

Consultation on proposed regulations for disclosure of carbon storage information and samples

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The document can be found on the NSTA's website.

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Enquiries to:

North Sea Transition Authority

3rd Floor, 1 Marischal Square

Broad Street

Aberdeen

AB10 1BL

Email: informationandsamples.consultation@nstauthority.co.uk

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General information

Purpose of this consultation

The North Sea Transition Authority (the "NSTA") seeks views on the proposals for a set of regulations relating to the public disclosure of carbon storage information and samples. These regulations will set out which information and samples the NSTA may disclose and the time period after which disclosure can take place. In accordance with paragraph 4(4) of Schedule 7 to the Energy Act 2023, the Secretary of State for Energy Security and Net Zero (the "Secretary of State") will have regard to this consultation in determining whether it is necessary to carry out any further 'Secretary of State consultation' on these matters.

Issued: 14 February 2024

Respond by: 12 April 2024

Territorial extent: United Kingdom and United Kingdom Continental Shelf ("**UKCS**").

Responding to this consultation

The NSTA invites written views and comments on the proposed regulations, to be made by 12 April 2024. Your response will be most useful if it is framed in direct response to the questions posed, though further comments and evidence are also welcome.

Please submit your response by email or post.

The NSTA has produced a coversheet for responses (see Annex C) and asks that you complete and include it with your response, which should speed up the processing of responses, and help to maintain confidentiality where appropriate.

Written responses to the consultation should be sent to:

NSTA CS Data Disclosure Consultation North Sea Transition Authority 3rd Floor 1 Marischal Square Broad Street Aberdeen AB10 1BL

Email:

informationandsamples.consultation @nstauthority.co.uk

Representative groups are asked to give a summary of the persons or organisations they represent when they respond.

Additional copies:

Other versions of the document in Braille, large print, audio or Welsh can be made available on request. Please contact us using the 'enquiries' details to request alternative versions.

Confidentiality and data protection

The NSTA will publish its response, including a summary of the feedback received with this consultation.

The NSTA does not intend to publish individual responses to this consultation. However, the NSTA is subject to the requirements of the Freedom of Information Act 2000 so if you think any part of your response should be kept confidential, please place such part(s) in a separate annex to your response and include your reasons why this part of your response should not be published. For example, this may include information such as your personal background and experience. Therefore, if you want your personal details to remain confidential, please provide them in the coversheet so that the NSTA does not have to edit your response.

If someone asks us to keep part or all of a response confidential, we will treat this request seriously and will try to respect this.

Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to the NSTA to use for its regulatory remit.

Quality assurance

This consultation has been carried out in line with the government's consultation principles.

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

NSTA Consultation Coordinator Sanctuary Buildings 20 Great Smith Street London SW1P 2BT

Email: consultationcoordinator@nstauthority.co.uk

Background

- The Energy Act 2008¹ established a licensing framework for the storage of carbon dioxide, with the NSTA as the licensing authority in respect of an 'offshore UK-controlled place'².
- 2. The Energy Act 2023³ (the "**Act**") gives the NSTA the power to issue notices under section 112 of the Act ("section **112 notices**") requiring holders of licences granted under section 18 (1) of the Energy Act 2008 to report to it information and samples acquired or created by or on behalf of the licensee in the course of carrying out activities under the licence ("information and samples"). Both carbon dioxide storage and appraisal licences ("CS licences") and exploration licences may be granted under section 18 (1) of the Energy Act 2008.
- The Act also allows for two sets of regulations to be made by the Secretary of State. Section 108 sets out provisions for regulations with regards to retention. These follow a separate procedure to disclosure and are not the subject of this consultation.
- 4. The provisions with regards to regulations for the disclosure of information and samples are provided for in schedule 7, paragraph 4 of the Act. This consultation presents proposals for the regulations on disclosure of information and samples.

- 5. Information and samples play a significant role in the UK carbon storage industry and access to high quality data by the NSTA, industry, academia and the public will help to deliver more effective and efficient ways to reach the UK's net zero target. This includes long-term monitoring data, which will enable close observation of carbon dioxide migration and containment in the subsurface. The types of information and samples discussed here will help build confidence into the nascent carbon storage industry.
- In response to the consultation on the principles of new carbon storage data powers, held between January and April 20234, timely and transparent access to data has been requested by respondents. Information gathered by the NSTA in respect of petroleum licensees is currently securely stored and shared across the offshore energy sector, academia and the public via the National Data Repository⁵ and the NSTA website's Data and Insights pages⁶, with a purpose to support the development of projects and enabling them to become operational as soon as possible. This data sharing is planned to be mirrored for carbon storage licence information.

¹ Energy Act 2008: https://www.legislation.gov.uk/ukpga/2008/32/contents

² As defined in section 18 of the Energy Act 2008

³ Energy Act 2023: https://www.legislation.gov.uk/ukpga/2023/52/contents

⁴ https://www.nstauthority.co.uk/news-publications/consultations/2023/consultation-response-on-proposals-on-new-carbon-storage-data-powers/

⁵https://ndr.nstauthority.co.uk/

⁶ https://www.nstauthority.co.uk/data-and-insights/

- Wider and more open data availability 7. will also allow the UK offshore supply chain to promote optimal concepts for the development and operations of UKCS carbon storage sites, and the development of new techniques, software tools and other intellectual property that will be highly exportable. Higher education institutions will also benefit from timely access to the globally significant datasets that relate to the UKCS, enhancing learning opportunities and research focussed on carbon storage and other energy transition topics such as natural gas or hydrogen storage.
- 8. The disclosure of information and samples will ensure that this vital national asset is available for use, maximising transparency and timely access to carbon storage information and samples from the UKCS by disclosing them as soon as is reasonable.

- 9. The purpose of this consultation is to seek views on the presented proposals for regulations relating to the public disclosure of carbon storage information and samples by the NSTA. A summary of the proposals can be found in Annex A.
- Carbon storage information and samples that may be disclosed will have been required to be reported to the NSTA on issuing a section 112 notice.

Disclosure

- 11. Section 113 of the Act prohibits the NSTA from disclosing information and samples it has obtained under the regulations or under its enforcement powers, except in certain defined circumstances.
 Disclosure, as discussed in this consultation, relates to Schedule 7, paragraph 4 of the Act, which provides for regulations to be made by the Secretary of State to allow the public disclosure by the NSTA of "protected material" at a time specified in the regulations.
 - "Protected material" is defined in section 113 as information or samples which have been obtained by the NSTA under a section 112 notice or under the NSTA's sanction powers in section 124.
- 12. In specifying a time in disclosure regulations, the Secretary of State must have regard to the following factors:
 - a) whether the specified time will allow owners of protected material a reasonable period of time to satisfy the main purpose for which they acquired or created the material;
 - b) any potential benefits to the carbon storage industry of protected material being published or made available at the specified time;

- c) any potential risk that the specified time may discourage persons from acquiring or creating carbon storage information or carbon storage samples;
- d) any other factors the Secretary of State considers relevant.
- 13. This consultation sets out the NSTA's proposals for:
 - (i) what information and samples should be able to be disclosed by the NSTA (or a subsequent holder); and
 - (ii) the time period after a certain "trigger point", based on the information or sample, after which the NSTA proposes it may, at its discretion, publish or make available to the public the information and samples under the regulations.
- 14. The proposals are based on the NSTA's judgement of an appropriate balance of the various factors to which the Secretary of State is required to have regard for the disclosure of each information and sample type.

Well information

- 15. The lifecycle of a well consists of two main phases. The first phase includes the planning, drilling and completion for the designated purpose of the well and ends when the 'Regulatory Completion Date' as outlined below is reached. The second phase, if applicable, consists of the operation as injector, producer or monitoring well (including maintenance and testing), suspension (where applicable) and finally abandonment of the well.
- 16. Information derived from the well's lifecycle is of value as it can be used to help the NSTA, or wider industry, develop an understanding of the strata and any formations encountered; provide more information around the mechanical and engineering considerations necessary for safe and efficient operations; and illustrate effective containment during and after operations, among other things. The information will provide a better understanding of the strata, formation and fluids, and will maximise the safe and efficient engineering operations of wells, including their safe abandonment.
- 17. Well information is described as:
 - i. all information relating to the planning of the well, engineering of the well, the equipment used and the activities undertaken for the drilling, testing, operation, completion for the designated purpose, injection, production, monitoring, suspension or abandonment of the well; and

- ii. all information relating to the strata, formations and fluids encountered that is created or acquired during any operations related to the well such as the planning, drilling, testing, operation, completion for the designated purpose, injection, production, monitoring, maintenance, suspension or abandonment of the well.
- 18. As an indication, the following would fall within the scope of well information, as would any other such information to which the description given in the previous paragraph applies:
 - Well reports related to the planning, engineering, drilling, construction, testing, operation and abandonment of the wellbore;
 - ii. Well reports related to the expected and actual geology of the wellbore;
 - iii. Analyses of any core or other samples and any related reports;
 - iv. Wellbore seismic data (seismic data that is collected in the wellbore);
 - v. Deviation data that describes the position and path of the wellbore;
 - vi. Well logs (physical measurement of strata, rock and fluid properties or visual record of strata and rocks encountered in a wellbore);
 - vii. Joined well logs (formed by splicing together well logs of the same type to make a continuous record);

- viii. Composite well logs (a selection of several types of joined well logs displayed together graphically); and,
- ix. Geochemical reports and analyses of rocks and fluids encountered.
- 19. Well information is intended to be made available as soon as possible. However, the NSTA recognises that the licensee who has acquired the well information will typically require half a year to produce reports in a format that will be of value. It is therefore intended that well information should be reported to the NSTA 6 months after the Regulatory Completion Date for well information created or acquired before this date. Well information created or acquired after the Regulatory Completion Date (post-drill studies) should be reported 6 months after its creation or acquisition is complete. The Regulatory Completion Date is the earliest of the following events:
 - i. when the well has been completed for injection or production (perforation, setting of tubing and packers is finished and the well is ready to inject or produce)
 - ii. when the well has been completed for monitoring (any permanent downhole measurement tools are in place or provisions for their temporary, repeated placement/running have been made and any repeated sampling of formation fluids is provided for)
 - iii. when the well has been abandoned (the well is left with permanent barriers to isolate any storage formation or immediate zones and the surface casing wellhead and all other surface components are removed so that the well cannot be re-entered)

- iv. when the well has been suspended (the well has been left with permanent or temporary barriers to isolate any storage formation or intermediate zones if drilling has reached the storage formation targeted by the well).
- 20. A period of exclusivity after the reports have been produced would grant the licensee time to make use of the reports. If the information were made publicly available too soon after the reports were produced, it would likely act as a disincentive to acquire this valuable information in the first place.
- 21. The NSTA proposes that disclosing well information two years after the date it was due to be reported to the NSTA is an appropriate balance of the factors required to be taken into account. The NSTA considers that this provides an appropriate timeframe for the licensee to prepare reports and to satisfy the purpose for which the well information is acquired.
- 22. Well information that is created or acquired as part of the monitoring programme is intended to be subject to different confidentiality periods, as discussed in section 'Monitoring information and samples'.
- Q1. Do you agree that well information may be disclosed two years following the date on which the well information was due to be reported to the NSTA (as described above)?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Summary well information

- 23. There is some high-level well information (concerning the well results in particular) that would be beneficial to make publicly available as soon as possible to provide more transparency on carbon storage well operations across the UKCS and to provide useful information for any analogous storage sites or adjacent acreage, the benefit of which the NSTA considers outweighs any negative impact to the owner of making the information publicly available. The NSTA do not therefore consider that an equivalent exclusivity period to that provided to other well information is necessary.
- 24. The NSTA proposes that the disclosure regulations set out that the following summary well information may be disclosed by the NSTA immediately after it has been obtained by the NSTA:
 - i. Name of well
 - ii. Position
 - iii. Licence number
 - iv. Well type
 - v. Water depth
 - vi. Name of operator
 - vii. Storage formation(s) targeted by the well
 - viii. Strata information acquired (type of formation, age of rock, thickness of rock)
 - ix. Any injection or production test results (injection or production rates achieved)

- 25. It is worth noting however that the regulations will only set out when the information may be disclosed by the NSTA and the NSTA would consider any representations that any particular information should not be disclosed at the time specified in regulations.
- Q2. Do you agree that the above summary well information may be disclosed immediately after it has been obtained by the NSTA?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Well samples

- 26. As with well information about the strata, formation and fluids, physical samples that are obtained are of value in helping to further the understanding of the rocks and strata encountered and beneficial to supporting carbon capture and storage projects. Physical samples that are obtained during the drilling of the well (which includes any coring and well testing) provide valuable information on the strata and fluids encountered. Any additional samples taken during and after injection or production might be essential for monitoring purposes and to further understand the strata encountered.
- 27. Samples, analysed alongside the associated well information, help to further the understanding of the physical strata encountered and as such the public release of samples is beneficial to the wider carbon storage industry and academia.
- 28. The same considerations as set out for well information apply to samples in terms of the need to allow sufficient time for the licensee to secure the benefit from having acquired the samples before the NSTA has the power to disclose. Too short a time period before disclosure could potentially act as a disincentive to industry to acquire the samples.

- 29. It is therefore intended that well samples should be reported 6 months after the Regulatory Completion Date, as defined in paragraph 19 of this document, for well samples created or acquired before this date. Well samples created or acquired after the Regulatory Completion Date should be reported 6 months after their creation or acquisition is complete.
- 30. The NSTA proposes that, as with well information, regulations should set out that samples may be disclosed (be available for inspection) two years after the date they were due to be reported. The NSTA considers that this provides an appropriate timeframe for the licensee to satisfy the purpose for which the well samples were acquired.
- Q3. Do you agree with the proposal above, that samples may be disclosed two years following the date on which they were due to be reported (as defined above)?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Geophysical survey information

- 31. There are numerous techniques utilised for the purposes of imaging and mapping the subsurface. These include seismic surveys (2D, 3D, 4D, high resolution, streamer and ocean bottom seismic in time or depth domains), gravity, induced polarisation, magnetic, gravity gradiometric, and electromagnetic.
- 32. All of these techniques provide geophysical information that can be used for the imaging of the subsurface as well as the monitoring of the storage site and therefore the information gathered from, and associated with, these surveys is of significant value for the purposes of understanding the subsurface.
- 33. There are different types of survey information, namely raw information, intermediate processed information and processed information. Raw information is the information recorded during acquisition of the survey and is also known as field data. Information may be described as intermediate processed if it is generated during an interim processing stage, including "pre-stack" datasets that are derived or created during the processing stages, but not fully processed. This pre-stack information may include "stacking velocities" as well as pre- and post-migration gathers which provide context to and assist the interpretation of the processed information. Processed information is information that can be rendered into a displayable and interpretable image (frequently known as "post-stack", "final stack" or "full stack").
- 34. Raw data gathered from the surveys is valuable as it enables the processing and reprocessing of the data to be carried out using alternative methods to those the original owner used. Any processed data is valuable as it provides imaging information of the subsurface. Associated reports of the raw data or the processed data provides further valuable insight to the subsurface. Any positional or navigation data which shows where a survey was acquired is also vitally important information.
- 35. During site surveys (which are inspections of the seabed and the shallow subsurface in the vicinity of proposed carbon storage activity to detect any potential hazards) some geophysical information about the seabed may be obtained, such as side scan sonar or echo sounder information. These surveys provide information on the shape and makeup of the seabed which may support long-term monitoring. High resolution seismic surveys which may be carried out during site surveys also contain valuable subsurface information.

Geophysical surveys acquired under a CS Licence

- 36. Geophysical survey information acquired under a CS Licence, including geophysical survey information acquired in pursuit of activities carried out under a CS Licence can be used for the imaging of the seabed and the subsurface. This description includes surveys acquired in pursuit of activities carried out under a CS Licence where an exploration licence, held by the same licensee, was necessary for part of the acquisition. The information gathered from these surveys is of significant value for the purposes of understanding and characterising the seabed and the subsurface and its timely disclosure is therefore of significant value for the wider CO₂ storage industry and academia.
- 37. For geophysical survey information acquired under a CS Licence the NSTA considers taking a similar approach as it does with petroleum-related information⁷, proposing disclosure after a period of five years. It is also intended that where part of the survey was acquired under an exploration licence, and the survey was carried out in pursuit of activities carried out under a CS Licence, the disclosure timelines proposed for surveys acquired under a CS Licence are to be applied.

- 38. The intended period of five years is proposed to start on the date when acquisition is complete as stated during the summary information submission process.
- 39. This period is intended to take into consideration the period required for licensees to make use of the surveys and, in particular, the risk that reducing this period could create a disincentive for this vitally important information to be created.
- 40. The NSTA proposes that the regulations set out that all geophysical survey information acquired under a CS Licence can be disclosed five years after the acquisition is complete as stated during the summary information submission process.
- Q4. Do you agree that all geophysical survey information acquired under a CS Licence may be disclosed five years after the date the acquisition is complete as stated during the summary information submission process?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Geophysical survey information acquired under an exploration licence

- 41. Geophysical survey information acquired under an exploration licence with the purpose of searching for carbon dioxide storage is proposed to be subject to the same disclosure periods as are in place for geophysical survey information acquired under an exploration licence with the purpose to search for petroleum⁸.
- 42. As with geophysical survey information acquired under a CS Licence, geophysical survey information acquired under an exploration licence provides highly useful information for the purposes of understanding the subsurface and therefore is of benefit to the wider carbon storage industry, academia, and the public.
- 43. This information or any associated reports are typically of value for the original owner for longer than is the case for geophysical surveys acquired under a CS Licence. For the original owner to secure the benefit of the information for the purposes for which the survey was obtained, the information is required to remain protected for a longer period of time.
- 44. Further, for geophysical survey information acquired under an exploration licence, there is a distinction in value between processed information and other raw or intermediate processed information. Whilst processed information allows imaging and interpreting, raw or intermediate processed information ("original information") can be used for reprocessing. Original information is therefore proposed to be subject to a longer period of time before disclosure than processed information.

- 45. The NSTA proposes that, for geophysical survey information acquired or created under an exploration licence for the purposes of carbon dioxide storage, the regulations set out that the information may be disclosed after the following time periods:
 - (i) Where the information is processed information, after the period of ten years beginning with the date on which processing is complete;
 - (ii)Where the information is original information, after the period of fifteen years beginning with the date on which processing is complete.
- Q5. Do you agree with the proposal that geophysical survey information acquired under an exploration licence be subject to the time periods set out above?
 - a) Please answer yes or no.
 - b) If your answer is no please comment on when you think geophysical survey information acquired under an exploration licence should be disclosed.

⁸ Regulation 7 of the Oil and Gas Authority (Offshore Petroleum) (Disclosure of Protected Material after Specified Period) Regulations 2018

Summary geophysical survey information

- 46. As with summary well information, there is high-level summary information about geophysical surveys that is not commercially sensitive but is of value for the wider carbon storage industry, to understand the areas where geophysical surveys have taken place and which types of surveys have been acquired.
- 47. Therefore, the NSTA proposes that the regulations should set out that the following high-level geophysical survey information may be disclosed immediately after the NSTA has obtained that information:
 - The licence(s) the survey was acquired under
 - ii. The licensee name(s)
 - iii. The acquisition contractor name(s)
 - iv. Start date and end date of the acquisition of the data

- v. The type of survey (i.e. whether it was a 2D/3D/4D seismic, gravity, induced polarisation, magnetic, gravity gradiometric, electromagnetic or other survey)
- vi. The type of acquisition (e.g. streamer or ocean bottom seismic)
- vii. The location and spatial extent of the survey.
- Q6. Do you agree that the above summary geophysical survey information may be disclosed immediately after the NSTA has obtained the information?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Injection information

- 48. The achieved injection rates, effected temperature and pressure conditions in the storage formation, and the resulting injection efficiency are important indicators illustrating the UK's progress towards the net zero target.
- 49. Injection information is highly valuable and includes:
 - i. any quantitative and compositional information on the injected CO₂ stream and any fluids injected or produced related to the operation of the storage site or otherwise used in a storage site or vented at an offshore installation
 - ii. any information on pressure and temperature acquired during injection or production
 - iii. any quantitative and compositional information on the CO₂ stream and other gas flared, vented or used in the storage site
 - iv. any quantitative and compositional information on the CO₂ stream which enters the pipeline system relevant for the CS Licence at the beachhead (beachhead meter information).

- 50. Timely disclosure of injection information at a high granularity (e.g. "per well, per day") is vitally important to promote public confidence and continued investment into the carbon storage industry. Transparency over injection information may support collaboration within the carbon storage industry and foster the adoption of new technologies and lessons learnt.
- 51. The NSTA considers that, after the end of the Operational Term, which is the period beginning with the date on which the storage permit is granted and ending with the closure of the storage site⁹, under a CS Licence, any injection information acquired at any granularity would no longer be considered commercially sensitive by industry. There would be limited negative impact on industry were this to be disclosed at any time or in any level of detail after the end of the Operational Term.

⁹ Guidance on the application for a Carbon Dioxide Appraisal and Storage Licence: https://www.nstauthority.co.uk/media/8146/cs-licence-guidance-final-29-april-2022.pdf

- 52. The NSTA proposes the time periods set out below, after which information may be disclosed:
 - i. prior to the end of the Operational
 Term under a CS Licence, injection
 information may be disclosed
 after two months from the end of
 the month to which the injection
 information relates, provided that
 the values are no more detailed
 than by total per day of the relevant
 month, and by total pertaining to a
 particular wellbore; and
 - ii. after the end of the Operational Term under a CS Licence, any injection information in any detail may be disclosed immediately by the NSTA.

- Q7. Do you agree with the proposal that, prior to the end of the Operational Term, injection information may be disclosed after two months from the end of the month to which the injection information relates?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q8. Do you agree with the proposal that, prior to the end of the Operational Term injection information should be disclosed at a high granularity (e.g. by total per day and per wellbore)?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q9. Do you agree that, after the end of the Operational Term of a CS Licence, injection information of any granularity may be disclosed at any time?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Summary storage site information

- 53. As with well information and geophysical survey information, high-level summary storage site information that is not commercially sensitive may be useful to disclose to assist the carbon dioxide storage industry in developing a contextual understanding of the UKCS.
- 54. Therefore, the NSTA proposes that the following summary storage site information may be disclosed immediately after the NSTA has obtained the information:
 - Phase of injected carbon dioxide stream
 - ii. Age of targeted storage formation(s)
 - iii. Lithology of targeted storage formations(s)
 - iv. Age of primary top seal
 - v. Lithology of primary topseal
 - vi. Determination status (whether the storage site boundary has been agreed with the NSTA)

- vii. CS Licence Term/Period (whether the licence for the storage site is in the Initial/Appraisal Term, the Operational Term, or the Post-Closure Period)
- viii. The CS Licence number
- ix. The name of the operator
- x. The well number of the planned injection well(s) (if present)
- xi. The injection start date
- xii. The water depth
- xiii. Date of entry into the Post-Closure Period
- Q10. Do you agree that the above summary storage site information may be disclosed immediately?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Total storage resources information

- 55. Whilst information on the total storage resources and the associated probability ranges is commercially sensitive it is also a vital piece of information to characterise the UK's storage inventory and to assess the UK's performance against the recommendations set out by the Committee on Climate Change regarding the UK's carbon budget¹⁰.
- 56. The NSTA proposes that total storage resources and the associated probability ranges should be disclosed upon granting of a Storage Permit, at the end of the Operational Term, and at the end of the Post-Closure Period¹¹ of a CS Licence.
- 57. Disclosing the total storage resources at these stages in the licence lifecycle would ensure that no immature estimates are disclosed from an active CS Licence, which could negatively affect the licensee.

- Q11. Do you agree with the proposal that total storage resources information should be disclosed upon granting of a Storage Permit, at the end of the Operational Term, and at the end of the Post-Closure Period of a CS Licence?
 - a) Please answer yes or no.
 - b) Please explain your answer and include any comments on the frequency of disclosure you might have.
- Q12. Do you agree with the proposal that total storage resources information should be disclosed upon determination of the licence?
 - a) Please answer yes or no.
 - b) Please explain your answer and include any comments on the frequency of disclosure you might have.

¹⁰ E.g. Committee on Climate Change (Dec 2020): The Sixth Carbon Budget. The UK's path to Net Zero.

 $^{^{\}mbox{\tiny 11}}$ Regulation 16 of the Storage of Carbon Dioxide (Licensing etc.) Regulations 2010

Geotechnical storage site development information

- 58. Storage Permit Applications contain geotechnical information about the structure and geology of the storage site; the physical properties and petrophysics of the storage formation rocks and fluids; and information on how the storage site is to be developed in terms of injection profiles, monitoring, planned drilling, injection facilities, plans for decommissioning and well abandonment.
- 59. This information provides insights and valuable interpretation information into the individual storage site, the storage complex and the UKCS storage resource as a whole. The release of this information is of benefit to the carbon storage industry in developing insights into the UKCS and how to reach sufficient levels of carbon storage to meet the UK's climate targets.
- 60. In the early stages of injection, this information is commercially sensitive while the storage site is being established. Its premature release could be damaging to investor confidence and could disincentivise investment in carbon storage in the UKCS.
- 61. The commercial and financial information within Storage Permit Applications provides limited benefit to the carbon storage industry and is commercially sensitive for the operators and licensees involved.

- 62. The NSTA proposes that the geotechnical information in Storage Permit Applications may be released five years after the date of first injection. The commercial or financial information within those applications would be redacted and would not be part of the disclosed information.
- 63. Note that where Storage Permit
 Applications contain geotechnical
 information for which an alternative
 disclosure period is proposed (for example
 seismic information) the proposal for that
 information would take precedence.
- Q13. Do you agree that geotechnical information contained within Storage Permit Applications may be disclosed five years after the date of first injection?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Information on the storage formation and computerised models

- 64. Reports pertaining to the storage site or the storage complex under licence are a valuable resource generated and held by industry. Reports are created from studies carried out on the subsurface detailing topics such as the geology of the strata; the structure of the reservoir; the chemistry of the existing fluids in the storage formation; how the carbon dioxide may behave in the storage formation, and how it may migrate from the injection point(s). Information from these reports can give further interpretations, insights and context of a storage site, the licensed area, or the storage complex.
- 65. Models of the subsurface strata and fluids may be created to chart the makeup and behaviour of the storage site. The models can either be geological models, which are a cowmputerised static spatial representation of the distribution of sediments and rocks in the subsurface; or storage formation simulation models, which are computerised models that simulate the flow of fluids in the storage formation and potential flow units in the overburden. The insight into the subsurface and flow of fluids is highly valuable for enhancing the NSTA's understanding of the UKCS storage resource.

- 66. Reports and computerised models as described above are highly valuable for the licensee and their primary value is within the licence. There is a risk that early disclosure, which may benefit adjacent or analogous storage sites, would create a disincentive to produce the information.
- 67. Therefore, the NSTA proposes that storage formation information may only be disclosed by the NSTA after the determination of the subject licence (i.e. following the surrender, expiry, termination or revocation of a licence) as set out in the general disclosure proposals for licence information below.
- 68. Whilst computerised model information is highly valuable to the licensee, sharing certain model inputs earlier than upon the determination of the licence, if the licence enters the Operational Term, offers a great advantage to the carbon storage industry as a whole. Earlier disclosure of this information would allow a better characterisation of the interplay between storage sites in the same hydraulic unit.
- 69. The NSTA proposes that certain inputs to static and dynamic models (e.g. xyz files of relevant horizons and faults for the static and dynamic frameworks) should be disclosed upon entry into the Operational Term.

- Q14. Do you agree with the proposal that storage formation information may only be disclosed following the determination of the subject licence?
 - a) Please answer yes or no.
 - b) Please explain your response.
- Q15. Do you agree that the proposal that certain computerised model information should be disclosed upon entry into the Operational Term is an appropriate balance of the factors?
 - a) Please answer yes or no.
 - b) Please explain your response.

Monitoring information and samples

- 70. Numerous monitoring approaches can be utilised for carbon storage. Monitoring will likely be carried out over a larger area than the licence footprint (including the storage complex) but will be in direct pursuit of the licensed activities and therefore subject to the proposed regulations. Monitoring of the storage complex and the movement of fluids within it is essential to prove containment or enable early interventions if needed.
- 71. Types of monitoring information and samples include but are not limited to:
 - i. Geophysical survey monitoring (Repeated geophysical surveys (e.g. 4D));
 - ii. Well monitoring (Individual or repeated measurements from permanently or temporarily installed downhole tools, including any sampling or well specific geophysical investigation (e.g. Vertical Seismic Profile (VSP)));
 - iii. Seabed and shallow borehole monitoring (Surveys providing information on the shape and make-up of the seabed, including high-resolution geophysical surveys of the seabed and the shallow subsurface and information and samples typically acquired as part of a site survey);
 - iv. Water column monitoring (Individual, repeated or permanent sampling of the water column);

- v. Remote sensing monitoring
 (Individual, repeated or permanent remote observation of the subsurface, seabed, water column or water surface (e.g. seep detection); and
- vi. Reports summarising the monitoring carried out over a specific reporting period and detailing any monitoring results.
- 72. New technological developments in monitoring are expected in the nascent carbon storage industry in the UKCS. The list of monitoring information and samples above is therefore not presumed to be exhaustive.
- 73. To support carbon storage and to facilitate the comparison and optimisation of monitoring methods within the carbon storage industry, it is intended that monitoring information is disclosed as soon, and as complete, as possible.
- 74. After first injection, a monitoring report is required to be submitted to the NSTA by the licensee at the end of the reporting period, on at least an annual basis¹². The monitoring report is proposed to be disclosed immediately after the NSTA has obtained the report. All monitoring information and samples discussed in a monitoring report are proposed to be disclosed alongside the monitoring report.

- Q16. Do you agree that the monitoring report should be disclosed as soon as it is obtained by the NSTA?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q17. Do you agree that all monitoring information discussed in a monitoring report should be disclosed alongside the monitoring report?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Disclosure of geophysical survey information used for monitoring

- 75. Geophysical survey information from repeat surveys (4D) is intended to follow the same disclosure proposals as all other monitoring information, being disclosed immediately after the NSTA has obtained the monitoring report that the geophysical survey information is discussed in.
- 76. However, the baseline survey, i.e. the first survey within a succession of multiple surveys making up a 4D survey, is proposed to underlie the previously outlined confidentiality periods, unless this period is longer than the period between the end of acquisition of the baseline survey and the inclusion of the first repeat survey in a monitoring report. Original and processed information of a baseline survey acquired under a CS Licence would therefore be disclosed five years after the end of acquisition or after inclusion of the first repeat survey in a monitoring report, whichever is the earlier.
- 77. The geophysical survey information to be disclosed is proposed to include original and processed information from the latest repeat survey within the succession of multiple surveys as well as reprocessed geophysical survey information of all preceding surveys within the succession of monitoring surveys.
- Q18. Do you agree that geophysical survey information that is part of a succession of multiple surveys (4D) should be disclosed alongside the monitoring report in which it is discussed?
 - a) Please answer yes or no.
 - b) If you answered no, please provide any suggestions for the disclosure of geophysical survey information created or acquired for monitoring.

Carbon storage installations

- 78. A licensee of a CS Licence can establish and maintain an installation for the purposes of carrying out activities under the CS Licence¹³. An installation includes any floating structure or device maintained on a station by whatever means¹⁴.
- 79. Summary information about installations provides useful contextual information for carbon storage operations in the UKCS. The NSTA considers that this information is not commercially sensitive and it is unlikely that it being held by the carbon storage licensee exclusively for any length of time will secure the specified licensee any benefit.
- 80. The NSTA proposes that the following summary information on offshore installations may be disclosed immediately after it has been obtained by the NSTA:
 - i. Name of installation
 - ii. Identifier numbers
 - iii. Type of installation
 - iv. Name of licence and installation operator
 - v. Name of installation owner
 - vi. Description provided in any consents process
 - vii. Operational status
 - viii. Any positional information

- ix. CS Licences and storage sites associated with the installation
- Q19. Do you agree that the above summary information on offshore installations may be disclosed immediately?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- 81. Any further information is considered to be of limited value to the carbon storage industry but may be commercially sensitive to the licensee up until that installation is decommissioned. Following decommissioning, the NSTA considers that the information ceases to be commercially sensitive.
- 82. The NSTA proposes that carbon storage installation information beyond the summary information described above may only be disclosed after the decommissioning of the offshore installation.
- Q20. Do you agree that the proposal that any more detailed information about carbon storage installations may only be disclosed after decommissioning is an appropriate balance of the factors?
 - a) Please answer yes or no.
 - b) Please explain your answer.

¹³ Energy Act 2008, section 17 (2)(d)

¹⁴ Energy Act 2008, section 35 (1)

General disclosure proposals for information and samples

- 83. Further to the proposals above for the times that information and samples may be disclosed, the NSTA considers that there is no further reason for the owner of the protected material to be required to hold the information exclusively following the surrender, expiry, termination or revocation of a CS Licence.
- 84. The NSTA proposes that any licence information or samples may be disclosed by the NSTA immediately after the licence events defined in section 109(1) (d) to (g) of the Act, i.e. after:
 - (i) a surrender of rights under a carbon storage licence in relation to all of the area in respect of which the licence was granted, or in relation to so much of that area in respect of which the licence continues to have effect;
 - (ii) the expiry of a carbon storage licence;
 - (iii) the termination of a carbon storage licence;
 - (iv) the revocation of a storage permit.

- Q21. Do you agree that the proposal that any licence information or sample be able to be disclosed immediately after any of the licence events listed above is an appropriate balance of the factors?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q22. Are there any other pieces of information or samples that have not been discussed in this document that you think there should be provision for the NSTA to disclose?
 - a) Please answer yes or no.
 - b) If your answer is yes, please detail what you think should be included and provide proposals for the time period after which disclosure may take place.

Regulatory impact assessment and equality impact assessment

The proposed set of regulations on the disclosure of carbon storage information and samples discussed in this consultation document closely follows the approach taken towards petroleum-related information and samples. The time periods presented are designed to allow the carbon dioxide storage licensee to derive value from the obtained and acquired information and samples. The public disclosure of selected information and samples will enhance innovation and sharing of lessons learned within industry. It will also enable academia and the public to gain an insight into carbon dioxide storage operations and work on information and samples derived from these activities.

The proposed regulations are aimed to provide a balance between the need to publicly disclose valuable information whilst not placing undue burden upon the carbon dioxide storage industry.

This consultation seeks views on the proposals for carbon storage information and samples disclosure regulations and evidence on the potential impacts (costs and benefits) on business of the regulations.

The NSTA has a general duty under the Equality Act 2010 in carrying out its functions to have due regard to the need to:

- eliminate unlawful discrimination, harassment and victimisation;
- advance equality of opportunity between different groups; and,
- foster good relations between different groups.

Further details can be found at https://www.equalityhumanrights.com/en/equality-act/equality-act-2010.

We have considered whether the carbon storage information and samples disclosure regulations would have an adverse impact on persons with protected characteristics. Our assessment is that, given the corporate nature of specified licensees it is not anticipated that there would be such an impact.

If any reader of this consultation document thinks that the proposed regulations will have an adverse impact on persons with protected characteristics, please respond to the consultation with as much detail as possible.

Annex A: Summary of the proposals

Type of information and samples	Scope	Time period after which information may be disclosed
Well information	i. all information relating to the planning of the well, engineering of the well, the equipment used and the activities undertaken for the drilling, testing, operation, completion for the designated purpose, injection, production, monitoring, suspension or abandonment of the well ii. all information relating to the strata, formations and fluids encountered that is created or acquired during any operations related to the well such as the planning, drilling, testing, operation, completion for designated purpose, injection, production, monitoring, maintenance, suspension or abandonment of the well	Two years after the date on which the well information was due to be reported

Type of information and samples	Scope	Time period after which information may be disclosed
	i. Name of well	
	ii. Position	
	iii. Licence number	
	iv. Well type	
	v. Water depth	
Summany well information	vi. Name of operator	None (immediate disclosure after NSTA has obtained the information)
Summary well information	vii. Storage formation(s) targeted by the well	
	viii. Strata information acquired (type of formation, age of rock, thickness of rock)	
	ix. Any injection or production test results (injection or production rates achieved)	
Well samples	Any physical samples of the strata, and any samples of fluids within the strata encountered during the drilling of a well (including any coring or well testing taking place during the drilling), and any additional samples taken during and after injection or production; e.g., core samples; core	Two years after the date on which the well samples were due to be reported
	plugs; drill cuttings; sidewall cores; formation fluid samples.	
Geophysical survey information acquired under a CS Licence	Geophysical survey information acquired under a CS Licence (or in pursuit of activities carried out under a CS Licence)	Raw and processed survey information: five years after the acquisition is complete as stated during the summary information submission process

Type of information and samples	Scope	Time period after which information may be disclosed
Geophysical survey information acquired under an exploration licence	Geophysical survey information acquired under an exploration licence with the purpose of searching for carbon dioxide storage	Processed survey information: ten years after processing is complete Raw or intermediate processed survey information: fifteen years after processing is complete
Summary geophysical survey information	The licence(s) the survey was acquired under; the licensee name(s); the contractor name(s); start date and end date of acquisition of the data; the type of survey (i.e. whether it was a 2D, 3D, 4D or ocean bottom seismic, gravity, induced polarisation, magnetic, gravity gradiometric, electromagnetic or other survey); the location and spatial extent of the survey	None (immediate disclosure after NSTA has obtained the information)

Type of information and samples	Scope	Time period after which information may be disclosed
Injection information	 i. any quantitative and compositional information on the injected CO₂ stream and any fluids injected or produced related to the operation of the storage site or otherwise used in a storage site or vented at an offshore installation ii. any information on pressure and temperature acquired during injection or production iii. any quantitative and compositional information on the CO₂ stream and other gas flared, vented or used in the storage site iv. any quantitative and compositional information on the CO₂ stream which enters the pipeline system relevant for the CS Licence at the beachhead (beachhead meter information) 	Prior to the end of the 'Operational Term' under a CS Licence: two months from the end of the month to which the injection information relates (no more detailed than by total per day and by total per wellbore). After end of the Operational Term under a CS Licence: any injection information in any detail may be disclosed immediately.

Type of information and samples	Scope	Time period after which information may be disclosed
	i. Phase of injected carbon dioxide stream	
	ii. Age of targeted storage formation(s)	
	iii. Lithology of targeted storage formations(s)	
	iv. Age of primary top seal	
	v. Lithology of primary top seal	
	vi. Determination status (whether the storage site boundary has been agreed with the NSTA)	
Summary storage site information	vii. CS Licence Term (whether the licence for the storage site is in the Appraisal Phase, the Operational Term, or the Post-Closure Term)	None (immediate disclosure after NSTA has obtained the information)
	viii. The CS Licence number	
	ix. The name of the operator	
	x. The well number of the planned injection well(s) (if present)	
	xi. The injection start date	
	xii. The water depth	
	xiii. Date of entry into the Post- Closure Period	
Total storage resources information	Total storage resources and associated probability ranges.	Disclosure upon granting of a Storage Permit, at the end of the Operational Term, at the end of the Post-Closure Period

Type of information and samples	Scope	Time period after which information may be disclosed
Geotechnical storage site development information	Storage Permit Application document with commercial or financial information redacted	Five years after date of first injection
Storage formation information	Any report from a study into the subsurface; geology of the strata; structure of the storage formation; the chemistry of the formation fluids in place (e.g. formation water, residual petroleum); how the carbon dioxide may behave in the storage formation, and how it may migrate from the injection point(s)	After determination of the subject licence
Computerised model inputs	Inputs to static and dynamic models (e.g. xyz files of relevant horizons and faults for the static and dynamic frameworks)	Upon entry into the Operational Term of the licence

Type of information and samples	Scope	Time period after which information may be disclosed
	Types of monitoring information and samples include but are not limited to:	
	i. Geophysical survey monitoring	
	ii. Well monitoring	
	iii. Seabed and shallow borehole monitoring	Monitoring report: As soon as the NSTA has obtained the
	iv. Water column monitoring	report.
Monitoring information and	v. Remote sensing monitoring	Monitoring information and
samples	vi. Reports summarising the monitoring carried out over a specific reporting period and detailing any monitoring results	samples: As soon as the monitoring information and samples are discussed in a monitoring report.
	Geophysical survey information	
	to include original and processed information from the latest repeat	
	survey within the succession	
	of multiple surveys as well as	
	reprocessed geophysical survey	
	information of all preceding	
	surveys within the succession of monitoring surveys	

Type of information and samples	Scope	Time period after which information may be disclosed
	i. Name of installation	
	ii. Identifier numbers	
	iii. Type of installation	
	iv. Name of licence and installation operator	
	v. Name of installation owner	None (immediate disclosure
Summary carbon storage installation information	vi. Description provided in any consents process	after NSTA has obtained the information)
	vii.Operational status	
	viii. Any positional information	
	ix. CS Licences and storage sites associated with the installation	
Other carbon storage installation information	Any carbon storage installation information beyond the summary information	After decommissioning of the installation

Annex B: Consultation questions

Well Information

- Q1. Do you agree that well information may be disclosed two years following the date on which the well information was due to be reported to the NSTA (as described above)?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Summary Well Information

- Q2. Do you agree that the above summary well information may be disclosed immediately after it has been obtained by the NSTA?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Well samples

- Q3. Do you agree with the proposal above that samples may be disclosed two years following the date on which they were due to be reported (as defined above)?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Geophysical survey information

- Q4. Do you agree that all geophysical survey information acquired under a CS Licence may be disclosed five years after the date the acquisition is complete as stated during the summary information submission process?
 - a) Please answer yes or no.
 - b) Please explain your answer.

- Q5. Do you agree with the proposal that geophysical survey information acquired under an exploration licence be subject to the time periods set out above?
 - a) Please answer yes or no.
 - b) If your answer is no please comment on when you think geophysical survey information acquired under an exploration licence should be disclosed.
- Q6. Do you agree that the above summary geophysical survey information may be disclosed immediately after the NSTA has obtained the information?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Injection information

- Q7. Do you agree with the proposal that, prior to the end of the Operational Term, injection information may be disclosed after two months from the end of the month to which the injection information relates?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q8. Do you agree with the proposal that, prior to the end of the Operational Term injection information should be disclosed at a high granularity (e.g. by total per day and per wellbore)?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q9. Do you agree that, after the end of the Operational Term of a CS Licence, injection information of any granularity may be disclosed at any time?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Summary storage site information

- Q10. Do you agree that the above summary storage site information may be disclosed immediately?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Total storage resources information

- Q11. Do you agree with the proposal that total storage resources information should be disclosed upon granting of a Storage Permit, at the end of the Operational Term, and at the end of the Post-Closure Period of a CS Licence?
 - a) Please answer yes or no.
 - b) Please explain your answer and include any comments on the frequency of disclosure you might have.
- Q12. Do you agree with the proposal that total storage resources information should be disclosed upon determination of the licence?
 - a) Please answer yes or no.
 - b) Please explain your answer and include any comments on the frequency of disclosure you might have.

Geotechnical storage site development information

- Q13. Do you agree that geotechnical information contained within Storage Permit Applications may be disclosed five years after the date of first injection?
 - a) Please answer yes or no.
 - b) Please explain your answer.

Information on the storage formation and computerised models

- Q14. Do you agree with the proposal that storage formation information may only be disclosed following the determination of the subject licence?
 - a) Please answer yes or no.
 - b) Please explain your response.
- Q15. Do you agree that the proposal that certain computerised model information should be disclosed upon entry into the Operational Term is an appropriate balance of the factors?
 - a) Please answer yes or no.
 - b) Please explain your response.

Monitoring Information and Samples

- Q16. Do you agree that the monitoring report should be disclosed as soon as it is obtained by the NSTA?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q17. Do you agree that all monitoring information discussed in a monitoring report should be disclosed alongside the monitoring report?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q18. Do you agree that geophysical survey information that is part of a succession of multiple surveys (4D) should be disclosed alongside the monitoring report in which it is discussed?
 - a) Please answer yes or no.
 - b) If you answered no, please provide any suggestions for the disclosure of geophysical survey information created or acquired for monitoring.

Carbon Storage Installations

- Q19. Do you agree that the above summary information on offshore installations may be disclosed immediately?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q20. Do you agree that the proposal that any more detailed information about offshore installations may only be disclosed after decommissioning is an appropriate balance of the factors?
 - a) Please answer yes or no.
 - b) Please explain your answer.

General disclosure proposals for information and samples

- Q21. Do you agree that the proposal that any licence information or sample be able to be disclosed immediately after any of the licence events listed above is an appropriate balance of the factors?
 - a) Please answer yes or no.
 - b) Please explain your answer.
- Q22. Are there any other pieces of information or samples that have not been discussed in this document that you think there should be provision for the NSTA to disclose?
 - a) Please answer yes or no.
 - b) If your answer is yes, please detail what you think should be included and provide proposals for the time period after which disclosure may take place.

Annex C: Response coversheet

North Sea Transition Authority	CONSULTATION ON PROPOSED REGULATIONS FOR DISCLOSURE OF CARBON STORAGE INFORMATION AND SAMPLES	
To: NSTA CS Data Disclosure Consultation		
YOUR DETAILS Name: Company/Organisation: Position: E-mail address: Address: Representing:		
CONFIDENTIALITY Please tick below if you consider any part of	f your response is confidential, giving your reasons why:	
Whole response	Name/contact details/position Company/organisation	
Part of the response		
If there is no separate annex, which parts?		
	name or your organisation to be kept confidential, can the NSTA still response including (for any confidential parts) a general summary that renable you to be identified?	
	YES NO	
can publish, except as indicated above.	with this coversheet is a formal consultation response that the NSTA	
However, in supplying this response, I under those which are marked as confidential, in c	rstand that the NSTA may need to publish all responses, including order to meet legal obligations.	
If I have sent my response by email, the NS contents and attachments.	TA can disregard any standard e-mail text about not disclosing email	
Name:		
Signed (if hard copy):		



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