 24 September 2021, CS Energy reported that 6 private bores located downstream of the site used for drinking water were being impacted by PFAS contamination above the ADWG levels and that CS Energy was supplying drinking water to 15 households who relied upon these bores for drinking and/or domestic purposes.

15) An 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) Under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (Water EPP), all Queensland waters including groundwater and surface waters have prescribed environmental values and water quality objectives. Environmental values and water quality objectives for these waters are listed in schedule 1 of the Water EPP.

17) The groundwater environmental values which apply in the Callide Creek Catchment include drinking water, irrigation, farm water supply, aquatic ecosystem protection, stock water, primary recreation, industrial use and cultural and spiritual values.

18) Groundwater downstream of the site is used by landholders for drinking, domestic, irrigation, farm water supply and stock watering.

19) The groundwater flows through the Callide Creek Aquifer generally in a westerly direction from the premises.

20) Public amenity and safety are environmental values prescribed by the Act, that may be adversely affected by PFAS contamination of groundwater, particularly through contamination of drinking water above the ADWG.

21) Ecological health is an additional environmental value prescribed by the Act that has the potential to be adversely affected by the release of PFAS into the environment, through bioaccumulation in aquatic and terrestrial organisms.

22) PFAS contamination can be environmentally significant due to its persistence, mobility and, for some PFAS, toxicity and potential bioaccumulation in plants and animals (HEPA 2020).

23) 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.*

24) PFAS contamination has the potential to negatively impact environmental values by a variety of mechanisms including via concentration and accumulation in food stuff, drinking water, contact, ingestion and product usage.

25) Perfluorooctane sulfonate (PFOS) is a compound that is also PFAS.

26) PFAS compounds, including PFOS, are prescribed water contaminants under Schedule 10 of the Environmental Protection Regulation 2019.

27) Based on the facts and circumstances above, the department is satisfied that the contamination of the land and groundwater by PFAS compounds has the potential to cause environmental harm through migration offsite where it is contributing to contamination of groundwater used for drinking water. The environmental value that is primarily adversely impacted is public safety as the contamination of groundwater is above the Australian Drinking Water Guideline.

B. Requirements

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

Where existing investigations have been completed, and are relevant to addressing the requirements of this notice, you may use these investigations to address relevant parts of this notice, pending agreement by the SQP and the auditor.

1) **By 5:00 pm on 17 December 2021** you must engage an independent **SQP** under the Act to carry out the requirements of this notice. The SQP must demonstrate skills and experience in technical fields such as soil and groundwater contamination assessment and with particular skills relevant to AFFF firefighting foams containing PFAS.

~~**2)**~~ **By 5:00 pm on 17 December 2021** you must engage an approved contaminated land auditor to undertake an auditor's function as outlined in Section 568(b) of the Act, to oversee the SQP carrying out the requirements of this notice.

3) **By 5:00 pm on 28 February 2022** you must develop and submit a sampling, analysis and quality plan (**SAQP**) to the department to characterise the potential source and extent of PFAS contamination likely to be caused from the release of AFFF at the premises for the purpose of preparing a site investigation report as defined in section 387 of the Act. This plan must be prepared by a SQP and consented to by a contaminated land auditor.

This investigation detailed in the SAQP must, as a minimum:

a) evaluate the nature and extent of PFAS contamination likely to have been caused by any direct or indirect release of AFFF from the premises to soil, water, groundwater, sediments and, include biota sampling in Callide Creek adjoining the premises as part of the investigation; and
b) assess likely pathways of PFAS contamination from the release of AFFF from the premises including, but not limited to, the premises, surface waters, drainage lines, stormwater infrastructure and groundwater in the vicinity of the premises; and
c) assess the nature of the connectivity/completeness of those likely pathways by, assessing (where applicable) groundwater levels versus surface water levels and connectivity, hydraulic conductivity and groundwater velocity, and evaluate the potential for surface water releases from Callide dam to enhance migration of PFAS contaminants from the site.
d) the sampling analysis must be generally in accordance with all requirements stated in **Requirement 7**.

4) **By 5:00 pm on 7 March 2022** you must commence sampling and analysis in accordance with the SAQP required by Requirement 3.

5) **By 5:00 pm on 7 September 2022** you must submit a contaminated land investigation document (**CLID**) in accordance with the content requirements of section 389 of the Act, that is a site investigation report detailing the findings of the sampling, analysis and quality plan to determine the nature and extent of impact arising from any direct or indirect release of any hazardous PFAS contaminants from the release of AFFF.

The CLID must also include, but is not limited to the following:

a) Evaluate known historical activities undertaken at the premises which has involved the use, storage (including volume), handling, foam types and potential release of AFFF PFAS containing material;
b) Provide analytical data that characterises the nature of the PFAS at the premises and that which has been released or potentially released to assist in determining the nature and extent of PFAS contamination in the receiving environment;
c) Provide analysis of potentially affected media including soil, sediment, surface water, groundwater and biota and identify potential pathways for impacts to human and biota receptors;
d) Provide all monitoring results and an analysis of the extent of PFAS contamination in soils, sediment, surface water, groundwater and biota;
e) Assess the potential for environmental harm (actual or potential) and provide recommendations for the implementation of reasonable and practicable options to prevent or minimise any further releases of PFAS from identified sources and manage and monitor environmental and human health risks; and
f) Provide remediation options to remove the contamination and treat the contamination taking into account the extent of any residual contamination in soils, sediment, groundwater and surface waters that affect the premises or other receptors.

6) The investigations required by this notice must meet the requirements for a CLID for the land in accordance with section 389 and 390 of the Act. A CLID must be prepared by a SQP as required by and in accordance with Chapter 12, Part 3 of the Act and be accompanied by an auditor certification that the CLID complies with section 389(1) and (2) of the Act.

7) You must ensure that the following requirements, to the extent that they are applicable and specified requirements are not otherwise referred to, are met when conducting the investigation and preparing the report:

a. The investigation is conducted in accordance with the following:
   i. *the Act* – see https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1994-062;
   ii. The Policy – see https://www.legislation.qld.gov.au/view/pdf/inforce/current/sl-2019-0156;
   iii. Queensland Water Quality Guidelines (2009) – see https://environment.des.qld.gov.au/management/water/quality-guidelines;
   iv. Monitoring and Sampling Manual 2018 Environmental Protection (Water) Policy 2009 Version 2 June 2018 see - https://environment.des.qld.gov.au/__data/assets/pdf_file/0031/89914/monitoring-sampling-manual-2018.pdf;
   v. National Environmental Protection (Assessment of Site Contamination) Measure 1999 – see http://nepc.gov.au/nepms/assessment-site-contamination;
   vi. Queensland Auditor Handbook for Contaminated Land – see https://www.qld.gov.au/environment/pollution/management/contaminated-land/auditors/auditor-handbook;
   vii. Assessment of impact of human health considering the Tolerable Daily Intakes for PFOS, PFOA, and PFHxS recommended by Food Standards Australia New Zealand (FSANZ);
   viii. Where PFAS are encountered in water bodies at the premise which are accessible to fauna such as birds and mammals, qualitative consideration of water to animal bioaccumulation factors reported in research publications concerning those contaminants in evaluating potential environmental harm to such animals; and
   ix. Assessment of contamination considering guidance provided in the PFAS NEMP – see https://www.qld.gov.au/environment/pollution/management/disasters/investigation-pfas/management-plan.

b. An assessment of edible portions (biota) must be used in estimating risks of exceeding the tolerable daily intakes, being consistent with the Queensland Health Guideline for sampling and analysis of seafood suitable for human health risk assessments of PFAS contamination (see https://www.qld.gov.au/__data/assets/pdf_file/0032/68684/pfas-fish-sampling-protocol.pdf) and adopting portion sizes recommended by Food Standards Australia New Zealand (FSANZ) in addition to assessment of whole species (biota) to evaluate bioaccumulation risk; and

c. Wherever practical, all samples must be analysed by a NATA accredited laboratory (it is noted that in biota sampling this may not be applicable); and

d. The analytical data on all media (soil, sediment, water, groundwater and biota) must include results for sampling to determine total organic fluorine, total oxidisable precursor (TOP) assay, and the suite of 20 to 28 standard fluorinated organic compounds by liquid chromatography-mass spectrometry (LC/MS/MS) available from commercial laboratories reported as the

analyses for the resulting perfluorinated carboxylates for C4 to C14 carbon chain length (TOP C4-C14); and

e. Note that as analytical and instrumental improvements are made regarding the analysis for PFAS it is understood that some laboratories are increasing the standard suite which may assist you in distinguishing between the premises sources of PFAS and other potential sources; and
f. Where TOP Assay is performed, quality assurance checks must include that oxidant exhaustion has not occurred (e.g. reanalysis to determine presence of fluorotelomer); and
g. Groundwater bores are constructed in accordance with the Minimum Construction Requirements for Water Bores in Australia (4th edition).

8) By 5:00 pm on 7 October 2022 you must submit a final environmental report to department that demonstrates that the requirements of this environmental evaluation have been completed.

The environmental investigation must be carried out, and the environmental report prepared by a suitably qualified person. A suitably quality person is defined as a person who has professional qualifications, training, skills or experience relevant to the Environmental Evaluation requirements, and can give authoritative assessment, advice and analysis in relation to the Environmental Evaluation using relative relevant protocols, standards, methods or literature.

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 suitably qualified person who prepares the environmental report and the contaminated land auditor 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 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.

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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.
2. The maximum penalty for a corporation is 1500 penalty units.

Should you have any queries in relation to this notice, please contact Joshua Radloff, A/Team Leader on (07) 4971 6509 or email cwes_gladstone@des.qld.gov.au.



Signature

15 December 2021

Date

Kate Grayson

Manager (Compliance)

Delegate of the Chief Executive

Department of Environment and Science

Environmental Protection Act 1994