Environmental Protection Order

This environmental protection order is issued by the administering authority pursuant to section 358 of the Environmental Protection Act 1994.

Santos CSG Pty Ltd (ACN 121 188 654)
Ground Floor, Santos Centre
60 Flinders Street
ADELAIDE SA 5000

Your reference: EPPG03515915

Our reference: C-CPLPO-100072625

13/08/2021

Dear Directors,

Take notice: that under the *Environmental Protection Act 1994* (EP Act) this environmental protection order (EPO) is issued to Santos CSG Pty Ltd (ACN 121 188 654) (you) by the administering authority. The administering authority is the Chief Executive of the Department of Environment and Science (the department). The EPO is issued with respect to the activities of a petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area on land described as Petroleum Lease 176 situated at Scotia Project Area (the premises).

A. Grounds

This EPO is issued on the following grounds:

1. The department requires you to take reasonable measures to secure compliance with condition I10 of Environmental Authority EPPG03515915 dated 20 September 2017 which states:

   The stimulation risk assessment must be carried out for every well to be stimulated prior to stimulation activities being carried out at that well and address issues at a relevant geospatial scale such that changes to features and attributes are adequately described and must include, but not necessarily be limited to:
   (a) a process description of the stimulation activity to be applied, including equipment and a comparison to best international practice;
   (b) provide details of where, when and how often stimulation is to be undertaken on the tenures covered by this environmental authority;
   (c) a geological model of the field to be stimulated including geological names, descriptions and depths of the target gas producing formation(s); (d) naturally occurring geological faults;
   (e) seismic history of the region (e.g. earth tremors, earthquakes);
   (f) proximity of overlying and underlying aquifers;
   (g) description of the depths that aquifers with environmental values occur, both above and below the target gas producing formation.
   (h) identification and proximity of landholders' active groundwater bores in the area where stimulation activities are to be carried out;
   (i) the environmental values of groundwater in the area;
   (j) an assessment of the appropriate limits of reporting for all water quality indicators relevant to stimulation monitoring in order to accurately assess the risks to environmental values of groundwater;

(k) description of overlying and underlying formations in respect of porosity, permeability, hydraulic conductivity, faulting and fracture propensity;
(l) consideration of barriers or known direct connections between the target gas producing formation and the overlying and underlying aquifers;
(m) a description of the well mechanical integrity testing program; process control and assessment techniques to be applied for determining extent of stimulation activities (e.g. microseismic measurements, modelling etc);
(n) practices and procedures to ensure that the stimulation activities are designed to be contained within the target gas producing formation;
(o) groundwater transmissivity, flow rate, hydraulic conductivity and direction(s) of flow;
(q) a description of the chemicals used in stimulation activities (including estimated total mass, estimated composition, chemical abstract service numbers and properties), their mixtures and the resultant compounds that are formed after stimulation;
(r) a mass balance estimating the concentrations and absolute masses of chemicals that will be reacted, returned to the surface or left in the target gas producing formation subsequent to stimulation;
(s) an environmental hazard assessment of the chemicals used including their mixtures and the resultant chemicals that are formed after stimulation including:
(i) toxicological and ecotoxicological information of chemicals used;
(ii) information on the persistence and bioaccumulation potential of the chemicals used;
(iii) identification of the stimulation fluid chemicals of potential concern derived from the risk assessment;
(t) an environmental hazard assessment of use, formation of, and detection of polycyclic aromatic hydrocarbons in stimulation activities;
(u) if used, identification and an environmental hazard assessment of using radioactive tracer beads in stimulation activities;
(v) an environmental hazard assessment of leaving stimulation chemicals in the target gas producing formation for extended periods subsequent to stimulation;
(w) human health exposure pathways to operators and the regional population;
(x) risk characterisation of environmental impacts based on the environmental hazard assessment;
(y) potential impacts to landholder bores as a result of stimulation activities; (z) the determination of the likelihood of causing interconnectivity and/or negative water quality as a result of stimulation activities undertaken in close proximity or each other; and
(aa) potential environmental or health impacts which may result from stimulation activities including but not limited to water quality, air quality (including suppression of dust and other airborne contaminants), noise and vibration.

2. The department requires you to take reasonable measures to secure compliance with the General Environmental Duty. The General Environmental Duty is detailed in s319 of *the Act* which states the following: *'A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practical actions to prevent or minimise the harm (the **general environmental duty**)*.

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

1. You are the holder of environmental authority EPPG03515915 (the EA) issued 20 September 2017, which authorises the environmentally relevant activity: a petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area.
2. The department is satisfied that you are the person operating stimulation activities and is responsible for the preparation, implementation and updating of the risk assessment under the EA.
3. The department has determined that you carried out stimulation activities in non-compliance with condition I10 of EA EPPG03515915. Under section 430(3) of the Act, it is an offence for a person to contravene a condition of an environmental authority.
4. A notice of completion of hydraulic fracture activities identifies that stimulation activities commenced at The Rock 15 well located in the Scotia Project Area within PL176 on 8 January 2021.
5. On 2 February 2021, the department issued a pre-inspection letter to you requesting a copy of the stimulation risk assessment for Scotia Project Area.
6. On 15 February 2021, you provided several requested documents. A stimulation risk assessment for Scotia Project Area was not provided.

7. On 18 February 2021, you provided a copy of the third-party audit entitled '*Santos GLNG Scotia (PL176) Environmental Authority No. EPPG03515915 Environmental Compliance Audit*' which states: '*The current Santos GLNG Hydraulic Fracturing Risk Assessment – Compendium of Assessed Fluid Systems Report (issued 7th November 2019) addresses the relevant regulatory requirements contained within the federal EPBC Act 1999 approval, Coordinator General conditions and EA requirements, and amalgamates the findings of all hydraulic fracturing risk assessments completed as of October/November 2020…….It was stated that the November 2019 Santos GLNG Hydraulic Fracturing Risk Assessment – Compendium of Assessed Fluid Systems Report was written to satisfy federal environmental approval conditions, which are more onerous that state-based EA conditions. Subsequently, this document is used to address and comply with relevant Scotia EA conditions as well as support other relevant petroleum activities (e.g. land application of RDM). '*
8. On 24 March 2021, the Department issued to you a post-inspection letter for the potential non-compliance with condition I10.
9. On 16 April 2021 you provided the following response: "*The Santos GLNG Hydraulic Fracturing Risk Assessment – Compendium of Assessed Fluid Systems Report (issued 7th November 2019) provided does address Scotia (PL176). It is noted that Table 1 does not list Scotia PL176 however, Figure 1 GLNG Project Petroleum Tenures includes Scotia (green polygon) and Scotia is included in the assessment materials.*
10. The department has formed a reasonable belief that the requirements of condition I10 of EA EPPG03515915 in relation to the Scotia Project Area (PL176) have not been addressed in the *Santos GLNG Upstream Hydraulic Fracturing Risk Assessment – Compendium of Assessed Fluid Systems, Revision 4, 7 November 2019*.
11. For the Scotia Project Area, the risk assessment does not address issues at a relevant geospatial scale such that changes to features and attributes are adequately described and does not include all of the information required by condition I10, specifically items (b), (c), (d), (f), (g), (h), (i), (k), (l), (m), (n), (o), (w), (x), (y) and (aa).
12. The risk assessment preamble sets the context for the study area, specifically mentioning the Roma Shallow Gas Project Area (RSGPA), Fairview Project Area (FPA) and Arcadia Valley Project Area (AVPA) and refers to relevant tenures of these project areas listed in Table 1. The preamble also explains that the RSGPA incorporates the Roma Shallow Gas Project Area East. There is no mention of the Scotia Project Area, which is identified as a distinctly separate project area in Figure 1 of the risk assessment, through use of a different coloured polygon.
13. There is relevant detail missing in relation to how stimulation activites have been adjusted to the risk of impact to connected aquifers, proximity to faults and any monitoring conducted (seismic or other) to determine impact.
14. There is relevant detail missing regarding process control and assessment techniques to be applied for determining the extent of stimulation activities for each well.
15. The design requirement to ensure stimulation activities are contained within the target gas producing formation is well and location specific, however this has not been assessed on a per well basis as required.
16. The human health exposure, risk characterisation of environmental impacts and potential impacts to landholder bores has not been assessed on a per well basis.
17. The potential environmental or health impacts which may result from stimulation activities has not been addressed on a per well basis.
18. Within the risk assessment there is detailed and specific mention of the RSGPA, FPA and AVPA, however Scotia Project Area is missing from this detail throughout. As such for the Scotia Project Area, condition I10 has not been met.
19. In summary, the department considers that, given the facts and circumstances detailed above, you have failed to comply with condition I10 of the EA.
20. The department considers that it is appropriate to require you to take reasonable measures to comply with the conditions of your environmental authority and the general environmental duty, including to cease carrying out activities unless those activities comply with condition I10 of the EA.

B. Requirements

In accordance with this EPO, you are required to do the following:

1. By **5.00pm on 13 August 2021,** you must stop and not restart stimulation activities within the Scotia Project Area (Petroleum Lease PL176), until a stimulation risk assessment that meets the requirements of condition I10 of environmental authority EPPG03515915 has been submitted to the department.
2. The stimulation risk assessment must be submitted to:

   Department of Environment and Science

   PO Box 731

   TOOWOOMBA QLD 4350

   or

   via email to southwest.es@des.qld.gov.au
3. The stimulation risk assessment must include a certification prepared by a suitably qualified person, which demonstrates that:
   a) relevant material, including current published guidelines (where available) have been considered in the stimulation risk assessment; and
   b) the content of the stimulation risk assessment is accurate and true; and
   c) the stimulation risk assessment meets the requirements of the relevant conditions of environmental authority EPPG03515915.

Definitions

"stimulation" means a technique used to increase the permeability of a natural underground reservoir that is undertaken above the formation pressure and involves the addition of chemicals. It includes hydraulic fracturing / hydrofraccing, fracture acidizing and the use of proppant treatments.

"suitably qualified person" means a person who has professional qualifications, training or skills or experience relevant to the nominated subject matters and can give authoritative assessment, advice and analysis to performance relative to the subject matters using the relevant protocols, standards, methods of literature.

C. Obligations

If you propose to dispose of the place or business to which the EPO relates, you **must** advise the buyer of the existence of this EPO.

If you cease to carry out the activity to which this EPO relates, you **must** give written notice of ceasing to carry out the activity to the department within 10 days of ceasing the activity.

Take notice:

- the requirements of this order take effect immediately upon service of the order;
- failure to comply with this order is an offence under the EP Act;
- this order remains in force until further notice from the administering authority.

D. Penalty

Failure to comply with an EPO is an offence.

1. The maximum penalty for an individual for wilfully contravening an EPO is 6250 penalty units, totalling $ 861,562 or five years imprisonment.
2. The maximum penalty for a corporation for wilfully contravening an EPO is 31,250 penalty units, totalling $ 4,307,812.
3. The maximum penalty for an individual for contravening an EPO is 4500 penalty units, totalling $ 620,325.
4. The maximum penalty for a corporation for contravening an EPO is 22,500 penalty units, totalling $ 3,101,625.

Failure to provide written notice to the buyer is an offence.

- The maximum penalty for an individual is 50 penalty units, totalling $ 6,892.
- The maximum penalty for a corporation is 250 penalty units, totalling $ 34,462.

Failure to provide written notice within 10 business days of ceasing the activity to the department is an offence.

- The maximum penalty for an individual is 50 penalty units, totalling $ 6,892.
- The maximum penalty for a corporation is 250 penalty units, totalling $ 34,462.

Section 3 of the *Penalties and Sentences Regulation 2015* prescribes the monetary value of a penalty unit.

E. Reviews and appeals

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

A person who is dissatisfied with an original decision made by the Department of Environment and Science (the department) may apply to have that decision internally reviewed.

Information about initiating an appeal in relation to this notice is contained within the Internal Reviews and Appeals Information Sheet (available at www.qld.gov.au using the publication number ESR /2015/1742 as a search term)

A request for review or appeal is to be made using the approved form 'Application for review of original decision' (available at www.qld.gov.au using the publication number ESR/2015/1573 as a search term.

Applications for reviews are to be sent to Permit and Licence Management, Department of Environment and Science: via email at palm@des.qld.gov.au , or by mail to the following address: GPO. Box 2454, Brisbane, QLD, 4001.

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 be able to request a statement of reasons for a decision or a statutory order review under the *Judicial Review Act 1991*.

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

Pursuant to section 540 of the Act, the department is required to maintain a register of certain documents and information authorised under the Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety, unless alteration is required by the Act. There is no general discretion allowing the department to withhold documents or information required to be kept on the public register. For more information on the department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

Should you have any queries in relation to the notice, please contact Diana Gutierrez on 07 4529 8381 telephone number.



Signature

13/08/2021

Date

Dayna Claybourn

Manager Compliance

Delegate of the Chief Executive

Department of Environment and Science

Environmental Protection Act 1994

Enquiries: Diana Gutierrez

COMPLIANCE CENTRE: Toowoomba
Ph: (07) 4529 8336
Email: southwest.es@des.qld.gov.au