

Energy and Extractive Resources Business
Centre
GPO Box 2454, Brisbane QLD 4001
Phone: (07) 3330 5557
Email: energyandextractive@des.qld.gov.au



19 September 2023

DES Reference: A-EA-AMD-100414517
ERM Reference: 0687179

Dear Tristen,

**Subject: Application for Amendment (minor) to Environmental Authority
EPPG00304213, to allow hydraulic strata stimulation of wells located on
PL213**

Environmental Resources Management Australia Pty Ltd (**ERM**) writes to the Department of Environment and Science (**DES**) on behalf of AGL Upstream Gas (Mos) Pty Limited and AGL Gas Storage Pty Ltd (known collectively as AGL or 'the Applicant') in response to the Notice of Not properly made amendment application (EPPG00304213 | CEA100414539) dated 20/04/2023 (the Notice).

The Notice relates to the application for amendment to EA EPPG00304213, which is for the purposes of:

- Facilitating hydraulic strata stimulation on PL213 at 'West Noorindoo 1', located at coordinates 270 07' 33.348" S, 1490 10' 58.044" E; and
- Updating the conditions of EA EPPG00304213 to account for the proposed hydraulic strata stimulation activities via the adoption of the relevant 'Streamlined Model Conditions for Petroleum Activities' (Department of Environment and Science (DES), 2016, ESR/2016/1989) ('Model Conditions') applicable to stimulation activities.

Please find our response to the matters identified in the Notice in the following sections. A copy of the Notice is provided as **Attachment A**.

Following the Notice, DES issued a document outlining information requiring clarification in the EA amendment application. A cross-reference table showing what DES requested, and the corresponding section where this information can be found in the EA Amendment Application Supporting Information Document is provided as **Attachment B**.

1. RESPONSE TO NOT PROPERLY MADE NOTICE

1.1 Item 3A

Request (DES):

Section 226A(1)(f)(i) of the EP Act provides that an amendment application must include a description of the environmental values likely to be affected by the proposed amendment. Section 9 of the EP Act provides a description of environmental value 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.*

The application has identified environmental values relating to or dependant on groundwater (also referred to as underground water) such as groundwater dependent ecosystems and groundwater users. However, the application has not identified the specific environmental values for formations containing groundwater and, if relevant, the environmental values of the target gas producing formations, Upper and Lower Tinowon and Wallabella Sandstones in accordance with section 9 of the EP Act.

Requested Action (DES):

Provide a description of the specific environmental values for any formations containing underground water and for the target gas producing formations which are likely to be affected by the proposed amendment in accordance with section 9 of the EP Act and section 6 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP Water).

If the target gas producing formations contain underground water then environmental values of the water must be identified in accordance with section 6 of the EPP Water.

If the target gas producing formations do not contain underground water then in accordance with section 9(a) of the EP Act the environmental values of the formations will be the “quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety”.

If the target producing formations do not contain any environmental values, please state so explicitly and explain why.

Response (ERM):

Additional information has been provided in **Section 3.1.2** of the Supporting Information. Environmental Values (EVs) and Water Quality Objectives in the Supporting Information is based on the *Queensland Murry-Darling and Bulloo River Basins, Groundwater Environmental Values and Water Quality Objectives, All groundwater of the Queensland Murry-Darling and Bulloo River basins* (2020).

1.2 Item 3B

Reason (DES):

Section 226A(1)(f)(iii) of the EP Act provides that an amendment application must include a description of the risk and likely magnitude of impacts on the environmental values.

The application has not provided a description of the risk and likely magnitude of impacts on the environmental values of the target gas producing formations because no environmental values of those formations have been identified as discussed above.

Requested Action (DES):

If the target gas producing formations include environmental values, provide a description of the risk and likely magnitude of impacts on the environmental values resulting from the proposed amendment and relevant to the target gas producing formations.

Response (ERM):

Potential sub-surface exposure pathways have been identified in **Section 6.1.1.2** of the Supporting Information. Risk posed to the EVs is not anticipated to be significantly different to the approved activity. Management and mitigation measures to be implemented to ensure any risk to sub-surface environments has been provided in **Section 6.4** of the Supporting Information.

1.3 Item 3C

Request (DES):

Section 227AA of the EP Act provides that an amendment application that relates to a site-specific environmental authority for a resource activity for which the relevant tenure is a petroleum lease and involves changes to the exercise of underground water rights must state matters mentioned in section 126A(2).

Section 25 "Underground water rights" of the "Application to amend an environmental authority" (ESR/2015/1733) indicates that the proposed amendment does not involve changes to the exercise of underground water rights and all the requirements of section 126A(2) of the EP Act have not been provided.

However, the application does not explain why the proposed amendment does not involve changes to the exercise of underground water rights.

The administering authority considers that the proposed amendment may involve changes to the exercise of underground water rights for the following reasons:

- *Section 112 of the EP Act prescribes that underground water rights means any of the following-*
 - *underground water rights within the meaning of the Mineral Resources Act 1989;*
 - *underground water rights within the meaning of the Petroleum and Gas (Production and Safety) Act 2004; and*
 - *underground water rights within the meaning of the Petroleum Act 1923, section 87(3).*

- *PL213 was granted under Petroleum Act 1923, therefore, the definition of underground water rights apply within the meaning of that act;*
- *Section 87(3) of the Petroleum Act 1923 prescribes that underground water rights means the taking of water necessarily taken as part of petroleum production or testing for petroleum production under 1 or more 1923 Act petroleum tenures;*
- *Guideline titled “Requirements for site-specific and amendment applications-underground water rights” (ESR/2016/3275) (the guideline) provides guidance when information required under section 227AA and section 126A of the EP Act must be provided in site-specific and amendment applications;*
- *The guideline in section 1.1.4 includes examples of proposed amendments which may indicate a change to the exercise of underground water rights. These examples are:*
 - *there is a change in tenure, for example converting an ATP to a PL;*
 - *adding a new tenure to the EA;*
 - *there is a significant change to the nature or scale of activities;*
 - *there is a significant change to the volumes of water proposed to be taken; and*
 - *there are likely to be different impacts on environmental values.*
- *The proposed stimulation activities may involve take of underground water because:*
 - *underground water may be present in the target gas producing formations; and*
 - *stimulation activities are likely to enhance gas production flow from the target formation to the wellbore and, consequently, may increase the take of underground water.*
- *The proposed stimulation activities may meet the criterion “there are likely to be different impacts on environmental values” from the guideline for the following reasons:*
 - *stimulation activities use chemical compounds that have not been previously authorised in tight gas well production which have the potential to contaminate the target gas producing formations or underground water in surrounding aquifers;*
 - *This contamination of underground water can occur as a result of the stimulation activities causing interconnections between the target formation/s and surrounding aquifers; and*
 - *The stimulation activities can, therefore, have different impacts on environmental values to the impacts previously authorised by the Environmental Authority EPPG00304213.*

Requested Action (DES):

Explain why the proposed amendment does not involve changes to the exercise of underground water rights. If the proposed amendment involves changes to the exercise of the underground water rights, revise the application to satisfy all the requirements of section 126A(2) of the EP Act.

Response (ERM):

The proposed amendment to the EA does not involve changes to the exercise of underground water rights.

Section 86 of the *Petroleum Act 1923* permits the Minister to provide conditional approval for a petroleum lease holder to search for, obtain, store and use underground water within the limits of the lease area. Section 87(3) of the *Petroleum Act 1923* defines 'underground water rights' as "taking of water necessarily taken as part of petroleum production or testing for petroleum production under 1 or more 1923 Act petroleum tenures". The hydraulic strata stimulation is expected to result in an extremely minor take of underground water as part of the activity, however, as the activities at PL213 currently do not result in any taking of groundwater, the proposed stimulation will not result in a significant change to the volumes of water proposed to be taken. As the Proposed Activities do not involve a change to the exercise of underground water rights, the EA Amendment application has not provided the information stated in Section 126A. Please refer to **Section 6.5** of the EA Amendment Application Supporting Information Document for further information on this matter.

We trust that this information ensures that the application meets the requirements of properly made determination.

Yours sincerely,



John Herron
Partner

ATTACHMENT A NOT PROPERLY MADE NOTICE

Notice

Environmental Protection Act 1994

Not properly made amendment application

This notice is issued by the administering authority¹ pursuant to section 227AAB of the Environmental Protection Act 1994 to advise that an amendment application is not properly made.

AGL Upstream Gas (Mos) Pty Ltd
AGL Gas Storage Pty Ltd
Level 6, 144 Edward Street
Brisbane City, Qld 4000

ATTN: John Moraitis
jmoraitis2@agl.com.au

Our reference: EPPG00304213 | CEA100414539

Notice about an amendment application that is not properly made

1. Amendment application details

The amendment application for an environmental authority, made by AGL Upstream Gas (Mos) Pty Ltd was received by the administering authority on 4/01/2023.

The application reference number is: A-EA-AMD-100414517

Land description: PL213

2. Amendment application not properly made

The administering authority is satisfied that that the amendment application is not properly made.

3. Reasons for amendment application not being properly made

The application is not properly made for the following reasons:

- The amendment application does not meet the requirements of Section 226A of the *Environmental Protection Act 1994* (the Act) as outlined below:

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

- a. *Section 226A(1)(f)(i) of the EP Act provides that an amendment application must include a description of the environmental values likely to be affected by the proposed amendment.*

Section 9 of the EP Act provides a description of environmental value 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.*

The application has identified environmental values relating to or dependant on groundwater (also referred to as underground water) such as groundwater dependent ecosystems and groundwater users. However, the application has not identified the specific environmental values for formations containing groundwater and, if relevant, the environmental values of the target gas producing formations, Upper and Lower Tinowon and Wallabella Sandstones in accordance with section 9 of the EP Act.

- b. *Section 226A(1)(f)(iii) of the EP Act provides that an amendment application must include a description of the risk and likely magnitude of impacts on the environmental values.*

The application has not provided a description of the risk and likely magnitude of impacts on the environmental values of the target gas producing formations because no environmental values of those formations have been identified as discussed above.

- c. *Section 227AA of the EP Act provides that an amendment application that relates to a site-specific environmental authority for a resource activity for which the relevant tenure is a petroleum lease and involves changes to the exercise of underground water rights must state matters mentioned in section 126A(2).*

Section 25 “Underground water rights” of the “Application to amend an environmental authority” (ESR/2015/1733) indicates that the proposed amendment does not involve changes to the exercise of underground water rights and all the requirements of section 126A(2) of the EP Act have not been provided.

However, the application does not explain why the proposed amendment does not involve changes to the exercise of underground water rights.

The administering authority considers that the proposed amendment may involve changes to the exercise of underground water rights for the following reasons:

- Section 112 of the EP Act prescribes that underground water rights means any of the following-
 - (a) *underground water rights within the meaning of the Mineral Resources Act 1989;*
 - (b) *underground water rights within the meaning of the Petroleum and Gas (Production and Safety) Act 2004;*
 - (c) *underground water rights within the meaning of the Petroleum Act 1923, section 87(3).*
- PL213 was granted under *Petroleum Act 1923*, therefore, the definition of underground water rights apply within the meaning of that act.
- Section 87(3) of the *Petroleum Act 1923* prescribes that underground water rights means the taking of water necessarily taken as part of petroleum production or testing for petroleum production under 1 or more 1923 Act petroleum tenures.

- Guideline titled “Requirements for site-specific and amendment applications-underground water rights” (ESR/2016/3275) (the guideline) provides guidance when information required under section 227AA and section 126A of the EP Act must be provided in site-specific and amendment applications.
- The guideline in section 1.1.4 includes examples of proposed amendments which may indicate a change to the exercise of underground water rights. These examples are:
 - *there is a change in tenure, for example converting an ATP to a PL;*
 - *adding a new tenure to the EA;*
 - *there is a significant change to the nature or scale of activities;*
 - *there is a significant change to the volumes of water proposed to be taken;*
 - *there are likely to be different impacts on environmental values*
- The proposed stimulation activities may involve take of underground water because:
 - underground water may be present in the target gas producing formations; and
 - stimulation activities are likely to enhance gas production flow from the target formation to the wellbore and, consequently, may increase the take of underground water
- The proposed stimulation activities may meet the criterion “there are likely to be different impacts on environmental values” from the guideline for the following reasons:
 - stimulation activities use chemical compounds that have not been previously authorised in tight gas well production which have the potential to contaminate the target gas producing formations or underground water in surrounding aquifers.
 - This contamination of underground water can occur as a result of the stimulation activities causing interconnections between the target formation/s and surrounding aquifers.
 - The stimulation activities can, therefore, have different impacts on environmental values to the impacts previously authorised by the Environmental Authority EPPG00304213.

4. **Human rights**

A human rights assessment was carried out in relation to this decision/action and it was determined that the decision is compatible with human rights.

5. **Actions**

To make the amendment application properly made, you must take the following action:

Address the missing information in section 3 of this notice, including but not limited to the following:

- a) Provide a description of the specific environmental values for any formations containing underground water and for the target gas producing formations which are likely to be affected by the proposed amendment in accordance with section 9 of the EP Act and section 6 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP Water).

If the target gas producing formations contain underground water then environmental values of the water must be identified in accordance with section 6 of the EPP Water.

If the target gas producing formations do not contain underground water then in accordance with section 9(a) of the EP Act the environmental values of the formations will be the “*quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety*”.

If the target producing formations do not contain any environmental values, please state so explicitly and explain why.

- b) If the target gas producing formations include environmental values, provide a description of the risk and likely magnitude of impacts on the environmental values resulting from the proposed amendment and relevant to the target gas producing formations.
- c) Explain why the proposed amendment does not involve changes to the exercise of underground water rights. If the proposed amendment involves changes to the exercise of the underground water rights, revise the application to satisfy all the requirements of section 126A(2) of the EP Act.

6. Written notice required

You must give written notice to the administering authority that the action has been taken by 20/10/2023. Written notice must be submitted to Anna Beacom at the address shown below:

GPO Box 2454
BRISBANE QLD 4000

Or

Email: EnergyandExtractive@des.qld.gov.au

If the written notice is not given by the date above, the amendment application for the environmental authority will lapse under section 227AAC of the *Environmental Protection Act 1994*.

7. 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 internal review decision to the Planning and Environment Court. Information about your review and appeal rights is attached to this notice. Note that you may have other legal rights and obligations.

Notice
Not properly made application

Should you have any questions about the notice, please contact Anna Beacom on telephone (07) 3330 5557.



Signature

20/4/2023

Date

Tristan Roberts
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Energy and Extractive Resources Business
Centre
GPO Box 2454, Brisbane QLD 4001
Phone: (07) 3330 5557
Email: energyandextractive@des.qld.gov.au

Attachments

Information sheet: Internal review and appeals (ESR/2015/1742)

ATTACHMENT B INFORMATION TO CLARIFY CROSS-REFERENCE

No	Information Request Item	Section within the EA Amendment Application Supporting Information Document
1	<p>The application indicated that to the south of PL213 there are several significant wetlands located. Well West Noorindoo-1 is located within a Matter of State Environmental Significance (MSES) regulated vegetation (defined watercourse). However, it is not clear in the application:</p> <ul style="list-style-type: none"> ■ If the proposed stimulation activities are likely to impact the surrounding wetlands. If yes, then the environmental values for those wetlands as well as the risk and likely magnitude of impacts on those environmental values need to be described in the application. If there is no impact predicted on the wetlands then this needs to be explicitly stated and explained why. ■ If the proposed stimulation activities in West Noorindoo-1 are likely to impact MSES regulated vegetation (defined watercourse) (see Figure 1). If yes, then the risk and likely magnitude of impacts on MSES regulated vegetation (defined watercourse) need to be described. ■ If the environmental values and impacts described for surface water also refer to MSES regulated vegetation (defined watercourse). ■ If the environmental values described for surface waters in section 3.1.1.1 “Surface Water Use” of the supporting document are based on “Maranoa-Balonne Rivers Basin Environmental Values and Water Quality Objectives” because this document is not mentioned in the application. <p>It is suggested to clarify the above-mentioned information gaps.</p>	<p>Refer to Section 3.1.1, 3.1.1.1, 3.2.3 of the EA Amendment Application Supporting Information Document.</p>
2	<p>The application mentions that there are 6 registered active groundwater bores located within the vicinity of PL213. However, no map of those bores with reference to the location of stimulation activities has been provided and no information about the distance of the proposed stimulation activities from those water bores.</p> <p>It is suggested to provide the above-mentioned information.</p>	<p>Refer to Section 3.1.3 of the EA Amendment Application Supporting Information Document.</p> <p>Note that the number of groundwater bores has been refined with the search narrowed to 2 km of the proposed simulated well, WN1. Two artesian and one sub-artesian bore has been identified in available public records. Whilst artesian conditions are noted, 2 of the 3 bores are not used for water supply.</p>

No	Information Request Item	Section within the EA Amendment Application Supporting Information Document
3	<p>Section 3.1.2.1 “Groundwater Dependent Ecosystems” states that there are small pockets of revied GDE’s (high confidence) within the vicinity of PL213. The section states that “it is considered unlikely that the proposed stimulation activity will increase the risk to GDE’s due to the restriction of the hydrology on PL213” and a reference is made to section 6 for further detail. It is not clear:</p> <ul style="list-style-type: none"> ■ What this statement means. ■ Where those GDE’s are and their distance to the proposed stimulation activities. Please provide a map showing these GDE’s with reference to the location of the proposed activities. ■ What the details of those ecosystems are and their interactions with the groundwater <p>It is suggested to clarify the above-mentioned information.</p>	Refer to Section 3.1.3.1 and Section 6.3 of the EA Amendment Application Supporting Information Document.
4	<p>Section 3.2.2 “Environmentally Sensitive Areas” states that no vegetation is intended to be removed or disturbed for the initial hydraulic strata stimulation activities and no amendment is required to the following existing EA conditions as per Table 3-1.</p> <p>However, it is not clear if there is any disturbance required after the initial phase of the hydraulic strata stimulation activities. Please confirm.</p>	Refer to Section 3.2.2 of the EA Amendment Application Supporting Information Document.
5	<p>Section 5 “Proposed Activity Detail” states that “AGL intends to undertake hydraulic strata stimulation activities on PL213, subject to approval. The intent is to initially undertake hydraulic strata stimulation at one well (‘West Noorindoo 1’, located at coordinates 270 07’ 33.348” S, 1490 10’ 58.044” E), however, there is potential for the other wells located on PL213 to be subject of hydraulic strata stimulation at a later stage”. It is not clear how many wells will ultimately be stimulated. Please confirm.</p> <p>Please note if the application is approved, the stimulation of wells will be authorised for a specific number of wells which are assessed in the application.</p>	Refer to Section 5 of the EA Amendment Application Supporting Information Document.
6	<p>The impacts to neighbouring Cat B and C ESAs have only been considered from the disturbance perspective. However, subsurface impacts on those ESAs resulting from stimulation activities (e.g. fracture length extending 90-250m laterally from the wellbore) have not been identified and assessed in the application. Consequently, the potential for environmental harm to environmental values is uncertain.</p> <p>It is suggested to provide information on subsurface impacts on the ESAs resulting from the stimulation activities. If no impacts are predicted, please state so explicitly and explain why.</p>	Refer to Section 6.1.1.2 of the EA Amendment Application Supporting Information Document.

No	Information Request Item	Section within the EA Amendment Application Supporting Information Document
7	<p>The application provides an assessment of the hydrogeological risks at a regional scale. However, the potential hydrogeological risks specific to the project area are not known.</p> <p>This uncertainty is confirmed in the application in section 6.3 “Hydrological risks” of the supporting document which states that “appreciating that there is the potential that sub-surface pathways and other pre-existing characteristics can influence exposure pathways, ongoing management of hydrogeological risks will be undertaken on a well-by well basis”.</p> <p>It is suggested to provide assessment of site-specific environmental impacts and risks (including hydrogeological risks) related to the proposed stimulation activities for each well to ensure that environmental harm is prevented. It is also suggested to provide results of any testing to confirm site-specific aquifer/formation properties if relevant.</p>	Refer to Section 6.3.1 of the EA Amendment Application Supporting Information Document.
8	<p>Regarding the proposed stimulation fluids:</p> <ul style="list-style-type: none"> ■ There is no information on the environmental hazard assessment of the chemicals used in stimulation activities (including their mixtures, toxicity, bioaccumulation potential, etc) and the resultant chemicals that are formed after stimulation. ■ There is no information on the environmental hazard assessment of leaving chemical compounds in stimulation fluids in the target gas producing formation for extended periods subsequent to stimulation. ■ It is unclear if the proposed stimulation fluids contain any polycyclic aromatic hydrocarbons or products that contain polycyclic aromatic hydrocarbons or BTEX chemicals (benzene, toluene, ethylbenzene and xylenes). If the above-mentioned chemicals are included in the stimulation fluids, provide information on their concentration. <p>Consequently, the application does not provide sufficient information on the basis of which it can be concluded that the chemicals used in the stimulation activities are likely to have low impacts on environmental values and that leaving those chemicals in stimulation fluids in the target gas producing formations for extended periods subsequent to stimulation will also have low impacts on environmental values.</p> <p>It is suggested to provide the above-mentioned information to address the identified concern.</p>	Refer to Section 5.2, 5.3 and 5.4 and Appendix B of the EA Amendment Application Supporting Information Document.