








UNC Modification	At what stage is this document in the process?
<div>UNC 0885:</div> <div>Amendment to Gas Quality NTS Entry Specification at the St Fergus SAGE System Entry Point</div>	<div><div>01Modification</div><div>02Workgroup Report</div><div>03Draft Modification Report</div><div>04Final Modification Report</div></div>
<div><b>Purpose of Modification:</b></div> <div>This enabling Modification will facilitate a change to the current contractual oxygen limit at the St Fergus SAGE System Entry Point, through modification of a network entry provision contained within the Network Entry Agreement (NEA) between National Grid Gas plc and SAGE North Sea Limited (SNSL) in respect of the St Fergus SAGE Sub-Terminal.</div>	
<div><b>Next Steps:</b></div> <div>The Proposer recommends that this Modification should be:</div> <div><div><div>•subject to Self-Governance</div><div>•assessed by a Workgroup</div></div></div> <div>This Modification will be presented by the Proposer to the Panel on 20 June 2024. The Panel will consider the Proposer’s recommendation and determine the appropriate route.</div>	
<div><b>Impacted Parties:</b></div> <div>Low: Transporters, Shippers and Consumers</div>	
<div><b>Impacted Codes:</b></div> <div>None</div>	

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Timetable		 0121 288 2107
<b>Modification timetable:</b>		Proposer: <b>SAGE North Sea Limited</b>
Pre-Modification Discussed	06 June 2024	 <a href="mailto:nicholas.ridley@analamidstream.com">nicholas.ridley@analamidstream.com</a>
Date Modification Raised	11 June 2024	 01224 543677
New Modification to be considered by Panel	20 June 2024	Transporter: <b>National Gas Transmission</b>
First Workgroup Meeting	04 July 2024	 <a href="mailto:philip.hobbins@nationalgas.com">philip.hobbins@nationalgas.com</a>
Workgroup Report to be presented to Panel	TBC	 07966 865623
Draft Modification Report issued for consultation	TBC	Systems Provider: <b>Xoserve</b>
Consultation Close-out for representations	TBC	 <a href="mailto:UKLink@xoserve.com">UKLink@xoserve.com</a>
Final Modification Report available for Panel	TBC	
Modification Panel decision	21 November 2024	

# 1 Summary

## What

The SAGE Terminal receives gas from some 40 different offshore Shippers from both the UKCS and the Norwegian Continental Shelf. The combination of increased volumes of rich Norwegian gas and continuing decline and near-term cessation of heritage leaner gas volumes from the UKCS obviates blending alone as a means of achieving existing NTS export specification. Therefore, it is proposed to upgrade the current SAGE Nitrogen Injection Facilities to ensure continued specification compliant operations.

This proposed Modification seeks to enable an increase in the Oxygen (O<sub>2</sub>) limit within the Network Entry Agreement (NEA) at the SAGE North Sea Limited (SNSL) sub-terminal at St. Fergus between National Grid Gas plc and SNSL. It is proposed to increase the O<sub>2</sub> limit from 10 ppm to 400 ppm.

## Why

The SAGE facility original design basis was to remove sufficient Natural Gas Liquids (NGL's) from the moderately rich Beryl Field gas and to remove CO<sub>2</sub> and H<sub>2</sub>S from the lean, Brae field gas to meet National Gas' specifications. However, within the last decade of operation as Beryl and Brae volumes have declined, SAGE ullage has been utilised by new Norwegian gas volumes, primarily from fields operated by AkerBP. This gas is richer than the original design specification and so there is a reliance on blending to meet export specification. In the event of outage of key leaner gas shippers, primarily Brae or Beryl, a Nitrogen Injection Facility (NIF) is installed as a contingency arrangement to maintain National Transmission System (NTS) export specification in the absence of sufficient blending capacity.

The currently installed nitrogen injection system was designed to allow short term (up to 3 days) ballasting of the export gas. The injection rate required to ensure delivery of an NTS export specification is predicted by calculation based on known pipeline entrant gas volumes during short term outages and/ or process upsets which create 'rich' gas slugs within the transmission system.

AkerBP and their partners have requested a service for processing further volumes of rich gas. The combination of increased volumes of rich Norwegian gas and continuing decline and near-term cessation of heritage leaner gas volumes obviates blending alone as a means of achieving existing NTS export specification. Therefore, it is proposed to upgrade the current SAGE Nitrogen Injection Facilities to ensure continued specification compliant operation.

The upgrade of the SAGE Nitrogen Injection Facilities will result in continuous levels of Nitrogen injection which is generated on-site. The technology that delivers the higher purity Nitrogen is the most expensive scheme presented with the longest lead time. The technology that delivers Nitrogen of a slightly lesser purity is significantly simpler but will require a dispensation from National Grid Gas for the Oxygen content of SAGE Export Gas. The benefits of simplified technology are:

1. Lower energy consumption and therefore less associated CO<sub>2</sub> emissions; and
2. Greater reliability ensuring incremental volumes can be processed and delivered into National Grid via the elongation of SAGE's useful economic life.

## How

In accordance with the UNC Transportation Principal Document Section I 2.2.3 (a), the Proposer is seeking to amend the NEA described above via this enabling Modification. On satisfactory completion of the UNC process, the parties to the NEA will be able to amend the agreement.

## 2 Governance

### Justification for Self-Governance

The Proposer considers that this proposed Modification meets the Self-Governance criteria on the basis that the change is unlikely to have a material effect on:

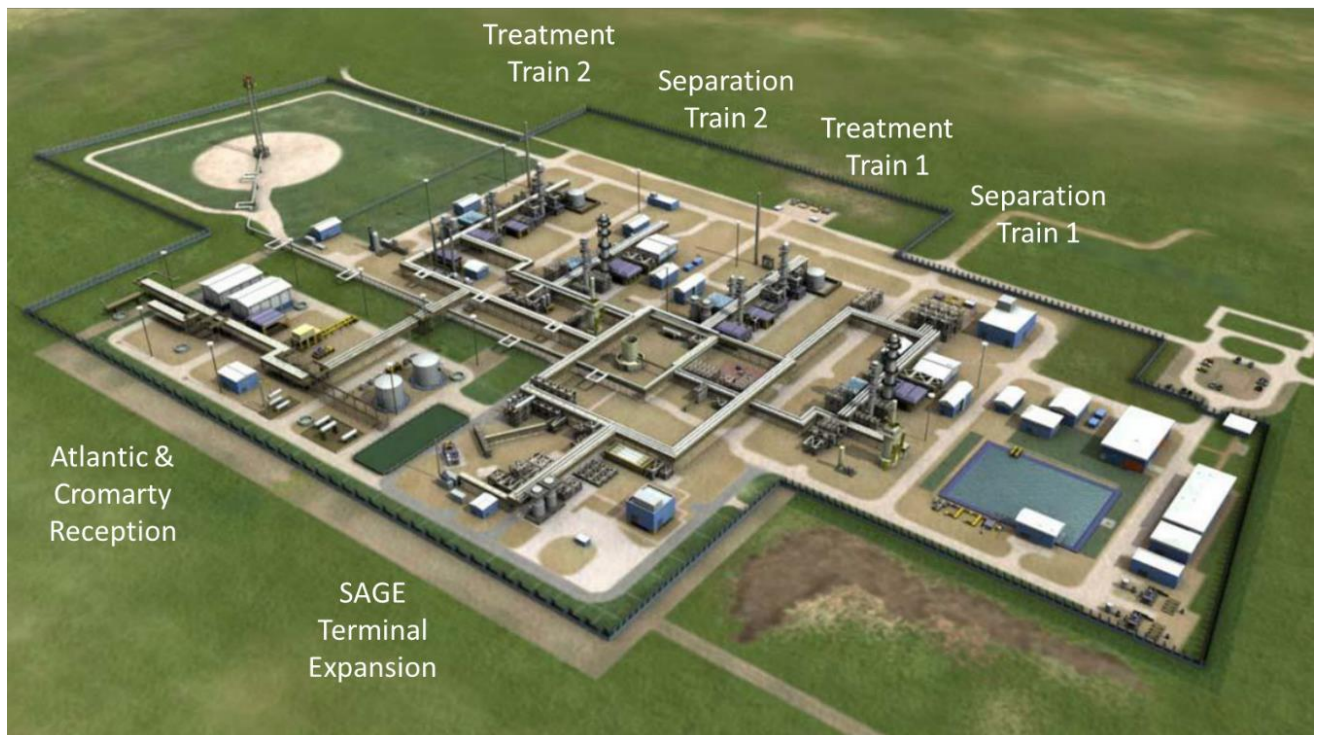
- (aa) **Existing or future gas consumers.** The dilution provided by the SEGAL sub-terminal and Norway through the Vesterled pipeline will result in gas being exported into the NTS which remains within the current UNC limit.
- (bb) **Competition in the shipping, transportation or supply of gas conveyed through pipes or any commercial activities connected with the shipping, transportation or supply of gas conveyed through pipes.** The proposed modification does not disadvantage the competitive position of the other terminal operators at St Fergus.
- (dd) **Matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies.** The export of gas with an O<sub>2</sub> content of less than 400 ppm is unlikely to have a material impact on the management of the network nor safety and security of supply.

### Requested Next Steps

This Modification should:

- be considered a non-material change and subject to Self-Governance.
- be assessed by a Workgroup.

## 3 Why Change?



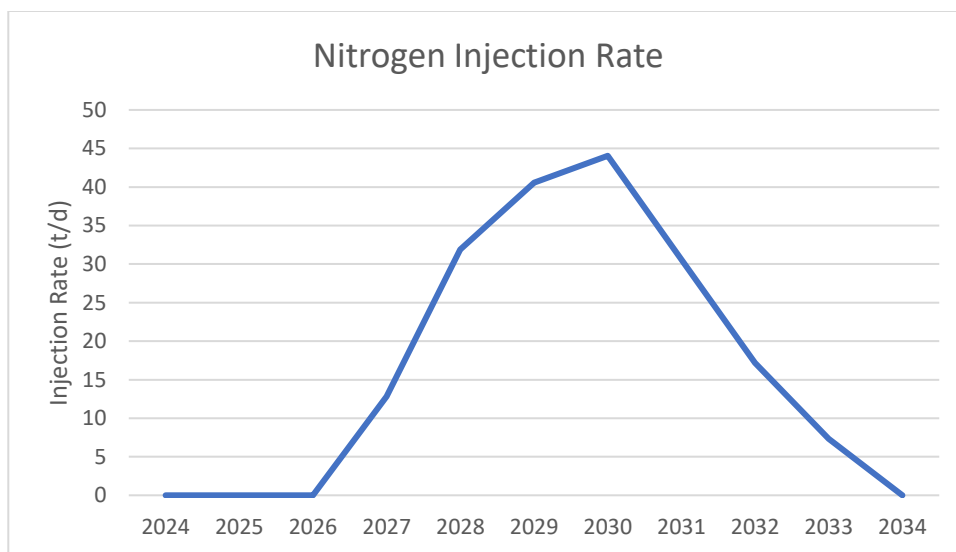
The SAGE facility original design basis was to remove sufficient NGL from the moderately rich Beryl Field gas and to remove CO<sub>2</sub> and H<sub>2</sub>S from the lean, Brae field gas to meet National Grid Export specifications. However,

within the last decade of operation as Beryl and Brae volumes have declined, SAGE ullage has been utilised by new Norwegian gas volumes, primarily from fields operated by AkerBP. This new gas is richer than the original design specification and so there is a reliance on blending to meet export specification. In the event of outage of key leaner gas shippers, primarily Brae or Beryl, a Nitrogen Injection Facility (NIF) is installed as a contingency arrangement to maintain National Transmission System (NTS) export specification in the absence of sufficient blending capacity.

The NIF system has been used periodically since installation to enable SAGE export gas to meet NTS export specification during short outages and upsets to Beryl and Brae field production. The currently installed nitrogen injection system was designed to allow short-term (up to 3 days) ballasting of the export gas. The injection rate required to ensure delivery of an NTS export specification is predicted by calculation based on known pipeline entrant gas volumes during short-term outages and/ or process upsets which create 'rich' gas slugs within the transmission system.

The combination of increased volumes of rich Norwegian gas and continuing decline and near-term cessation of heritage leaner gas volumes obviates blending alone as a means of achieving existing NTS export specification. Therefore, an upgrade to the SAGE Nitrogen Injection Facilities is required to ensure continued specification compliant operation.

The upgrade will likely involve continuous N<sub>2</sub> injection from 2027 with N<sub>2</sub> generated within the SAGE Terminal fence. It is not feasible to continue to receive N<sub>2</sub> via road tanker for the volumes of N<sub>2</sub> required.



The cost of N<sub>2</sub> generation is dependent on the purity of N<sub>2</sub> generated, with higher purity N<sub>2</sub> cost more from both a capex and opex perspective. For lower purity N<sub>2</sub>, (c.99.5% purity) this UNC modification is required.

## 4 Code Specific Matters

### Knowledge/Skills

No additional skills or knowledge are required to assess this Modification.

5 Solution

This Modification seeks to amend a Network Entry Provision within the existing SAGE Terminal NEA. The amendment would increase the O<sub>2</sub> upper limit for gas delivered from the SAGE Sub-Terminal System Entry Point into the National Transmission System from 10 ppm to 400 ppm, substantially below the GSMR legal limit of 0.2mol%.

No change to the text of the UNC is required since this is an enabling Modification in accordance with UNC Transportation Principal Document Section I 2.2.3 (a).

6 Impacts & Other Considerations

Does this Modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

No

Consumer Impacts.

No

What is the current consumer experience and what would the new consumer experience be?

NA

Impact of the change on Consumer Benefit Areas:	
Area	Identified impact
<p>Improved safety and reliability</p> <p>The SAGE Terminal is a top tier COMAH site. The modification will facilitate less equipment being used on site and therefore reduce the process safety risk associated with the operation.</p>	Positive
<p>Lower bills than would otherwise be the case</p> <p>No impact</p>	None
<p>Reduced environmental damage</p> <p>The modification will facilitate a reduction in total CO2 emissions from a reduction in electricity consumption.</p>	Positive
<p>Improved quality of service</p> <p>The proposed modification will have no impact on the ability of the SAGE Terminal to continue processing and transporting gas into the NTS.</p>	None



Benefits for society as a whole  The modification will support the continued economic life of the SAGE Terminal and as a consequence, continued security of supply of gas into the UK during a transitional period.	Positive
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Performance Assurance Considerations

None. This enabling Modification, in accordance with UNC Transportation Principal Document Section I 2.2.3 (a), is seeking to amend the Network Entry Agreement (NEA) at the SAGE North Sea Limited (SNSL) sub-terminal at St. Fergus between National Grid Gas plc and SNSL. There will be no UNC changes as a result of implementation.

Cross-Code Impacts

None

EU Code Impacts

None

Central Systems Impacts

None

Reference Document

Network Entry Agreement (NEA) at the SAGE North Sea Limited (SNSL) sub-terminal at St. Fergus between National Grid Gas plc and SNSL.

7 Relevant Objectives

Impact of the Modification on the Transporters’ Relevant Objectives:

Relevant Objective	Identified impact
a) Efficient and economic operation of the pipe-line system.  The ability to continuously inject N2 will permit additional volumes to be transported via the SAGE System in latter years without placing such Norwegian Shippers at an economic disadvantage.	Positive
b) Coordinated, efficient and economic operation of  (i) the combined pipe-line system, and/ or  (ii) the pipe-line system of one or more other relevant gas transporters.  The Modification will enable a cost-effective solution for continuous N2 injection to be utilised at the SAGE terminal. A lower purity of N2 requires substantially less capex for implementation whilst also simplifying operations and thus increasing uptime.	Positive
c) Efficient discharge of the licensee's obligations.	None

d) Securing of effective competition:  (i) between relevant shippers;  (ii) between relevant suppliers; and/or  (iii) between DN operators (who have entered into transportation arrangements with other relevant gas transporters) and relevant shippers.	None
e) Provision of reasonable economic incentives for relevant suppliers to secure that the domestic customer supply security standards... are satisfied as respects the availability of gas to their domestic customers.	None
f) Promotion of efficiency in the implementation and administration of the Code.	None
g) Compliance with the Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	None

## 8 Implementation

Implementation is required by November 2024 in order that the basis of design for continuous nitrogen injection can be finalised. As Self-Governance procedures are proposed, implementation could be sixteen business days after a Modification Panel decision to implement, subject to no Appeal being raised. This would enable the SAGE Terminal Operator to commence the process of finalising the design basis of the upgrade to the current NIF system.

No implementation costs for other industry parties are anticipated.

## 9 Legal Text

No change to the text of the UNC is required since this is an enabling Modification in accordance with UNC Transportation Principal Document Section I 2.2.3 (a).

This enabling Modification will result in the Network Entry Agreement (NEA) at the SAGE North Sea Limited (SNSL) sub-terminal at St. Fergus between National Grid Gas plc and SNSL being amended.

## 10 Recommendations

### Proposer’s Recommendation to Panel

Panel is asked to:

- Agree that Self-Governance procedures should apply.
- Refer this proposal to a Workgroup for assessment.