



Australian Government
**Department of Industry,
Science and Resources**

Guideline: Declaration of Identified Greenhouse Gas Storage Formation (including under a Cross-boundary Greenhouse Gas Assessment Permit) and Notification of an Eligible Greenhouse Gas Storage Formation

In relation to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*

Effective 24 January 2025

This document has been developed as a general guide only. It is subject to, and does not replace or amend the requirements of the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) and associated regulations, which should be read in conjunction with the *Guideline: Declaration of Identified Greenhouse Gas Storage Formation (including under a Cross-boundary Greenhouse Gas Assessment Permit) and Notification of an Eligible Greenhouse Gas Storage Formation* (Guideline: Greenhouse Gas Storage Formations or the Guideline).

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This document has been prepared by the [Department of Industry, Science and Resources](#) (the Department). It will be reviewed and updated as required.

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1. Purpose

- 1.1 The purpose of this guideline is to provide information on applications for the declaration of identified greenhouse gas (GHG) storage formations and related matters under the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) (the OPGGS Act) and the [Offshore Petroleum and Greenhouse Gas Storage \(Greenhouse Gas Injection and Storage\) Regulations 2023](#) (the GHG Regulations)
- 1.2 The declaration of an *identified GHG storage formation* provides the mechanism for transition from:
- a) a GHG assessment permit to a GHG holding lease or GHG injection licence
 - b) a cross-boundary GHG assessment permit to a cross-boundary GHG holding lease or cross-boundary GHG injection licence
 - c) a petroleum retention lease to a GHG holding lease
 - d) a petroleum production licence to a GHG injection licence.
- 1.3 This guideline also assists applicants and titleholders to understand the expectations of the responsible Commonwealth Minister (RCM), or Cross-boundary Authority (CBA) where relevant, in respect to the following applications and notifications under the OPGGS Act:
- a) notification of *eligible GHG storage formation* per
 - i) [section 451 of the OPGGS Act](#) for a GHG assessment permit, GHG holding lease or GHG injection licence
 - ii) [section 451A of the OPGGS Act](#) as a prerequisite to applying for a cross-boundary GHG assessment permit
 - iii) [section 451B of the OPGGS Act](#) as a prerequisite to applying for a consolidated work-bid GHG assessment permit
 - b) declaration of *identified GHG storage formation* per
 - i) [section 312 of the OPGGS Act](#) for a GHG assessment permit, GHG holding lease, GHG injection licence, petroleum retention lease or petroleum production licence
 - ii) [section 312A of the OPGGS Act](#) for a cross-boundary GHG assessment permit
 - c) variation of declaration of *identified GHG storage formation* per [section 313 of the OPGGS Act](#)
 - d) revocation of declaration of *identified GHG storage formation* per [section 314 of the OPGGS Act](#).
- 1.4 Titleholders who are required to provide a notification to the RCM should engage with the [National Offshore Petroleum Titles Administration \(NOPTA\)](#) early in the process if they are unsure of their responsibilities under the [OPGGS Act](#).
- 1.5 Titleholders should engage early with [NOPTA](#) to better understand the requirements for making an application under the [OPGGS Act](#) or the requirements per [Schedule 1 of the GHG Regulations](#).

2. Legislative framework

- 2.1 The [OPGGS Act](#) governs Australia's offshore petroleum and GHG storage regulatory framework. It articulates the framework of rights, entitlements and responsibilities of governments and industry. An objective of the [OPGGS Act](#) is to provide an effective regulatory framework for GHG injection and storage in offshore areas.

- 2.2 The legislative framework creates a regime that enables progression from GHG storage assessment through to injection, site closing and decommissioning, and managing long term liabilities.

Note: All legislation references in this guideline are from the [OPGGS Act](#), unless stated otherwise.

3. Overview of a GHG storage formation

- 3.1 A storage formation must be deemed capable of permanently storing an injected GHG substance. In this context, permanent storage is considered as storage over geological timeframes. As well as geological factors, the size or spatial extent of a storage formation also depends on factors under the control of a GHG titleholder including the amount of GHG substance to be injected, the rate of injection, the period over which injection is to take place and the location of injection points. [Section 21 of the OPGGS Act](#) terms these factors as *fundamental suitability determinants*. See [section 4 of this Guideline](#) for further information. A single geological formation may contain multiple storage formations, spatially separate from each other, and a storage formation may comprise multiple part or whole geological formations.
- 3.2 The [OPGGS Act](#) establishes three categories of GHG storage formation that reflect a titleholder's and the RCM's degree of technical understanding of the formation:
- a) potential
 - b) eligible
 - c) identified.
- 3.3 The declaration of a storage formation as an *identified GHG storage formation* is a critical step in establishing the technical viability of a potential storage site for GHG injection and storage.
- a) Before an application can be made for a GHG holding lease or GHG injection licence, one or more *identified GHG storage formations* must be declared that are wholly situated within the relevant title area, per [sections 324, 330, 343, 361 or 369 of the OPGGS Act](#).
 - b) To apply for a cross-boundary GHG holding lease or cross-boundary GHG injection licence, one or more *identified GHG storage formations* must be declared that are wholly situated within the relevant cross-boundary title area, per [sections 329A, 335A or 368A of the OPGGS Act](#).
- 3.4 A declaration of an *identified GHG storage formation* retains its significance over the life of the GHG storage project. This is because the injection and storage activities to be carried out under an injection licence need to be consistent with the declared estimate of the spatial extent and with the declared *fundamental suitability determinants*.

Potential GHG storage formation

- 3.5 A *potential GHG storage formation* is a part of a geological formation, where that part is suitable, with or without engineering enhancements, for the permanent storage of a GHG substance, per [subsection 20\(1\) of the OPGGS Act](#). This may reflect a titleholder's understanding of the formation based on existing field data, interpretation of new or reprocessed seismic data, and foreseeable technological developments. Further detailed analysis of the *potential GHG storage formation* is necessary before the titleholder can notify the RCM under either [sections 451, 451A or 451B of the OPGGS Act](#), that they have reasonable grounds to suspect that part of a geological formation within a relevant title area could be an *eligible GHG storage formation*.

Eligible GHG storage formation

- 3.6 An *eligible GHG storage formation* is a part of a geological formation that is suitable, with or without engineering enhancements, for the permanent storage of a particular amount (at least 100,000 tonnes) of a GHG substance, injected at a particular point(s) over a particular period of time, per [subsections 21\(1\) and \(2\) of the OPGGS Act](#).

Notification of an eligible GHG storage formation

- 3.7 [Subsection 451\(2\) of the OPGGS Act](#) requires a GHG titleholder to inform the RCM (via [NOPTA](#)) within 30 days of developing reasonable grounds to suspect that a part of a geological formation that is wholly situated within a GHG title area (including assessment permit, holding lease and/ or injection licence) could be an *eligible GHG storage formation*. The notification is not required to set out the *fundamental suitability determinants*, but must be accompanied by a written statement that demonstrates that the titleholder has reasonable grounds to suspect that the part of the geological formation is suitable for the permanent storage of a specified amount of a specified GHG substance, per [subsection 451\(5\) of the OPGGS Act](#).
- 3.8 If the GHG titleholder has reasonable grounds to suspect that the part of the geological formation could be an *eligible GHG storage formation* with engineering enhancements, the notification must be accompanied by a written statement describing the engineering enhancements, per [subsection 451\(6\) of the OPGGS Act](#).
- 3.9 Notification to the RCM, per subsection 451(2) of the OPGGS Act, is not required by a titleholder where a former titleholder of the permit/ lease/ licence has previously complied with [subsections 451\(2\), \(5\) and \(6\) of the OPGGS Act](#) in relation to that part of the formation, per [subsection 451\(7\) of the OPGGS Act](#).

Notification of an eligible GHG storage formation for the purposes of obtaining a cross-boundary GHG assessment permit

- 3.10 Under [section 451A of the OPGGS Act](#), the holder of a GHG assessment permit who is also the holder of a State/ Territory GHG assessment title may write to inform the RCM that:
- a) at least one block of the GHG assessment permit area has a side in common with at least one block of the State/ Territory GHG assessment title
 - b) a part of a geological formation is wholly situated within the area that consists of the combination of both the GHG assessment permit area and the State/ Territory GHG assessment title area
 - c) the part of the geological formation extends to the permit area of the GHG assessment permit and to the title area of the State/ Territory GHG assessment title
 - d) the GHG titleholder has reasonable grounds to suspect that the part could be an *eligible GHG storage formation*.

The notification is a prerequisite to an application for the grant of a cross-boundary GHG assessment permit, per [paragraph 307A\(1\)\(d\) of the OPGGS Act](#). The [Offshore Greenhouse Gas Guideline for Consolidated Work–bid and Cross–boundary Greenhouse Gas Assessment Permits](#) will guide applications to unify adjacent GHG assessment permits.

- 3.11 The notification under [section 451A of the OPGGS Act](#) is not required to set out the *fundamental suitability determinants*, per [subsection 451A\(3\) of the OPGGS Act](#), but must be accompanied by a written statement that demonstrates that the titleholder has reasonable grounds to suspect that the part of the geological formation is suitable for the permanent storage of a specified amount of a specified GHG substance, per [subsection 451A\(5\) of the OPGGS Act](#).
- 3.12 If the titleholder has reasonable grounds to suspect that the part of the geological formation could be an *eligible GHG storage formation* with engineering enhancements, the notification must be accompanied by a written statement describing the engineering enhancements, per [subsection 451A\(6\) of the OPGGS Act](#).

Notification of an eligible GHG storage formation for the purposes of obtaining a consolidated GHG assessment permit

- 3.13 Under [section 451B of the OPGGS Act](#), the holder of two work-bid GHG assessment permits may write to inform the RCM that:
- at least one block of the area of one of the GHG assessment permits has a side in common with at least one block of the other GHG assessment permit
 - a part of a geological formation is wholly situated within the area that consists of the combination of both of the GHG assessment permits
 - the part of the geological formation extends to the permit area of each of the GHG assessment permits
 - the GHG titleholder has reasonable grounds to suspect that the part could be an *eligible GHG storage formation*.
- 3.14 The notification is a prerequisite to an application for the grant of a consolidated work-bid GHG assessment permit, per [paragraph 302A\(1\)\(f\) of the OPGGS Act](#). The notification under [section 451B of the OPGGS Act](#) is not required to set out the fundamental suitability determinants, per [subsection 451B\(3\) of the OPGGS Act](#), but must be accompanied by a written statement that demonstrates that the titleholder has reasonable grounds to suspect that the part of the geological formation is suitable for the permanent storage of a specified amount of a specified GHG substance, per [subsection 451B\(5\) of the OPGGS Act](#).
- 3.15 If the titleholder has reasonable grounds to suspect that the part of the geological formation could be an *eligible GHG storage formation* with engineering enhancements, the notification must be accompanied by a written statement describing the engineering enhancements, per [subsection 451B\(6\) of the OPGGS Act](#).
- 3.16 If a consolidated GHG assessment permit has been granted, a subsequent notification of an *eligible GHG storage formation* must be submitted for the newly granted permit, in accordance with [subsections 451\(2\), \(5\) and \(6\) of the OPGGS Act](#).

Identified GHG storage formation

- 3.17 An *identified GHG storage formation* is an *eligible GHG storage formation* that is declared by the RCM as an *identified GHG storage formation* under [subsection 312\(11\) of the OPGGS Act](#), or [subsection 312A\(11\) of the OPGGS Act](#) for cross-boundary GHG titles.
- 3.18 If a GHG titleholder, or the holder of a petroleum retention lease or petroleum production licence, has reasonable grounds to believe that a part of a geological formation wholly situated in the title

area is an *eligible GHG storage formation*, the titleholder may apply to the RCM to declare the part of the storage formation as an *identified GHG storage formation*, per [subsections 312\(1\) and \(2\) of the OPGGS Act](#).

3.19 If a cross-boundary GHG titleholder has reasonable grounds to believe that:

- a) a part of a geological formation is an *eligible GHG storage formation*
- b) the part is wholly situated in the permit area
- c) the part of the geological formation extends to the permit area of the precursor GHG assessment permit and the relevant area of the precursor State/ Territory GHG assessment title, and
- d) there is no *identified GHG storage formation* wholly situated within the permit area of the precursor GHG assessment permit or precursor State/ Territory GHG assessment title.

the assessment permit holder may apply to the RCM to declare the part of the storage formation as an *identified GHG storage formation*, per [subsections 312A\(1\) and \(2\) of the OPGGS Act](#).

3.20 The application requirements are the same for all GHG titles, including cross-boundary, and petroleum titles. See [section 5 of this Guideline](#) for further information.

3.21 It is possible to have a second or subsequent *identified GHG storage formation* declared in a GHG title, a cross-boundary GHG title, a petroleum retention lease or a petroleum production licence, provided each *eligible GHG storage formation* is wholly situated within the title area. The RCM's declaration will be in accordance with the requirements of [section 312 or 312A of the OPGGS Act](#).

4. Fundamental suitability determinants

4.1 In applying for a declaration of an *identified GHG storage formation* the titleholder must set out the *fundamental suitability determinants* per [subparagraph 312\(3\)\(b\)\(i\) or 312A\(3\)\(b\)\(i\) of the OPGGS Act](#). *Fundamental suitability determinants* of an *eligible GHG storage formation* have the meaning given by [subsection 21\(8\) of the OPGGS Act](#):

- a) the amount of GHG substance that may be stored, noting that it must be at least 100,000 tonnes, per [subsections 21\(1\) and \(2\) of the OPGGS Act](#)
- b) the particular GHG substance which the storage formation is suitable to store
- c) the proposed injection point or points
- d) the proposed injection period
- e) the engineering enhancements required (if any)
- f) the effective sealing feature, attribute or mechanism of the storage formation that enables permanent storage.

4.2 Titleholders must analyse and describe the geological features of the storage formation in sufficient detail to accurately define and address each of the *fundamental suitability determinants*.

5. Applying for a declaration of an identified GHG storage formation (including cross-boundary)

- 5.1 A titleholder may apply to the RCM for the declaration of a part of a geological formation as an *identified GHG storage formation* if they have reasonable grounds to believe that the part of a geological formation is an *eligible GHG storage formation* and that part is wholly situated in the title area, per [subsections 312\(1\) and \(2\) or 312A\(1\) and \(2\) of the OPGGS Act](#).
- 5.2 Detail on the information that needs to be included in an application is set out in [Schedule 1 of the GHG Regulations](#), and summarised in [Appendix A of this Guideline](#). See [Appendix B of this Guideline](#) for suggested further information to support an application for a declaration of an *identified GHG storage formation*.
- 5.3 In accordance with [paragraphs 312\(3\)\(a\)-\(c\) or 312A\(3\)\(a\)-\(c\) of the OPGGS Act](#), the application must detail, with supporting information, the following:
- the reasons for believing that a part of a geological formation is an *eligible GHG storage formation*
 - assuming that the part is an *eligible GHG storage formation*, the *fundamental suitability determinants* of the *eligible GHG storage formation*, per [section 4 of this Guideline](#)
 - assuming that the part is an *eligible GHG storage formation*, an estimate of the spatial extent of the *eligible GHG storage formation* – an estimate of spatial extent must comply with the requirements specified in [Part 3 of Schedule 1 of the GHG Regulations](#)
 - such other information (if any) as is specified in the [GHG Regulations](#).
- 5.4 The RCM may, by written notice, require the applicant to give further information in connection with the application, or to carry out further analysis of information as specified in the notice, under [subsection 312\(5\) or 312A\(5\) of the OPGGS Act](#). If the applicant fails to provide the further information or analysis, the RCM may refuse to progress the application per [subsection 312\(6\) or 312A\(6\) of the OPGGS Act](#).
- 5.5 If the RCM is satisfied that, using the *fundamental suitability determinants* set out in the application:
- the part of a geological formation is an *eligible GHG storage formation*, and
 - the estimate of the spatial extent set out in the application is a reasonable estimate of the spatial extent of the *eligible GHG storage formation*
- the RCM must, by writing:
- declare that part of a geological formation to be an *identified GHG storage formation*
 - declare the spatial extent of the *identified GHG storage formation* is the spatial extent estimated in the application, and
 - declare that the *fundamental suitability determinants* specified in the application are the *fundamental suitability determinants* of the *identified GHG storage formation*.
- 5.6 If an application has been lodged, the RCM must, by writing, advise the applicant of refusal to declare an *identified GHG storage formation* if the RCM is not satisfied that, using the *fundamental suitability determinants* set out in the application:
- the part of a geological formation is an *eligible GHG storage formation*, and/ or

- b) the estimate of the spatial extent set out in the application is a reasonable estimate of the spatial extent of the *eligible GHG storage formation*.
- 5.7 Declarations of *identified GHG storage formations* made under [section 312 or 312A of the OPGGS Act](#), including variations and revocations, are maintained via an online register published by [NOPTA](#).

Timing

- 5.8 Given the detailed level of analysis that is required by [NOPTA](#), the [National Offshore Safety and Environmental Management Authority](#), and the RCM in assessing an application of this type, it is recommended that the titleholder allow at least six months for a decision to be made, noting any requests for further information are likely to extend this process.

6. Variation of an application for a declaration of identified GHG storage formation

- 6.1 [Subsections 312\(7\) and 312A\(7\) of the OPGGS Act](#) provide that at any time before the RCM makes a decision on an application for a declaration of *identified GHG storage formation*, the applicant may, by written notice given to the RCM, vary:
- a) any or all of the *fundamental suitability determinants* specified in the application, or
 - b) the spatial extent estimated in the application.
- 6.2 A variation of an application must set out the proposed variation and specify the reasons and provide supporting evidence. The variation must be made in an approved manner. A variation may be made on the applicant's own initiative or at the request of the RCM.

7. Variation of a declaration of identified GHG storage formation

- 7.1 If a declaration is in force under [section 312 or 312A of the OPGGS Act](#), the RCM may at any time, by writing, vary the declaration under [section 313 of the OPGGS Act](#), either on application by the titleholder or on the RCM's own initiative. Before varying a declaration on the RCM's own initiative, the RCM must consult with the relevant titleholder per [subsection 313\(6\) of the OPGGS Act](#). Matters that can be varied include:
- a) any or all of the *fundamental suitability determinants* specified in the declaration, or
 - b) the spatial extent estimated in the declaration.
- 7.2 An application by a titleholder to vary a declaration must set out the proposed variation and specify the reasons and provide supporting evidence. In deciding whether to vary the declaration the RCM must have regard to any new information, analysis, relevant scientific or technological developments and other matters as the RCM considers relevant.
- 7.3 A copy of a variation must be published in the [Australian Government Gazette](#).
- 7.4 Matters specified by the GHG injection licence per [paragraphs 358\(3\)\(d\) to \(k\) or 358A\(3\)\(d\) to \(k\) of the OPGGS Act](#) may need to be varied if varying of a declaration under [section 313 of the OPGGS Act](#) results in any inconsistencies with the GHG injection licence matters. A site plan variation may also be required. Titleholders are recommended to engage with [NOPTA](#) if this situation arises.

8. Revocation of declaration of identified GHG storage formation

- 8.1 If a declaration is in force under [section 312 or 312A of the OPGGS Act](#), the RCM may at any time revoke the declaration if the RCM is satisfied that, using any set of *fundamental suitability determinants*, the part of the formation is not suitable for the permanent storage of a GHG substance, per [section 314 of the OPGGS Act](#). This may be, for example, because of new information about the integrity of the storage formation.
- 8.2 The RCM must consult with the titleholder before revoking the declaration.
- 8.3 Before revoking the declaration, the RCM must consider whether the declaration should instead be varied.
- 8.4 A copy of a revocation must be published in the [Australian Government Gazette](#).

9. Other matters

- 9.1 A GHG injection licence or a cross-boundary GHG injection licence is subject to the condition that the licensee will not inject or permanently store a GHG substance in an *identified GHG storage formation* unless it is in accordance with certain matters specified in the licence per [paragraphs 358\(3\)\(d\) to \(k\) or 358A\(3\)\(d\) to \(k\) of the OPGGS Act](#).
- 9.2 The matters specified in a GHG injection licence or a cross-boundary GHG injection licence must not be inconsistent with the *fundamental suitability determinants* of the *identified GHG storage formation* concerned, per [subsection 358\(4\) or 358A\(4\) of the OPGGS Act](#).
- 9.3 The information in an application for a declaration of an *identified GHG storage formation* will form the basis of the information required by components of Part A and Part B of the Site Plan under [Schedule 2 of the GHG Regulations](#), in particular the integrity of the storage formation and plume migration modelling respectively. This information may need to be revised for the purposes of the Site Plan if, for example, it is necessary to vary the declaration of *identified GHG storage formation*. See [section 6 of this Guideline](#) for further information.

Appendix A

Summary of contents for an application for a declaration of identified GHG storage formation

Applicants must refer to [Schedule 1 of the GHG Regulations](#) and [sections 21 and 312 or 312A of the OPGGS Act](#).

Note that this specific page is formatted to A3 size.

Fundamental suitability determinants of storage formation	Description of the geology of storage formation	Plume migration and predictions	Engineering enhancements	Spatial extent of the storage formation
<p>Must provide adequate information on the fundamental suitability determinants:</p> <ul style="list-style-type: none"> the amount of GHG substance which the storage formation is suitable to store the chemical composition of the particular GHG substance that the formation is suitable to store the proposed injection point or points the proposed injection rate and period over which injection will take place the proposed engineering enhancements, if any, for the permanent storage of GHG substance in the storage formation the effective sealing feature, attribute or mechanism that make the storage formation suitable for permanent GHG storage. <p>Must provide sufficient information to demonstrate that the confining zones of the storage formation constitute an effective and sound sealing mechanism.</p>	<p>Must provide a detailed analysis of the geological features of the storage formation, including the effective sealing mechanism associated with the formation, discussing as a minimum:</p> <ul style="list-style-type: none"> stratigraphy, structure, rock types, and depositional model of the storage formation (both reservoir & seal rocks) identification of any faults in either the reservoir or seal rocks porosity and permeability of the storage formation and seal rocks reactivity of rock types in both the reservoir and seal rocks with the GHG substance proposed to be stored geomechanical assessment of the local stress regime, fracture gradients, fault stability and the geomechanical response of the storage formation to injection reservoir fluid parameters, including chemical composition, pressure and temperature seismicity, including the history of earthquake activity in the area well data (well performance and well testing) in the area conduct of any previous exploration and development (petroleum and GHG) activities, if any, in the area, including abandoned wells and any available relevant information on their nature, particularly as it relates to storage formation integrity risk (well locations, well construction and plugging, type of cement used, assessment methodology etc.) and a map. <p>Information relating to storage formation integrity must be provided by the applicant to satisfy the RCM that the applicant's understanding of the geological environment is sufficient to allow the applicant to:</p> <ul style="list-style-type: none"> identify all geological risks relating to the containment of the GHG substance in the storage formation provide an explanation of how risks can be identified, and that strategies are proposed for the elimination or reduction and management of those risks. <p>Must also include any other information relevant to the long-term (geological timeframes) safe and secure storage of the GHG substance. This may require data for areas outside the title area.</p>	<p>Must provide sufficient information on the expected migration pathway(s) of the injected GHG substance to inform the expected behaviour over the life of the GHG storage project and in the longer term.</p> <p>All migration pathways for which the probability of occurrence is greater than 10% must be considered.</p> <p>The predictions must be based on the fundamental suitability determinants of the storage formation.</p> <p>The information submitted must include:</p> <ul style="list-style-type: none"> details of all data used to generate the models details of the modelling including methodology, spatial resolution, types of models and assumptions to predict plume migration pathways predictions of the migration pathways and probability distributions associated with these predictions. <p>These predictions should be provided at intervals over the life of the project and in the longer term, and should include at least:</p> <ul style="list-style-type: none"> five years after injection is expected to cease the time when the GHG substance has effectively stabilised in the subsurface. 	<p>Must provide sufficient detail about any proposed engineering enhancements including:</p> <ul style="list-style-type: none"> a description of the proposed engineering enhancements in relation to the storage formation demonstrating that any risks to the integrity of the storage formation are likely to be acceptable, taking into account the proposed engineering enhancements. <p>Details of the risk assessment analysis (including description of the methodology used), covering the following for each risk factor:</p> <ul style="list-style-type: none"> a description of the risk the possible consequences of the risk an assessment of the probability of occurrence of the risk the strategies for the elimination or reduction and management of the risk an explanation of how the risk has been or will be eliminated or reduced to as low as is reasonably practicable, and managed. <p>Re-enter of well bullshit</p>	<p>Must provide an evidence-based estimate of the spatial extent of the eligible GHG storage formation, which is the vertical and horizontal extent of the expected migration pathway(s) of the injected GHG substance.</p> <p>The estimate of the spatial extent must be based on relevant parameters, including the expected plume migration pathways (all those which have a 10% or greater probability of occurring, per section 21 of the OPGGS Act), and <i>fundamental suitability determinants</i>.</p> <p>The graticular blocks constituting the spatial extent must include all blocks in the migration pathways referred to above.</p> <p>An explanation must also be included of the three-dimensional extent of the effective sealing mechanism within the spatial extent of the storage formation.</p>

Appendix B

Information to support an application for a declaration of identified GHG storage formation

The applicant should provide details of all data used in assessing the storage formation, including a justification of the suitability of the datasets for the identification of all risks to the integrity of the storage formation.

Figures in the text should be at a sufficient resolution so that all relevant features are clearly legible. If this is not possible, figures are to be supplied separately as a high-resolution file.

At a minimum, the following must be included:

- a) regional map showing the location of the title and storage formation
- b) detailed map of the eligible storage formation, showing all wells, relevant infrastructure and petroleum fields (including depleted fields)
- c) maps and cross sections showing all known geological faults within and around the storage formation
- d) relevant stratigraphic column
- e) well logs and stratigraphic correlations
- f) TWT and depth structure maps of all key reservoir and seal horizons, including wells and faults, with the location of any seismic lines and cross sections used annotated
- g) map of the eligible storage formation extent, incorporating all scenarios where the expected plume migration pathway has been estimated to have a greater than 10 per cent probability of occurring
- h) maps and cross sections in an appropriate format that provide an accurate representation of the distribution of porosity, permeability (including fault permeability), water saturation, residual hydrocarbon saturation (if applicable), salinity and any other relevant parameters used in plume migration modelling, including cross sections through potential spill and/ or leakage points.
- i) plume migration model figures should be for a number of time steps from the start of injection, through the injection period, injection cessation and post injection, and should be able to demonstrate the anticipated time the GHG substance has effectively stabilised in the subsurface.
- j) detailed well schematics that include information that identifies the position within the storage formation, particularly of any identified high-risk wells, to support discussion of the risks to storage formation integrity.