

# Western Surat Gas Project

2021 Annual EPBC Report

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# Document Status

## Revision History

Revision	Release Date	Document Status	Revision Comments	Author
A	17/10/2021	Issue for review		J. Earley, A Wilson

## Document Approval

<b>Originator</b>		Signed	
		Signed	
		Signed	
<b>Reviewed by</b>		Signed	
		Signed	
		Signed	
<b>Approved by</b>	John Earley	Signed	
		Signed	
		Signed	

# 1. Introduction

Stuart Petroleum Cooper Basin Gas Pty Ltd (ACN 130 588 055) is developing the Western Surat Gas Project (WSGP) in south-central Queensland (Figure 1-1). The proponent is a wholly owned subsidiary of Senex Energy Limited (Senex). The WSGP is a gas field, producing gas to supply the third-party operators in Australian domestic east coast or export gas markets.

The gas field is located in the Brigalow Belt South bioregion, 30 kilometres northeast of Roma in the Maranoa Regional Council area of southern-central Queensland. The area for gas production area is 685 km<sup>2</sup>.

In May 2015, a delegate of the then Minister for the Environment determined the proposal was a controlled action due to potential for significant impacts on four matters of national environmental significance (MNES). In April 2017, the DoEE (now DAWE) deemed the proposed action to be assessed by a Public Environment Report (PER). The approval was decided on 10 August 2018 for four controlling provisions, with conditions. The controlling provisions are:

- Wetlands of international importance (sections 16 & 17B)
- Listed threatened species and communities (sections 18 & 18A)
- Listed migratory species (sections 20 & 20A)
- Water resources/trigger (sections 24D & 24E).

The action is approved to develop 425 production wells, undertaking a staged drilling program. Supporting infrastructure approved as part of the project includes: gas and water gathering networks; gas field compression facilities and a central processing facility; medium pressure infield and sales gas pipelines; a central processing plant; water storage and treatment facilities; and other associated and ancillary facilities. The targeted production rate is approximately 50 terajoules (TJ) per day over a 30-year project life.

Relevant project details for the approved action are in Table 1-1.

*Table 1-1 Western Surat Gas Project details*

Approved Action Details	
Title of the Action	Stuart Petroleum Cooper Basin Gas Pty Ltd Western Surat Gas Project, NE of Roma, Queensland (EPBC 2015/7469)
Person to whom the approval is granted	Stuart Petroleum Cooper Basin Gas Pty Ltd
Proponent's ABN	130 588 055
Date of Decision	10 August 2018
Expiry date of approval	30 June 2068
Contact details	Level 30, 180 Ann Street, Brisbane Queensland 4000

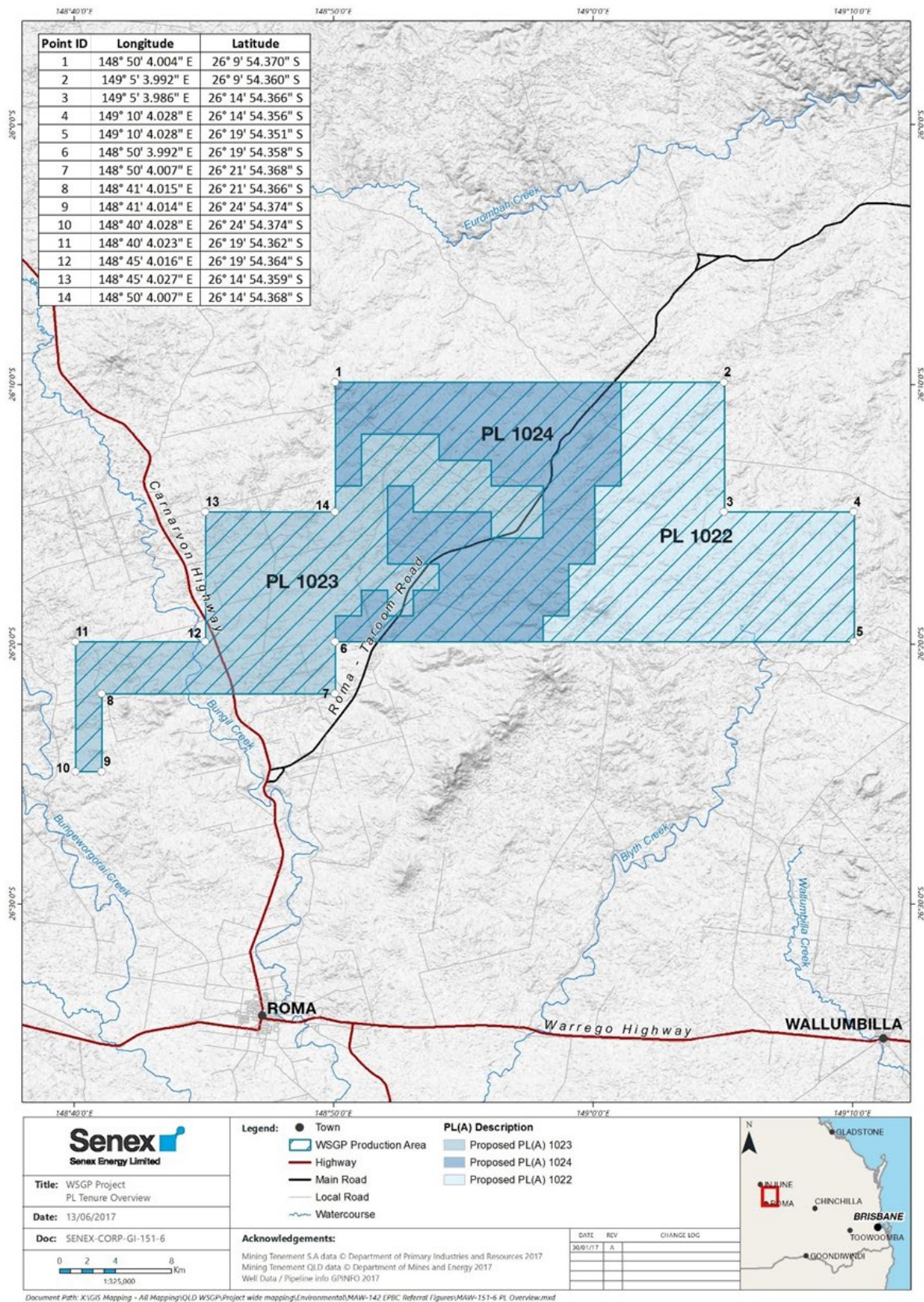


Figure 1-1 Location of the Western Surat Gas Project

## 1.1. Purpose

This report was prepared to address the approval requirements.

Senex is required to publish a report (the Annual Compliance Report) addressing compliance with each of the conditions of the approval during the previous 12 months (Condition 16). The report is to be published on the Senex website.

The report covers activities undertaken from **September 2020 to August 2021**.

## 1.2. Project status

In May 2019, Senex commenced the action on the ground with civil construction and drilling the first production wells and associated infrastructure on the Eos and Glenora blocks in petroleum lease (PL) 1022. The activities are predominantly located within areas of remnant vegetation and appropriate management measures were implemented to minimise impacts to habitat values, including for threatened species. All land disturbance was within the Stage 1 area, and the area of habitat disturbed was within the approved clearance limits (Refer to section 2.1).

A total of 70 wells have been drilled. The associated gas gathering, and water pipelines have been constructed and the wells are operational. Senex undertook ongoing maintenance and field development planning during the reporting period. There was no further disturbance or clearing undertaken.

# 2. Results

## 2.1. Clearance Limits

*Condition 1. The approval holder must not clear more than 102 hectares of habitat for Koala and Yakka Skink in Stage 1 of the project.*

In the Stage 1 area, at the completion of the reporting period, the following areas have been cleared for the wells, gathering pipeline and right of ways, and ancillary activities:

- 63 ha of Koala habitat
- 63 ha Yakka Skink habitat.

The areas cleared are within the approved area limits.

## 2.2. Stage 1 Offset Management Plan

*Condition 2. To compensate for the loss of 102 ha of habitat for the Koala and Yakka Skink in Stage 1, the approval holder must implement the stage 1 Offset management plan.*

An annual report for offset management was prepared and issued in September 2021. The report 'Appletree Creek Offset Site – Western Surat Gas Project Annual Report' (SENEX-WSGP-EN-REP-057) was provided to the Department of Environment and Science and the Department of the Environment and Energy.

A summary of the report is provided in the following section.

### 2.2.1. Offset site management

The offset is progressing according to the management plan objectives and the site has been managed to account for the climatic conditions.

The offset site is being managed effectively, as per the management plan, to obtain the objectives of the site. A summary of the status of the management actions is provided in Table 2-1. There were no major flood events. Inspections of the offset area did not identify any significant damage to the offset area or fencing as a result of weather conditions or other external sources.

Table 2-1 Status of management actions for the offset site

Management Action	Comments for reporting period	Status
Forestry operations, native timber harvesting and general vegetation impacts	No vegetation harvesting or clearing	✓
Fire	No fires in offset site	✓
Fencing	Fencing in tact to manage grazing.	✓
Following extreme weather conditions of drought or flood	Good ground cover has been maintained throughout the year	✓
Grazing	Cattle removed in November	✓
Pest animals	Pig and wild dog management undertaken	✓
Pest plants	Monitoring for pest plants. Parthenium managed by maintaining groundcover	✓

Inspections to the offset site have occurred regularly by the landholders during the reporting period. The main activities have been pest animal management and monitoring the boundary fences.

Good summer rainfall occurred which helped maintain strong groundcover through the year.

Grazing management was practiced during the period. This included grazing to reduce fire risk and exclusion.

Pest animal management was ongoing, with inspections, removal of pigs, and baiting for wild pigs and dogs undertaken.

Pest plants have been managed on an ongoing basis.

### 2.3. Stage 2 Offset Management plan

Conditions 4 to 7 relate to the Stage 2 Offset Management Plan and are not yet relevant for this annual report as Stage 2 of the project has not commenced.

### 2.4. Management plans

*Condition 8. The approval holder must implement the following management plans:*

- a) *Western Surat Gas Project Coal Seam Gas Water Management Plan (CSG WMP)*
- b) *Western Surat Gas Project Water Monitoring and Management Plan (WMMP)*
- c) *Western Surat Gas Project Environmental Management Plan (EMP)*
- d) *Western Surat Gas Project Significant Species Management Plan (SSMP)*

#### 2.4.1. Coal Seam Gas Water Management Plan

The CSG WMP continues to be implemented.

A Resource Monitoring and Management Plan (RMMP) was previously prepared to enable produced water to be used for irrigation on a landholder's property, within the petroleum lease. The RMMP addresses Queensland's End of Waste Code (Irrigation of Associated Water (including coal seam gas water) under the *Waste Reduction and Recycling Act 2011 (WRR Act)*. Senex is a Registered Resource Producer under the WRR Act to responsibly provide water to third parties for beneficial use.' Infrastructure for the irrigation project has been commissioned and continues to operate effectively applying water at a rate of up to 4.16ML/Ha/yr.

#### 2.4.2. Water Monitoring and Management Plan (WMMP)

The WMMP continues to be implemented.

As a tenure holder within the Surat Cumulative Management Area, Senex has installed groundwater monitoring bores to address its obligations under the Surat CMA Underground Water Impact Report (UWIR). The bores are part of a large network monitoring the CMA that reports on changes in groundwater within the area.

Prior to the reporting period, Senex drilled and completed monitoring bores at two blocks: Glenora and Tethys.

Data collection commenced at Glenora 4M in December 2016 for groundwater levels in the following formations:

- Springbok Sandstone.
- Upper Juandah Coal Measures.
- Lower Juandah Coal Measures.
- Taroom Coal Measures
- Hutton Sandstone.

Glenora 6M was drilled at the same location as Glenora 4M to monitor groundwater levels in the Gubberamunda Sandstone, and data has been collected since February 2017.

Data collection commenced at Tethys 6M in March 2019 for groundwater levels in the following formations:

- Springbok Sandstone.
- Upper Juandah Coal Measures.
- Lower Juandah Coal Measures.
- Taroom Coal Measures.
- Hutton Sandstone.

Tethys 7M was drilled at the same location as Tethys 6M to monitor groundwater levels in the Gubberamunda Sandstone, and data has been collected since March 2019.

Data from the monitoring bores are provided to the Office of Groundwater Impact Assessment (OGIA) to cumulatively assess groundwater in the CMA.

The 2019 UWIR took effect in December 2019. Monitoring data collected by Senex has been compared to the 2016 UWIR model outputs, as this model was used to simulate and evaluate potential groundwater impact associated with



the WSGP and is therefore comparable. Senex provided a 700 well development plan to OGIA for inclusion in the 2016 UWIR model which may potentially explain some of the differences between the measured and modelled drawdown as outlined below.

#### 2.4.2.1. Groundwater Data Management and Analysis

Groundwater level data from the Glenora and Tethys bores was reviewed by assessing the groundwater elevation hydrographs and any data quality issues identified. Triggers were developed to provide early-warning of unpredicted impacts to groundwater dependent assets in the vicinity of the WSGP. The early-warning impacts specifically relate to deviations from the groundwater level decline predicted as part of the 2016 UWIR model.

Outputs were received from the 2016 UWIR cumulative impact groundwater model. The water level decline in the 2016 UWIR model was predicted from a starting point of steady state groundwater levels in 1995 that represents pre CSG development conditions. This date also preceded most groundwater monitoring activities (including Senex) in the Surat CMA and consequently the modelled water levels are expected to differ from the measured water levels at Glenora 4M/6M and Tethys 6M/7M.

To evaluate early warning of impacts in the vicinity of WSGP, drawdown was calculated as the difference between groundwater levels from July 2018 to January 2021 at the location of Glenora 4M/6M, with drawdown calculated for both modelled and actual water levels. A summary of the modelled groundwater drawdown compared to the actual drawdown measured at Glenora 4M is presented in Table 2-2.

*Table 2-2 Comparison of 2016 UWIR model predicted drawdown and actual drawdown at Glenora 4M calculated between 1st July 2018 and 1st January 2021*

UWIR model layer	Lower Springbok	Middle 1 WCM	Middle 2 WCM	Middle 3 WCM	Upper Hutton
Modelled (m)	0.2	8.093	9.368	10.608	0.014
Actual (m)	9.896	14.075	54.434	112.616	2.488
Actual > modelled	Yes	Yes	Yes	Yes	Yes

#### *Lower Springbok Sandstone*

There was more drawdown in the lower Springbok than the model predicted. The difference between the model and the actual drawdown is due to the low permeability in the sandstone formation and the time taken to reach equilibrium in water levels following bore completion. Any difference between the model and actual readings is likely to be small after equilibrium is reached.

#### *Walloon Coal Measures Mid 1, 2 and 3*

The actual drawdown is more than the modelled drawdown, based on the 2016 UWIR, in the Mid Walloon Coal Measures 1, 2 and 3 layers. This may reflect a difference between water production by operators in the Surat CMA and water production used as inputs to the model that has resulted in different drawdown within the reservoir for the corresponding time period. The development plans of all operators are constantly changing.

#### *Upper Hutton Sandstone*

Actual drawdown in the Upper Hutton Sandstone was higher than the modelled drawdown that may represent the effects of unknown or unquantified groundwater extraction by other parties from the Hutton Sandstone in the vicinity of WSGP, rather than the influence of water extraction as part of the WSGP project.

#### *Gubberamunda Sandstone*

No drawdown has been modelled for the Gubberamunda Sandstone at the location of Glenora 6M from 1 July 2018 to 1 January 2021. Approximately 0.188m of drawdown was measured for the corresponding period that may reflect the effects of groundwater pumping by others.

For the purpose of evaluating early warning of impacts in the vicinity of WSGP, drawdown has been calculated as the difference between groundwater levels from July 2019 to January 2021 at the location of Tethys 6M/7M, with drawdown being calculated for both modelled and actual water levels. A summary of the modelled groundwater drawdown compared with the actual drawdown measured at Tethys 6M is presented in Table 2-3.

*Table 2-3 Comparison of 2016 UWIR model predicted drawdown and actual drawdown at Tethys 6M calculated between 1st July 2019 and 1st January 2021*

UWIR model layer	Lower Springbok	Middle 1 WCM	Middle 2 WCM	Middle 3 WCM	Upper Hutton
Modelled (m)	0.005	0.049	0.075	0.233	0
Actual (m)	11.441	1.060	0.097	1.180	1.327
Actual > modelled	Yes	Yes	Yes	Yes	Yes

#### *Lower Springbok Sandstone*

There was more drawdown in the lower Springbok than the model predicted. The difference between the model and the actual drawdown is due to the low permeability in the sandstone formation and the time taken to reach equilibrium in water levels following bore completion. Any difference between the model and actual readings is likely to be small after equilibrium is reached.

#### *Walloon Coal Measures Mid 1, 2 and 3*

The actual drawdown is more than the modelled drawdown, based on the 2016 UWIR, in the Mid Walloon Coal Measures 1, 2 and 3 layers. It should be noted that both the modelled and actual decline expressed as drawdown are minimal and not likely the result of any production from the reservoir in this area for the corresponding time period. Senex has not yet commenced production at Tethys block.

#### *Upper Hutton Sandstone*

Actual drawdown in the Upper Hutton Sandstone was higher than the modelled drawdown that may represent the effects of unknown or unquantified groundwater extraction by other parties from the Hutton Sandstone in the vicinity of WSGP, rather than the influence of water extraction as part of the WSGP project.

#### *Gubberamunda Sandstone*

No drawdown has been modelled for the Gubberamunda Sandstone at the location of Tethys 7M from 1 July 2019 to 1 January 2021. Approximately 0.158m of drawdown was measured for the corresponding period which may reflect the effects of groundwater pumping by others.

#### *2.4.2.2. Trigger levels*

Trigger levels as defined in the *Water Act 2000* are 5 m for a consolidated aquifer and 2 m for an unconsolidated aquifer (unconsolidated aquifers do not occur at WSGP). The 2016 UWIR did not predict any private water bores to exceed the 5 m trigger within the next 3 years. Therefore, Senex did not have any Make Good obligations under the *Water Act 2000* at that time. The 2019 UWIR has identified 6 IAA bores for which Senex is the responsible tenure holder and Senex has been working through the processes of Bore Assessments and Make Good with relevant landholders as required.

### **2.4.3. Environmental Management Plan**

The EMP is a working plan that continues to be implemented for all construction and operating activities for the project. All contractors undertaking works in relation to the project have been required, through their contractual arrangements, to comply with the plan.

### **2.4.4. Significant Species Management Plan**

The SSMP has been implemented for the project for preconstruction, construction and operating stages of the project. There was a particular focus on flora and fauna management with the previous construction activities, during the well and gathering field development.

The area developed during the previous reporting period is located within remnant habitat and was managed to minimize impacting habitat values, which includes habitat for threatened species. After assessing and remapping areas

of the MNES community Brigalow (*Acacia harpophylla* dominant and codominant) threatened ecological community, all patches of the TEC were avoided. No threatened EPBC flora species were found to occur within the construction footprint of the project area during the ecological field surveys.

Regarding EPBC fauna species, there have been extensive surveys to identify and map Yakka Skink colonies within the footprint or areas adjacent to activities. The surveys continue to be part an integral part of the process for selecting infrastructure locations. There were no further areas developed during the reporting period.

The SSMP is implemented for site works. For previous disturbance, a fauna spotter catcher program was implemented. They remained on site during all the first disturbance land clearing to undertake preclearance checks of the area, and relocate fauna where required. The preclearance checks did not identify any other EPBC threatened species.

Regular environmental inspections were undertaken during the project land clearing, construction and drilling activities. There were no non-compliances identified.

#### **2.4.5. Revising water management plans**

*Condition 9. Between years 3 and 5 after the approval date, the approval holder must submit a revised Western Surat Gas Project Coal Seam Gas Water Management Plan and Western Surat Gas Project Water Monitoring and Management Plan for the written approval of the Minister. The revised plans must:*

- a) be in accordance with the Department's Environmental Management Plan guidelines*
- b) include an assessment of the effectiveness of measures contained in the Western Surat Gas Project Coal Seam Gas Water Management Plan and Western Surat Gas Project Water Monitoring and Management Plan in avoiding, mitigating and managing impacts on protected matters, and*
- c) include a comparison of impacts on protected matters against impacts predicted in the Public Environment Report.*

*Condition 10. The approval holder must not implement the revised Western Surat Gas Project Coal Seam Gas Water Management Plan and Western Surat Gas Project Water monitoring and management plan until the revised plans have been approved by the Minister. The approved revised plans must be implemented within 12 months of plan approval.*

This review has now commenced with an aim to submit a revised Plan on or before 2024.

## **2.5. Chemical risk assessment**

*Condition 11. Prior to use of new drilling fluid compounds, the approval holder must undertake a chemical risk assessment.*

*Condition 12. Where a new drilling fluid compound/s is determined by the chemical risk assessment to be high risk, the approval holder must submit the chemical risk assessment for the high risk new drilling fluid compound/s for the written approval of the minister.*

*Condition 13. The approval holder must not use the new drilling fluid compounds considered high risk until the chemical risk assessment has been approved by the Minister.*

Two new chemicals were risk assessed for use. The chemical was to be used for well drilling and workovers. The drilling fluids were risk assessed by an independent third party expert KCB (June and August 2021).

The chemicals were assessed and the overall risk to MNES was found to be low to insignificant. The Senex Chemical Risk assessment (SENEX-QLDS-EN-REG-001\_3) was updated.

No further action is required to address the condition for the reporting period.

## 2.6. Administrative Conditions

Condition 14. *Within 20 business days after the commencement of the action, the approval holder must advise the department in writing of the actual date of commencement.*

The department was advised in 2018 and a receipt acknowledging the commencement of the project was received from the department (dated 10 September 2018, 2015/7469). No further action is required for this condition.

Condition 15. *The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the plans required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website.*

Senex conducts periodic internal desktop audits of the EPBC approval conditions as part of an overarching environmental assurance program. The results of the most recent audit are recorded as part of Senex's EMS.

Condition 16. *Within 3 months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report (the annual compliance report) on its website addressing compliance with each of the conditions of this approval during the previous 12 months. Documentary evidence providing proof of the date of publication and non compliance with any conditions of this approval must be provided to the Department at the same time as the Annual Compliance Report is published. Reports must remain published for the duration of this approval. The approval holder must continue to publish the annual compliance report until otherwise advised by the Minister in writing.*

The report for this reporting period was published prior to 10 November 2021. This addressed condition 16.

Condition 17. *Any contravention of the conditions of this approval (including contravention of a commitment made in a management plan, program or strategy) must be reported to the Department within 7 days of the approval holder becoming aware of the contravention.*

Senex has made the Department aware of any contravention with the conditions during the reporting period. In March 2021 the Department was advised of a well that appeared to have been invertedly drilled slightly deeper than the intended Total Depth (TD). This well has been successfully remediated.

Condition 18. *Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of the approval is conducted and a report submitted to the Minister. The approval holder must not commence the audit until the Minister approves the independent auditor and audit criteria in writing. The audit report must address the criteria to the satisfaction of the Minister.*

No action required for this condition. An audit was not requested by the department.

Condition 19. *The approval holder may choose to revise a management plan specified under conditions 8 and 9 without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact. If the approval holder makes this choice, it must:*

*a) notify the department in writing that the approved plan has been revised and provide the department, at least 4 weeks before implementing the revised plan, with:*

*i. an electronic copy of the revised plan;*

*ii an explanation of the differences between the revised plan and the approved plan; and*

*iii reasons the approval holder considers that the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact.*

No plans have been revised during the reporting period.

Condition 20. *The approval holder may revoke its choice under condition 19 at any time by notice to the department. If the approval holder revokes the choice to implement a revised plan, without approval under section 143A of the EPBC Act, the plan approved by the Minister must be implemented.*

No action undertaken for this condition during the reporting period.

Condition 21 *If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised plan would be likely to have a new or increased impact, then:*

*a. condition 19 does not apply, or ceased to apply, in relation to the revised plan; and*

*b. the approval holder must implement the plan approved by the Minister.*

*To avoid any doubt, this condition does not affect any operation of conditions 19 and 20 in the period before the day the notice is given.*

*At the time of giving notice, the Minister may also notify that for a specified period of time condition 19 does not apply for one or more specified plans required under the approval.*

No action undertaken for this condition during the reporting period.

*Condition 22. Conditions 19, 20 and 21 are not intended to limit the operation of section 143A of the EPBC Act which allows the approval holder to submit a revised plan to the Minister for approval.*

No action undertaken for this condition during the reporting period.

*Condition 23. If, after 5 years from the date of this approval, the approval holder has not commenced the action, then the approval holder must not commence the action without the written agreement of the Minister.*

The action has commenced. No further action required.

*Condition 24. Unless otherwise agreed to in writing by the Minister, the approval holder must publish all plans referred to in the conditions of the approval on its website. Each plan must be published on the website within one month of being approved by the Minister. All plans must remain on the website for the duration of this approval unless otherwise agreed to in writing by the minister.*

No changes were undertaken for this condition during the reporting period. The plans are published on the Senex website.

### 3. Closing summary

This report is the third annual report for the Western Surat Gas Project EPBC approval.

There was one potential non-conformance with the conditions for approval EPBC 2015/7469 reported to the Department for this reporting period.

