

## **15 SUMMARY OF FOLLOW-UP PROGRAMS AND COMPLIANCE REPORTING**

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Follow-up programs will be designed and implemented, where warranted, to assess the accuracy of environmental assessment predictions and the effectiveness of mitigation measures. Compliance monitoring will be required to verify the implementation of mitigation measures. This section outlines the proposed follow-up programs and compliance monitoring and reporting for the Project based on the Valued Components (VC)s assessed in the Application.

Aurora LNG will comply with Environmental Assessment Certificate (EAC) conditions and commitments made in the Application, as well as with applicable permits, authorizations, and licences, including required monitoring. An environmental monitor will oversee general construction activities and will facilitate compliance with environmental requirements. The proposed follow-up programs and monitoring are meant to address key concerns raised by Aboriginal Groups, the public, and other stakeholders during the development of the Application and to address regulatory requirements. Additional follow-up programs may be identified through further consultation and engagement.

### **15.1 Roles and Responsibilities**

For each phase of the Project (construction, operations, and decommissioning) an environmental management team will be assembled. The role of this team is to implement the Environmental and Operational Management Plans (EMPs) (see Section 14.0) during each phase, and to confirm that the Project complies with the required regulatory permits, licences, and EAC conditions. The team may include project engineers, environmental monitors, and other qualified professionals. As Project development progresses, follow-up programs and compliance monitoring and reporting procedures may be revised as needed to align with updates to EMPs.

### **15.2 Follow-up Programs**

Follow-up programs are defined under CEAA 2012 as programs aimed at verifying the accuracy of the environmental assessment of a designated project and for evaluating the effectiveness of mitigation measures.

The follow-up programs recommended for the Project will be consistent with the guidance provided in the Canadian Environmental Assessment Agency's Operational Policy Statement (CEA Agency 2011) and the BC Environmental Assessment Office (EAO) Application Information Requirements Template (BC EAO 2015). The follow-up programs will therefore be used to:

- Verify predictions of environmental effects identified in the Application
- Determine the effectiveness of mitigation measures in order to modify or implement new measures where required
- Support the implementation of adaptive management measures to address any previously unanticipated adverse effects

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- Provide information on adverse effects and mitigation measures that can be used to improve and/or support future environmental assessments, including cumulative environmental assessments
- Support environmental management systems used to manage the potential adverse effects of projects.

Table 15-1 lists the follow-up programs recommended by Aurora LNG for the VCs in this EA. The follow-up programs are further described in the following sections.

**Table 15-1 Follow-up Programs**

| Follow-Up Program                                 | Project Phase | Valued Component                 | Application Section |
|---|---------------|----------------------------------|---------------------|
| Great Blue Heron Rookery                          | Construction  | Wildlife Resources (Terrestrial) | 4.7                 |
| Acidification and Eutrophication                  | Operations    | Vegetation and Wetland Resources | 4.6                 |
|   |               | Wildlife Resources (Terrestrial) | 4.7                 |
|   |               | Freshwater Fish and Fish Habitat | 4.8                 |
|   |               | Water Quality                    | 4.5                 |
| Marine Sediment Deposition and Monitoring Program | Construction  | Marine Fish and Fish Habitat     | 4.9                 |
|   | Operations    |                                  |                     |

### 15.2.1 Great Blue Heron Rookery

The Wildlife Management Plan will outline a follow-up program to monitor potential effects of the Project on a great blue heron rookery located west of Dodge Cove, approximately 500 m from the Project development area (PDA) boundary. The purpose of the follow-up program will be to determine if herons in the colony are being affected by Project activities in a manner that is inconsistent with expectations outlined in the Application (e.g., that the colony will persist, continue to use this breeding location, and not be adversely affected by the Project) and to assess effectiveness of mitigation measures. If concerns are identified, existing mitigation measures will be modified or new mitigation measures will be implemented. The rookery is sufficiently separated from the PDA such that Project activities are not expected to affect the heron's use of the rookery and adjacent habitats (see Section 4.7.5).

### 15.2.2 Acidification and Eutrophication

Elevated atmospheric concentrations of NO<sub>2</sub> or SO<sub>2</sub> can lead to acidification (via acid deposition) or eutrophication (via nitrogen deposition) of freshwater and/or soils. The proposed acidification and eutrophication follow-up program includes monitoring of freshwater, vegetation, and soils. The specific requirements of a follow-up program will be determined through consultation with BC MOE.

The purpose of freshwater quality monitoring is to assess the response of waterbodies to Project emissions, compare to predictions made in the acidification and eutrophication assessment, and evaluate the effectiveness of proposed mitigation measures. Similarly, the purpose of vegetation and soils monitoring is to document any effects to vegetation and soils from increased atmospheric NO<sub>2</sub> and SO<sub>2</sub> concentrations, soil acidification, or soil eutrophication in areas where deposition is predicted to occur.

### 15.2.3 Marine Sediment Deposition Monitoring Program

A Marine Sediment Deposition Monitoring Program will be undertaken to monitor the potential accumulation of marine sediment along the shoreline at Charles Point. Marine sediment is predicted to be gradually deposited (approximately 4-5 cm/year) over a relatively small area of intertidal cobble and boulder habitat (approximately 2,500 m<sup>2</sup> – 3,500 m<sup>2</sup>) at Charles Point following construction of the concrete caisson MOF. Marine sediment is not predicted to accumulate in this area following construction of the pile-and-deck MOF option; therefore, this program will not be developed or implemented if the pile-and-deck MOF option is selected for construction. The program will monitor sediment deposition before, during, and after construction of the concrete caisson MOF along permanent intertidal transects. If monitoring indicates that accumulations are driving measurable changes to fish habitat that are considered to constitute *serious harm to fish*, the potential need for additional offsetting will be discussed with DFO.

## 15.3 Compliance Monitoring and Reporting

Compliance monitoring is defined under CEAA 2012 as the verification of implemented mitigation measures.

This section outlines the compliance monitoring and reporting that will be undertaken for the Project as part of its EMPs. In addition to the monitoring commitments made in the Application, these will include the relevant requirements of permits, authorizations, and EAC conditions. A qualified environmental monitor will oversee general construction activities and will facilitate monitoring and compliance with environmental requirements.

Anticipated compliance monitoring and reporting for the Project is listed in Table 15-2 and described in more detail in the following sections.

**Table 15-2 Compliance Monitoring and Reporting**

| Compliance Monitoring and Reporting | Project Phase                   | Valued Components                | Application Section |
|-------------------------------------|---------------------------------|----------------------------------|---------------------|
| Wetland Compensation                | Construction                    | Vegetation and Wetland Resources | 4.6                 |
|                                     | Operations                      | Wildlife Resources (Terrestrial) | 4.7                 |
|                                     |                                 | Marine Birds                     | 4.11                |
| Invasive Species                    | Construction<br>Decommissioning | Vegetation and Wetland Resources | 4.6                 |
| Air Quality                         | Operations                      | Air Quality                      | 4.2                 |
| Greenhouse Gas Emissions            | Operations                      | Greenhouse Gas                   | 4.3                 |
| Fish Habitat Offsetting             | Construction                    | Freshwater Fish and Fish Habitat | 4.8                 |
|                                     | Operations                      | Marine Fish and Fish Habitat     | 4.9                 |
| Marine Water Quality                | Construction<br>Decommissioning | Marine Fish and Fish Health      | 4.9                 |

### **15.3.1 Wetland Compensation**

A Wetland Compensation Plan will be implemented to achieve the goal of “no net loss” of wetland function for ecologically important wetlands within the region as identified in the Federal Wetland Policy. The plan will include a commitment to monitor affected wetlands to confirm that compensation occurs in accordance with the plan and that habitats are functioning as intended. The plan will be implemented in accordance with the Federal Policy on Wetland Conservation (the Policy; Government of Canada 1991), the more-recent regional guidance on the Policy issued by Environment and Climate Change Canada (ECCC; Environment Canada 2014), and the BC Environmental Mitigation Policy and Procedures (BC MOE 2014a and BC MOE 2014b). Potential wetland compensation opportunities will be determined in consultation with ECCC/Canadian Wildlife Service. See Conceptual Wetland Compensation Plan (Appendix U) for details.

### **15.3.2 Invasive Species**

An invasive species monitoring program will be included as part of the Invasive Plant Management Plan. The *Weed Control Act* prohibits the spread of noxious weeds and the BC Oil and Gas Commission (2015) Environmental Protection and Management Guideline requires control of invasive species during all phases of projects.

### **15.3.3 Air Quality**

Project emissions will be monitored and reported to confirm compliance of emission discharge with requirements of a permit condition under the *Environmental Management Act*. Details of this program will be defined through consultation with BC Ministry of Environment and BC Oil and Gas Commission.

### **15.3.4 Greenhouse Gas Emissions**

A Greenhouse Gases (GHG) Management Plan will be prepared that includes a description of relevant GHG emissions reporting requirements for the Project and describe the BMPs, policies and mitigation measures that will be implemented. This will also include Aurora LNG’s responsibilities for managing and reporting on GHG emissions associated with the Project.

### **15.3.5 Fish Habitat Offsetting Plan**

A Fish Habitat Offsetting Plan will be developed in consultation with Fisheries and Oceans Canada, Aboriginal Groups, and key stakeholders to offset any residual *serious harm to fish*, as defined in the federal *Fisheries Act*, that is anticipated to result from Project construction and operations. A monitoring plan will be developed as part of the Plan and will be implemented following construction of habitat offsets to confirm compliance with the *Fisheries Act* Authorization and to monitor and evaluate the long-term success of the constructed fish habitat. Further details are provided in the Conceptual Fish Habitat Offsetting Plan (see Appendix V). The details of the monitoring program, including objectives, schedule, and reporting requirements, will be determined as part of the *Fisheries Act* Authorization.

### **15.3.6 Marine Water Quality**

The purpose of the Marine Water Quality Monitoring Program will be to monitor turbidity and total suspended solids associated with dredging, parameters in effluent discharges according to permit requirements, and implementation of mitigation measures for compliance and effectiveness. Also, permitting requirements under the Disposal at Sea Regulations may include monitoring sediment chemistry at an ocean disposal site following the disposal period. Monitoring during dredging will allow for the timely implementation of mitigation measures by identifying potential effects before water quality guidelines are exceeded.

## **15.4 References**

BC Ministry of Environment (BC MOE). 2014a. Policy for Mitigating Impacts on Environmental Values (Environmental Mitigation Policy). Available at:

[http://www.env.gov.bc.ca/emop/docs/EM\\_Policy\\_May13\\_2014.pdf](http://www.env.gov.bc.ca/emop/docs/EM_Policy_May13_2014.pdf). Accessed: May 2016.

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BC Oil and Gas Commission (BC OGC). 2015. Environmental Protection and Management Guideline. Version 2.1. October 2015.

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<http://ec.gc.ca/Publications/default.asp?lang=En&xml=58A4AECB-A096-458C-B457-0E67CADF911D>. Accessed: June 2016.

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