Appendix C2

Water Management and Monitoring Plan

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List of Acronyms and Abbreviations

Abbreviation	Description
CCME	Canadian Council of Ministers of the Environment
CWQG	Canadian Water Quality Guideline
DFO	Fisheries and Oceans Canada
MW	megawatts
NL	Newfoundland and Labrador
NL DECC	Newfoundland and Labrador Department of Environmental and Climate Change
POA	Port of Argentia
PPWSA	Protected Public Water Supply Area
TSS	total suspended solids

1.0 Introduction

Argentia Renewables Wind Limited Partnership ("Argentia Renewables") is planning to develop the Argentia Renewables Project (the "Project") which consists of a renewable energy powered green hydrogen and ammonia production and export facility at the Port of Argentia (POA) The Argentia Green Fuels Facility will utilize energy generated by the associated Argentia Wind Facility, comprising approximately 300 megawatts (MW) of installed capacity from up to 46 wind turbines located throughout private lands owned by the POA. The Argentia Green Fuels Facility will require water for various plant operations, including electrolysis to produce hydrogen.

The selected watersheds and ponds comprise the Town of Placentia's municipal water supply and are situated within the Protected Public Water Supply Area (PPWSA). Clarke's Pond and Larkins Pond form Placentia's operational water sources, with a protected watershed expansion area for Clarke's Pond consisting of Barrows Pond (also referred to as Barrons Pond) and Gull Pond.

2.0 Requirement for Water Management and Monitoring

2.1 Construction Activities

Construction activities are planned to occur in the vicinity of waterbodies, such as culvert upgrades and installations, road widening, transmission lines, and temporary bridges. Buffer zones are boundaries of undisturbed areas or natural vegetation maintained along waterbodies and environmentally sensitive and/or rare receptors (e.g., nesting sites, historic resources). Without adequate buffer zone allowances, waterbodies and environmentally sensitive and/or rare receptors could be adversely affected by construction activities. Additionally, waterbodies can become laden with silt from run-off without adequate buffer zone vegetation. Buffer zone vegetation also provides cover for fish, where present, in various aquatic environments. Appropriate buffer zones shall be established prior to construction activities in order to protect sensitive areas.

Potential environmental concerns associated with stream crossings, culvert installations or upgrades, or widening access roads in the vicinity of watercourses include impacts to fish such as direct mortality, disturbances, and loss of fish habitat. There is also potential for erosion, which may impact water quality of nearby watercourses as well as fish and wildlife habitat. No work will be conducted below the high-water mark of any surface water feature without prior notification and assessment as provincial or federal

regulatory approvals may be required. Watercourse crossings will be constructed in compliance with guidelines from DFO, and any approvals required from NL DECC.

An assessment of soil erosion potential will be conducted at each of the watercourse crossing locations, which will bolster the development of specific erosion stabilization methods and effective sedimentation control practices on a site-specific basis.

Wetlands, generally characterized by hydrophytic vegetation, can vary from a closed peat bog to an open water body dominated by submerged vegetation. Wetlands serve a variety of important ecological functions, including provision of wildlife habitat, and maintenance of surface and groundwater resources and quality. Guidance shall be developed specific to Project construction in order to minimize alteration and/or loss of wetland habitat through direct disturbance, as well and changes in hydrology and vegetation (clearing, potential introduction of invasive/non-native species).

Hazardous substances used during Project construction include, but may not be limited to petroleum, oil and lubricants, hydraulic fluid, and glycol (e.g., antifreeze). The primary concern associated with hazardous substance use is the potential for uncontrolled release to the environment as a result of spillage. Uncontrolled releases of hazardous substances may adversely affect terrestrial and aquatic habitat and species, as well as soil, groundwater quality, and human health and safety. A comprehensive Spill Prevention and Response Plan as well as general guidance for materials handling and storage shall be developed for the Project.

Concrete will be required for Project construction, particularly during the wind turbine foundation installation phase. Cement, concrete additives, agents and aggregates will be used in the production of concrete. The primary potential environmental concern associated with concrete production activities is the effect of wash water released to the environment. While cured concrete has little effect on water quality, fresh concrete and concrete products may raise the pH in receiving waters to potentially toxic levels (i.e., pH level exceeding 9). Since cement is alkaline, wash water from spoiled concrete or from cleaning of concrete equipment is expected to have a very high pH that may exceed applicable regulatory guidelines, even after dilution. Aquatic species may also be impacted by releases of spoiled concrete or wash water as some concrete additives and agents are toxic to aquatic species. Additionally, aggregates, particularly finer sand fractions, can be expected to be washed from spoiled concrete or in wash water discharges. Aquatic life and habitat can be adversely impacted by uncontrolled releases of wash water, chemicals, and sediments.

2.1.1 Surface Water Quality Monitoring

Management processes and procedures must be implemented to limit the potential for adverse impacts to receiving waters, aquatic ecosystems, fish, and fish habitat. Procedures to mitigate and manage drainage and runoff due to project construction activities, address non-point discharges to surface waters, and assess those discharges in terms of water quality relative to their receiving water systems shall be developed prior to Project construction. At minimum, turbidity, total suspended solids (TSS), pH, and visual monitoring will be conducted to monitor water quality before, during, and immediately after instream works. *In situ* water quality samples will evaluate the impact of instream turbidity levels generated by instream construction. Samples for TSS and pH will be collected and sent to a laboratory accredited according to ISO/IEC Standard 17025. Where applicable, surface water quality parameters will not exceed Canadian Water Quality Guidelines (CWQG) for the Protection of Aquatic Life (Marine or Freshwater) set forth by the Canadian Council of Ministers of the Environment (CCME).

Surface water monitoring shall be conducted on a regular basis during construction activities (i.e., when instream works are not ongoing, but activities do encroach on a prescribed waterbody buffer zone). Inspection areas shall include upstream and downstream of any waterways which may be affected within the project footprint. Where required, inspection locations will be modified to reflect current Project infrastructure and activities. All records regarding sampling and water quality monitoring will be kept on file.

2.2 Operation and Maintenance Activities

The Town of Placentia's municipal water supply system currently provides water to the Argentia Peninsula. The Town of Placentia Protected Public Water Supply Area (PPWSA) encompasses Clarke's Pond and Larkins Pond, with Barrows Pond and Gull Pond as backups when necessary. Water supply for the Project will be obtained from the PPWSA, which would require connection to the town's water infrastructure. According to preliminary discussions with Town Officials, it is anticipated that the surface water resources in the Town of Placentia PPWSA can supply all the process water requirements for the Project. Continuous collection of water quality and quantity data through a real-time monitoring station will prove valuable to the Town of Placentia in ensuring availability of water for municipal use. As noted in Appendix W (Mitigation Measures) if it is determined based on water monitoring during Operations that Project drawdown of available water could cause a temporary water shortage or any material water quality changes to the Town of Placentia municipal water supply, Project consumption of water affecting the Placentia municipal water supply would be curtailed until this condition is no longer met.

Wastewater from the Argentia Green Fuels Facility will be processed and discharged to the marine environment. Electrolyzers used for hydrogen production typically require in-line water treatment

technologies to manage and treat water used in the electrolysis process. Water treatment is crucial to ensure the quality of incoming and outgoing water, prevent equipment corrosion, and comply with environmental regulations.

2.2.1 Effluent Water Quality Monitoring

Wastewater from the Argentia Green Fuels Facility will be processed and discharged to the marine environment. Routine wastewater sampling will be conducted at a frequency (e.g., weekly) to ensure compliance with NLR65/03 prior to discharge to the marine environment. Argentia Renewables will ensure that the wastewater contaminant concentrations are within the allowable limits for discharge as specified in Schedule A of **NLR65/03: Environmental Control Water and Sewage Regulations** under the **Water Resources Act.**

3.0 Proposed Management and Monitoring

Planning to properly manage surface water resources prior to disturbance, and conducting monitoring during and after disturbances to surface water related to the Project is used to assess effectiveness of mitigation and management measures, and to identify Project effects that may require further mitigation. Compliance monitoring is required to ensure that applicable regulatory requirements and conditions of permits/authorizations are met, and to verify the accuracy of environmental effects predictions. To this end, the following Table C2-3.0-1 presents an annotated table of contents for the proposed Water Management and Monitoring Plan for the Argentia Renewables Project.

Furthermore, during future operation of the Argentia Renewables Project water level monitoring thresholds (with the basis from the Source Water Hydrology report provided in Appendix C1) shall be developed and prescribed in the Plan as noted in item 8 “Resource Specific Protection Procedures”. Adaptive water management strategies will ensure the protection of Placentia’s PPWSA, will mitigate against excessive drawdown during drought conditions, and will support the Project long-term.

Table C2-3.0-1 Annotated Table of Contents Water Management and Monitoring Plan.

Section	Description
Cover Page	Includes the title (Water Management and Monitoring Plan), corporate owner of the document, Project phase or activity, affected facility or location, and the effective date of the plan.
Plan Control and Revisions	Provides guidelines for document revisions and updates. Includes an approval page with the name, title, and signature of persons responsible for Plan development, approval, and implementation. A record of updates and amendments is provided, as well as the distribution list.
Table of Contents	Provides a listing of sections, figures, tables, and appendices of the Plan.
1. Introduction	Introduces the Plan in the context of the Project Environmental Management Framework. Brief description of the Project location and Project overview including the Registration process and permit requirements.
1.1. Purpose	Describes the purpose of the Plan and why it is required.
1.2. Organization of the Plan	Provides a brief overview of each section of the Plan and appendices.
1.3. Corporate Environmental Policy	Describes Argentia Renewables' corporate Environmental Policy and how it is adapted to the Project to reflect commitments to sustainable development, environmental protection, and health and safety.
2. Regulatory Requirements	Outlines the regulatory requirements that apply to the Project at the federal, provincial, and municipal levels.
2.1. Potential Approvals, Authorizations, and Permits	Lists the environmental approvals, authorizations and permits applicable to site activities and relevant to the Plan. Includes references to the appropriate Acts, regulations, and by-laws.
2.2. Environmental Compliance	Identifies reporting and compliance conditions associated with permits and approvals relevant to the Plan.
3. Scope of the Plan	Identifies the subject matter addressed and the relationship to other plans within the Environmental Management Framework. The potential for overlap / redundancy is described and how this is addressed/resolved. The relationship of the plan to employees, contractors and other entities is explained.
4. Objectives of the Plan	Describes the objectives of the Plan and how it will be used by employees. This includes long term goals, as well as interim objectives and achievable targets.
5. Project Description Overview	Provides an overview of the applicable Site activities by location for the subject phase (Construction Phase, Operation and Maintenance Phase, Decommissioning and Rehabilitation Phase), and schedule/ timing.
6. Roles and Responsibilities	Identifies personnel responsibilities and reporting relationships for environmental monitoring, incident response, reporting, performance evaluation, and approval.
7. Water Management Procedures	Provides descriptions of environmental concerns and sensitivities associated with each subject activity for the applicable Project phase. This is followed by a detailed description of each applicable environmental protection procedure, including documentation and reporting protocols.

Section	Description
	Information on sensitive timing, buffer zones, and other mitigation measures will be incorporated into each description. At a minimum, procedures will address: • Right-of-way clearing • Buffer zones • Erosion control and sediment prevention • Watercourse crossings – fording, culverts, and bridges • Working in or near wetlands • Storage, transportation, and management of fuel and other hazardous materials • Concrete/Grout Handling and Placement • Working in or near marine environment • Plant effluent treatment and disposal • Sewage handling and disposal
8. Resource Specific Protection Procedures	Provides a description of potential environmental concerns applicable to the Project for resources of concern, including: • Fish and fish habitat • Protected Public Water Supply Areas
9. Water Quality/Quantity Monitoring and Reporting (Real-Time and Grab Sampling)	Describes site inspections and compliance monitoring requirements and locations. Identifies personnel responsible for conducting monitoring, schedule for monitoring, types of activities to be monitored, locations and parameters to be monitored, overview of information recorded to track mitigation effectiveness, and procedures for correcting non-compliances. Internal and external reporting procedures are identified.
10. Contingency Plans	Outlines contingency and monitoring plans for unplanned events that could occur. Contingency and Monitoring Plans include: • Fuels and Hazardous Materials Spills • Extreme Weather
11. Contact List	Lists key Project personnel and regulatory contacts.
12. References	Presents a list of references consulted in the creation of the Plan.
Appendices	Documents to accompany the Plan, including site inspection/monitoring/sampling forms, incident reporting forms, and compliance reporting forms.