cenovus ENERGY

Report

Project Description:

Cenovus Energy 2026-2038 Jeanne D'Arc Basin

Exploration and Delineation Drilling Program

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H&S Deployed, Atlantic Region

Comments:

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1.0 Introduction

Cenovus Energy Inc. (Cenovus; the Proponent) is proposing to carry out an exploration and/or delineation drilling program on its currently owned Significant Discovery Licenses (SDLs) and Production Licences (PLs) (Section 2c) over the 2026 to 2038 period in the Jeanne d'Arc Basin, on the northeastern Grand Banks. While exploration and delineation drilling on SDLs and PLs are not under the jurisdiction of the Impact Assessment Agency of Canada's (IAAC's) *Regulations Respecting Excluded Physical Activities (Newfoundland and Labrador Offshore Exploratory Wells)* (the Regulations), Cenovus will align with the submission requirements of the Regulations. Drilling activities will be located within the geographic area defined in Schedule 1 (Area of Application) of the Regulations and the associated assessment would be applicable / supportive of these works (see Section 2g).

This document has been prepared by Cenovus for submission to the Canada-Newfoundland and Labrador Offshore Energy Regulator (C-NLOER) under the *Canada-Newfoundland and Labrador Atlantic Accord Implementation and Offshore Renewable Energy Management Newfoundland and Labrador Act* (the Act), where the C-NLOER undertakes an Environmental Assessment (EA) of petroleum activities for which an EA, pursuant to IAA 2019, is not required.

2.0 Information Requirements for the Proposed Drilling Program

This section presents the information required under Section 3 of the Regulations in relation to Cenovus's proposed exploration / delineation drilling program and outlines the details that will inform the review. Concordance with the information required under Section 3 of the Regulations is provided in Appendix A.

2a Proponent Contact Information

Proponent contact information is provided in Table 1.

Table 1 Proponent Information

Proponent	Cenovus Energy Inc.
Address	351 Water Street, Suite 107 St. John's, NL, A1C 1C6
Contact	Steve Bettles, Environmental Assurance Specialist Phone Number (Office): 709-724-4004 Email: Steve.Bettles@cenovus.com
Internet Site	https://www.cenovus.com/Our-operations/Offshore

2b Activity Description

Cenovus is proposing to conduct an offshore exploration and/or delineation drilling program within current SDLs and PLs in the Jeanne d'Arc Basin within the 2026 to 2038 timeframe. Current licence holdings are as follows PL1006, PL1007, PL1008, PL1009, PL1010, PL1013, PL1014, and SDL1008, SDL1011, SDL1012, SDL1017, SDL1018, SDL1019, SDL1020, SDL1023, SDL1025, SDL1026, SDL1027, SDL1028, SDL1029, SDL1030, SDL1031, SDL1044, SDL1045, SDL1054, and SDL1061 (Section 2h; Appendix B). The program may consist of:

- Pre-program shallow hazard assessments
- Up to 20 exploratory (exploration and/or delineation) wells with potential for associated:
  - Vertical seismic surveys
  - Non-flaring well testing
  - Full duration testing (i.e., flaring)

Proposed activities are located in the Jeanne d'Arc Basin, on the northeastern Grand Banks. The proposed activities are not located in proximity to a designated special area, as identified in Section 2l.

Specific well site locations have not been finalized. Cenovus intends to retain flexibility to conduct surveys such as geohazard and well site seabed surveys for shallow hazard assessment, and drill wells anywhere within the boundaries of the identified SDL and PL areas. Individual well locations will be selected based on the results of geological and geophysical interpretations, surveys, and operational considerations at the time of drilling. Water depths within the licence areas are anticipated to range from approximately 80 to 140 m (approximately 110 to 140 m in the White Rose area) and potentially extending 2,000 to 6,000 m below the seabed (i.e., total vertical depth).

Each well in the Cenovus program will involve drilling, well evaluation activities (including potential well testing), and subsequent well suspension or abandonment, as well as associated marine supply and support operations. It is anticipated that appraisal (delineation) drilling may be undertaken based on existing data or depending on the results of an exploration program.

The anticipated duration of each well program is 45 to 160 days, depending on drilling, evaluation programs (well testing), and weather encountered during operations. This timeframe is subject to change based on a range of operational and environmental factors, and activities are expected to occur year-round depending on operational requirements. Well evaluation activities, including well testing, may be undertaken where warranted.

Following completion of drilling and evaluation, wells will be either suspended for potential future use or permanently abandoned, with abandonment carried out in accordance with the requirements outlined in the *Canada-Newfoundland and Labrador Offshore Area Petroleum Operations Framework Regulations* (SOR/2024-25).

Well site surveys (as part of shallow hazard / geohazard assessment) and vertical seismic profiling (VSP) using an airgun array may be conducted as part of pre- or post-drilling activities. Well site surveys may deploy a small array and sonar; they are used prior to drilling to identify and avoid unstable areas (such as seabed instability, obstacles, and shallow gas) and hazards or potential hazards (such as debris on the seafloor and submarine cables) in the immediate vicinity of proposed well locations prior to drilling. If determined to be necessary, further investigation could be conducted and/or the well site could be moved. The VSP is used to assist

in further defining a petroleum resource post-drilling. The array is similar to that employed by two-dimensional or three-dimensional seismic surveys but typically is smaller and deployed in a limited area for a 12- to 18-hour period. If required, seismic survey activities will be conducted in accordance with the Fisheries and Oceans Canada *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment*.

Another component of shallow hazard assessment are seabed surveys (a visual survey of the seabed at potential drilling locations using a remotely operated vehicle or autonomous underwater vehicle), which are typically conducted to characterize seabed features, including identification and location of sensitive environmental features / habitats such as aggregations of habitat-forming corals or sponges and evaluation of benthic species diversity and abundance at each drilling location.

Site surveys are typically conducted with a single supply / support vessel. A typical drilling program will consist of a single mobile offshore drilling unit (MODU) with two to four supply / support vessels, resulting in an average of two to three vessel round trips per week during an exploration drilling program. In addition to marine support, helicopter transportation (based in St. John's) will be required for the transfer of personnel and light equipment to and from the drilling installation. Helicopters will follow the same route as is currently used to access the White Rose Field. During the ice season, additional support may be necessary.

The drilling units and support vessels used in the exploration / delineation drilling program will be equipped to meet the operational and environmental requirements of the project. This includes the capability to implement applicable environmental mitigation measures, as well as safety and emergency response procedures, and to comply with relevant legislation and regulatory requirements.

General mitigation measures include:

- Limited nighttime lighting on the survey vessel (to the extent that it does not affect crew / vessel safety)
- Seabird monitoring and onboard stranded bird checks
- Limiting survey vessel transit speed to a maximum of 22 km/hour (12 knots)
- Marine mammal monitoring during VSPs
- Providing details of the timing and location of the seabed survey to the Marine Communication and Traffic Services for broadcasting and publishing a Notice to Mariners
- Visually inspecting in-water equipment prior to survey start to confirm it is in good working order
- Maintaining onboard spill response equipment and a shipboard oil pollution emergency plan

Cenovus is committed to implementing the standard mitigations consistent with those described in the *Regulations Respecting Excluded Physical Activities (Newfoundland and Labrador Offshore Exploratory Wells)* where applicable. The applicability of conditions will be determined by the C-NLOER on a well-by-well basis.

The White Rose Field has been subject to extensive environmental assessment (EA) and monitoring over more than two decades. This includes the original White Rose Comprehensive Study (Husky Oil Operations Limited 2000), the New Drill Centre Environmental Assessment (LGL 2006) and associated Addendum (LGL 2007), the White Rose Extension Project (Husky Energy 2012) and its associated addendum, amendment, and EA Updates, and the Husky Exploration Drilling Project: Environmental Impact Statement (for three Exploration Licences surrounding the White Rose Field (Stantec 2018) (Table 2).

Table 2 Environmental Assessments Associated with the White Rose Field

Title	Author / Date	Scope	Expiration Date
White Rose Oilfield Comprehensive Study Part 1: Environmental Impact Statement	Husky Oil Operations Limited 2000	Part of the Development Application: Construction, operation, maintenance and decommissioning of a production facility and up to four drill centres and associated subsea equipment, drilling operations within these drill centres, and other related works and activities	2020
Husky White Rose Development Project: New Drill Centre Construction and Operations Program Environmental Assessment (CEAR No. 06-0117410) and Addendum	LGL Limited 2006, 2007	Construction, operation, maintenance and decommissioning of four drill centres and associated subsea equipment, drilling operations within these drill centres, and other related works and activities. Subsea flowlines would connect new drill centres with existing ones which in turn connect to the *SeaRose FPSO*. Two of the five drill centres have been excavated to date, the North Amethyst Drill Centre (NADC) and the South White Rose Extension (SWRX).	2020
Husky Energy Exploration Drilling Project	Stantec 2018	VSP, OSV, and the mobilization, operation and demobilization of MODU designed for year-round operations for the drilling, testing and abandonment of up to ten wells within exploration licences operated by Husky Oil Operations Ltd.	2027
White Rose Extension Project	Husky Energy 2012	EA of construction and operation of a wellhead platform and/or up to three drill centres; tied back to the *SeaRose FPSO*	2042
White Rose Field Revalidation	Cenovus Energy 2020	EA Validation Report provides an assessment of the potential environmental effects of extending the temporal scope of the White Rose Project beyond the original 20-year end date to 2036	2036

Overview of Drill Cuttings Modelling

In 2012, WBM and WBM cuttings thicknesses from 16 wells drilled using a MODU were modelled to support the White Rose Extension Project Environmental Assessment (Husky Energy 2012). Modelling indicated that beyond 500 m, average WBM cutting thicknesses were 1.0 mm (1 km) to 0.3 mm (2.5 km) and average SBM cuttings thicknesses were 0.02 mm (AMEC 2021).

Cenovus's Jeanne d'Arc Basin exploration drilling EA (Stantec 2018) re-ran the model developed for Husky Energy (2012), using cuttings samples from an existing well within the White Rose field. The model output was the total accumulation of WBM and SBM discharge at the end of each of eight wells drilled individually. The depositional footprints from the modelled wells consisted of a well-defined cuttings patch approximately 1 to 10 mm thick (with some portions thick as 25 to 50 mm) located generally within 100 to 200 m of the drill centre. Cuttings thicknesses remained below 1 mm past approximately 200 to 250 m from the drill centres. Approximately a dozen additional thin patches of cuttings of thicknesses up to 0.1 mm were located 500 m from the well.

The modelling conducted for the White Rose area was based on multiple wells. It is reasonable to assume that a single exploration well will result in a measurable cuttings deposition less than 1 km from the drill rig. This is supported by the modelling done for the shallower Jeanne d'Arc Basin well. Amec Foster Wheeler completed drill cuttings modelling for a hypothetical well on the Jeanne D'Arc Basin northwest of the Hibernia platform in 89 m water depth (shallower than the average White Rose water depth). The extent of WBM cuttings was modelled to occur within 2 km of the wellsite. Total cuttings thickness greater than 1.5 mm occur in an area of approximately 250 m x 250 m square. Total cuttings thickness greater than 6.5 mm occur in an area approximately 160 m x 160 m square. Patchy areas above the 1.5 and 6.5-mm thresholds are located within approximately 300 to 800 m from the wellhead. The thicknesses of SBM cuttings beyond 1.5 km all drop below 1.5 mm (Amec Foster Wheeler 2017).

ExxonMobil Canada Properties (ExxonMobil) used the results of Cenovus's Jeanne d'Arc Basin exploration drilling EA modelling to develop the seabed survey of EL1167 (Gale N-66) (ExxonMobil 2023). The post-drilling seabed survey of EL1167 observed cutting depositions 20 m north of the well to 200 m south of the well, with continuous drill cuttings 20 m to 120 m from the well. Measuring plates, installed to collect sediment accumulation (natural and cuttings), recorded cuttings depths of 0 to 1 mm, with the highest accumulation (1 mm) recorded 60 m south of the well centre (ExxonMobil 2024a). The drill waste deposition modelling predictions were verified using both visual observations and measurement plates. Visibly distinct drill cuttings were observed within 200 m from the drill centre and aligned with the models, specifically the combined July 14th and October 1st model prediction. Based on this, a survey completed by Cenovus that is determined to require the support of a drill cuttings model will use the Jeanne D'Arc Basin Exploration Drilling EA model.

Cenovus also prepared an amendment to the environmental assessment to address drill cuttings dispersion and deposition from the West White Rose Platform (WWRP) Cenovus Energy 2023a). Modelling conducted for WWRP was based on the cumulative deposition from 40 wells and indicated that the thickness was above the effect limit of 6.5 mm within approximately 175 m of the discharge. The largest impacted area was the 0.1 to 6.5 mm

cuttings depositional thickness, which was limited around the discharge location within a radius of approximately 1 km.

Overview of White Rose Environmental Effects Monitoring Program (2004 to 2022)

Cenovus's environmental effects monitoring (EEM) program has been implemented since early project operations[1]. The EEM program is a field-based sampling initiative conducted on a biennial (every two years) basis to assess the environmental effects of Cenovus's offshore oil drilling and production activities on fish and fish habitat. The original program design drew on predictions and information in the White Rose Development Plan EA (Husky Oil Operations Limited 2000) and its supporting dispersion modelling studies for drill cuttings and produced water. The design has been amended from time to time based on predictions made in the above referenced EAs (Table 2), supporting modelling studies, and input from stakeholders, regulatory agencies, and an expert advisory group. Results from each EEM cycle are reviewed and reported, with program refinements made as necessary based on regulatory feedback.

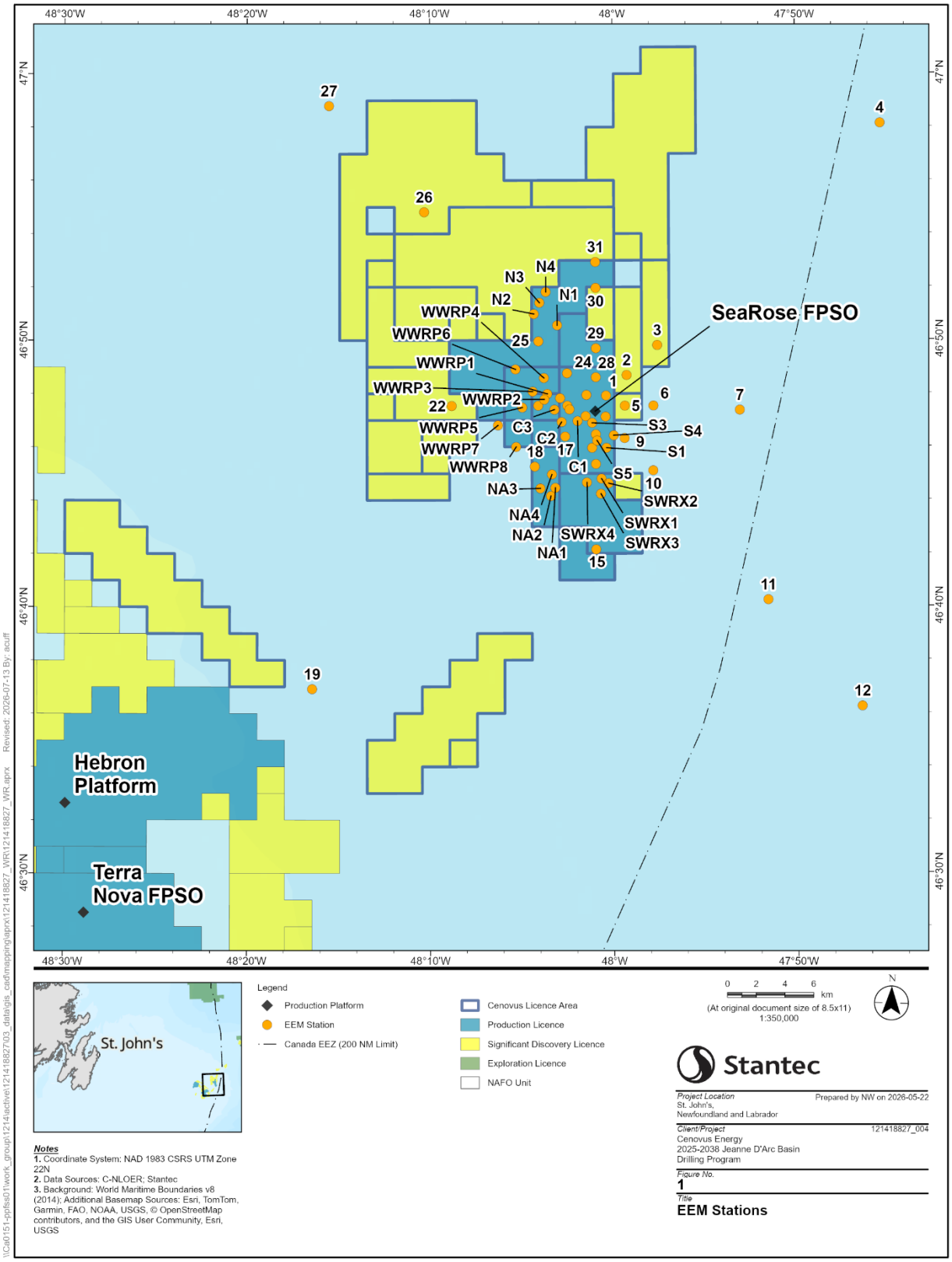
Baseline studies to document pre-development conditions were conducted in 2000 and 2002. Seabed sediments from the White Rose Field have been collected as part of the EEM program from 2004 to 2024. Sediment samples collected as part of the Sediment Quality Component of the EEM program have been processed for physical and chemical characteristics, toxicity, and an evaluation of benthic (seafloor) invertebrate communities.

Figure 1 illustrates the locations of EEM sediment stations sampled between 2004 and 2022[2]. These data contribute to the characterization of baseline environmental conditions in the area and provide context for the proposed activities.

Sediments in and around the White Rose Field are predominantly comprised of sand, typically less than 1% is gravel (Cenovus 2023b, 2024). Given the sediment composition in the White Rose Field, coral communities are not expected to have established. This has been confirmed by over two decades of EEM; corals have not been collected during the sediment programs, nor have they been found in the trawls used during the commercial fish surveys. Photographs of representative cores from relevant PLs and SDLs are provided in Appendix C, respectively (refer to Figure 1 for location of sediment sample stations).

The expected spatial extent of sediment contamination from drilling discharges was predicted through a modelling exercise associated with the White Rose EAs. That exercise indicated that drill cuttings and associated alterations to sediment physical and chemical characteristics could extend to 9 km from discharge source (Husky Oil Operations Limited 2000). In 2022, the concentrations of $>C_{10}$-C_{21} hydrocarbons and barium (the two most affected variables over all White Rose EEM programs) decreased to baseline concentrations within 2.5 and 1 km from source, respectively (Cenovus 2023b, 2024). In general, the estimated spatial extent over which hydrocarbon and barium concentrations were correlated with distance from drill centres was greater in earlier EEM years (2004 to 2010) than in more recent years, likely due to the decrease in drilling over the past 14 years (Cenovus 2024).

[1] EEM Reports are available at https://www.cnloer.ca/environment/projects/ - Environmental Project Reports – White Rose tab.
[2] The EEM program was redesigned in 2023, and several stations were dropped due to proximity to other sampling stations. Figure 1 shows the station layout prior to the 2023 redesign.



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Figure 1 Cenovus Historic Sediment EEM Stations

Toxicity tests continue to indicate that sediments at White Rose are predominantly non-toxic (e.g., no sample was toxic using a laboratory amphipods toxicity test in 2022 [Cenovus 2024]).

Overall, examination of 2022 data suggests that the majority of effects on benthic invertebrate indices (as well as for selected individual taxa) occurred within 2 km of active drill centres, with more pronounced effects within 1 km (Cenovus 2024). These results are consistent with EA predictions and with those noted in previous years. At White Rose, total abundance was reduced to values lower than those noted during baseline collections at five stations near drill centres in 2022, with reductions to less than 75% of the baseline range at only two stations. There was no evidence that the number of taxa (i.e., benthic community richness) was affected (Cenovus 2024).

To date, the EEM program has consistently demonstrated that observed environmental effects remain within those predicted in the EAs, confirming the effectiveness of mitigation measures and supporting the conclusion that the White Rose Field is being thoroughly characterized and monitored from an environmental perspective.

Overview of Other Grand Banks EEM Programs

EEM programs are also conducted around the other Grand Banks platforms (Hibernia, Terra Nova, and Hebron); these platforms are in shallower water depths (82, 95, and 93 m for Hibernia, Terra Nova, and Hebron, respectively). Like White Rose, the sediments surrounding these platforms are primarily sand; however, the gravel, clay, silt, and fines content is higher (Hibernia is 91.8% sand; Terra Nova is 91,7% sand, Hebron is 90% sand) (Suncor Energy 2023; ExxonMobil 2024b; Hibernia Management and Development Company Limited [HMDC] 2025).

The three programs indicated that barium and hydrocarbon concentrations (primary markers of drill cuttings deposition and dispersion) reached background levels within distances predicted by their respective EAs. In 2020, Terra Nova barium and hydrocarbon concentrations were recorded at background levels with 1 and 2 km from the nearest drill centre, respectively (Suncor Energy 2023). In 2022, Hibernia barium and hydrocarbon concentrations were recorded at background levels with 1 km from the platform (HMDC 2025). In 2022, Hebron barium and hydrocarbon concentrations were recorded at background levels with 2.5 and 2 km from the platform, respectively (ExxonMobil 2024b). None of the sediment around the Grand Banks platforms are considered toxic (Suncor Energy 2023; ExxonMobil 2024b; HMDC 2025).

Like White Rose, Terra Nova has reported no corals collected during their programs. During the 2022 programs, Hibernia recorded 6 specimens of a soft coral (Order Malacalcyonacea) collected around its study area (none in its reference area) and Hebron recorded 22 specimens of the same coral from its study area (with 13 specimens collected from the Hebron reference area) (Suncor Energy 2023; ExxonMobil 2024b; HMDC 2025). This coral was found growing on tunicates (i.e., not forming standalone colonies) (Figure 2). It is noted that non-habitat-forming soft corals and sponges were observed during the pre-drilling seabed survey of EL1167 (Gale N-22); however, the substrate is dissimilar to the White Rose area and is primarily fine-grained, with shell hash and boulders and rubble and cobble and gravel (ExxonMobil 2023).

To date, the EEM programs on the Grand Banks have shown that environmental effects of offshore oil and gas production (including drilling) remain within those predicted in the EAs.



Source: ExxonMobil 2024b

Figure 2 Stalked Tunicate with Barnacles and Soft Coral Collected During Hebron 2022 (Year-4) EEM Program

2c Licences of Proposed Activity

The Cenovus 2026-2038 Jeanne D'Arc Basin Exploration and Delineation Drilling Program aims to conduct exploration and/or delineation drilling activities in current PLs or SDLs. Current land holdings are as follows: PL1006, PL1007, PL1008, PL1009, PL1010, PL1013, PL1014, and SDL1008, SDL1011, SDL1012, SDL1017, SDL1018, SDL1019, SDL 1020, SDL1023, SDL1025, SDL1026, SDL1027, SDL1028, SDL1029, SDL1030, SDL1031, SDL1044, SDL1045, SDL1054, and SDL1061 (Section 2h; Appendix B).

2d Stakeholder Engagement

Cenovus has not undertaken engagement at this stage, as an exploration and/or delineation drilling program has not yet been sufficiently defined. Engagement activities will be initiated once the program has been further developed and identified.

2e Geographic Coordinates of Activity Areas

The corner coordinates (latitude and longitude) for the current PLs and SDLs are provided in Appendix B.

2f Planned Wells and Depth

As described above, Cenovus is planning to potentially drill up to 20 exploratory / delineation wells. Specific well locations and depths have not yet been finalized, as Cenovus intends to retain flexibility to conduct drilling within the identified licence areas. Well depths will vary by location but may extend to approximately 2000 to 6,000 m below the seabed.

2g List of Associated Activities

Activities related to the drilling, testing, and abandonment of exploratory / delineation wells, as well as associated infrastructure, structures, and physical works required to support these activities, include the following:

- Routine Activities Associated with Drilling Program:
  - Well site seabed investigation survey
  - Installation of moorings, environmental monitoring buoys, DP transponders to support drilling activities
  - Presence / operation of a mobile offshore drilling unit (i.e., drillship or semi-submersible) including drilling, safety zone, lights and sound associated with the operation of that facility
  - VSP
  - Well testing and evaluation
  - Well decommissioning, abandonment or suspensions
  - Other associated survey activities such as geochemical, geotechnical and environmental surveys
  - Supply and servicing, including vessels and aircraft traffic to and from the drill rig
- Infrastructure, Structures and Physical Works Associated with the Drilling Program
  - Wellhead and steel casing (cemented on seabed)
  - Riser system
  - Blowout preventer
  - Cement plugs following well abandonment
- The project scope includes contingency planning for spill response in the unlikely event of an accidental event
  - A blowout (uncontrolled release of hydrocarbons during drilling)
  - Semi-submersible or drill ship and vessel batch spills and releases (e.g., hydraulic fluid, drilling mud, diesel)
  - Potential loss of hydrocarbons during well testing

2h Site Maps

Figure 3 illustrates the licences in the Jeanne d'Arc Basin and the locations of Cenovus' SDLs and PLs. Figure 4 illustrates the locations of historical exploration and delineation wells and the *SeaRose* floating production, storage and offloading (*SeaRose FPSO*) vessel. Each of the routine activities identified in Section 2g could occur within the SDLs or PLs as illustrated in Figure 3.

Supply and servicing, including vessel and helicopter support, will take place between St. John's and the well locations, approximately 350 km offshore from St. John's. Activities within the licences during the drilling program will be limited to the drilling unit, associated standby vessels, and regular helicopter and supply vessel traffic.

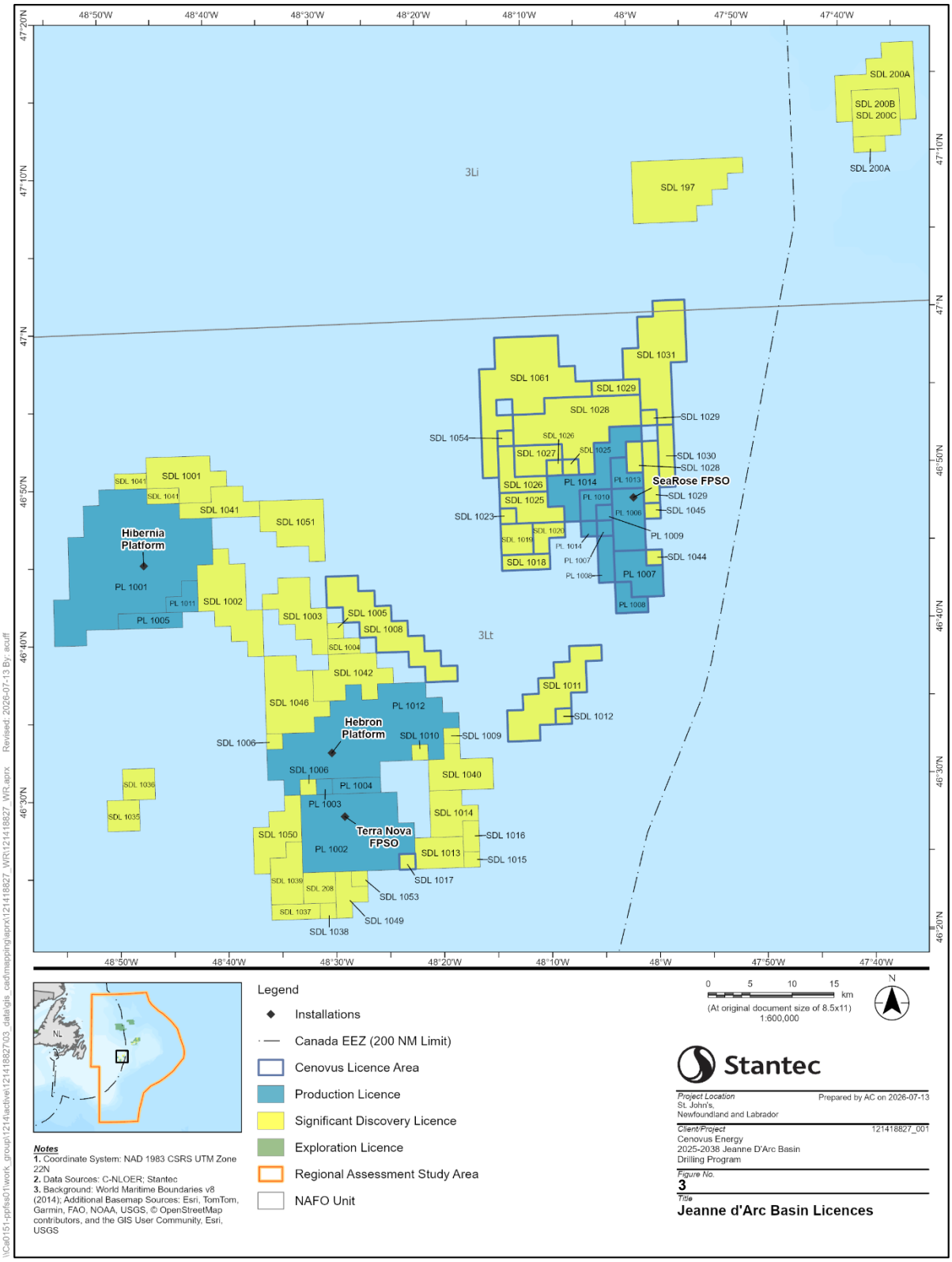
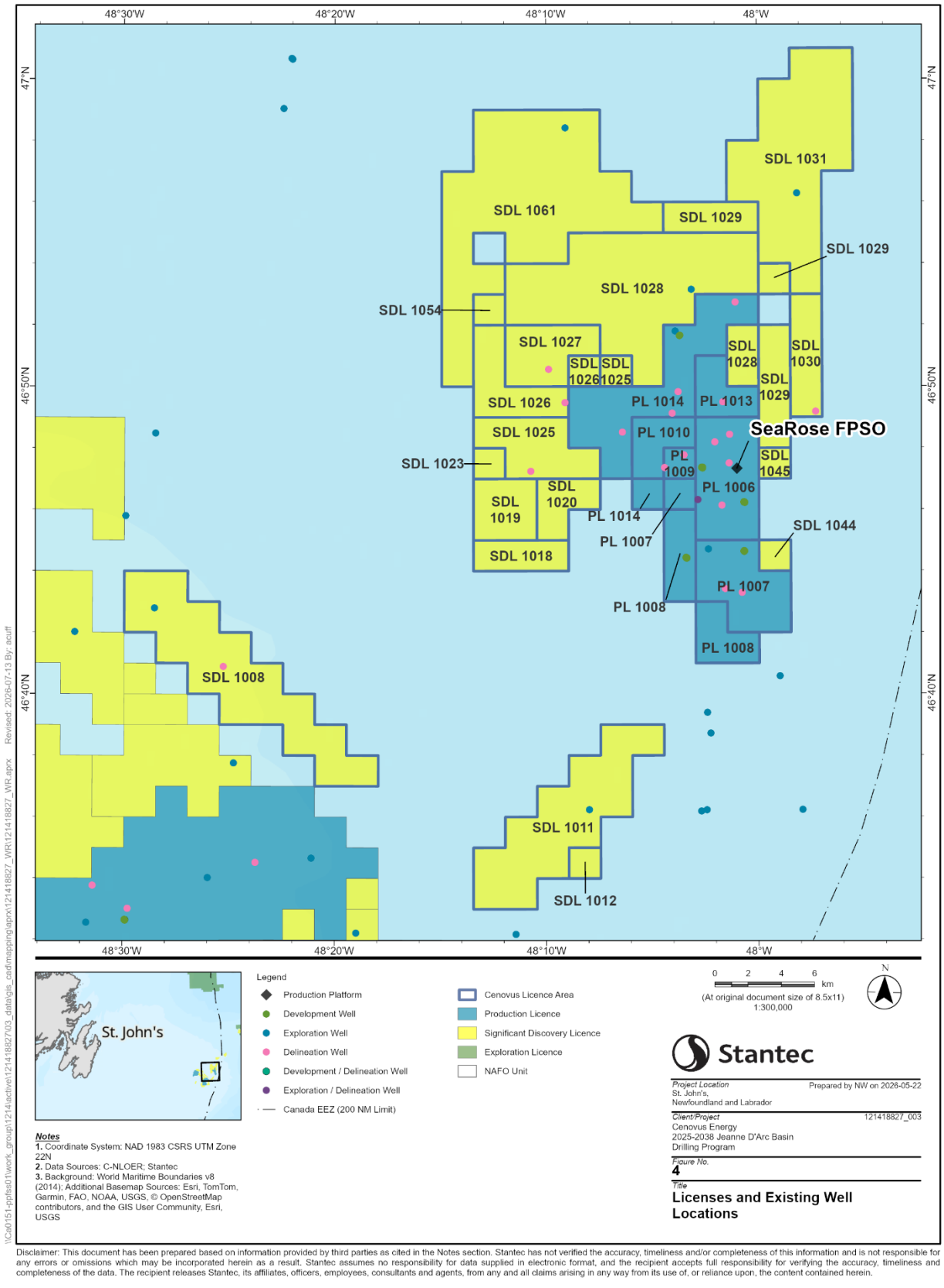


Figure 3 Jeanne d'Arc Basin Licences (Cenovus licences indicated by thick boundary lines)



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Figure 4 Historic Well Locations

2i Description of Drilling, Testing and Abandonment Activities

Overview of Drilling Process

The casing setting depths and sizes vary for each well. The drilling will include riserless drilling (i.e., an open water operation with no conduit for returns back to the MODU) and riser drilling (i.e., closed loop system with fluid returns back to the MODU). The initial sections of the well will use riserless drilling, with initial well sections (conductor and surface strings) drilled using water-based drilling mud (to cool the drill bit as well as transport the cuttings to the seabed). As a result, the associated drilling fluids, excess cement, and cuttings are released directly to the seafloor. A riser system is required to drill to target depth, using either a water-based drilling mud or synthetic-based drilling mud. A blow-out preventer stack is installed, and the riser system transports the associated drilling fluids and cuttings back to the MODU for further processing. Intermediate casing is cemented in place at established depths to reinforce the wellbore.

Each well is anticipated to take up to approximately 45 to 160 days to drill to total vertical depth (2,000 to 6,000 m). Drilling is a 24-hour operation, and the MODU will be lit to the extent required to maintain safe operations. There is potential to drill from up to two MODUs at the same time (i.e., two wells may be drilled simultaneously).

Well Testing

A detailed well testing program must be submitted to the C-NLOER for approval prior to conducting well flow testing. Multiple methods may be used to gather additional details on a potential reservoir and to assess the associated commercial potential of a discovery.

Wellhead Abandonment

Well abandonment procedures will consist of the removal of wellhead and associated equipment. Offshore wells are abandoned in two stages. During the first stage, the wellbore is isolated using mechanical and cement plugs in accordance with existing regulations. During the second stage the wellhead and associated equipment items are removed from the seabed. Removal of the wellhead will routinely involve the use of mechanical cutters.

On some occasions the wells may be suspended for future re-entry. This is similar to the abandonment process described above, but the wellhead is not removed. A suspension cap is installed to protect the wellhead connector.

Operational Discharges

Waste discharges will include water-based and synthetic-based drill muds and cuttings, produced water, grey and black water, ballast water, bilge water, deck drainage, cement, blowout preventer fluid, and air emissions. Discharges will be identified and approved via an Environmental Protection Plan (EPP) filed with the C-NLOER and authorized for use via an Operations Authorization. Waste streams not in an EPP are not authorized for discharge.

2j Financial Support

Cenovus has not received, nor applied for, financial support to conduct a drilling program. There is no federal funding available for such activities. Federal lands are involved and they are administered by the C-NLOER, a federal-provincial agency operating under the *Atlantic Accords Act*. A Drilling Program Authorization and one or more Approvals to Drill a Well are required operate a drilling program in the offshore.

2k Permits and Licences

The following environmental approvals are required for the Project:

- Seabird Handling Permit, issued by Environment and Climate Change Canada
- Request for Review, issued by Fisheries and Oceans Canada

The following drilling approvals are required for the Project:

- Geophysical Program Authorization, issued by C-NLOER
- Drilling Operations Authorization, issued by C-NLOER
- Certificate of Fitness for MODU, issued by C-NLOER
- Approval to Drill a Well, issued by C-NLOER

Other Authorizations

Exploration drilling programs require an Operations Authorization by the C-NLOER. Prior to issuing an Operations Authorization, the C-NLOER requires the following to be issued by operator:

- Canada-Newfoundland and Labrador Benefits Plan
- Safety Plan
- Environmental Protection Plan (including a Waste Management Plan)
- Emergency Response and Oil Spill Contingency Plans
- Appropriate financial authority
- Appropriate Certificates of Fitness for the equipment proposed for use in the activities

A separate Approval to Drill a Well issued by the C-NLOER is required for wells drilled in the SDLs and PLs. This Authorization process involves specific details about the drilling program and well design.

2l Conservation and Enforcement Areas near Activities

Cenovus's EPPs describe the environmental protection measures and compliance monitoring requirements applicable to Cenovus's drilling- and production-related operations to comply with the *Canada-Newfoundland and Labrador Offshore Area Petroleum Operations Framework Regulations, SOR/2024-25*. An EPP is prepared to align with the C-NLOER and CNSOER's Environmental Protection Plan Guideline (C-NLOER and Canada-Nova Scotia Offshore Energy Regulator [CNSOER] 2024a), C-NLOER and CNSOER's Offshore Chemical Selection Guideline (C-NLOER and CNSOER 2024b), Offshore Waste Treatment Guidelines (National Energy Board et al. 2010), and other applicable regulatory requirements. An EPP has its basis in the Cenovus Operational Integrity Management System.

No activities will take place in a Northwest Atlantic Fisheries Organization Other Effective Area-Based Conservation Measure (OECM) Area. The closest OECM Area, the Flemish Pass / Eastern Canyon Coral and Sponge Area, is approximately 70 km east of the easternmost border of SDL1031 (Figure 5).

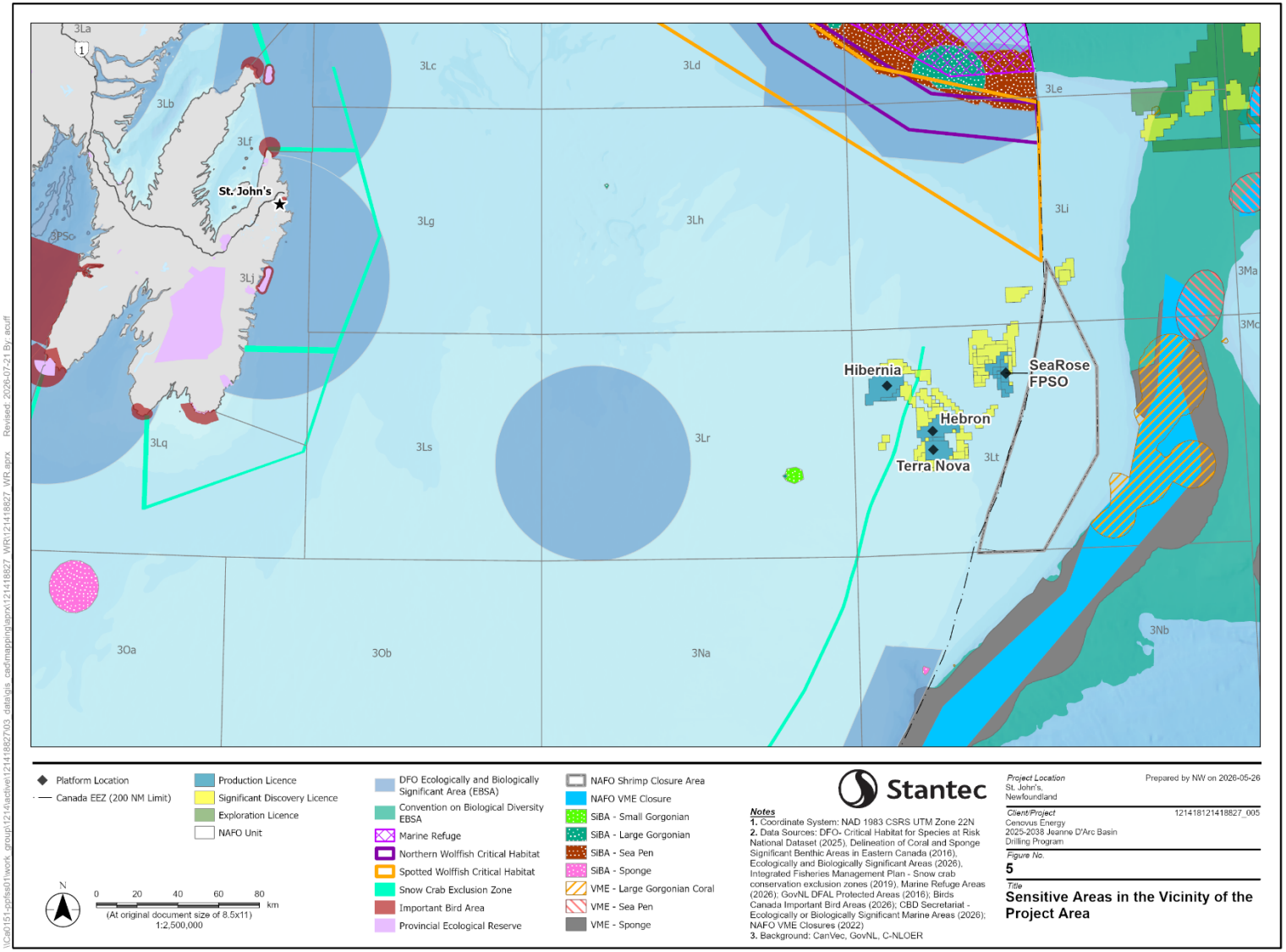


Figure 5 Sensitive Areas in Vicinity of Cenovus Licences

3.0 References

Amec Environment & Infrastructure. 2012. White Rose Extension Project: Drill Cuttings and WBM Operational Release Modelling. v + 43 pp. + Appendix. Available at: https://www.cnlopb.ca/wp-content/uploads/whiterose/drillcut.pdf

Amec Foster Wheeler Environment & Infrastructure. 2017. Statoil Canada Ltd. - Flemish Pass Exploration Drilling Project 2018-2028, ExxonMobil Canada Limited - Eastern Newfoundland Offshore Exploration Drilling Project 2018-2030: Drill Cuttings Modelling{Appendix G]. 131 pp. Available at: https://iaac-aeic.gc.ca/050/documents/p80132/121323E.pdf

Cenovus Energy. 2023a. West White Rose Project (WWRP) Environmental Assessment Drill Cuttings Amendment. WH-HSE-RP-1017. 11 pp. Available at: https://www.cnlopb.ca/wp-content/uploads/whiterose/WWRPeaamendment.pdf

Cenovus Energy. 2023b. *2020 White Rose Environmental Effects Monitoring Program*. Prepared by Stantec Consulting Ltd. for Cenovus Energy, St. John's, NL. Available at: https://www.cnlopb.ca/wp-content/uploads/eem/wr2020eemreport.pdf

Cenovus Energy. 2024. *2022 White Rose Environmental Effects Monitoring Program*. Prepared by Stantec Consulting Ltd. for Cenovus Energy, St. John's, NL. Available at: https://www.cnlopb.ca/wp-content/uploads/eem/wr2022eemreport.pdf

C-NLOER (Canada-Newfoundland and Labrador Offshore Energy Regulator) and CNSOER (Canada-Nova Scotia Offshore Energy Regulator). 2024a. *Environmental Protection Plan Guideline*. Available at: https://www.cnlopb.ca/wp-content/uploads/guidelines/EPPGuideline.pdf

C-NLOER (Canada-Newfoundland and Labrador Offshore Energy Regulator) and CNSOER (Canada-Nova Scotia Offshore Energy Regulator). 2024b. *Offshore Chemical Selection Guideline*. Available at: https://www.cnlopb.ca/wp-content/uploads/guidelines/ocsg.pdf

ExxonMobil (ExxonMobil Canada Properties). 2023. EL1167 Gale N-66 Pre-Drilling Seabed Investigation Survey: 2023 Report. iv + 32 pp. + Appendices. Available at: https://exploration.exxonmobilcanada.ca/

ExxonMobil (ExxonMobil Canada Properties). 2024b. EL1167 Gale N-66 Follow-Up Seabed Investigation Survey: 2023 Report. iv + 47 pp. + Appendices. Available at: https://exploration.exxonmobilcanada.ca/

ExxonMobil (ExxonMobil Canada Properties). 2024b. *Hebron Platform Environmental Effects Monitoring (2022) Volume I – Interpretation*. Prepared by WSP E&I Canada Limited, St. John's, NL. 190 pp. Available at: https://www.cnlopb.ca/wp-content/uploads/eem/he2022eem.pdf

HMDC (Hibernia Management and Development Company Ltd.). 2025. *Hibernia Environmental Effects Monitoring Program (2022) Volume I – Interpretation*. Prepared by WSP E&I Canada Limited, St. John's, NL. 200 pp. Available at: https://www.cnlopb.ca/wp-content/uploads/eem/HMDC_2022-EEM-Program-Report-Volume-1.pdf

Husky Energy. 2012. *Husky Oil Operations Limited White Rose Extension Project*. CEAR No. 12-01-68249. Available at: https://www.cnloer.ca/assessments/whiterose/

LGL Limited. 2006. *Husky White Rose Development Project: New Drill Centre Construction & Operations Program Environmental Assessment*. Rep. by LGL Limited, St. John's, NL, for Husky Energy Inc. Calgary, AB 299 pp. + App.

LGL Limited. 2007. *Husky White Rose Development Project: New Drill Centre Construction & Operations Program Environmental Assessment Addendum*. Rep. by LGL Limited, St. John's, NL, for Husky Energy Inc. Calgary, AB 126 pp. + App.

Husky Oil Operations Limited. 2000. *White Rose Oilfield Comprehensive Study. Part One: Environmental Impact Statement*. Submitted to the Canada-Newfoundland Offshore Petroleum Board, St. John's NL.

National Energy Board, Canada-Newfoundland and Labrador Offshore Petroleum Board and Canada-Nova Scotia Offshore Petroleum Board. 2010. *Offshore Waste Treatment Guidelines*. vi + 28 pp. Available at: https://www.cnlopb.ca/wp-content/uploads/guidelines/owtg1012e.pdf

Stantec Consulting Ltd. 2018. *Husky Exploration Drilling Project: Environmental Impact Statement*. Prepared for Husky Energy, St. John's, NL.

Suncor Energy. 2023. *2020 Terra Nova Environmental Effects Monitoring Program*. Prepared by Stantec Consulting Ltd. for Suncor Energy Inc., St. John's, NL. Available at: https://www.cnlopb.ca/wp-content/uploads/eem/2020tneem.pdf

APPENDIX A

INFORMATION REQUIRED UNDER SECTION 3 OF THE *REGULATIONS RESPECTING EXCLUDED PHYSICAL ACTIVITIES (NEWFOUNDLAND AND LABRADOR OFFSHORE EXPLORATORY WELLS)*

Table A-1 Information Required Under Section 3 of the *Regulations Respecting Excluded Physical Activities (Newfoundland and Labrador Offshore Exploratory Wells*)

#	Requirements under the Regulations	Where Addressed
3	The person or entity that proposes the physical activity referred to in section 2 must provide the following information in respect of that physical activity to the Impact Assessment Agency of Canada at least 90 days before commencing the drilling program:	Section 2
a	their name and contact information and the address of the Internet site on which the information referred to in section 40 of Schedule 2 will be published;	Section 2a
b	a description of the activity;	Section 2b
c	the licence number of any exploration licence respecting the area in which they propose to carry out the activity;	Section 2c
d	a summary of all engagement that the person or entity undertook with the Indigenous groups referred to in section 1 of Schedule 2, including issues raised and how views and issues raised have been considered and any future engagement that is planned;	Section 2d
e	the geographic coordinates of the area in which the activity would take place within the area described in Schedule 1 and the geographic coordinates identifying the area set out in any exploration licence;	Section 2e
f	the number of wells that are planned to be drilled and the planned depth of each well;	Section 2f
g	a list of all activities that are associated with the drilling, testing and abandonment and all infrastructure, structures and physical works that are necessary for those activities;	Section 2g
h	a site map that illustrates the location of the elements referred to in paragraph (g) and the distance between them;	Section 2h
i	a description of the processes that will be used to drill, test and abandon wells;	Section 2i
j	a list of any financial support received from federal authorities in relation to the activity and of any such support for which an application has been made;	Section 2j
k	a list of the permits, licences or other authorizations that may be required by jurisdictions that have powers, duties or functions in relation to an assessment of the activity's environmental effects; and	Section 2k
l	if the activity is proposed in an area that is closed in accordance with the *Conservation and Enforcement Measures* adopted by the Northwest Atlantic Fisheries Organization, a copy of any mitigation measures that were proposed to the Department of Fisheries and Oceans.	Section 2l

APPENDIX B

CORNER COORDINATES OF PRODUCTION LICENCES AND SIGNIFICANT DISCOVERY LICENCES

Table B-1 Corner Coordinates of Production Licences

Licence	Latitude	Longitude
PL1006	46° 44.994' N	047° 59.934' W
	46° 44.996' N	048° 2.935' W
	46° 45.996' N	048° 2.935' W
	46° 46.996' N	048° 2.935' W
	46° 47.996' N	048° 2.934' W
	46° 48.996' N	048° 2.934' W
	46° 48.994' N	047° 59.934' W
PL1007	46° 43.994' N	047° 59.934' W
	46° 43.995' N	047° 58.434' W
	46° 41.995' N	047° 58.434' W
	46° 41.994' N	047° 59.935' W
	46° 41.995' N	048° 1.435' W
	46° 42.995' N	048° 1.435' W
	46° 42.996' N	048° 2.935' W
	46° 44.996' N	048° 2.935' W
	46° 44.994' N	047° 59.934' W
	46° 45.996' N	048° 2.935' W
	46° 45.997' N	048° 4.435' W
	46° 46.997' N	048° 4.435' W
	46° 46.996' N	048° 2.935' W
PL1008	46° 42.996' N	048° 2.935' W
	46° 42.995' N	048° 1.435' W
	46° 41.995' N	048° 1.435' W
	46° 41.994' N	047° 59.935' W
	46° 40.994' N	047° 59.935' W
	46° 40.996' N	048° 2.935' W
	46° 42.996' N	048° 2.935' W
	46° 42.996' N	048° 2.935' W
	46° 42.997' N	048° 4.435' W
	46° 45.997' N	048° 4.435' W
	46° 45.996' N	048° 2.935' W
	46° 44.996' N	048° 2.935' W
	46° 42.996' N	048° 2.935' W
PL1009	46° 47.997' N	048° 4.435' W
	46° 47.996' N	048° 2.934' W
	46° 46.996' N	048° 2.935' W
	46° 46.997' N	048° 4.435' W
PL1010	46° 47.996' N	048° 2.934' W
	46° 47.997' N	048° 4.435' W
	46° 46.997' N	048° 4.435' W
	46° 46.998' N	048° 5.935' W
	46° 48.998' N	048° 5.935' W
	46° 48.996' N	048° 2.934' W
PL1013	46° 48.994' N	047° 59.934' W
	46° 48.996' N	048° 2.934' W
	46° 50.996' N	048° 2.934' W
	46° 50.995' N	048° 1.434' W
	46° 49.995' N	048° 1.434' W
	46° 49.994' N	047° 59.934' W

Table B-1 Corner Coordinates of Production Licences

Licence	Latitude	Longitude
PL1014	46° 46.998' N	048° 5.935' W
	46° 46.997' N	048° 4.435' W
	46° 45.997' N	048° 4.435' W
	46° 45.998' N	048° 5.935' W
	46° 46.998' N	048° 5.935' W
	46° 46.998' N	048° 5.935' W
	46° 46.998' N	048° 7.435' W
	46° 47.998' N	048° 7.435' W
	46° 47.998' N	048° 8.935' W
	46° 49.998' N	048° 8.935' W
	46° 49.997' N	048° 4.435' W
	46° 51.997' N	048° 4.434' W
	46° 51.996' N	048° 2.934' W
	46° 52.996' N	048° 2.934' W
	46° 52.994' N	047° 59.934' W
	46° 51.994' N	047° 59.934' W
	46° 51.995' N	048° 1.434' W
	46° 50.995' N	048° 1.434' W
	46° 50.996' N	048° 2.934' W
	46° 48.996' N	048° 2.934' W
	46° 48.998' N	048° 5.935' W
	46° 46.998' N	048° 5.935' W

Table B-2 Corner Coordinates of Production Licences and Significant Discovery Licences

SDL	Latitude	Longitude
SDL1008	46° 42.997' N	048° 26.935' W
	46° 42.997' N	048° 25.435' W
	46° 41.997' N	048° 25.435' W
	46° 41.998' N	048° 23.935' W
	46° 40.998' N	048° 23.935' W
	46° 40.998' N	048° 22.435' W
	46° 39.998' N	048° 22.435' W
	46° 39.998' N	048° 20.935' W
	46° 38.998' N	048° 20.935' W
	46° 38.997' N	048° 19.435' W
	46° 37.997' N	048° 19.435' W
	46° 37.997' N	048° 17.935' W
	46° 36.997' N	048° 17.935' W
	46° 36.998' N	048° 20.935' W
	46° 37.998' N	048° 20.935' W
	46° 37.998' N	048° 22.435' W
	46° 38.998' N	048° 22.435' W
	46° 38.997' N	048° 25.435' W
	46° 39.997' N	048° 25.435' W
	46° 39.997' N	048° 26.935' W
	46° 40.997' N	048° 26.935' W
	46° 40.995' N	048° 28.435' W
	46° 41.995' N	048° 28.435' W
	46° 41.994' N	048° 29.935' W
	46° 43.994' N	048° 29.935' W
	46° 43.997' N	048° 26.935' W
SDL1011	46° 37.997' N	048° 4.435' W
	46° 37.998' N	048° 5.935' W
	46° 35.998' N	048° 5.935' W
	46° 35.998' N	048° 7.435' W
	46° 34.998' N	048° 7.435' W
	46° 34.998' N	048° 8.935' W
	46° 33.998' N	048° 8.935' W
	46° 33.997' N	048° 10.435' W
	46° 32.997' N	048° 10.435' W
	46° 32.995' N	048° 13.435' W
	46° 34.995' N	048° 13.435' W
	46° 34.997' N	048° 11.935' W
	46° 35.997' N	048° 11.935' W
	46° 35.997' N	048° 10.435' W
	46° 36.997' N	048° 10.435' W
	46° 36.998' N	048° 8.935' W
	46° 37.998' N	048° 8.935' W
	46° 37.998' N	048° 7.435' W
	46° 38.998' N	048° 7.435' W
	46° 38.997' N	048° 4.435' W
SDL1012	46° 33.998' N	048° 7.435' W
	46° 33.998' N	048° 8.935' W
	46° 34.998' N	048° 8.935' W
	46° 34.998' N	048° 7.435' W

Table B-2 Corner Coordinates of Production Licences and Significant Discovery Licences

SDL	Latitude	Longitude
SDL1017	46° 25.998' N	048° 23.936' W
	46° 25.998' N	048° 22.435' W
	46° 24.998' N	048° 22.436' W
	46° 24.998' N	048° 23.936' W
SDL1018	46° 43.995' N	48° 13.435' W
	46° 44.995' N	48° 13.435' W
	46° 44.997' N	48° 10.435' W
	46° 44.998' N	48° 8.935' W
	46° 43.998' N	48° 8.935' W
SDL1019	46° 44.995' N	048° 13.435' W
	46° 46.995' N	048° 13.435' W
	46° 46.996' N	48° 11.935' W
	46° 46.997' N	48° 10.435' W
	46° 44.997' N	48° 10.435' W
SDL1020	46° 44.997' N	048° 10.435' W
	46° 46.997' N	048° 10.435' W
	46° 46.998' N	048° 7.435' W
	46° 45.998' N	048° 7.435' W
	46° 45.998' N	048° 8.935' W
	46° 44.998' N	048° 8.935' W
SDL1023	46° 47.996' N	48° 11.935' W
	46° 46.996' N	48° 11.935' W
	46° 46.995' N	48° 13.435' W
	46° 47.995' N	48° 13.435' W
SDL1025 (West)	46° 48.996'N	48° 13.434'W
	46° 48.999'N	48° 7.434'W
	46° 50.998'N	48° 7.434'W
	46° 50.998'N	48° 5.934'W
	46° 46.998'N	48° 5.934'W
	46° 46.997'N	48° 11.934'W
	46° 47.997'N	48° 11.934'W
	46° 47.996'N	48° 13.434'W
SDL1025 (East)	46° 50.997'N	48° 2.934'W
	46° 50.996'N	48° 1.434'W
	46° 48.997'N	48° 2.934'W
	46° 48.996'N	48° 1.434'W
SDL1026	46° 51.996'N	48° 13.434'W
	46° 51.997'N	48° 11.934'W
	46° 49.997'N	48° 11.934'W
	46° 49.998'N	48° 8.934'W
	46° 50.998'N	48° 8.934'W
	46° 50.998'N	48° 7.434'W
	46° 48.999'N	48° 7.434'W
	46° 48.996'N	48° 13.434'W
	46° 51.996'N	48° 13.434'W

Table B-2 Corner Coordinates of Production Licences and Significant Discovery Licences

SDL	Latitude	Longitude
SDL1027	46° 51.997'N	48° 11.934'W
	46° 51.998'N	48° 7.434'W
	46° 50.998'N	48° 7.434'W
	46° 50.998'N	48° 8.934'W
	46° 49.998'N	48° 8.934'W
	46° 49.997'N	48° 11.934'W
SDL1028	46° 54.998'N	48° 8.934'W
	46° 54.994'N	47° 59.934'W
	46° 48.994'N	47° 59.934'W
	46° 48.996'N	48° 1.434'W
	46° 50.996'N	48° 1.434'W
	46° 50.997'N	48° 2.934'W
	46° 48.997'N	48° 2.934'W
	46° 48.998'N	48° 5.934'W
	46° 50.998'N	48° 5.934'W
	46° 50.998'N	48° 7.434'W
	46° 51.998'N	48° 7.434'W
	46° 51.997'N	48° 11.934'W
SDL1029 (North)	46° 55.998'N	48° 4.434'W
	46° 55.994'N	47° 59.934'W
	46° 54.994'N	47° 59.934'W
	46° 54.998'N	48° 4.434'W
SDL1029 (Centre)	46° 53.994'N	47° 59.934'W
	46° 53.996'N	47° 58.434'W
	46° 52.996'N	47° 58.434'W
	46° 52.994'N	47° 59.934'W
SDL1029 (South)	46° 51.994'N	47° 59.934'W
	46° 51.996'N	47° 58.434'W
	46° 47.996'N	47° 58.434'W
	46° 47.994'N	47° 59.934'W
SDL1030	46° 48.995' N	047° 58.434' W
	46° 52.995' N	047° 58.434' W
	46° 52.996' N	047° 56.934' W
	46° 48.996' N	047° 56.934' W
SDL1031	46° 56.997' N	047° 55.434' W
	46° 56.996' N	047° 56.934' W
	46° 52.996' N	047° 56.934' W
	46° 52.995' N	047° 58.434' W
	46° 53.995' N	047° 58.434' W
	46° 53.994' N	047° 59.934' W
	46° 55.994' N	047° 59.934' W
	46° 55.995' N	048° 1.434' W
	46° 57.995' N	048° 1.434' W
	46° 57.994' N	047° 59.934' W
	46° 59.994' N	047° 59.934' W
	47° 0.0' N	047° 58.434' W
	47° 0.995' N	047° 58.434' W
	47° 0.997' N	047° 55.434' W

Table B-2 Corner Coordinates of Production Licences and Significant Discovery Licences

SDL	Latitude	Longitude
SDL1044	46° 44.994' N	047° 59.934' W
	46° 44.995' N	047° 58.434' W
	46° 43.995' N	047° 58.434' W
	46° 43.994' N	047° 59.934' W
SDL1045	46° 47.994' N	047° 59.934' W
	46° 47.995' N	047° 58.434' W
	46° 46.995' N	047° 58.434' W
	46° 46.994' N	047° 59.934' W
SDL1054	46° 52.996'N	48° 13.434'W
	46° 52.997'N	48° 11.934'W
	46° 51.997'N	48° 11.934'W
	46° 51.996'N	48° 13.434'W
SDL1061	46° 53.996' N	048° 11.935' W
	46° 54.996' N	048° 11.935' W
	46° 54.995' N	048° 13.435' W
	46° 53.995' N	048° 13.435' W
	46° 53.996' N	048° 11.935' W
	46° 52.996' N	048° 11.935' W
	46° 52.995' N	048° 13.435' W
	46° 49.995' N	048° 13.435' W
	46° 49.994' N	048° 14.935' W
	46° 56.994' N	048° 14.935' W
	46° 56.995' N	048° 13.435' W
	46° 58.995' N	048° 13.435' W
	46° 58.998' N	048° 7.434' W
	46° 56.998' N	048° 7.434' W
	46° 56.998' N	048° 5.934' W
	46° 55.998' N	048° 5.934' W
	46° 55.997' N	048° 4.434' W
	46° 54.997' N	048° 4.434' W
	46° 54.998' N	048° 8.935' W
	46° 53.998' N	048° 8.935' W
	46° 53.996' N	048° 11.935' W

APPENDIX C

REPRESENTATIVE CORES FROM HISTORIC EEM STATIONS





Photo Set 1 Representative Cores from PL1006 and PL1007 (refer to Figure 1)

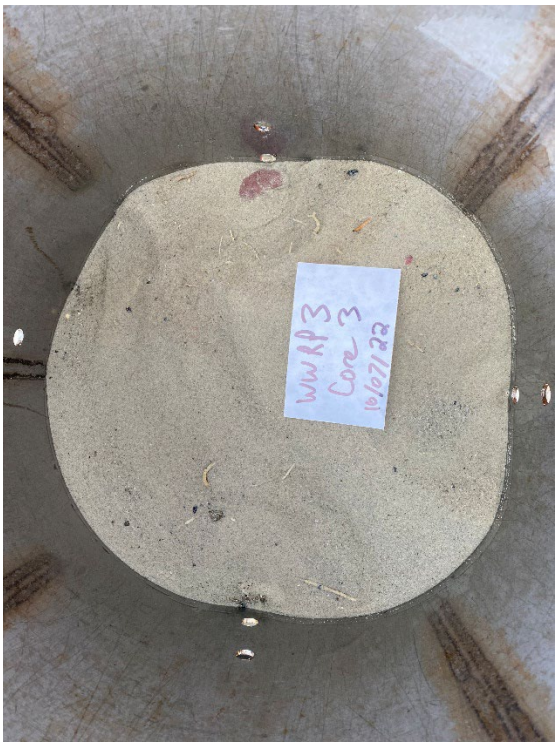




Photo Set 2 Representative Cores from PL1010 and PL1014 (refer to Figure 1)



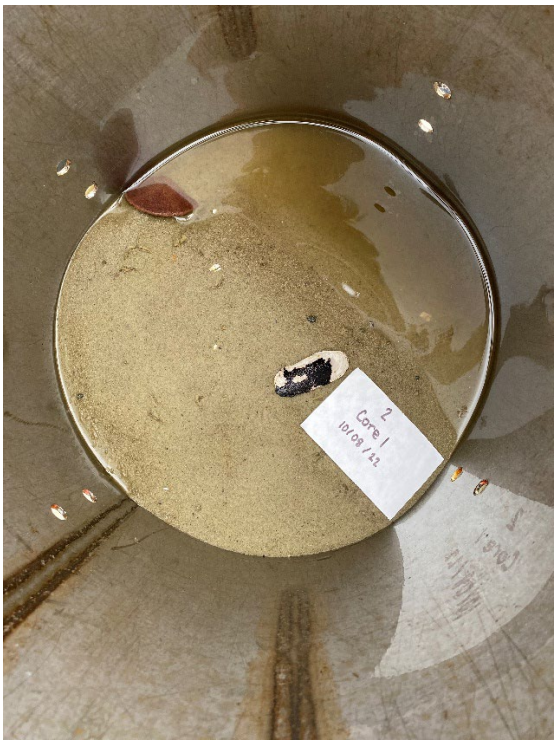


Photo Set 3 Representative Cores from SDL1028 and SDL1029 (refer to Figure 1)



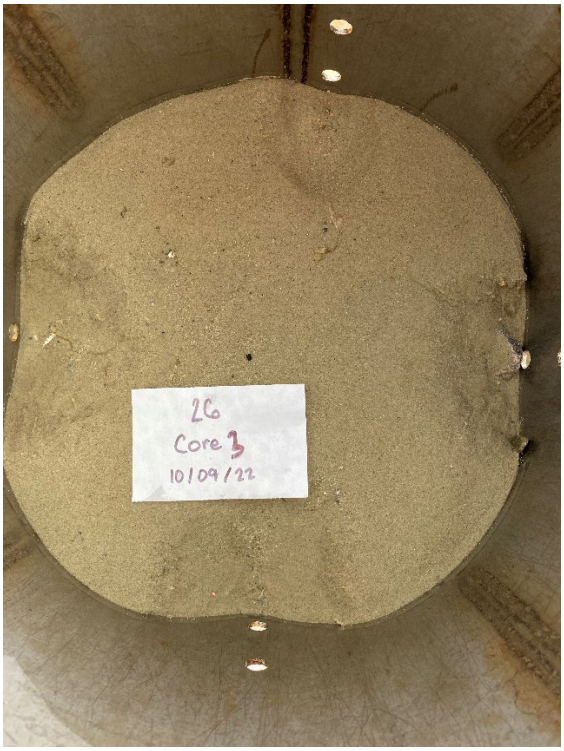


Photo Set 4 Representative Cores from SDL1025 and SDL1061 (refer to Figure 1)